



LEGISLATIVE ASSEMBLY FOR THE AUSTRALIAN CAPITAL TERRITORY

**STANDING COMMITTEE ON ECONOMIC DEVELOPMENT AND
TOURISM**

(Reference: [Inquiry into drone delivery systems in the ACT](#))

Members:

MR J HANSON (Chair)
MS S ORR (Deputy Chair)
MR M PETTERSSON

TRANSCRIPT OF EVIDENCE

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Secretary to the committee:
Mr H Finlay (Ph: 620 50129)

By authority of the Legislative Assembly for the Australian Capital Territory

Submissions, answers to questions on notice and other documents, including requests for clarification of the transcript of evidence, relevant to this inquiry that have been authorised for publication by the committee may be obtained from the Legislative Assembly website.

WITNESSES

ASKEW, MR MICHAEL CHARLES , Committee member and instructor, Tuggeranong Dog Training Club	21
BURGESS, MR JAMES RYAN, CEO , Wing.....	41
ELFORD, MR PETER , President, Gungahlin Community Council	33
HASSELMAN, DR LYNDAL , Canine Companion Representative, Belconnen Dog Obedience Club.....	21
LAWRENCE, MS CHRISTINE , President, ACT Equestrian Association.....	21
LEWIS, MS ANNE , Life Member, Belconnen Dog Obedience Club	21
MCINTYRE, MS ROBYN , Committee Member, Bonython against Drones Action Group	1
PATULNY, MS GLENYS , President, Tuggeranong Community Council.....	33
SHEATHER, MR NEVILLE , Convenor and Committee Member, Bonython against Drones Action Group.....	1
SHEATHER, MS ANDREA , Committee Member, Bonython against Drones Action Group	1
VINCENT, MS CAROL , Committee Member, Bonython against Drones Action Group	1

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Amended 20 May 2013

The committee met at 9.29 am.

VINCENT, MS CAROL, Committee Member, Bonython against Drones Action Group

SHEATHER, MR NEVILLE, Convenor and Committee Member, Bonython against Drones Action Group

SHEATHER, MS ANDREA, Committee Member, Bonython against Drones Action Group

MCINTYRE, MS ROBYN, Committee Member, Bonython against Drones Action Group

THE CHAIR: Welcome everybody. This is the first public hearing of the Standing Committee on Economic Development and Tourism's inquiring into drone delivery services in the ACT. On behalf of the committee I would like to thank you all for attending this morning.

We will be starting off with Bonython against Drones Action Group, which is the group before us at the moment. We will be having a break at 10.30, moving then to ACT Equestrian Association, Belconnen Dog Obedience Club and Tuggeranong Dog Training Club at 11, then from 11.40 to 12.15 the community councils and at 12.20 Project Wing will be appearing. That is the format for the day.

I draw your attention to the pink piece of paper in front of you, which is the privilege statement. While you are sitting there, just have a read of it. That outlines the privilege attached to this committee. Whilst you are reading that, I will just remind you that proceedings are being recorded by Hansard for transcription and are being webstreamed and broadcast live. Welcome to everybody who may be watching. Before we go to any questions, would you like to make an opening statement?

Ms Vincent: I will start off. I am going to give you a little bit of an introduction and background to how Bonython against Drones started and was formed. I am quite well known throughout the community of Bonython as the area coordinator of Bonython Neighbourhood Watch, a position that I have held for a number of years. And through that I have previously worked with a number of organisations, external bodies, governments, MLAs et cetera on a number of community issues.

Early in 2018 I was inundated with emails, phone calls and talk from residents who got wind of the drone trials commencing. At that stage I really did not know much. I contacted a number of MLAs to source some information and also to express the concern at the number of residents who had contacted me in my capacity as area coordinator.

I really came up against a lot of brick walls. No-one had any real idea what was happening: when things were starting, how long it was lasting et cetera. A lot of residents, including me, were totally surprised and caught unaware by how this was progressing without any knowledge within the area that we lived in.

I was also really concerned and surprised in the early stages at the level of anger and frustration that was coming from the residents, firstly due to the lack of knowledge and consultation about the drone trials but also the frustration with the ACT

government that they could not find out any information. There was nowhere for them to go to address their concerns about the trial. They were also very concerned at the lack of consultation as residents of an area that the trial was being conducted in.

On 28 February I contacted the acting president of the Tuggeranong Community Council to find out if they had any knowledge of it, thinking that as a community organisation they might be aware of what was happening. He also had no idea that drone trials were starting up.

In early March, Project Wing did a presentation at the Town Centre Vikings club. I was there. I spoke for quite a good period to Project Wing. I told them about the concerns that were being forwarded to me as well as my own personal concerns about the drone trials. There were not a lot of people at this event that was held there. Again, I think this was because of the lack of knowledge of residents of what was going on.

Project Wing did say that they had consulted with the residents but I believe that consultation was only that they did a letter box drop in some letter boxes. As I said before, being an area coordinator of Bonython, I have contact with people right across the whole suburb, and there were a lot of people who said that they had no consultation at all, they had no notification of anything that was going on.

Project Wing also did a presentation to the Tuggeranong Community Council in April 2018 and this was the first that a lot of people across the general community of Tuggeranong had heard about the drone trial. They also at the same time held a community picnic information centre at Pine Island recreation area. My husband and I went down there and I think that most of the beachgoers or people down at Pine Island were the ones who attended. We still have a community who did not know a lot.

I did liaise directly with the Project Wing staff, and this was through emails, through telephone calls and through face-to-face discussions with them. At the time, on all the questions I put to them, they were really evasive in their answers. I even asked them questions about time frames for the trial, and I did not get a response from them when it was starting and when it was going to be completed. I asked them who was managing the trial, and they were very evasive in their answers even then. Even I, as a community representative, could not get or could not source any information about the terms of the trial.

My main charter as the Neighbourhood Watch area coordinator is security and safety. However, following a close second to that is to encourage close neighbourhoods and connected communities. For 10 years I have worked very hard to promote this throughout the Bonython area.

I went away on holidays in July and August last year and I received numerous phone calls while I was away from people—I did not have an email account while I was away, so it was just phone calls—and again I was surprised at the frustration and anger that residents were feeling.

I continued to help out the residents in trying to source information about the terms of the trial in a community role until late August when I approached Nev Sheather about starting up an action group to help residents and also to support residents; to the best

of the knowledge that we were trying to source, to provide a channel of clear communication on all information through weekly bulletins, a Facebook page and an email account; to also provide a single point of contact for people to come to us and talk to us about what was happening by, importantly, allowing residents to share their thoughts and concerns via social media on what was happening because they had nowhere to go.

The other concern was that there were a lot of people who were getting very agitated and becoming aggressive in their talk towards Wing; so we were also very concerned in calming people down and encouraging them to stay within the boundaries of the law. From there the committee grew to six people, and the committee just went on and on in their work.

I can personally say that I know the impact that the Bonython trial has had on residents. At one of my meetings one of my members actually broke down in tears and had to be consoled at the meeting. This was, again, the level of anxiety that people were experiencing as a result of the trial.

I even worked an event with ACT Policing in my Neighbourhood Watch role, and two members of the public at different times at this event came up and approached the police to ask about the drones. They knew I was involved in it locally; so they referred them over to me and the police were actually standing next to me. And people were saying, “Unless something is done about this, I am going to shoot them down.” This was quite alarming, that people would make these sorts of revelations in front of police officers.

I also became really irritated that all the work that I had done to build a community and a village-like atmosphere in the suburb was being undone by the effects of the drone trial. People who had previously been friends, neighbours, were now not talking to one another. In fact, they were pitted against one another and they were becoming quite angry with just the normal neighbourhood relationships. I found many unwilling participants in this trial.

Trying to explain that to people at Project Wing and hitting doors of trying to explain that to anybody who was under any governance of the trial was just impossible. There was nothing at all, therefore, for me to go to in my roles as committee member and as Neighbourhood Watch person and also for the residents. I will pass over now to my colleagues.

Mr Sheather: As Carol said, I was asked to be on the committee and convene the committee, and I have ended up being the sort of media tart for the committee on news and things, which has been very stressful for me. It is a role I never thought I would do, and I never wanted to do, and it has been forced onto me. My level of personal stress for doing this is typical.

People stressed in the neighbourhood when the drones started flying. As Carol said, the drones started flying and many people were totally surprised when this huge two-metre drone with its incredibly noisy sound suddenly flew over there. People had not got any notice about it, despite what Wing have put out. Wing put a glossy advertising brochure into people’s letterboxes and not in boxes that had “no junk

mail”. Only a small number or proportion of people got it, because most people in our suburb have “no junk mail” stickers. So most people got completely taken by surprise when the drones started flying.

I have got down here that the Bonython trial was ill conceived, ill planned, ill conducted and ill controlled. That is totally how it worked. Wing and other bodies such as CASA have consistently said that the people involved in this trial are what they call the testers, the people who get the deliveries. That was totally untrue, because the people involved in the trial were hundreds and hundreds of residents in Bonython where the drones came over. You cannot deliver to somebody’s house in the middle of Bonython without flying over everybody else’s house, so all the residents of Bonython were the guinea pigs in this trial.

What was the major aim of the trial? The major aim of the trial that has been put out by CASA and the others has involved testing of the safety software, the testing of the drones being mainly about the safety of the drones operating in a residential environment. We, the residents, were the guinea pigs for these huge drones. The safety systems were being tested over our heads. What right did anyone have to do that? What right do they have to test these huge drones over our heads in a suburb? No right at all as far as I am concerned. If they want to test safety systems for drones, they should do it somewhere else right away from people. In fact, that is what they have been doing in America; they have been testing drones away from people, not over people’s heads, residents’ heads.

We have reported many incidents to CASA. There have been incidents we have on record of drones coming down in somebody else’s driveways, a number of driveways, a number of places. Wing call those “controlled landings”; we call them “unplanned landings”. If you want to be really uncharitable, it is a “controlled crash”. You are sitting in your lounge room; you suddenly hear a loud whirring noise; you look out and there are drones coming down on your driveway. We have videos of the drones dropping a package on top of a car on a driveway and bouncing off on the driveway. We have people who have come home from a weekend away to find a splattered delivery box on their driveway. We have videos of magpies attacking the drones. There are many eyewitness accounts of birds, magpies, attacking the drones.

Apparently none of this is of any concern to CASA. They have given it a complete 100 per cent safety rating success.

I would point out that this is a limited number of flights. We are talking about no more than 100 flights on a day, probably fewer than that most times. Wing are talking about ramping this up to 11,000 flights a day in Canberra. When I say “flights”, that would be 11,000 deliveries, so that would be 22,000 flights, because they have to go there, deliver, and come back. When I am sitting at home in my backyard and a drone flies overhead delivering, if there are 20, 25 or 30 deliveries in a day, that is double that amount of flyovers.

It is incredible. I have had to get up, get in my car and drive out of the suburb. We have had people tell us that they started going away on weekends from Bonython. They had to leave their own houses, leave the suburb, to get away from the drones. That is an incredible situation to be in. And all this for a few people who wanted

deliveries.

We have talked about having tremendous economic benefits. AlphaBeta put out a paper saying they are going to make untold billions of dollars for Canberra. That is extrapolating things to the nth degree. As I say, they want to have 11,000 flights, which is an incredible number to think about.

Their own paper, their own glossy brochure, talks about the way they are going to make this money: to take business away from other people. At the bottom of pages 7 and 8 in the AlphaBeta paper, it talks about taking business away from Uber, Uber Eats and Deliveroo.

Going to the net benefits, I have read a lot of other submissions, and other people have pointed this out, saying, "We are going to make money out of the drone delivery business." All these other businesses are going to lose money. Who works for these businesses? Mainly young people who are delivering. These young people are going to be out of jobs. What is the net benefit? The net benefit is going to be much less than what they are spruiking, what they are putting out.

And these are starter jobs for young people. If you have kids, you know that they go into fast food, McDonald's or whatever, and they start delivering things. They might deliver pizzas or whatever. If delivery drones take over, all these other businesses are going to be out of jobs.

It is a similar situation to Uber taxis or Uber cabs starting up. They did not create a new business; they did not create something that was not there previously. All the Uber drivers have done is take business away from the taxis. Is there a net benefit from this?

The government and Wing have stated that they want to bring Google services to Canberra. What has that got to do with a drone delivery service? Google have a headquarters in Sydney. They do not deliver. They do not have delivery drones. Can anyone point out anywhere in the world where Google have set up that where it is depending on having delivery drones? There is not. If Google wants to come to Canberra and do research and set up a business, fantastic. But there is no nexus between having delivery drones and having a Google set-up. They should set up here; it would be fantastic.

Let me just make a point about drones, as we keep getting accused of being an anti-drone group. We are not an anti-drone group. We are anti noisy, horrible, invasive delivery drones. A couple of weeks ago we had Evoenergy come out and give us a demonstration of the drone that they are going to fly along power lines to inspect the power lines. That is the same drone that got shot out of the sky by a farmer. We said, "Fantastic." This is a much smaller drone; you can hardly hear it. They have all these privacy controls. They have everything. We say, "Go ahead Evoenergy. We think it is a great thing in Bonython if you inspect the power lines by using a drone." So we are not anti drones; we are just anti these monsters.

Wing set up their trial base on the other side of Bonython, in Greenway, next to the dog training area. Under FOI we have got a document of the initial assessment of that

area. Part of that, on page 15, sets out the zoning issues applicable that are supposed to be looked at when you are given approval to use this site. They included the effect of developments on residents, including noise, privacy and amenity of adjoining residents. Adjoining residents? You could stand where the Wing will fly from and see houses. The residents are just there. Yet nowhere in that document, nowhere in that approval, were those considerations for residents—noise, privacy and amenity of adjoining residents—considered. That part of the zoning requirements was just completely ignored.

If you look at Wing's submission, and you look at their stuff, you will see that they do not give a decibel reading on their drones. If you look at their videos, you will hear lovely music playing when you see the Wing preparational videos about their drone service. We have measured the noise at over 80 decibels. The normal thing for suburban noise is somewhere around 30 to 40 decibels. Over that, people start jumping up and down and complaining. With these drones, when they are hovering, when they are coming down, their noise is over 80 decibels. It is an incredible amount of noise. They say that they are developing a new quieter drone. It has not happened. There is no new quieter drone. If they start flying from Mitchell, it will be noisy drones.

People who do not live in Bonython, say to us, "What are you complaining about? We have seen drones in the park, and they are pretty quiet and small. They are harmless little things, very cute." Then we play them the video; I think the committee has heard the videos of the drones. They are nothing like the ones that you buy from Jaycar or somewhere. They are very loud.

Apart from the noise, people's second point of complaint has been the privacy aspects. These drones are capable of carrying cameras. Wing have said, "We are very responsible. We do not take footage. With any footage we do have you cannot really see anything." They have told us—they have said to the Tuggeranong Community Council—that they will send this footage overseas, back to their base in California, for research purposes only and store it for 30 days and then destroy it. We have absolutely no guarantees of that. We have only their word for what they are doing. There are no legal requirements on them to do anything with it, as there is a black hole in regulations about drone footage, drone videos and drone pictures.

They quoted in their submission that they have a stringent privacy policy for Wing and for Google. There have been lots of stories in the media, and overseas, of Google, and other companies whose business it is to gather data, being fined billions of dollars for data breaches. Yet they say, "Trust us." How can we trust them? Why would we trust them? Why would we? If they have a privacy statement and one day it says one thing, there is nothing stopping them the next morning totally changing that privacy policy because it is not legal. Before anything, if we are going to say that drones should operate, we need legislation about privacy and about what happens to the footage, at the very least.

That brings up another point. CASA has very stringent rules for anyone who wants to fly a drone. You cannot fly them within a certain distance of people. You cannot fly them in certain places. You cannot do this, that and everything else. That is for safety reasons. They are for the safety of people down below on the ground. For this trial,

CASA waved virtually all of those safety requirements. “Yes, you can bring in your drone hovering over people’s heads.” “Yes, you can fly at a low altitude.” “Yes, you can do all these things.” The only reason for this trial, and the only reason a delivery service can work, is if CASA approve a total rejection of the normal safety requirements that they have for drones. These rules were just waived for the trial.

If the drones go ahead in Mitchell, there is no set-down legislation, no regulations, to control them. There are only temporary regulations that CASA have approved. Why should they go ahead on that basis? Why should it not be under scrutiny? Why shouldn’t the federal parliament, which this would be, make regulations that are enforceable and that have to be abided by? Why should Wing have an exemption that nobody else has?

Of course, if Wing has an exemption, Amazon are looking at coming in. Australia Post have also talked about it. There are other drone companies. If Wing are allowed to fly up to 11,000 flights a day, like they want to, and Amazon come in and want to fly 10,000 flights a day, and Australia Post want to do something else, what sort of city are we going to live in? It will be like one of those science fiction movies. And the science fiction movies I am referring to are all really bad ones where the ecology has collapsed and everything and there are drones flying around everywhere. Is that what we want to live in?

People want quality of life. Only this week in Allhomes there was a story about people in Canberra looking for homes where they have peace and tranquillity and a nice quality of life. This is what sells houses in Canberra. If we have the delivery drones go ahead, people will be streaming out of Canberra. Why would anyone want to live in drone city? This is an incredible state of affairs. Just because a new technology is available, that is no reason to bring it in. You have to weigh up whether it is a disruptive technology, like these drones are, or good technology.

Are people against it? We have consistently said that in the publicity they use the word “some”. They say that “some” residents in Bonython were against it: “some”, “some”, “some”. We say that 80 per cent of residents were against it. We know that for a fact because we did a doorknock. We had some of the ladies here sitting in the audience and lots of other people do a doorknock around virtually all of Bonython to get signatures for the petition that we presented to the Assembly. There were 1,024 signatures. The feedback from all our doorknockers was that at least 80 per cent of residents did not want the drones. Eighty per cent of residents in Bonython wanted the drones to go.

Mark Parton has just walked in. Mark did his own doorknock. He also found that the majority of people from his doorknock were against the drones. He put that on his Facebook page.

There have been other polls. The RiotACT, the ABC and the *Canberra Times* have all done polls, which were not just Bonython exclusively but Canberra wide. They have found 65 to 66 per cent against the drones in their polls.

People do not want the drones. If this goes ahead, it will be forcing people to take part in living under the drones. From all our indications, through everyone we talk to, the

great majority of people, especially the people who have experienced the drones, do not want the drones.

THE CHAIR: We might move to questions now, if that is all right.

Ms Sheather: Can I say something quickly?

THE CHAIR: Yes, quickly, because I am keen for us to be able to ask a couple of questions.

Ms Sheather: I would like to say that there is no regulatory oversight of these drones. One of the issues we had—and Carol mentioned it—is noise. The EPA exempts drones. CASA is not responsible for noise. Airservices Australia is not responsible for noise. There is no-one responsible for the noise. We had to go back to Wing, the very company that did it.

With the noise issue, there is a lot of research about the impact on people, the mental health of people, around the noise level. It is not only the loudness; it is the pitch, the sound, the tone and the repetitive nature. It has been known to cause insanity. Please be careful when you are looking at these major impacts. That is why so many people reacted, because it is an individual thing.

I am sure some of the other groups that are submitting, especially the Belconnen and Tuggeranong dog clubs, will pick up the impacts on the wildlife. Residents have noted it, but these community groups will validate our statements.

Ms McIntyre: I did have some things on the regulations and technicalities of the trial.

THE CHAIR: You will need to be very brief.

Ms McIntyre: I will be.

THE CHAIR: Maybe we can catch up at the end, if we do not have any further questions.

Ms McIntyre: The main thing is that we have a video to play that was taken from my backyard. It is 30 seconds long. The gentleman here has it ready to go. It was taken inside my house, then it moves to outside the house. It was taken by a direct neighbour 30 metres away from my home. The sound is the thing; it does not matter about the picture.

A video was then shown.

Ms McIntyre: This was inside my home one Saturday morning. This is the drone delivering to the neighbour, and that is the drone leaving and flying over my backyard. On the last day of the trial, in February, that happened over my backyard 40 times because the neighbour got 20 deliveries. This is what is going on. I believe that, if you do not hear the noise, you cannot understand why people are so upset and angry. All of the words are a waste of time, in my opinion.

The other thing that we are concerned about is this: this is a diagram of the exemption that CASA gave to Project Wing. The blue circle represents how all other drones in Australia have to comply; they cannot go within 30 metres of a person. The pink cylinder is the exemption given to Project Wing via CASA. You cannot go within five metres overhead and two metres beside a person without their permission. We think that is quite questionable.

There are other issues of concern to us related to the ACT government's abrogation of its responsibility for regulation and compliance enforcement of the trial. They allowed Project Wing to self-monitor, self-assess and self-report. We have talked about no government agency being responsible for noise and privacy. These matters are of great concern to us.

Project Wing is not allowed to operate this close to people in its own country, the USA, because the FAA deems it to be unsafe. That is why people feel unsafe, violated and angry. They do not like drones carrying hot liquids and heavy objects flying so close over their and their family's heads and taking photos of them. People feel that their human rights have been violated.

I was going to talk about a letter from the minister in response to a BAD—Bonython Against Drones—letter, where he talks about the exemption that CASA gave them. He says, “This exemption allows Wing to operate within 30 metres of a person.” That is from the federal minister for transport, and that is incorrect, because I have just explained what it actually is.

The other issue is that there was a federal parliamentary inquiry into regulatory requirements that impact on the safe use of remotely piloted aircraft systems—RPAs—unmanned aerial systems and associated systems. It was tabled in parliament. The federal transport department said, “Yes, we agree with this.” They said that we need—and I quote:

... a whole of government approach ... to develop a clear view on those matters that fall outside of the Civil Aviation Safety Authority's remit: including privacy, noise and environmental impacts. It is the intent that this work will help to clarify for the public, the separate areas of responsibility in relation to drone issues.

Why did the ACT government instigate the Project Wing Bonython drone trial in full knowledge that such gaps existed in regulations pertaining to drone operations in Australia, thereby knowingly jeopardising the safety of people?

I would like to finish by reiterating what was said in one of my neighbour's submissions to this inquiry, as I feel it reflects community sentiment:

- (1) What are the Bonython trial outcomes?
- (2) Why is there a lack of transparency?
- (3) Who is selling off our privacy and peacefulness, and why?
- (4) What are the perceived benefits of this particular service to the people?
- (5) What money is exchanging hands in regard to this business?
- (6) Why is there a lack of recourse for people to express their opinions of this business?

(7) This is not a way of ensuring support for a government that so poorly initiated and thrust this on our suburb.

THE CHAIR: Thank you for your very comprehensive submission and for your opening statements today. There are a couple of issues that you may or may not be aware of. CASA will be appearing before the committee next week to talk about some of those safety and regulation issues with regard to noise and other factors. We will certainly put some of the questions that have been raised to CASA.

Be aware that Project Wing will be appearing later today. They have developed another drone, in terms of its noise. I have visited and have heard the difference between the first and the second. I am not making any judgement. So that you are aware, Mr Sheather, you said that they have not got another drone; there is another drone that has a different noise. That is for your information.

Ms Sheather: We sent a copy of the video—the before and after—to a specialist. It is slightly less in loudness and in tone, but all of the other underlying issues around noise still exist with that drone.

THE CHAIR: There seem to be some principal issues here. There is noise, obviously, and safety and privacy. If they are addressed to your satisfaction, so that the noise becomes reduced to a certain level, with some guarantees around privacy in regulation and there is an assurance of safety, do you see that addressing those issues would result in a more favourable outlook?

Mr Sheather: No.

THE CHAIR: Or is it just the fact that these things should not be flying? Even if these issues are addressed, do you see it getting to a point where you would see the community supporting it: if it were quiet, if there were legislation around privacy, and if there were an assurance that the safety issues were addressed?

Mr Sheather: No, in the sense that this trial in Bonython was with a limited number of flights, and it sent people bonkers. The proposal from Wing is to incredibly increase the number of flights, and people are just so upset about the intrusiveness of these drones. People are in their backyards and in their houses, and these things are flying. If some of the aspects such as noise were improved, this would be cancelled out by the incredible number of drones that they propose to fly.

THE CHAIR: Basically, you are saying that, as an organisation, even if the issues that you have raised—noise, safety, regulation and so on—are addressed, and addressed in full, you still would not support commercial drone delivery systems in the ACT?

Mr Sheather: No. How could the safety aspects be addressed if there will be a massive increase in the number of drones? If we have a number of delivery drones flying, if we have kids flying drones, if we have other professional people flying drones, if we have people who want to do mischief, people who want to do bad things with drones, flying drones—

THE CHAIR: I am not saying that they can or cannot.

Mr Sheather: The safety issues cannot be addressed.

THE CHAIR: I am asking: what about if they were?

Ms Vincent: One of the concerns for me that has been raised time and time again is the effect on birdlife and the effect on domestic animals. I do not think that, even if they made a lesser sounding drone, that would have an impact in that regard. Dogs have such sensitive hearing. The dogs around my neighbourhood would start barking before I even knew there was a drone in the area. I have had reports of dogs becoming psychotic when drones were around. One neighbour was scared that the dog, in his anxiety, was going to knock down the fence and take off. He destroyed her backyard by jumping around. There is also the birdlife issue. We are only just starting to get our birdlife back in the suburb, since the drones have left.

We also question the real purpose of having drone deliveries for minor things such as coffee and small pharmaceuticals. If it were to be approved and went ahead, as Nev pointed out, a lot of other companies are going to come in over the top, and they are going to want to do drone deliveries. In essence, we are going to have a sky highway going on above our heads. This is not what we want for our bush capital.

Ms Sheather: In some of the submissions there are some professional drone operators who actually mention they noticed the impact on wildlife and birds. That is one issue that we have not mentioned. No-one has done any studies. There is a bit of research out there on impacts of drones on wildlife. That also has to be taken into consideration. We are the bush capital, we have this beautiful wildlife and we just do not know how this will impact.

There are many federal, state and territory laws that would have to be put in place. I give an analogy that it is similar to the road rules. We have consistent road rules nationally that people follow, and that is for your safety and in order to be law abiding. We do not have any laws in place for these types of aircraft. We saw media reports recently of the bushfires in New South Wales and Victoria. We have uncontrolled drones out there because there are no laws in place. We know Parliament House has a drone security system on it. You really need to put these foundations in place before you even start considering letting these drones go—

Mr Sheather: CASA did not have the resources to police it. They do not have the resources to monitor this trial. They said to Wing, “You’re going to self-report to us,” because they did not have the resources to monitor the trial. How are they going to police, monitor and regulate an incredibly massive increase in drone traffic?

Ms McIntyre: Also, the facts speak for themselves, because the great majority of people who have been subjected to the drone trial, both in Royalla and in Bonython, rejected them. Eighty per cent, as Nev mentioned, of Bonython residents rejected it. They were angry and upset by it. The Gungahlin people will make up their own minds, as we did. It does not matter what spin the ACT government or Project Wing put on these operations; the facts speak for themselves, and the people will decide. It is as simple as that.

MS ORR: I have a few questions and we have only got 20 minutes left of this scheduled time; so I might jump in, if that is okay. I have two lines of questions, if you will indulge me. The first one is just to clarify, with the noise, can I get a sense: is the noise when it is delivering or is it the noise when it is up quite high?

Ms McIntyre: As you heard on that video, it is everything.

Ms Sheather: The noise, you can hear it start coming. As soon as it starts, in the distance you hear a slight noise and it gets louder and louder. And then when it comes it is like an F1 racing car.

Ms McIntyre: Like that sound, yes.

Ms Sheather: And as it goes down—and there are videos there that you have played—it increases. It sort of goes (*noise*), drops, then (*noise*) and then it takes off.

MS ORR: I am not sure how Hansard is going to record that.

Ms Sheather: That is a bit sensory.

MS ORR: No, it was a very good.

Ms Sheather: I would say if you looked at the video that we have provided, the Jack Fowler video, that is a very good demonstration of the noise when it descends and when it goes up. It has to go into a hover position, and if you ask some of the technical drone people they will explain the resonance of the noise.

Mr Sheather: But the drone obviously is in the air. There is nothing blocking the noise. So you can hear it from up to a K away coming. You can sit there and hear it.

Ms Sheather: Carol has double glazing in her house and she can still hear it inside her house.

Ms Vincent: On the original flight path, every drone that went out and came back went over our house. It was constant noise of drones just flying over and over. Because they can only deliver small packages and also because Wing, I believe, promoted that for every delivery they would offer a free can of drink, if you, as a household, were buying a family meal, that could entail up to six deliveries. We had every drone that was going over, every drone that was coming back; plus, the noise while it is in the drop zone is extensive. It is super loud and piercing.

Ms McIntyre: Houses do not have noise protection in their roofs.

MS ORR: I have got a good feeling for that. But we also need to get to Mr Petterson. I have a few more questions; so we might just need to speed up a little, if that is okay. I did have a question but I think that Mr Hanson in his line of questioning has covered it. You clarified where you stand with drones. The other thing I wanted to really pick up on was: you have spoken quite a lot about CASA and CASA's regulatory role, or what you perceived as a lack of a regulatory exercise.

In the government's submission they state that the commonwealth government has exclusive power to regulate drones and that the ACT laws must be capable of operating alongside any commonwealth law to have legal effect and must not seek to legislate an area which the constitution provides as a head of legislative power for the Australian parliament. In reading that—obviously this is federal-state relations; I am sure we have all got a general idea of that—it got me thinking, and I am interested in your perspective: given that this is a federal power, what role do you see the ACT government having?

Mr Sheather: When we started forming our group, I was a bit naive—I have done project management all my life—and I said, “This is a test, this is a project, there has got to be someone in charge.” And there was not. There was not anyone in charge. There was not anyone overseeing it. CASA was, as you say, doing the regulatory and the safety things. Airservices people said, “No. Yes, it is an aircraft but we don't do anything with drones.”

We knew that the ACT government had invited Wing to come here. That was in press releases. The ACT had given them a block of land to do their trial from and given them the licence. The ACT government had given them permission to fly over parks and reserves because there are all these DA approvals and zoning approvals and everything else that is a local thing.

The trouble is that we could not find anyone in charge and there is no clear distinction of who is going to regulate drones because they go into so many different fields. One is the government, obviously. They wanted to build it in Mitchell. The local government has got to approve the DA and approve all of that.

Ms Sheather: Can I just say, the laws operate in stove pipes; so there is nothing horizontal to make it consistent—that is where the issue is—because they are not talking to each other.

Ms McIntyre: And that is why there is this federal parliamentary inquiry into the whole thing.

Ms Sheather: And that is what the minister admitted to us.

Ms McIntyre: The recommendations said that we should develop a whole-of-government approach to RPAs. That means federal and state governments.

Ms Sheather: And we have given you a copy of that letter. I think it is in one of the submissions.

MS ORR: I appreciate that and I have had a read of all of those.

Ms McIntyre: That it is not happening at the moment, you see. But the drone trial is happening; it should not be happening before this is in place. We believe that is unethical.

MS ORR: I have read those. I have read the Airservices, I have read the CASA and

they are saying we need to work together. As you have identified, CASA has safety, Airservices has proscribed air spaces. And drones operate outside that. That is why they say they do not do it. I appreciate that there are all these different parts. The ACT government is in that mix too but, without having the legislative power to do anything, I guess the argument is that it is really up to the federal government to take the lead.

Ms Sheather: I would just argue against that because many local councils and people do this—Uluru, no-drone zones; Great Ocean Road, no-drone zones. You have the power to put where you want drones not to fly and to fly.

Ms McIntyre: Sorry, I was just saying the same.

Mr Sheather: Yes.

Ms Sheather: Other states already do it.

Ms McIntyre: We actually know that Project Wing approached New South Wales to conduct such a trial and they were disallowed.

Mr Sheather: Yes. And the ACT government can stop businesses. If I have a brilliant idea to deliver coffee and fast food by Harley Davidson motorbikes—I am going to have incredibly noisy Harley Davidson motorbikes roaring through suburbs delivering food—if I put that up as a business proposal, would the government allow that? And I would say no.

MS ORR: I think that happens.

Mr Sheather: The residents would be up in arms.

MS ORR: I have one more question.

Ms Sheather: You can change your EPA.

Mr Sheather: The local government can.

Ms Sheather: There is no reason why you cannot make your own laws to reflect the needs and work with the federal and other government agencies to ensure this.

THE CHAIR: Can I seek a point of clarification. My understanding was that the first trial was conducted in Royalla, which is in New South Wales.

Mr Sheather: Yes.

THE CHAIR: Which would indicate that New South Wales did at some stage authorise this to occur.

Ms McIntyre: No, we are talking about metropolitan Sydney area, not Royalla. Yes.

THE CHAIR: Have you got the evidence whereby that was rejected by New South

Wales?

Ms McIntyre: A Wall Street journalist has that evidence.

Ms Sheather: Yes, we have got it. We can actually send that.

THE CHAIR: Can you provide that to the committee?

Ms Sheather: Yes.

Ms McIntyre: And also please bear in mind that, as I said before, that the FAA in America does not allow such a trial because it is unsafe. That is the whole of the USA. That is why Wing is here, because they can.

MS ORR: Can I just ask one more question to clarify? You have alluded to the fact that there could be a larger regulatory role for a number of agencies. What are the things that you would like to see regulated as far as drones are concerned?

Mr Sheather: Sorry?

MS ORR: What are the things you would like to see? Noise has come up.

Ms Sheather: It is about noise, privacy. There has been a recent article by Legal Eagle about privacy. They highlight all the gaps in the privacy laws. We are just not covered for this sort of situation. I can send you a link to that if you like; it explains it all.

MS ORR: Yes.

Ms Sheather: It is also about the safety regulations again, which is CASA. There has to be something about the environment, too, to protect our birdlife and our wildlife.

Mr Sheather: I have been told that in the United States you own the airspace and underneath your block of land. That is one of the reasons why drone delivery is not feasible in many areas of America: I am not going to give you permission to fly a drone over my airspace, if I own it, my backyard.

That is one of the things we need to look at in Australia. It has not been a problem previously. Drones have brought in a whole new level of intrusiveness and invasiveness over people's properties. This is why farmers are shooting them down: they do not want somebody flying a drone over their farm.

Ms McIntyre: I think we should also look more at the safety aspects.

Mr Sheather: This is why the law has to be looked at.

Ms Vincent: It is a new crime area with drones. Properties get surveyed and then all of a sudden their livestock are stolen. Until there are rules and regulations—it is in its infancy—I think we are really jumping the gun.

Ms McIntyre: Yes, and I think the ACT government has gone ahead with a bit of a cavalier, cowboy attitude. That is reflected in documents that we have read, which we got under FOI. For example, there are certain people saying, “Yes, let’s get some Skywhale-shaped drones to come to Canberra; you beauty.” But the point is that drones can be blown into power lines; they can cause bushfires at high fire times. We had a drone that blew onto a motorist driving a car. There is footage of that, I think.

So whilst CASA is responsible for drones flying over your house, there are all these other safety aspects that happen in the suburbs that no-one has looked at. That is what we are upset about.

Ms Vincent: Plus they are a distraction in the sky to people that are driving along roads.

Ms McIntyre: Exactly.

MS ORR: If there were a regulatory framework in place that took care of safety concerns, environmental concerns and privacy concerns—just going back to what Mr Hanson said earlier—you still would not support drones?

Ms McIntyre: Because it is not possible, and because you are talking about people’s quality of life and you are talking about the sanctity of people’s homes where they have a right to be in control of their own environment. If people cannot control their environment, they get sick. Some of them might help a bit, but you will still have the constant presence of drones, and 80 per cent of the participants say, “No, we do not like it.” And it was not just the noise; it was their constant presence.

Ms Vincent: Another issue is the unreliability of the drones. They can carry only a limited weight of product and you can only order from a very limited menu and limited products. They cannot always fly. In inclement weather, in windy weather and in fire bans they cannot fly. So they are not totally reliable as an everyday delivery system to residents.

Ms Sheather: If you are in a high rise, they cannot deliver to high rises, so it is a limited number of households that they can actually deliver to. But they impact every other household in that process.

Ms McIntyre: Another thing we were not happy about—

MS ORR: I am going to pass to Mr Pettersson, but I would like to be quick because I have one more question if we can get back to it?

MR PETTERSSON: A common theme in your submission—and it was mentioned in the opening statements—was that there was a lack of consultation. What do you think could have been done better in terms of the consultation?

Mr Sheather: The other week, as I said, we had Evoenergy come out. They asked us beforehand; they came out; they told us everything that was going on; they consulted with us. They said, “We want to get your agreement before we go ahead and start doing stuff.”

Ms Sheather: And they gave a live demonstration. They gave the reality.

MR PETERSSON: Sorry to jump in, but could we speak one at a time.

Mr Sheather: Yes.

Ms Sheather: Yes.

MR PETERSSON: Did they speak to BAD or did they speak to another—

Ms Vincent: No. If they had gone to residents and even done a letterbox drop saying, “This is what is being proposed,” and offered some sort of forum that residents could have gone to for information or provided feedback or concerns to—

Ms McIntyre: And isn’t it true that the community consultation they did do was in group situations? “Come and have a picnic and a barbecue and get a free something or other and we will tell you what is going to happen.”

Ms Vincent: I do not believe that that was consultation.

Ms McIntyre: No. That is right.

Ms Vincent: It was just information-giving on what was going to happen. It was a fait accompli and residents had no say in it.

THE CHAIR: Do you think—aside from the issues, and obviously you have some concerns—that the lack of information and awareness prior to this rolling out has created a certain amount of fear and hostility in the community that would otherwise not have been at the same level?

Ms Vincent: I definitely believe it got people’s backs up because, as I said in my earlier statement, people were totally caught unawares. I had somebody say to me only the other day that they came home from England—they had been away for a number of months—and they looked up in the sky and thought, “What’s going on? There are huge mosquitos flying around everywhere.” They did not know what was going on.

Ms Sheather: It is also the reality of that noise. From any of these presentations and consultations, no-one was aware that that was going to happen. If they had played that video and said, “Here it is,” I am sure you would have had a massive uproar to start with before the trial commenced. Many of those noises should probably have been addressed before any commencement.

THE CHAIR: For timing, let us move to another line of questioning.

MR PETERSSON: You have mentioned several times that this is untested technology. Do you have any suggestions for how technology like this should be trialled?

Ms Vincent: There is the way they are doing it in America. They are using the Virginia Tech campus, which is a university campus and is remote from populous areas. There was an article I read in an American newspaper saying that only recently Wing has done their first delivery on the Virginia Tech campus. They have delivered ice cream to a child—wow. That is the extent of it. That is how they do it. They are testing all the things they need to test, which we have mentioned here today, in a proper environment where they are not putting people at risk. This is the big issue. Bonython residents feel like they have been guinea pigs in a done-deal experiment between Project Wing and the ACT government. It is a very real thing. You cannot brush it under the table.

MR PETTERSSON: What do you think the difference between a university campus and Bonython is?

Ms McIntyre: It is remote and it is not people's homes. It is a test area for this sort of thing at the moment. The specific—

Mr Sheather: CASA said, "We want to be assured that the Wing safety software works." As I said earlier, what right have they got to test that theory over the tops of residents' heads?

Ms McIntyre: They are testing their air navigation and air management systems. We think that the delivery of food and coffee is just a ruse. That is what people believe.

MR PETTERSSON: You mentioned several times incidents that have occurred which prompted your claim that it is unsafe. Can you expand on some of those incidents, either personal injury or property damage?

Mr Sheather: It has only been great luck, I think, that there has been no injury.

MR PETTERSSON: Has there been any property damage?

Mr Sheather: No, but we are talking about a limited number of flights and we are only talking about the drones flying in a limited number of hours. So if you are going to update it exponentially, drones have been forced down by gusts of wind and other sorts of circumstances where the software says, "We need to come down."

Ms Sheather: You would not want that to come down on your child in the backyard.

Ms McIntyre: Or the roof of your house.

Ms Vincent: I think it has been luck that nothing serious has happened. We have witnessed bird strikes, particularly around magpie season. It is a real concern in Canberra, with the number of birds we have, that if a bird did get tangled up in the rotors it could bring a drone down. We have also had people report to us that they have had deliveries when they did not ask for them. So deliveries are being sent to the wrong address. Again, it was luck that it was not chemist items such as cough medicine that young children got hold of. We believe that there is a risk also in that area.

Mr Sheather: Then there is a point about what an incident is. I mean, if you had a light plane that got into trouble and had to land, and it landed safely and there were no injuries and no damage, there would still have to be an incident report. There would still be an investigation and authorities would still be involved if it had to come down in that sort of situation, landed in a paddock or something. But that rule does not seem to apply to drones: “We were forced to come down,” “We had an incident with a bird,” or something. But, “Oh no, it is completely controlled, we do not have to report it.” I think that is ridiculous.

Ms McIntyre: It is too blasé.

Mr Sheather: Any sort of incident where a drone had to come down or a drone was involved with a bird or anything else is an incident that should be reported and investigated.

Ms Vincent: At one of Project Wing’s presentations, they were asked whether birds had an effect on drones. They stood up and said, “No, we’ve never had an incident with birds.” Well, we have witnessed that. We even have video of it. On the internet there are numerous videos of birds striking drones. This is a real safety issue. Should a drone get entangled with a bird, potentially a serious incident could happen.

Ms McIntyre: With these neighbours that I mentioned that had the 10 or 20 deliveries most Saturdays and Sundays starting at 8 am—that is another issue: it used to wake us up from our sleep sometimes—there was a currawong in the vicinity and it was trying to attack the drone every time. That is a real risk.

THE CHAIR: I have heard rumours that you were providing information out in the Gungahlin suburbs on what is going to—is that the case, or is that just a—

Mr Sheather: We were invited up there by the—

THE CHAIR: You were invited by the community council.

Ms Sheather: We did a presentation to the Gungahlin Community Council on our experience as residents. It was just a factual presentation: “This is what we have found so far.” You are welcome to have a copy of that presentation.

Mr Sheather: We are not running around organising rallies now.

THE CHAIR: No. I was not quite sure what it was. You get lots of rumours, as you know.

Ms McIntyre: This is not a rumour; it is a fact: people are upset that there is no public feedback on or independent evaluation of the Bonython trial before it proceeds to Mitchell. We do not think it is kosher. We think it is unethical.

Mr Sheather: I must stress that, from our point of view, we have tried really hard the whole time to be completely apolitical. We are not aligned with any political party. We have had support from Liberal and Labor people. We have had dissent from Liberal and Labor people and the Greens. We are trying really hard to be apolitical

because we think that this is a community issue. We do not want it to be a political issue. We want politicians to get together and do the right thing. We do not want this to be decided completely on political lines. We do not want that because we think it is a bigger issue than that.

THE CHAIR: On that conciliatory note, we will wrap it up. Thank you very much for your submission and thank you for attending. You will be sent a copy of the draft *Hansard* for you to check and review. We asked for a document—I think it was evidence from New South Wales—to be provided, if you have it, for the committee.

Hearing suspended from 10.31 am to 11.01 am.

LAWRENCE, MS CHRISTINE, President, ACT Equestrian Association
ASKEW, MR MICHAEL CHARLES, Committee member and instructor,
Tuggeranong Dog Training Club
CUTTS, MS JULIE, Member, Tuggeranong Dog Training Club
HASSELMAN, DR LYNDAL, Canine Companion Representative, Belconnen Dog
Obedience Club
LEWIS, MS ANNE, Life Member, Belconnen Dog Obedience Club

THE CHAIR: Welcome back to the hearing of the Standing Committee on Economic Development and Tourism's inquiry into drone delivery systems in the ACT. On behalf of the committee, I would like to thank representatives of the ACT Equestrian Association, the Belconnen Dog Obedience Club and the Tuggeranong Dog Training Club for attending today. Can I draw your attention to the privilege statement that is in front of you? Could you confirm for the record that you have read and understood the privilege implications of the statement? You are all nodding wisely; very good. These proceedings are being recorded for Hansard and they are also being webstreamed and broadcast live.

Before we proceed to questions, do you have opening statements? I remind you to keep them as brief as possible.

Ms Lawrence: I represent about 18—it varies from year to year—recreational equestrian clubs in the ACT. That is estimated by the ACT government to comprise 1,700 horses, which, on the basis of a rural research and development corporation report, contributes about \$20 million a year to the ACT economy.

We have a special interest in the fact that drones of all kinds make noise, and horses are extraordinarily sensitive to noise. They are prey animals, and they have a very high hearing rate—much higher than humans. It basically means that no drone is ever silent enough for a horse. The bottom line is that we do not want a drone near a horse.

So far we have been lucky with Project Wing, but since 2017 we have been talking to various parts of the ACT government and, indeed, CASA about controlling recreational drones. They have hunted our horses across horse paddocks, for fun. They have flown over people riding in public open space, for fun. People have used their drones in places that are totally inappropriate, like government horse paddocks.

The outcome of all of our conversations is that we have identified that it does not matter what impact drones are having on us on the ground; there is really no legislative way of managing drones. CASA have made it pretty clear in their conversations with us that they see themselves managing aircraft safety. They do not see themselves controlling people's safety on the ground unless something falls from the sky. They are not interested in people's privacy. They are not interested in our emotional state when we find our horses' legs cut to ribbons. There is nobody who has any clue about how to fix that black hole in regulation. Although there are regulations, none of them covers animals. None of them covers horses, specifically.

We had a meeting with CASA in 2017 and they agreed that they would contact the ACT government about the possibility of including on their website an online

PDF brochure about drones, talking to management to clarify that property included livestock in the regulations, and doing drone animation that dealt with flying drones around horses. None of that ever happened. As far as we are concerned, we are on our own.

The other issue is that the ACT government submission, apart from saying that CASA was responsible for these regulation issues, said that if you wanted redress, you should go to the CASA website and file a complaint. We have done that, and it is pretty clear to us that unless you can actually produce a photograph with the drone operator with the drone clutched to their chest, and with their name and address at the bottom, you have no chance whatsoever of any redress. There is no way that drones can be controlled easily.

THE CHAIR: I want to make sure that we do not get into a discussion about recreational drones. Can I clarify that this is very much about commercial drones?

Ms Lawrence: It is about commercial drones.

THE CHAIR: Have you had any impact from the current trial?

Ms Lawrence: No. We have been able to talk to Wing and give them maps of our horse paddocks and our horse trails. We have been fortunate that they have been buried in deep suburbia. In Bonython they were well away from them. They rang us before they talked about Mitchell, and we gave them maps for the Kaleen horse paddocks and the equestrian trails south of Mitchell. At this point in time, because as far as I know they have not flown from Mitchell, we do not know whether we have an issue. The point is that the height at which they fly is not sufficient for us to have any comfort that they would be any different for us from recreational drones.

THE CHAIR: At this stage, though, taking all of that on board, because they have not flown over a paddock, we are not entirely certain of the impact of this particular drone at that height. If it landed in a paddock, I imagine that it would have an impact, but if it were traversing a paddock, we are not entirely sure what the impact would be. I am not saying that it would not have an impact.

Ms Lawrence: There were horses in Royalla who tried to run through a fence when the drones flew over, and they were damaged. I am not saying that all horses would do that. To be perfectly honest, horses have a very large capacity to learn, and over time you can teach them things. The reason is that they have fantastic memories. The problem is that a bad memory will stay for as long as a good one. The issue is that if you have 1,700 horses living in agistment, how are you going to find any way of acclimating 1,700 horses to a drone flying at that height and know what impact it will have? We know from overseas experiences that horses panic over that noise because they cannot identify it. We know from Royalla that it has happened here. It has not happened in Canberra yet, but that is because Wing have said to us they have not flown over horse—

MS ORR: Could I clarify: Wing has, to date, given a commitment not to fly over areas identified by the club?

Ms Lawrence: I do not think Wing gives a commitment to do anything, but they have spoken to us, they have taken away the maps and they keep our maps; so they are aware, and they say they do not.

MS ORR: It is at their discretion; perhaps that is a better way to put it?

Ms Lawrence: It is, absolutely. The issue really is that we can talk to Project Wing. If this technology gets off the ground, we will have hundreds of these things, different companies vying for competition in the skies, and we will have no conversation with most of them.

THE CHAIR: There would need to be a central body of government to be the central point of contact?

Ms Lawrence: The bottom line is that the ACT government has to find some way that it can control these things in some framework that allows it to do that within the commonwealth legislation. It has shown no evidence of doing that at this stage.

THE CHAIR: We might move on. Has someone else got a statement?

Ms Lawrence: We have talked about Tuggeranong going first.

Mr Askew: I have been an instructor for about nine years, and I am currently a senior instructor. I just want to briefly touch on the club itself. We are a fully volunteer club; it is a not-for-profit. We have about 500-plus members. It is households. There are significantly more members than that. On training days we can have between 50 and 100 dogs and handlers on our grounds which are at Greenway. By sheer luck, we are placed right next to the Project Wing establishment for drone delivery systems for 12 months. We provide obedience training for dogs. It is scientifically based. We use a clicker. And I will talk about that a little more. Sound is incredibly important to dogs. And that is why drones do have a significant impact.

We are very conscious of the heightened community concerns about dangerous dogs and the critical training function that we and other dog clubs have, in fact, in producing trained, obedient dogs and by implication reducing the risk of potentially adverse dog behaviour or dangerous dog behaviour. It is a very important issue and, as I said, we would train literally hundreds and hundreds of dogs every year. We train them to be good social companions, to be well behaved and, most importantly, to be an asset to the community because we are firm believers that dog training enhances community safety.

We also, of course, provide guidance to the handlers. If you are handling a large dog that weighs maybe 70 or 80 kilos, they are difficult to control. That is why the training is important. Even a small dog can be extremely difficult to control. We are the only dog obedience club in Tuggeranong and we service that entire region.

As I said, because sound is so incredibly important to dogs—they hear about four times the distance that we do—they will hear a drone or a sound entity coming four times further away than we do. And their frequency of hearing goes up to about 45,000 hertz; so they hear much more, importantly. We use a clicker because sound is

really important to the way they actually learn and how you can control their behaviour. It is a simple click like that. Your voice changes, the sound does not.

As I said, Project Wing in February-March last year established its drone delivery service on the public land adjacent to our western boundary. Their take-off area was about 10 to 15 metres at max from where our off-lead dog areas actually are. So we have had, for the past roughly 12 months, direct experience of drone activity overflying our clubhouse and grounds. We have met with Wing. Basically, yes, long on detail, short on facts I think is the polite way of describing them. We got lots of responses saying that they would have to refer that back to their parent company in California.

We were very surprised at the lack of detail and they could not even tell us how long the trial would last and things like that—things that you would expect. We asked for copies of their risk management documents—again, things that you would expect a basic business plan to have. They were not provided. We received no advice prior to the drones being established there. There was no consultation or advice before that and we, in fact, initiated contact with Wing to find out what was going on.

Drones are large. They make a loud, destructive noise. The drones they use are at least a metre by a metre with about four or so engines. They have a high-pitched whine. That is really important in relation to dogs. They have had an adverse impact on our club's activities and, quite bluntly, we are quite happy that Wing has moved on.

In regard to the impact on dogs, firstly I am not a qualified dog behaviourist but I have trained home dogs all my life and I have trained hundreds of dogs in the past nine years or so. I can say categorically that the drones do impact on some dogs and that impact can be adverse, particularly on young and impressionable dogs. The majority of the dogs that we have—for example, in our beginners class there are 40-odd on Sunday and 40-odd on Tuesday nights—are young and impressionable. In other words, they react very quickly and easily, as you would expect. We also get an increased number of rescue dogs. They also often are quite reactive to sound and noise. In other words, we train dogs that are young and need training.

We also assessed that the experience we have had of drones impacting on dogs also applies to dogs more broadly in the public—in dog parks, being walked and in their own private backyards. It certainly, potentially, increases the likelihood of barking dogs as a result as well. It is a loud, destructive, high-pitched whine that a drone makes. As I said, a dog can hear it coming four times further away than we can. It suddenly makes the dog difficult to control. The handlers get stressed, they get agitated, the dogs get stressed, get agitated, and then you have got the potential for adverse dog behaviour.

Some dogs you see get frightened, stressed, anxious, agitated. They get aggressive as a consequence. It is flight and flee. They cannot go anywhere because they are on a lead, for example. They cannot run away from this sound that is unusual for them. So they can potentially get aggressive as a result because they are trying to defend themselves from something they do not understand. Hence, there is a potential for aggression to increase, and obviously the outcome of that can be dog attacks and dog bites. There is also a potential safety risk to handlers. Some dogs are very strong.

They are difficult to control unless they are trained. You have got an adverse potential for safety there as well. Obviously it disrupts our teaching. It is difficult to teach.

I was giving an intake lecture—we have an intake lecture, five sessions a year for all new members at the beginning of every session; we have between 50 and maybe 70, 80 people attending that—one Sunday morning last year. I had five drones fly over the top of it. We use a microphone and everything but you just had to stop the lecture. The noise is distracting and it is loud. And five times in the space of about 50 minutes I had to cease the lecture while the drones flew over. For example, one of our instructors instructing relatively well-trained dogs at the higher levels counted 13 drones in the space of two hours going over, with the result that dogs barked, they got stressed, they got anxious, they got agitated and some of them got aggressive. And they are the better trained ones. You can imagine the impact on more untrained dogs.

We also noted—and I do not have empirical evidence for this, and my colleague here is going to talk about the impact on obedience trials; we have a pond that has lots of bird and wildlife activity, everything from foxes and snakes to lots of wild birds et cetera—that there did seem to be a decrease in that activity because the drones would fly directly over that pond, basically, to a large extent.

We are also quite concerned about the privacy issues. When we met with Wing they said that their drones would take images of people as they flew, of anything in fact as they flew. They said, when we queried them, that they would be “tightly held”. We got no explanation why the images were taken but they obviously will include members, children, visitors et cetera to the club. As I said, we can have literally a hundred plus people easily at the club on a Sunday morning or a Tuesday night.

No permission was sought to take images and of course as a corporate entity we cannot give permission on behalf of our members to have their image taken. We are concerned about that. Why were the images taken? What is done with the images? Who viewed them? How are they stored? Are they securely stored? Who owns them? Can they be on-sold? Et cetera! On all of this we have no idea, and we never got a satisfactory response. And, most importantly, is there some sort of independent oversight as to what is done with that data? We do not know.

There appears to be a potential policy conflict which I think the ACT government will have to look at which is that on the one hand you are quite rightly concerned about dog aggression and concerns about public safety but on the other hand if you locate a drone delivery service right next to a dog obedience club—which makes it therefore significantly more difficult for us to train our dogs and train the dogs to be more well behaved and therefore safer—then you have got a potential conflict. On the one hand, one is doing something which is adversely affecting the other. I would certainly believe that in future if you are going to have drone delivery systems, please do not put them next to a dog club.

In summary, at best drones are a distraction for dogs and people. At worst, they produce fright, stress, agitation, anxiety, and they make them difficult to control. That has the potential for aggression. They are distracting for handlers who also can become quite stressed. If you try to handle a 70-kilo dog, you know it is not an easy thing on a good day, if it is young and untrained. And it has disrupted our teaching.

Our concern as a club is the welfare of our members and obviously their dogs and the welfare of our visitors. We assess that drones increase the risk to safety of dogs and handlers and more broadly to members of the public if drones fly over or near where dogs are located. We consider we serve a very critical community function of improving dog behaviour and therefore community safety, and we are concerned that there does seem to be at the moment a conflict there between our ability to do that and drone activity.

THE CHAIR: Dr Hasselman, have you got a statement as well?

Dr Hasselman: Yes, thank you. I am the canine companion representative to the Belconnen Dog Obedience Club, BDOC. I am also their incident manager, so I manage our reactive dog policy. My colleague here, Anne, will also speak. She is a life member of our club and has been the president for a number of years.

BDOC has a very supportive collegiate atmosphere, creating a social fabric for its volunteers and dog owners. There is further detail on the history of our club and our operations, and an account of the discussion we had with Wing last year, contained in our submission.

BDOC is concerned about the impending drone deliveries in Mitchell and we thank you for this opportunity to comment. Our submission speaks directly to the impacts of drone delivery on domestic animals and how the absence of regulation leaves our club vulnerable.

To now speak to this further, we are experiencing an increasing number of nervous, fearful and overexcited dogs being brought to the club that people are desperately seeking help with. These dogs require patience and as calm an environment as possible to learn, gain confidence and become respectful and calm citizens.

We explained these increasingly common behavioural issues to Wing. Their response was that they had flown drones near dogs and that it was not common for dogs to bark and lunge at the drones but that yes, sometimes it happens, and it is okay because, by hovering and dropping goods on an extended line, they can keep their drones out of the physical reach of the dogs. I presume this is to protect their expensive equipment.

This is an utterly unacceptable and irresponsible situation. Positive, safe and respectful animal handling requires listening to an animal's communication, including things like watching its ear and tail positioning and whether it is stress licking, yawning or shaking, those early stages and signs of stress. Ignoring these signs and waiting for a dog to do an emergency "Help me now" level of growling and barking is cruel and dangerous for all involved.

We have some similar issues to what Tuggeranong has experienced with the increasing number of rescue dogs.

We are concerned that the sound of the drones and the sight of the drones—the eyesight of cats and dogs is attuned to pick up motion at great distances—will have a negative impact on our dogs. Some of our members have experienced those impacts at

Tuggeranong. Anne will speak more to that.

What this means is that by adding unnecessary stress to these dogs, we have a lot of members who will not be able to get the help they need. As Mike pointed out, this will push people with dogs that are potentially problematic to becoming nuisance dogs in the rest of Canberra.

It is normal behaviour for a dog to have a fight or flight response. Otherwise calm dogs may react by shutting down completely or being unable to function. They might run and hide; that is the flight response. Dogs with herding and prey instincts may try to chase and fight the drone. One of our dogs ran into a fence. Most, if not all, dogs will lose focus with a noisy object flying around.

In response to my concerns, Wing verbally offered a non-binding undertaking that, for an ambiguous time frame of “for now”, flights will not be travelling towards BDOC to access the suburbs of Watson and Dickon, over that north side. This is an offer by a multinational company to limit their profit making to the Gungahlin area. It is reasonable to expect that the financial incentive for Wing to fly over BDOC will increase over time. While the negativity surrounding Wing’s previous trials, and the company’s perceived need for a social licence, is enough for Wing to provide a verbal, non-binding offer of a no-fly zone, it is only for now.

The BDOC committee believe that the drone operations in Mitchell will negatively impact on residents of the ACT and their domestic animals. These impacts include, first, an increased risk to public safety from stressed animals and, second, downgraded animal welfare for those dogs that desperately need behavioural modification to cope with normal life. Third, the loss of a low stress training and competing environment for our dogs and their handlers will limit BDOC’s ability to undertake these activities. This will be a loss of community that is so important for the enjoyment and mental health of our members. Fourth, there is diminished welfare for our dogs when they can no longer exercise their natural instincts in a safe, rewarding way.

BDOC would like to see operating conditions and regulations that adequately protect the welfare of domestic animals, specifically a no-fly zone established with an appropriate buffer zone around sensitive areas such as the BDOC grounds. We also ask that the ACT government represent these views and the concerns of its community to national authorities such as CASA.

THE CHAIR: We have only got 10 minutes to go. You indicated that you had some opening statements to make, but it is important to make sure that there are not burning questions from the committee.

MS ORR: I just wanted to clarify something that I think was alluded to in one of the opening statements. Are you aware of any studies on the impact of drones on animals and what that can tell us?

Dr Hasselman: We asked Wing directly what studies they had done and if they had evidence of the decibels of their drones and the frequency of their drones. They had none.

Mr Askew: We asked the same question.

Dr Hasselman: We do not have access to their drones to be able to test those sound details. I would not expose my dogs to that noise knowing what the character and personality of my dogs are. So yes, we asked Wing; they have no studies.

MS ORR: And there is no evidence-based research on other experiences that you are aware of?

Mr Askew: No, not that we are aware of. Wing did tell us that the noise of the drones was no louder than a vacuum cleaner. I can tell you that that is rubbish; it is a lot louder than that.

Dr Hasselman: And my dog hides from it.

Mr Askew: To a dog, with the frequency hearing they have, it is significantly impacting.

MS ORR: In your opinion, is there any way for animals and drones to be compatible?

Ms Lawrence: Not in a way that you could guarantee. There is no way you could have a fix for everybody unless you do something to combat the fact that horses and dogs have much better hearing than we have.

Dr Hasselman: Anne's experience is at Tuggeranong. You have been training dogs for over 20 years?

Ms Lewis: Forty.

Dr Hasselman: Her dogs are calm, high-performing dogs that can do complex tasks in a range of new and diverse environments. Your experiences?

Ms Lewis: I had an incident with a drone a few years ago at BDOC. Unfortunately, we are situated along Flemington Road. I was doing very high level obedience training with a friend. The dogs were working off lead doing extraordinarily complex exercises. A drone flew straight above us, hovered for quite a few seconds, and then took off. We had to abandon our training because the dogs completely shut down. They were petrified. Afterwards we realised that was a precursor to the light rail installation; they were just scoping out the area.

At Tuggeranong club, I have a dog running in masters agility, which is the highest level. She is highly trained. Many drones flew over on the particular day I was competing. All she wanted to do was run and hide in her crate, which is her safety place. Since then I have unfortunately not been able to enter any daytime trials at Tuggeranong, and nor have several people I know. Not only is it a waste of our time and money, but we do not want to knowingly expose our dogs to this threat. We were led to believe that the drones did not fly directly over the club, but in fact they were flying straight overhead.

Mr Askew: If I could just comment there, Wing originally told us that they would try

not to. That did not last very long. The commercial imperative just drives it to go straight over the top of the club. That was sometimes straight over the top of our clubhouse right down the middle of our grounds. The reality is that over time, even if they tell you they will give you a no-fly arrangement or something, the commercial imperative will eventually drive that. They fly to make the money. The shortest distance between two points is a straight line.

THE CHAIR: Outside the designated zones of the dog obedience areas and horse paddocks, and the idea of a no-fly zone, have you received any advice from dog owners out in the suburbs as to the impact on the dogs in the suburbs. Putting aside the specific area which potentially could be a no-fly zone, do you know what is happening to dogs out in the suburbs either when they are flying overhead or if they are landing in an adjacent property? Have you had any of your owners or members come to you with that?

Mr Askew: No, not directly. Members have commented that their dogs react, but I have not had any direct personal experience of that.

Dr Hasselman: What I have heard is that the noise that they emit when they are hovering to deliver goods is much louder and on a higher frequency, and that dogs will bark more. You will get more barking complaints.

THE CHAIR: If there were—and I am looking for a potential way forward—no-fly zones over particular areas for dog obedience clubs or horse paddocks, and we are just talking about the suburbs, if Project Wing were able to address the noise and frequency issues, what are your thoughts about that?

Dr Hasselman: I am petrified. I am terrified of what this will do to my dogs and my life.

Ms Lawrence: Yes, and our horses are not confined to horse paddocks. If you look at your UBD, there are horse trails marked all over Canberra. People have had experiences with small drones flying over them while they are riding out, and the horses have reacted to the drones. I could see a situation where people just cannot leave their horse paddocks, in the long term, if these things are flying.

The other issue is that people will eventually react so strongly to these drones in the suburbs that the government will decide that the best thing to do is to suggest they fly in public open space; then everybody who tries to use public open space will be subjected to dozens of different companies, and we will be driven out of public open space.

Ms Cutts: Wing was in the Bonython area for nearly 12 months; I think they flew for roughly six months. We had 2,000 flights in that time. They are talking about 11,000 a day that they are going to build up to in Gungahlin. I can imagine walking down the road, and I have a 40-kilo, very strong German shepherd who I run in a head collar, and who, if I am not careful, will chase a car. If he has drones going over the top of him, he will want to chase, and if I am not alert, aware and holding him, he will end up on the road. That is another issue; if people cannot control or hold their dogs—

Mr Askew: That is where the risk is.

Ms Cutts: That is one of the other risks. I do not often walk in a space where the drones are, because I do not like them.

MR PETTERSSON: In regard to horses, I note what you just said about the use of public spaces. If there were to be a no-fly zone around paddocks, how big would that no-fly zone need to be?

Ms Lawrence: Given that horses can hear a drone—and I have seen a video of a horse lifting its head and its ears going back because it had heard one of the Project Wing drones at Royalla before it even appeared on the video screen—you are talking about 800 metres or something like that.

MR PETTERSSON: In regard to the dog classes, how long are those interruptions that you mentioned in your submission?

Mr Askew: They last for only maybe 15 or 20 seconds, while the drone flies directly overhead, bearing in mind that a dog can hear four times further away than you can. So they will hear them before you do. We could see them coming because they would take off basically next door to where we were located. It would probably last for 15 or 20 seconds. They fly at about 130 to 200 kilometres an hour, so they move pretty quickly. Firstly, they are not that high off the ground; and, secondly, if you have 12 or 13 of them going over in the space of an hour or two hours then that is a regular interruption. And they are not regularly spaced. You might get a couple quickly and then nothing for a while. But if you are trying to train dogs, you have to spend the next five minutes trying to settle them down again and then another one comes over, it makes the job almost impossible.

MR PETTERSSON: Is the noise from the horizontal flight as opposed to the pick-up and set down?

Mr Askew: Both.

MR PETTERSSON: Affecting your club, it is both?

Mr Askew: Yes, because over the fence, quite literally, was their take-off and landing area.

Dr Hasselman: I would like to point out what actually happens to a dog when it is under stress. When a dog is under a very stressful event, the hormones that its body releases as part of that fight or flight mode stay in the dog's body for up to 48 hours. If your dog is in a really stressful event, the best advice is to keep it really calm and subdued for at least 24 hours, because in that time frame it will overreact to something that it would normally be able to tolerate and handle. While a drone might pass by only for a minute during a training session, and it might do it 10 times, the impact of that stays with the dog. I know the personalities of my dogs and what they do with stress. Their hormones will be elevated non-stop. The only option will be to medicate. We will have to have suburban dogs medicated 24/7 to try to maintain the peace.

MR PETTERSSON: I note that both dog clubs are on prominent roads. How does road noise affect dogs?

Ms Lawrence: It does.

Mr Askew: It does, yes.

Ms Lawrence: Especially when there is an ambulance, a fire brigade or—

Dr Hasselman: The light rail testing; I have noticed impacts.

Mr Askew: The reality is, though, from a sound perspective, that road noise tends to have a lower frequency. Drones tend to have a much more high-pitched frequency, so their impact is at a higher range. The dogs hear it worse than we do. The reality is that some dogs, over time, as with cars, get used to it. But there will always be a percentage of dogs who certainly will not. The presence of drones will mean that the training of dogs, in the majority, will be more difficult, because in some cases you will have to desensitise them from the impact of the drones and then retrain them. Every time you desensitise them and a drone goes up, you are back to square one.

One of our instructors, who has a very well-trained dog, was saying that it was fine; then, as soon as the drones started to come over, it got quite reactive and barked, and now it barks at anything. It reacts to anything that is flying because it has been sensitised to think, “This thing’s up there, my reaction is warn and be worried.”

Dr Hasselman: And you cannot desensitise if you cannot control the environment.

MR PETTERSSON: How does that come into play with other things like construction? You referred to light rail construction. Does construction noise affect dogs in a similar way?

Dr Hasselman: I have not been at club during—

Ms Lewis: Sudden loud noises, yes.

Mr Askew: Sudden loud noises do. We have a construction site next to our dog training club at the moment. With constant machinery noise at a lower decibel level or a lower frequency level, they can get used to it. But some dogs will just not want anything to do with it. They will go as far away from it as they can.

Ms Lewis: Could I make a very quick point? We have been dwelling on the noise that the drones make, but to a dog, even if it was silent—

Mr Askew: They would still see it.

Ms Lewis: appearing above them, it is like a wedge-tailed eagle or some big predator. Even if they could not hear it, and if they were completely silent, they would be terrified because of the sudden appearance of an alien thing hovering above them.

Mr Askew: That is a very good point.

Ms Lawrence: On that note, there is another thing in the skies in Canberra, which is a balloon. We have had a protocol for 10 years with local ballooners. They fly, because of the horses, above horse paddocks at 500 feet and above the equestrian park at 1,000 feet, because of the impact of their burners on horses' hearing and the sight of these "preying" things in the sky above them. They have volunteered to do that, and it is written in their pilots protocol for the Balloon Spectacular. That is all written in there. They have guidelines about how they land in horse paddocks, if they have to land. There is real understanding about the impact of these noises and flying objects on horses and other animals. It is patently clear that there is nothing in the Project Wing project or the government's way of managing it that has taken any of that into account.

THE CHAIR: You have made me aware of another problem: hot air balloons. That may be a concern for another day: dogs and hot air balloons. Thank you very much for attending today. Thank you very much for your submissions. A copy of the draft *Hansard* will be forwarded to you, and you can go through it and make sure no corrections are needed. Thank you for attending.

PATULNY, MS GLENYS, President, Tuggeranong Community Council
ELFORD, MR PETER, President, Gungahlin Community Council

THE CHAIR: Welcome. I draw your attention to the pink privilege statement which is before you and ask you to make sure that you have had a look at it and that you understand its contents. Before we start with questions, I invite you to make an opening statement.

Ms Patulny: Our experience with the drones is that we first heard about it when they contacted us, when they had to come and talk at a council meeting about it. Actually at that stage they had already identified the site, so they were all identified. They were not coming to us pre the event; they were coming to us after it had already been set up.

They came and talked to us, and a number of Bonython residents came as well. They were good in that they stayed back and talked to people after the event. They told us how it was going to operate. They said it was going to be flight unaided by humans, which I found fascinating. They talked about how they had cameras for obstacle detection and said, “Information about journeys and routes will be stored in Google facilities but privacy data will be deleted automatically.” That is from our minutes. We were a bit taken aback about that: “What does that mean?” I will talk about that later. “If things go wrong, the drones are programmed to land safely”—this from our minutes. And “The drones cannot be taken over by outsiders and commandeered to misbehave.” These are the sorts of things they said at our meeting.

They stayed back, as I said, to speak to people, and they have tried to keep the community on side. They became a major sponsor of our SouthFest event. They ran a stall so that people could come and talk to them. So they were trying to keep the community on side. But we had things that kept coming out of the community, particularly the Bonython residents. It came to a head at our October meeting, where a number of people came and talked about some of their major concerns.

We always thought it was crazy, I must admit, when we first heard that they were situated next to a dog park. Before they even came to us and we heard about that, we thought, “Who made that decision? That just sounds crazy.” Anyway, that has been proved by lots of incidents told to us about disturbance to dogs. I had a dog. I would hate to take my dog there knowing these things are driving overhead. The base is right near the residential area of Bonython, and we have many complaints about the noise and the mental health stresses of constant noise. One resident said that she did a survey between 8 am and 6 pm and the longest quiet period was 15 minutes.

Privacy—flying over houses and backyards on their way to a delivery; by coincidence, I had an experience with that. Yesterday the Evoenergy people were surveying the lines beside my house. I had been fully notified that it would happen in that period. I heard this noise, went outside and thought, “Must take a picture of this,” so I went underneath my veranda and took a picture. Five minutes later I had a knock on my front door from the Evoenergy people, who said, “We just wanted to check that you know what we’re doing,” and I said, “Yes, I know what you’re doing.” What I am saying is that they could see. They identified from their pictures that I was under a shelter, that there was somebody there. They were doing the right thing by checking

to make sure that I knew what it was all about. But I just thought, “Those cameras really can tell what’s going on in your backyard.” So there is a concern about privacy.

There are concerns about data collection. They talked about saving it for two or three weeks. Why? Why are they saving it?

All flights are operated by cameras. What if there is a problem? There are safety concerns about possible crashes and/or goods being dropped. I was told that there is a video of an incident where a package was dropped from a drone delivery.

There is the negative impact on pets and native wildlife. We heard about that earlier. I have been told—I am also a member of the Southern ACT Catchment Group—that there are concerns about native wildlife in that area disappearing or being limited so that there is less of it around. Particularly birds seem to disappear from the area.

There are distractions for pedestrians, cyclists, and drivers. You might not hear them but then suddenly this thing appears in your vision. What is that going to mean?

There is concern—and this is a big one—about lack of regulation and perceived efficiencies in the processes surrounding the approval and regulation of the services. Who is in control of it? Is it the ACT government? Is it the federal government? After 30 metres or something, is that not a federal government responsibility? Whose responsibility is it?

Following these concerns, a local community group was formed called Bonython Against Drones. They gained 1024 signatures for a petition against drone deliveries in a suburb of 3,500. And I should point out that, when they came to this October meeting, we were the ones that suggested they set up a petition. We actually helped them set it up, gave them advice et cetera. Apparently they also did a doorknock that showed that 80 per cent of the people in Bonython are against the drone delivery program. I should also say that there were a number of people who liked having the deliveries, so I am trying to be impartial. But the majority of things that came to us were complaints about what was happening.

Then we were told that they are moving the project. They are moving to Mitchell. And they are planning to use a quieter drone. That sounds nice. They will be based in a warehouse at Mitchell. Initially they will be making deliveries in the industrial area of Mitchell. Initially that sounds a lot better, because they are in an industrial area. There will not be dogs, people and residents. They plan to offer deliveries to homes and businesses in nearby Gungahlin, Palmerston, Harrison, Crace and Franklin, and then they have a long-term view of operating flights throughout Canberra as well as in other cities and towns across Australia.

My concern is that, once that happens, we are going to have the same sorts of problems that people in Bonython have had with all those sorts of things. So there are questions for the future. There is great potential for a drone delivery model. I think that drones are fantastic for some of the things they do, like checking the lines and taking things to isolated areas. I think drones have a good place. But whether it is delivering stuff to your backyard, I really question.

There is greater potential for the drone delivery model based in an industrial area. There are still ongoing concerns where they move over residential areas. Who is regulating these delivery drones, and to what extent are they regulated? Can they operate successfully while ensuring that there are no mental and/or physical health effects on people because of the ongoing service, that people's privacy is retained, that there is minimal adverse effect on pets and/or native animals, that safety is guaranteed, and that they operate so that pedestrians, cyclists, and drivers are not distracted?

Mr Elford: The Gungahlin Community Council, like most of the residents in Gungahlin, have almost no experience with drone delivery systems. As we have heard from the Bonython group and others, it has been operated only on a very limited basis in trials around Bonython. It is very difficult for the community to have a position on drones without having actually experienced them. The community council has taken some efforts to inform itself, and we thank the Bonython Against Drones group for contributing their time and sharing their resources with us to better inform us.

We have facilitated briefings from Project Wing, the major proponent in this particular scenario, and we have also conducted an on-site visit to the facility at Bonython to get a bit of a handle on what it is all about. It is very clear that there is a long list of issues that are outstanding and need resolution. I do not propose to re-document them. They have been well documented by many stakeholders.

However, what we are most concerned about is that the transition from Royalla through Bonython to Mitchell is different now. In Mitchell it is not a trial. It is ongoing operations. The community council is very strongly of the view that there is a yawning gulf between their intended operations and the regulatory framework and the ability of the community to have feedback on the service.

There is no question that a majority of Gungahlin residents have said that this sounds like a great idea, but the reality is that there is no mechanism currently in place from the ACT government or from the federal government to enable the community to build a model that balances the opportunities for those who seek to get benefit from the service, i.e. those who want to buy products delivered by drone, and those who are going to be impacted by that service.

To the best of my analysis, from what we have conducted so far, there is no balance at all. There is no mechanism for both sides of that argument to be held. So the key goal for the ACT government is, in our view, to get in place a mechanism to develop that regulatory framework really damn fast, because those services are going to be operating from later this half of the year. There is no joined-up, cohesive regulatory framework that covers all of the issues raised, particularly in relation to noise and safety. The ACT government agencies hand off their responsibility at certain places, as do all the federal agencies, largely because this technology, and the use of this technology, has never been considered before.

Gungahlin Community Council is very supportive of anything that supports businesses and innovation within the Gungahlin community, but it must be done in a framework where we can have some influence over what is going to happen. So we believe the onus is on the ACT government to put in place mechanisms to construct

that framework. I cannot stress that point enough. There is clearly a failing of regulatory oversight to make sure that the users of the service are not going to adversely impact those who are not going to be part of the service. We have numerous examples of what that covers.

Much of the focus of this particular inquiry has been on Project Wing. Project Wing are not the only provider of drone delivery services in the world. Indeed there are a couple of drone delivery service companies, start-ups, in Australia, and the ACT government needs to avoid any sense of favouritism. We are very supportive of the idea of pathfinding and introducing things, but if you are going to construct a regulatory framework it needs to be one that is consistent across the drone delivery system industry, not in partnership with a single vendor. So I encourage you to consider addressing the industry and the platform, rather than an individual provider of the service.

During the trial period the primary point of contact for any issues was the proponent of the service, i.e. Project Wing. That is a completely unacceptable situation. Regardless of whether the intent of Project Wing is positive or negative—and I think there were mixed experiences in that area—with this new service, for which there is an emerging, at best, regulatory framework, it is completely unacceptable for the proponent and operator of the service to be responsible for providing the necessary feedback and controls. It just fails the common sense test. So I think there is a very serious obligation on the ACT government to step up to make sure that that gap is filled.

THE CHAIR: Thank you both for your opening statements and for your submission. In terms of the framework that you have suggested that needs an all-encompassing framework—and certainly we have heard today that there are gaps in regulation and a lot of different people responsible for different things—is it your recommendation that the drone operations in Gungahlin not proceed until such time as that framework is established? Could it start without that or do we want to wait until that framework that you are proposing is established?

Mr Elford: I think that there is quite a long answer to that question. As I have indicated before, we do not want to stop any innovation and we do not want to be seen as anti-development and anti-opportunity but it is not acceptable for an operator to be conducting ongoing operations in a regulatory framework which is peppered with special exemptions—they have special exemptions to conduct the trial—and if we are going to have that as an ongoing operation it cannot be through an exemption; it has to be through some regulatory framework.

That said, the structure of that framework is very difficult to know yet because we have only had very limited trials. There are I think 68 end users registered for the service in Bonython. I think having a mechanism in place by which the community can be engaged and provide feedback is absolutely a prerequisite before getting the trials underway but I appreciate that constructing any sort of regulatory environment—any sort of regulation around anything—is a many months, arguably many years, process and I would not like to see an innovation stall. However, there has to be a mechanism by which the community can provide feedback and for both the government and the operator to respond to that feedback in a transparent and

accountable manner.

THE CHAIR: Point of contact whilst this is operating is one matter but one of the things that we heard certainly from Bonython Against Drones was that in the consultation process warning people that this is coming—because not everybody tunes into Assembly inquiries—there was an issue about things not being delivered in “no junk mail” households. Are you satisfied that the community is prepared for and aware of what is about to happen or does that need to be better addressed either by Project Wing or by the ACT government or someone else?

Mr Elford: I think the community, as much as the community is ever given the opportunity to learn about things, is as well prepared as they perhaps could be on the basis of what the proponent has undertaken and what information we have been able to gather and share through our channels. I would observe that the ACT government has been noticeably absent in advertising that they have allowed and are supportive of this program, not only in the earlier trials but they have not made obvious, for example, that should you have problems with the drone service, please call 132 281 and press option 7 to go through to the drone hotline or whatever the service is.

The only communication that the Gungahlin community would have had was through traditional media channels and through our public meetings where we have had the relevant speakers along, plus our normal channels through Facebook and emails.

THE CHAIR: In lieu of regulation that needs to be put together in a framework, is it your view that there needs to be more involvement from the ACT government at this stage, not necessarily to make the rules, because some of it is not up to the ACT government, but to be a sort of coordinating body so that if there are concerns, if there are issues or are questions, it is an ACT government point of contact rather than Project Wing?

Mr Elford: Absolutely.

MS ORR: Can I ask a supplementary and then I will go to my substantive. Mr Elford, I think Mr Hanson put to you: should the operations proceed without the framework in place? And I know you gave quite a long answer. I can see the difficulties in trying to answer it but I really must say that I still came out a little bit unsure where you would sit with that. If it is the case that the framework cannot be put in place or if certain things cannot be put in place, would you then not support the project going ahead or is it that it can go ahead but you would prefer those things? I am just trying to get a better idea of where this line is drawn.

Mr Elford: In my opening statement I made a point that the number of people who have actually experienced the drone delivery system remains extremely small. I do not think anyone in Gungahlin can make an informed comment about what it will be like, positively or negatively, to get stuff delivered by drone until they have actually experienced it. I am strongly of the view that you will have to learn by doing. People will have to start ordering it and see if they like it. Does the experience match their expectations? Are they happy to get the meal they want delivered in three separate deliveries? And are the people on both sides of that person getting those three deliveries happy with the way the drone will operate?

They will operate differently to the Bonython trial. It will be a semi-industrial area that will be the drone home but there will still be overflight of lots of open grassland and of course across the suburbs that are directly attached to that grassland.

The short answer is that I think it should proceed. There absolutely needs to be a strong mechanism for the community to provide quick feedback and the ACT government to be in a position to exert some control over the operator, in the worst case to cease operations if the community is sufficiently unhappy.

MS ORR: That helps clarify it.

Mr Elford: On balance, with those who are getting benefit.

MS ORR: My substantive is: you have got in here “local businesses and supporting local businesses”. Other submissions have raised queries as to what the economic benefit is and whether any of these local businesses are going to be supported. I want to get a better idea from you how you see the drones supporting local businesses and if there are any, I guess, caveats or things that need to be taken on board to make sure that that opportunity is fully realised?

Mr Elford: In our informal conversations with the Mitchell Traders Association, they have indicated that there are a number of vendors, a number of operators within the Mitchell area, that see it as a great way of getting their products to market. In general, the, I guess, large-scale view is that it is sort of another way of getting products to market easily and accessibly.

I have not had any direct contact from people saying, “I see this threatening our business or reducing our opportunity,” but I would like to again stress that the experience to date is extremely limited. All the media we have seen and all the experience and feedback we have had is from a very small community. Given the volume of that feedback, given the small size of the community, there should be a learning there that, as we move to a much larger operation involving potentially hundreds or thousands of end users, then you would reasonably expect that you would get a much larger amount of feedback, both positive and negative.

MS ORR: Glenys, did you get any feedback or did the council receive any feedback from local businesses in Bonython?

Ms Patulny: No. I think we only had two. I think Chemist Warehouse and I think a burritos place; they were the things that they delivered. No, we did not get any feedback from local businesses but, as I said, they are only talking about those two products when they are talking about Gungahlin.

I think they are going to broaden it and, as I said before, I think in the industrial area it might work. But my concern is when it gets to the residential area. This is where all our complaints have come from and my personal opinion is that there needs to be some regulation before they start going over residential areas again. Maybe go ahead with the industrial part but get something in place before you start looking at residential.

MR PETTERSSON: One of the common themes that I have picked up from the Bonython trial is that there was not enough consultation and people felt like this was sprung on them. I was wondering, Mr Elford, if you could detail some of the interactions that GCC has had with Wing.

Mr Elford: We certainly do not feel like the move of Project Wing to Mitchell and to service Gungahlin was sprung on us. It was not a surprise. Certainly they flagged that as early as late last year; approached us via email and via phone, asked for the opportunity to speak with the executive. I and one other member of the executive spoke with them informally, and we then organised a formal presentation from Project Wing.

We have been approached directly by the Bonython Against Drones group. And we again thank them for the pretty substantive work that they have done in that area. And we provided them also with some time to speak and give the community a chance to hear that. That was at our public meeting, which we also live streamed and recorded and put online. And we have been sharing most of the media and press through our normal channels as well. We do not feel like it has come as a surprise. I think we have a fairly informed executive around technology and some of the issues.

Again, I cannot stress enough that the number of people involved in drone delivery systems is in the small number of hundreds. There may have been a large number of impacted people but we really do not know. This is an evolving scenario and, for it to be successful, the ACT government needs to be a very active participant in a roundtable discussion that involves themselves, the ACT government and their agencies, the federal government agencies, the community and ideally the rest of the drone industry rather than just Project Wing.

MR PETTERSSON: Can you think of any other ways that the Gungahlin community can be engaged as this operation starts?

Mr Elford: I think the least explicit way people can be engaged is through a series of demonstrations where in this case Project Wing—or it could be another operator—actually conducts a series of demonstration deliveries into a set of known locations so that people can see how it is going to work and then have it delivered to, I don't know, three locations in Crace and four in Gungahlin and then go along and stand in a park or something and watch it being delivered and get a feel for what the actual noise experience is like and what impact it might have on their pets and animals. Upfront exposure to the actual experience I think will be pretty crucial to introducing it. They have indicated that they are open to that idea when we have suggested it but they are still yet to commence the construction work on their site in Mitchell.

MR ORR: I just want to clarify a little more, Mr Elford: you have said a few times now that there is a bigger role for the ACT government, more feedback loop mechanisms between not just Wing but industry and the federal bureaucracies. We have heard in a number of submissions, and it has come up in other discussions, that the federal government and their agencies have quite a strong lead on a lot of the regulation and the ACT government has stated that they are limited in what they can do due to federal-state relations.

I just want to get a clearer idea from you, given that there are a lot of groups that have different responsibilities—and I understand the need to bring those together, and they have certainly said in their statements that they acknowledge that—what you think or what you see the ACT government’s role being, aside from the communication issue that you already spoke about? Is there anything else that you see them taking a lead on?

Mr Elford: They are ACT residents. They are the responsibility of the ACT government. You need to represent them in ensuring that there is a regulatory framework that covers your agencies and any federal agencies that might be involved. If they were New South Wales residents I would be sitting in front of a New South Wales committee. But they are ACT residents and it is therefore the ACT government’s responsibility to ensure that you look after their interests; again, balance between those who want it and those who may be opposed to it. But we see it pretty crystal clear, to be honest.

Ms Patulny: And could I just comment that I think that the Bonython residents did not feel that there was some place that they could go to. And I think that that was a big problem.

Mr Elford: Sorry to interrupt but I completely do not accept that the ACT government can say, “I’m sorry, that is CASA’s responsibility.” You need to be advocates to get good outcomes for the ACT residents, and if that requires you to sit all of the stakeholders I listed before around a table and have it out and agree that if there is a noise issue it is no good that the EPA ACT says, “No, I’m sorry, we don’t do aircraft noise,” and you go to Airservices Australia and they say, “Oh, I’m sorry, we only do piloted aircraft, not unmanned aircraft,” hang on, there is still a noise problem, and that noise problem is a place-related issue, and place is the ACT. Therefore, it is an ACT government problem.

THE CHAIR: I am not sure that there are any more questions. But thank you very much for attending. The draft *Hansard* will be sent to you for you to review, to make sure it is accurate. But thank you very much and good luck with your drones in Gungahlin.

Mr Elford: A lot of people are very excited.

Hearing suspended from 12.05 to 12.20 pm.

BURGESS, MR JAMES RYAN, CEO, Wing

THE CHAIR: Welcome to the public hearing of the Standing Committee on Economic Development and Tourism's inquiry into drone delivery trials in the ACT. On behalf of the committee, thank you for attending. I believe you have come all the way from the United States?

Mr Burgess: That is correct.

THE CHAIR: You have probably come further than anyone has before for a committee hearing in the ACT. Well done on that.

Mr Burgess: I am happy to participate; thank you.

THE CHAIR: I want to firstly draw your attention to the pink privilege card in front of you. Could you make sure you are aware of that. It is important to understand what your rights and privileges are here.

We are being recorded here today and transcribed for *Hansard* and webstreamed. Before the committee asks questions, I invite you to make an opening statement.

Mr Burgess: Thank you. We really appreciate the opportunity to participate in the inquiry. I will keep my opening remarks brief, because we would love to get to questions and answer anything you may wish to know about.

As a bit of background, we began this project 6½ years ago, in 2012. We have been motivated about the idea of improving transportation in our cities, to find ways that we can make transportation faster and less expensive, and more sustainable, more environmentally friendly, than methods we use today.

Over the past 18 months we have been conducting trials in Canberra and the greater Canberra region. Those trials have been the most advanced drone delivery operations in the world. We are really grateful for the opportunity to be participating in Canberra and learning from the trials. Also, we believe that Canberra should be proud for setting the stage for the most advanced trials and being at the leading edge of this technology.

Our experience so far has been extremely positive. We see, from our experience, that Canberra has lived up to the reputation of being technology-forward and open to new methods of doing things that can improve our quality of life.

We have had some feedback from our trials, both positive and negative. We would love to get into that today and talk about how we are improving and learning from that. But, ultimately, we want to just admit that we will not even be successful as a business ourselves if we cannot create a technology and a service that is acceptable to the greater community. So that is in our interests as well. We would love to have discussion and dialogue around everything we can do to make that acceptability as great as possible.

We would be happy to continue discussions today, as well as in the future, to look at any type of regulatory frameworks or new processes that need to be put in place, to connect the community and the feedback that needs a channel to be heard to whatever government agency or level is necessary. We are supportive of that and happy to work with you as we can be helpful to that end.

With that, I am happy to take any questions you may have.

THE CHAIR: I had the opportunity to go to see the trial, so I do not need to understand exactly the operations of it, although we may get into that a bit later. But we have heard a lot from the community where the trial has been conducted, in Bonython—you conducted one earlier in Royalla in New South Wales, I understand—and there are some concerns that have been raised. There are significant concerns about noise and there are concerns about safety, privacy, the environment—particularly the impact on wildlife and domestic animals—and gaps in regulations. They are some of the issues that I want to talk about today.

Firstly, with noise, I know that you have made some adjustments to the drone that was used in Bonython.

Mr Burgess: Correct.

THE CHAIR: The same drone but with amended propellers. Can you tell me the technical specs of how many decibels it is and what pitch it is at? Have you got that data?

Mr Burgess: We do. We have been taking our own measurements of noise for many years as we developed this technology. Throughout the trial in Bonython, we engaged a third-party consulting firm, WSP, to take measurements for us as well. We want to make sure that the data is objective and obtained with expert experience and tools that are calibrated to get proper measurements.

I have the data with me today. Stop me if this is too much detail, but I am happy to go into the numbers.

THE CHAIR: Probably the numbers will not mean a lot to me until we analyse them.

Mr Burgess: Sure.

THE CHAIR: If you have all that data there, could you provide it to the committee? Could I ask you to do that separately? There is data about decibels and frequency. If you only have a quick summary, do so, but if you could provide that data, it would be helpful.

Mr Burgess: We would be happy to talk about providing that study in the near future. We are finalising some of the terms with WSB.

THE CHAIR: Great.

MS ORR: Is there a quick summary that you could give us?

Mr Burgess: Sure. I believe you are aware, and some of the earlier discussions touched on this, that there are two modes of flyover aircraft. One is when it is hovering, delivering a package. The other is when it is transiting quickly overhead. Through our feedback that we have received, and we think from the comments of others, the hovering has been the key focus where the noise has been the most disruptive or has the most impact.

Let me speak first to the drones that we operated in Bonython only. We measured those ourselves, but also had this confirmed by WSP. Those were 62 decibels measured at 25 metres. You may be familiar with the fact that the way sound works, the decibels will be higher if you are closer and much less if you are further away. We take that 20 to 25-metre distance as a measurement that is typical from an adjacent yard. So the most proximate neighbours experiencing a delivery to their next-door neighbour would see something like 62 decibels. For reference, the new aircraft that we are going to be operating in the Mitchell area in the future has measured at 55 decibels, so a seven decibel reduction, which is quite significant. You also mentioned the tone and the pitch, and we are very sensitive to that too.

The sound may not be high—by the numbers, it is very comparable to road traffic and other devices we see in our communities—but we admit that it is a unique sound and it really draws attention. It is an unknown, unexperienced type of frequency. In that specific frequency, with the higher pitch that really gets people’s attention, we see a 10 to 12 decibel reduction with the new aircraft that really focuses on not just being quieter but also having a more pleasing tone that is at a lower frequency and that blends in with the background noise more readily. Fifty-five is the measurement for the new aircraft.

THE CHAIR: Are you continuing to look at how you can make it quieter and address the pitch? You have done this first step? Is that an ongoing piece of research or development?

Mr Burgess: Absolutely. I will say that, through the feedback we received in the Bonython trial, we did hear some concerns about safety and privacy, but the vast majority was about noise. From the feedback we received directly, 91 per cent of the critical feedback addressed noise, so we have placed our resources there most extensively. That is also because we believe that our safety case is well justified and approved by CASA. We think noise is a place we should continue to focus. Our team is continually looking for ways to improve that, both on making the drone quieter and on finding ways to operate in our communities that can look at distributed flight routes and things so we do not impact one area more than others.

THE CHAIR: Did you receive direct feedback from the community? Were the concerns directly to you?

Mr Burgess: Yes. Directly to our team. I received some personally. We also have a website that can be filled out with a contact form, email and contact information. So amongst our team members we received direct feedback from the community.

THE CHAIR: You said that 91 per cent of the complaints were about noise.

Mr Burgess: Correct.

THE CHAIR: How many complaints did you receive?

Mr Burgess: We received feedback from 119 residents of Bonython. Of those bits of feedback, 60 per cent were positive and 40 per cent were critical, and the vast majority of that 40 per cent was about noise.

MS ORR: Was the feedback from the residents of Bonython from participants in the study or from neighbours to participants in the study?

Mr Burgess: We received feedback both from participants and from non-participants. Proportionately—

MS ORR: Do you have a breakdown of the feedback?

Mr Burgess: I do not have that precise information here with me but we would be happy to take that on notice and follow it up.

THE CHAIR: Yes, that would be useful, as to whether your 60 per cent were all people who were participants and the 40 per cent were all people who were not. On safety, did you have any incidents through the course of this trial?

Mr Burgess: No safety incidents, no injuries and no property damage. The system has been extensively tested to make sure that we are operating at the highest levels of safety. As well, CASA has gone through an extensive assessment process with us to make sure that our system is up to the highest levels of safety. We believe CASA's reputation as an aviation regulator speaks for itself. So there have been no safety incidents, we are pleased to report.

THE CHAIR: We have been advised that there were a number of incidents where there was birdstrike. Is that the case?

Mr Burgess: We have heard some comments of that nature, but when we have discussed it with community members, and even when we have seen some video that they have submitted to us, we have seen a few instances of swooping magpies that get close to the aircraft. They come and investigate and then fly off. But we have no records or direct observations of actual striking of a bird, and that is inclusive of looking at all of our flight log data from the aircraft performance to see that it was not disturbed by some foreign object.

THE CHAIR: We were also notified of an incident of a drone impacting a vehicle.

Mr Burgess: No, we do not have any experience of impacting vehicles. There was a comment made earlier of a package being delivered that may have contacted a vehicle. That is a case where we believe a customer had parked a car where they do not typically park it. The drone was delivered to the requested spot and the package contacted the vehicle. The package is lowered very slowly—we have one of the cover packages there—and there was no damage or concern whatsoever.

THE CHAIR: Is there any experience of a package falling off, for want of another phrase?

Mr Burgess: No. Fortunately, we have a lot of redundant systems to ensure that they stay rigidly attached and can detect any issues before the aircraft commences its operations, so we have no experiences with that.

THE CHAIR: You have not had cause to report any incident to CASA based on their requirements?

Mr Burgess: Correct. We do keep CASA updated. By way of our typical operations, we submit a monthly report of all flights, all activities, and if there are any incidents we report those immediately, although, fortunately, as mentioned, we have not had any.

MR PETTERSSON: What are the criteria for something you would report to CASA?

Mr Burgess: Anything that causes any property damage or any personal injury to anyone, either a bystander or members of our team.

THE CHAIR: What about property damage to one of your drones?

Mr Burgess: We have not had that either. Because the aircraft are low in cost and owned by us, we do not have to report any aircraft issues, unless it caused a safety incident.

THE CHAIR: Say the drone ploughed into the ground and no-one was hurt but the drone was destroyed or badly damaged, would that be reportable?

Mr Burgess: Yes, in any instance where there is a hazard. Even if someone was not injured or there was no-one present, if we have the system operate in a way that is unintended or has a failure of the systems, that is reportable, and it is something that we would even voluntarily submit to CASA as well.

There have been a few instances of aircraft taking contingency landings where, for various reasons—and I am happy to go into them—they determine that it is safer for them to land safely than to proceed on their mission. That is a case where they operate as intended. They are programmed to take that action for safety.

THE CHAIR: That would be a wind gust or—

Mr Burgess: Correct. Actually, the majority of the causes have been high winds, and we have very conservative limits set. Even before we reach the ultimate level of wind that the aircraft is able to handle, for safety and to keep a high margin, we will determine to land before proceeding with the flight.

THE CHAIR: What regulations and laws do you work under for privacy?

Mr Burgess: We comply with all of the Australian privacy laws that we are required to for our operations, and the Australian privacy principles. We also have a privacy policy that is published on our website that we comply with, to ensure that we are being transparent about how data is handled.

THE CHAIR: How is that handled? Can you give a quick synopsis?

Mr Burgess: Sure. Privacy is very important to us. We respect that, and we know that it is a sensitive issue for the community, especially since these aircraft were not flying above households before and they are now. That is a new experience so we want to be really sensitive to those concerns.

In our submission, near the end, we provide example data of what is captured by the aircraft. Something to note is that, first of all, it is very reasonable for community members to have privacy concerns about drones, especially because, with most drones that we are familiar with, their whole purpose is to take imagery. Hobby drones and commercial drones have sensors and cameras that you can point and zoom in. Our aircraft does not have a camera like that. It does have a camera that looks straight down, for navigational purposes only. It works just like an optical mouse, where it compares frame to frame to see how fast it is going and in what direction. That is not sent back to our operators. In fact, our pilots have no view or no way to access that. So it is not imagery in the typical sense that people are familiar with for drones; it is an automated processing system on board the aircraft to aid in the case of GPS failure.

We understand there is concern around image data. We provide that example in our submission to show the low resolution, black and white colour. It is really not possible to identify people from the resolution that we obtain, yet we still take that data very seriously. It is stored and encrypted, and there is restricted access so that only for engineering and data purposes are we able to go in and access that data, if needed.

THE CHAIR: When you got approval from CASA to do this, my understanding is that CASA gave you some sort of interim guidelines or regulations in terms of operations. Correct me if I am wrong: drone flights normally have to have line of sight with a pilot. That has been waived in terms of distances from various objects and people. That has been changed. CASA has given you these guidelines. What is the status of those guidelines? Are they interim guidelines? What are they?

Mr Burgess: I do not want to speak too much for CASA. They are experts in the way that they run their systems. There are typical drone rules that are applicable to any operator and if you want to do something more complex and more advanced you have to get specific assessments and specific approvals.

We went through a process with them, leading up to the Bonython trial. I believe it was longer than six months, a very in-depth review of our systems and our safety data. At the end of that, they are able to grant these exemptions, these alternative means, for complying with the rules, based on the operation we have and the safety data we have. My understanding is that it is a time-limited instrument of approval; so we have to regularly update CASA and seek further approvals to go beyond the time frame that we have today.

THE CHAIR: In terms of the environment and the impact on wildlife, it does not seem that there are any particular studies; it is all anecdotal, in terms of whether it is impacting birdlife and other life. Have you commissioned any review by an independent body? Where are you up to with that?

Mr Burgess: Yes, we have. Wildlife is important to us. In fact one of our motivations is that, by moving risk from the ground to the air, we might be able to better handle the environment. You are probably familiar with the fact that kilometres driven on the roads actually harm a lot of wildlife, ground-based and birds, every year. We think that this has the opportunity to help that impact and reduce that critical severity to wildlife.

That said, we have engaged NGH, an external party, to do a study on birdlife. They have recently completed that study. We are working through some of the finer details, but we would be happy to submit that, in commercial-in-confidence, today, for you to look at the results.

That is one study that we think is the start of this conversation, but we want to make sure that we are continuing to investigate and learn about the impacts. We are also in discussions with the Canberra ornithological society. Hopefully, those discussions will lead to further studies that we can do more broadly.

THE CHAIR: With the wildlife study that you said you have received, you said it is commercial-in-confidence; is that right?

Mr Burgess: Currently, there is a bit about our operational details in there, and we are looking to remove that before we submit the study publicly. We would be happy to share that today in confidence.

THE CHAIR: When you are able to, we would like to release it publicly, if we can; so the copy that you are able to give us publicly would be useful.

Mr Burgess: Absolutely.

MS ORR: That is going to native birdlife and so forth. We have heard from the equestrian society and dog clubs. Have you done anything on domesticated animals as opposed to—

Mr Burgess: We have done our own tests. Again we do not want to speak just from our own experience. We understand that a third party is more credible in that sense, so we are engaged in discussions with various leading universities in this area. We do not have a study of that completed, but our intent is to get that going in the very near term, both for dogs specifically and for other types of animals, domestic and otherwise. That will be on our road map in the future as well.

THE CHAIR: It strikes us that there are some regulation gaps here. There are no noise regulations, for example; there are regulations only for manned craft, not for unmanned. It seems that there is some degree of confusion about who is actually responsible in this space. CASA has its rules and regulations, but what role does the ACT government have? Do you have a frustration, in rolling this out, that it is not

clear? Are you finding your way a bit in the dark with this as well?

Mr Burgess: First of all, we are very sensitive to that issue, and we are complying with all the regulations that apply to our operation. That said, we understand that new technology, when it arrives, especially if it has the potential to be disruptive to the current ways that we behave in society, generally does not fit existing frameworks. We recognise that as well.

That frustration and those observations from community members have been expressed to us, and we are supportive in finding ways that we can connect some of the local sensitive direct issues with the broader commonwealth framework for aviation. We agree that there is more to be done and that we can help provide suggestions or proposals, or just be participants in new frameworks as they get set up.

MS ORR: Can you elaborate on that and expand on that a bit in the sense of what you see Wing's role being, given that it is new technology? It is not a regulated area, because it is an emerging technology and it is not an issue that we have necessarily had before. As well as the government and the relevant federal agencies, what do you see Wing's contribution as a leader in developing this being?

Mr Burgess: We are really passionate about this technology and about the potential future benefits. But, as mentioned at the start, if we cannot come up with a way to do this in ways that are acceptable to communities, we are not going to be successful, and we think the broader industry will not be successful. We view our position as one of the leaders in this industry very responsibly: we have to be courteous and sensitive to these issues, and we have to show by example that we are open to feedback and open to adjusting how we approach this.

MS ORR: What are the things you have been doing to show that you are open to the feedback, and how have you demonstrated that you have taken that feedback on board?

Mr Burgess: Great question, and it is very appropriate to ask. We do not just want to hear feedback and check a box; we want our actions to speak louder than our words. When we speak specifically to the feedback from the Bonython trial—I think that is the most relevant—there were several areas, but there were three that were most loud and clear to us.

Noise was mentioned; you are already bringing that up. As soon as we could, after hearing some of that feedback, we adjusted our flight routes. We slowed our aircraft down in the transit mode of flight, which makes them quieter. We did what we could immediately to try to alleviate some of that concern. Then we kicked off the research project to work on quieter propellers, which we will be releasing soon.

We also heard feedback that it does not seem appropriate to set up a drone operating area next to dog parks and residential areas. We agree with that feedback. We have started looking for other locations. That is what led to our choice of the Mitchell industrial area to base our operations. We are choosing to move to an area that is more suitable for these types of operations.

We also heard feedback about community outreach. That is a big one, since a lot of new technology has a lot of uncertainty or hesitation around it because there is not a lot of information. We have some examples and experience with outreach to the Bonython community and greater Tuggeranong area. I can go into details if you would like to hear that. But we took that feedback to heart and we say that we want to do even more.

As we began setting up for operations in Mitchell, we extensively engaged with the traditional methods we used before: community meetings, doorknocking, letter drops et cetera. But we have also performed over 30 pop-ups in community areas—the Gungahlin Marketplace and the Crace commercial area—where we can set up a booth and welcome people to come and give us comments. And we take more recommendations as well. We are trying to do all that we can, and engage in all the channels that we know how to, to make sure that we are doing sufficient outreach and making sure that this is not a surprise and people know who they can contact.

MS ORR: That is good for educating the community as to what is coming so that they are aware and they know what it is. What happens if there is feedback that they want to provide to you? Obviously there is a mechanism feeding that back in, because you have had the responses. But more broadly my question goes to: what happens if the response you have provided is not viewed as adequate by the community? What mechanism for further feedback or appeal to your position is there in the current system that is set up?

Mr Burgess: The entities we work most closely with to operate trials like this are the ACT government, CASA and Airservices. Those are entities that community members should be able to approach. We understand that there is maybe some grey area about the total remit or authority of different agencies to govern aspects of systems like this, but we welcome any types of proposals or any frameworks that allow the right level of community representation, even all the way up to the commonwealth level.

MS ORR: The part that is sticking in my mind, though, in this conversation is that we have heard a lot, particularly from community members, that, because this is an emerging area and it does not have a huge amount of regulation, it is not always clear whom to direct your issue to and it is not always clear how the person receiving it is meant to respond to it or where they fit. There is a lot of confusion there which is causing a lot of confusion within the community.

One of the things we have heard as well is that the community has identified that Wing is the main place where feedback has had to go, but there is an issue there with the transparency of what is done with that feedback and how it is incorporated into future activities. I am trying to get a sense of Wing's position on how that deficiency, for lack of a better word, could be improved.

Mr Burgess: To go back to one thing you said about lack of regulation, I think it is worth pointing out that aviation is one of the most highly regulated industries in the world. Even though some of the particular local nuances of our operation might be not yet encompassed by regulation, the vast majority of what we do is very strictly regulated. There are a lot of different limits and hoops that we have to jump through

with CASA—appropriately so—to make sure that we are ready to operate like this.

That said, throughout the trial in Bonython, and I imagine this would continue, we sent monthly reports of our operations and the feedback we received, both positive and negative, to the ACT government and to CASA. We believe that if we can be receptive of feedback but also be transparent and submit that to both the territory and commonwealth governments, that provides insights and good transparency into what some of the challenges are. And we invite recommendations and proposals from the ACT on what more we can do, or the best channels of communication we can maintain, to make sure that this is done successfully.

MR PETTERSSON: What no-fly zones do you currently operate with?

Mr Burgess: We have the CASA-mandated aviation rules and constraints. Those encompass things like sensitive areas like prisons as well as airport airspace; around Canberra airport, for example. Those are what we work with broadly as far as no-fly zones—I will say “air space definitions”—that apply to any operator, ourselves included, is concerned.

Then we have specific regional boundaries for approval that CASA grants. When we do an application for an operation like this, we submit where we would like to operate and what types of flights we want to do. CASA, in partnership with Wing, does an extensive risk assessment to look at places where they believe it is acceptable for us to fly and places we should not. They provide a strict boundary that we stay within. That is how we have worked to date.

MR PETTERSSON: Are there any community-driven no-fly zones? Equestrian parks? Dog parks?

Mr Burgess: A no-fly zone, in the strictest sense of aviation, has a very specific meaning and long-running implications for how aviation operations are conducted. I can go into that; I do not want to get into too much detail that is unnecessary.

We do take the feedback of community-sensitive areas to heart. As mentioned, some of the first feedback we received in the early weeks of our trial in Bonython was that many of the aircraft were flying over one specific area quite often. We voluntarily looked at ways we could distribute those and readjust flight paths so we could reduce the impact to that portion of the community. So we are happy to take community feedback. I think we show by our actions that we are willing to adjust for that.

If we talk about specific no-fly zones, that definition of that word, that has some implications with CASA at the commonwealth level that need to be fully understood before something like that is implemented. We are happy to have those discussions and look at the best solution for communities.

THE CHAIR: You may develop that relationship with the community at an agreed level and decide to do that, but then another operator may come in and decide that that is not the case. Is there any provision, any ability, for the ACT government or another body to say, “No, don’t fly in that space”? Although it is not a specific no-fly zone as it is understood now, that cannot be imposed on you or on another operator? Is that

what you are saying? It is only through goodwill?

Mr Burgess: Let me tell you my understanding of the situation. When we operate in the ACT, our operating area where we take off and land is governed not only from CASA regulations from aviation but also by the business licence in use for that piece of land. There are a lot of constraints and regulation that can be imposed at that level. When we are flying, we are governed by the commonwealth approach to aviation from CASA and Airservices. That is where most of the flight routing, no-fly zones or sensitive areas get handled, at the level of CASA.

We think that there is room for more input and more proposals from territory and state governments to the commonwealth level, to take account of some of the very local nature of these operations. But today, to our understanding, CASA is the one that arbitrates what happens in the air.

MR PETTERSSON: Have you identified any sensitive areas in Gungahlin?

Mr Burgess: We are looking and talking to the community. We have not begun operations there yet. Part of our outreach process is to make sure we hear from a lot of members of the community. I believe you heard earlier today from Belconnen dog club and the equestrian centres that noise would be a sensitive issue for them. We are happy to take that feedback and look at how we can make sure our initial operations, and perhaps even the long-term operations, do not pose any significant impact. We are in that process. We welcome feedback from any source to help us inform how our operations should be done acceptably to the community.

MR PETTERSSON: I feel that I have asked this before, but I cannot remember the answer. What are your operating hours?

Mr Burgess: Presently we have wrapped up our trial in Bonython, so we are not operating today. I should check this for you to make sure I am giving you the right information, but I believe that on weekdays we operated from 8 am till 6 pm or 7 pm. Those were the most extensive hours we performed. Earlier in the trial we had more limited hours, and we slowly expanded to test different value propositions like dinner service or breakfast service. Then we had more restricted hours over weekends.

In fact for the second phase of the trial until we ceased operations in February, we actually stopped flying on Sundays and moved some of our operations to weekdays, based on feedback about the proximity to the Tuggeranong Dog Club, where most of their events and training occur on Sundays. We were willing to stop operating on Sundays to provide that level of reduced impact, especially since we were located so proximate to their facility. Moving to Mitchell provides us an area where we will not have immediate neighbours of that nature.

MR PETTERSSON: How much interest have you received from commercial vendors about opening up in Mitchell?

Mr Burgess: Quite a lot. In fact we knew of Mitchell, Fyshwick and other industrial areas but it was the Mitchell Traders Association that invited us to come and engage with them to consider the Mitchell area. And we have had overwhelming support

from local businesses in the area wanting to take advantage of the less expensive and further range delivery service that we can offer to help them expand and reach new customers. One of the most positive voices for us is the local businesses that really understand their economic constraints and the benefit they might have from a system like this.

MR PETTERSSON: I take it there is going to be a different offering of services from Mitchell. Can you give me some clues as to whether I can get a burrito?

Mr Burgess: We have the existing merchants that we partnered with in Bonython. Many of those will stay with us in the trial. But we are also looking to go up to perhaps more than two dozen local businesses from the Mitchell and Gungahlin areas. For us, one of the opportunities that we now have in conducting these operations is to learn what community members want and value, and what businesses would benefit the most from with a system like this. So we are excited to open more widely to greater participation from other local businesses that can learn with us about the best value offering.

MR PETTERSSON: In Bonython you originally had 577 residents registered to use the service but only 164 were selected. Will there be a similar process in Gungahlin?

Mr Burgess: I will not speak to exact numbers in Gungahlin. In Bonython, yes, as you just mentioned, we had almost 600 sign-ups from the Bonython community and, to keep the trial small and make sure we could provide adequate engagement with the number of testers we had, we capped that at 164; that was the maximum number.

Similarly in operations in Mitchell our intent is to roll out very iteratively and start with the surrounding suburbs, but even of the five surrounding suburbs we want to start with just one or two, so we can take our time and really get feedback. Frankly, we have made some changes with the higher aircraft and different flight routes, as mentioned. We want to hear if that is acceptable. We want to get feedback that that is addressing the issue. We do not want to scale too big too quickly. If this is not accepted by the community we will not have a successful business.

MS ORR: It has been raised throughout the day that people have a general sense of confusion as to why what is perceived as a permanent operation is opening up pretty much as soon as a trial finished and before there has been time to do an evaluation of feedback. But from what you have been saying, would I be right in assuming that it is an iterative process that has to be refined? Can you clarify for me what is happening, how this is going to be further developed and where the trial fits in places of permanent operation?

Mr Burgess: Absolutely. I think a good way to summarise is that the previous trials we conducted in Canberra and just across the border in New South Wales were on the basis of temporary property leases and temporary licences. As part of this issue of trying to provide the right channels for feedback and the right level of community engagement, we wanted a permanent location that would allow us to go through the DA process and get permissions and licences from the ACT as necessary for us to establish this type of business operation.

The location we are selecting is what we call our permanent base or permanent location because we are establishing a long-term lease and a full DA for approval. That said, our actual flight operations are still in the early stages. Even though we have a tremendous level of safety and testing data which show that we are ready for successful operations, engagement with the community and engagement with local businesses are still in the early days.

We think it is imperative that we take that responsibility iteratively so we do not scale too quickly. Our intent is to continue to invest in the Canberra area, and in Mitchell specifically. But, as far as the actual operations we perform go, we will still do that iteratively and a step at a time.

MS ORR: We have had it raised today that in the best case scenario, if you are successful, you can do up to 11,000 movements or something a day of these planes. How do we know how you get from this small trial of a few hundred people to nearly 11,000 movements a day? Where is the information on how that progression goes?

Mr Burgess: That is a great question. That 11,000 is not our number. We think it came from a *Canberra Times* article with a speculative reporter perhaps extrapolating some numbers. As mentioned publicly, we are looking at these first five suburbs of Crace, Palmerston, Franklin, Harrison and Gungahlin, and we have no plans to expand beyond that until we see that we can do just those successfully.

We will keep the community updated. We will keep this information updated on our website with our intent. And we are also taking to heart the feedback we received in Bonython that some of the consultation could be improved and there could be more channels. So we are looking for ways that we can even have face-to-face engagements and more opportunities for community members to speak with us. We also welcome any additional suggestions for how we can keep that information transparent and make it accessible. Our intent, again, is to work closely with the community to make sure that every step is done acceptably.

MS ORR: With the rollout to Franklin, Harrison, Crace, Gungahlin, and Palmerston, when are you going to go to the public and start gauging interest in participating in the scheme? I think you have still got the DA process for the warehouse in train.

Mr Burgess: We are working through the DA process and the additional CASA approvals for the Mitchell area. We have already begun our outreach to the Gungahlin area. In fact even since last year we have been doing a lot of these committee meetings. We met with the GCC, for example, several times. We are looking for ways that we can get information out there about our intent and the types of operations that we are willing to do. On the question of specific sign-ups or customer onboarding, if that is what you are asking about, as we get closer to being able to begin operations, with securing the DA and CASA approvals, then we will outreach to the specific communities.

MS ORR: So am I right in my understanding that you have not gone specifically to the suburbs that you have identified for operations as yet? It has been more generally focused on the community council or the town centre?

Mr Burgess: Actually both. We have met with many different community groups, and we have a list of those that we can provide you with. In fact we have a full engagement report that outlines all of the different groups we have met with and types of engagements.

MS ORR: Are you able to provide us with a copy of that report?

Mr Burgess: Yes, I am happy to. I have it here and can provide it to you at the end.

MS ORR: Feel free to talk about it in the meantime.

Mr Burgess: Sure. We are engaging especially with the focus on those direct suburbs. We sponsored some of the Crace Christmas festival. We have been doing pop-ups in that community. We have been doorknocking and working with some of the Crace community representation to specifically outreach to the residents that would be most impacted but also have the opportunity to engage with the system. So it is general awareness in Gungahlin as a broader region but it is specific engagement in these neighbourhoods as well.

MS ORR: Is it just Crace where you have done things?

Mr Burgess: Crace, Palmerston and less so in Franklin and Harrison.

MS ORR: I live in Franklin. I know you have done stuff down in the town centre and I know you have been to Gungahlin Community Council but I certainly have not seen anything in my area.

Mr Burgess: Yes, our focus is on Crace and Palmerston.

MR PETTERSSON: One of the recommendations we had from a previous witness is that there be examples and trials in their suburbs. I remember that at the Crace Community Association end-of-year celebration you had the drone there but you could not fly it. Is that correct?

Mr Burgess: Right. We are unable to operate in those areas until we have the full CASA permissions, and we are working through that process. We did extend invitations and were taken up on them by the Gungahlin Community Council and the Crace Community Association to come and observe our demonstrations in Bonython. We performed those demonstrations to show the leadership of those groups what our system was like. We take to heart the feedback to do more of that in the actual communities when we are able to.

MR PETTERSSON: What is the gap between receiving those CASA approvals to fly and those operations starting? Is there scope in that time period to give these trial flights a go?

Mr Burgess: We can certainly look at that. For us, there are many things that we want to make sure are done well and exhaustively before we begin. The necessary approvals, of course, is a gate to make sure we are ready to operate in compliance with CASA approvals. But also we want to make sure that we have done sufficient

outreach. And that was some of the feedback we received from Bonython, that we do not want to start too soon until we have been able to engage.

I will share this report with you, as mentioned, that outlines some of the numbers we have been able to reach and the sentiment, which looks very positive. But certainly, as soon as we are able to and do so responsibly and successfully, we would be happy to consider demonstrations.

THE CHAIR: Just getting back to an earlier answer that you provided about the decibels, and that is measured at 25 metres, does the document you have got have the measurements at other distances as well?

Mr Burgess: Yes. It goes from fairly close to I think 30 or 35 metres.

THE CHAIR: It has been put to me that this is not just about the sale of burritos but about getting in as a first operator because whoever gets first in this space can set up the systems but other providers—Australia Post or let us guess who else might want to operate drones—then become I guess dependent on Google systems so that this is very much about wanting to own the air space for drones, own the technology. And as Google has done on the internet where it is very dominant, you then become the provider and perhaps the licensor and whatever else for the drone operations within Australia. Is that part of the business model here?

Mr Burgess: We have heard those comments as well but I would actually like to counter that perception. And I have some direct experiences and actions I think that can speak to that. Before I get into that, I just want to make sure it is clear to the committee: Wing is owned by Alphabet. We are an Alphabet company but we are a separate sister company to Google. We actually have very tight sorts of methods of operating where Google systems are kept separate from ours. We understand the association and some of the inferences that people might make. We get where that is coming from but, specifically to us, we are trying to operate a successful, separate company.

I also say that our whole team is very passionate about aviation. I am a manned aircraft pilot, a periodic flight instructor. I fly RC hobby aircraft as well. And many of our team do one or more of those things. Aviation is a big community and a big ecosystem where, especially for safety but for other reasons, everything has to work together.

We think that having one entity, private or public, owned airspace is a bad outcome for us. I think you are referring to some of our software systems that help manage drone traffic, and we are working on systems like that. It is called UTM, for future reference, unmanned traffic management.

Our platform is what runs our delivery aircraft to make sure they operate safely, and we are looking to offer that as a product. But, in fact, we said publicly—and I repeat today—that we are looking to offer that for free. We want any drone operator, hobbyist, commercial, if they wish to use our software, to be able to do so and we think that will help the ecosystem and help the industry operate safely.

But also to the point you are raising, we do not want to own or control or be the arbiters of how drone airspace works. So we have also lodged—and I am happy to give more details if it is helpful; I will try to keep it at high level—an open source data sharing platform that allows these UTM systems, these drone traffic software packages, to interoperate because we think the industry will be served if there is competition and if there is an ecosystem where many entities can play together.

We are strong advocates for a federated, open source network for such solutions and, typical to some aspects of the internet where you have ISPs that you can shop around and access the internet through different companies, we think a similar model where there are multiple sources will be the best for this industry going forward.

THE CHAIR: Do you think it becomes commercially viable to put all this money that you are making on this into drone technology to operate, I would imagine at pretty significant costs, with a mark-up on burritos? It just seems that that would have to be a reasonably significant mark-up in order to make it viable. But maybe that is not true. I do not want you to release necessarily commercial-in-confidence details but how do you make this work?

Mr Burgess: Our intention is that we are able to offer—and, again, be one of many that offer—drone delivery capabilities to help businesses connect with consumers. The drone delivery technology we are developing has the potential to be radically less expensive than traditional delivery, and that does not just save the business cost or margin in their offering to customers; it also helps save time and opportunity of resources they would have put elsewhere.

We think that we have an opportunity to build a successful business, Wing, but to do so by creating even more value for local businesses and consumers to help them interact and sort of aid transactions that would not otherwise have happened to help them provide better value or better service or save time or convenience at home. We think the potential is there but the work cut out for us is to make sure that that is done in a way that is successful and is commercially viable. But we can only be viable as a platform provider if the businesses and merchants working on our system come out ahead.

We see a lot of times where existing merchants today are struggling to compete when the existing delivery technologies are so expensive. And I can provide some economics if it is helpful where a large portion of their margin goes to subsidise these delivery services and they are having trouble actually making revenue. Even though their orders are going up, their take-home dollars are going down.

We think drone delivery has the potential to help support Canberra businesses to be more viable and have more margin in their pockets. That is our intent, and of course it is up to us to prove that and make sure that we are providing a valuable service. But our aim is to help businesses be successful.

MR PETTERSSON: On the network you are representing—UTM?

Mr Burgess: Correct.

MR PETTERSSON: I understand that that works for commercial drone operators. What happens for hobby drone flyers? Are their drones in that same air space but not accounted for?

Mr Burgess: In fact, we think UTM as a concept should apply to hobby drones, again not necessarily mandated or regulated. But hobby drones should be welcome on a platform like that to help interoperate and collaborate so that aircraft are kept safe. And frankly, from the research we have done and the different drone manufacturers we have spoken to, we know that hobby drones actually cause a lot of concern. I think we heard from some of the members testifying this morning about hobby drones bothering their animals and other things. And even in the headlines, hobby drones are getting too close to airports.

Our experience is that hobbyists do not necessarily have mal-intent. They are not trying to cause harm. They might just not know better. And we think if we can have a freely available software solution that helps them stay compliant and helps them understand the rules, that will actually help the industry to be more successful but also reduce these negative impacts.

MR PETTERSSON: What is required on a drone for it to interact with that network?

Mr Burgess: There are a bunch of different discussions going on with technology providers and regulators about how that can work. So there is no specific one answer. But ultimately we want to make sure, whether it is ours or someone else's UTM system, that the barrier to use is as low as possible. And that is one of the reasons we want to offer ours for free.

But also it can be as simple as a drone flying today by hobbyists who often use their cell phone to control the aircraft. That cell phone is connected to the internet and it can send limited amounts of data about where that operation is occurring and what the drone is doing and also get the latest sorts of air space definitions from CASA and Airservices to know how to comply. We think it could be as easy as an app on your cell phone. As long as the barrier is reduced and the value-add is high, we think compliance will go up.

MS ORR: I have a question about the flight paths. You indicated that you had modified the flight paths in Bonython based on the feedback. Am I right in understanding that there have been designated fly paths but is it your discretion as to where they fly?

Mr Burgess: Correct. We have the area of approved operations from CASA; so we have to stay within that area and then within that—

MS ORR: This is the one where you have to be five metres away from objects?

Mr Burgess: Those rules apply as well. For example, we could not fly from where we are in Tuggeranong north to where we are sitting today. There are bounds on our operation. Within that approved area we are able to adjust the flight routes as our system allows us to and as we see is beneficial to the community.

In some cases we have some specific preferential flight routing so that it moves away from people. And there are new features we are working on to help distribute sort of automatically the flight routes so that one resident or home owner would see as few aircraft as possible to try to minimise the impact.

MR PETTERSSON: We heard testimony earlier today that some people witnessed their neighbours receiving six deliveries in the space of a few minutes. Is there scope for the size of deliveries to be increased?

Mr Burgess: We are looking at all sorts of future commercial potential. There are businesses that approach us that say, “We would love to work with you but your package is too small. Can you make it larger?” And I think, conceivably, there is room for that in the future. At the same time, as mentioned, we want to stay iterative and make sure that we are starting small before we scale up, both in numbers but also in the size of aircraft. The larger the payload, the larger the aircraft has to get just from a physics standpoint, which would increase noise and perhaps also safety. We want to stay focused on the size that we are able to really test and ensure is viable today. But that would be a possibility in the future.

THE CHAIR: Do you have anything that you want to add?

Mr Burgess: I just want to say that we really welcome this opportunity. As you are pointing out, new technology that challenges our current regulatory frameworks is a challenge. It is hard to always know how to grapple with that, and we welcome this opportunity to participate today, but we also want to make sure that we are making ourselves available to the ACT government and others into the future.

Any proposals, any ideas, any experience or data that we can share that would be helpful—we want to be a good participant in that conversation. So please feel free at all times to let us know how we can be helpful.

THE CHAIR: We will. And thank you very much for attending, for coming all the way from the States.

Mr Burgess: My pleasure, thank you.

THE CHAIR: Thank you also for the visit that certainly I, the committee secretary and another member had.

MS ORR: Can that model fly?

Mr Burgess: This one will fly.

THE CHAIR: Thank you for that and for your submission. We will be in touch if we have any further information.

Mr Burgess: Great, and we will get these reports to you.

THE CHAIR: Get those reports to us; that would be great. And you will be sent a copy of *Hansard*. Just check through to make sure that that is correct. And thanks

very much for attending.

Mr Burgess: Wonderful, thank you as well.

THE CHAIR: And no doubt we will see you around the traps or, if not you, one of your drones.

The committee adjourned at 1.08 pm.