



Auckland Airport Case Study

A world first for biosecurity and airport waste reduction
Auckland Airport's new transitional waste facility is considered a world first for biosecurity conscious countries. It has already halved the amount of aircraft cabin waste sent to landfill.

Auckland Airport's Martin Fryer (right), MPI's Doug Farr (centre) and OCS's Tony Phillips have collaborated to develop the new waste transfer facility which diverts 57% of aircraft cabin waste from landfill.



It has attracted the attention of other airports around the country, airport authorities in the Asia Pacific region and IATA, and could well be a prototype for other international airports around the world. Not bad for an initiative the facility's operator describes as "a \$40,000 do up of a run down building."

Background

Auckland Airport services an average of 50 international flights per day, which produce a total of approximately 40 tonnes of unprocessed cabin waste (excluding galley waste) per month – including 8 to 9 tonnes of plastic (PET), 8 to 9 tonnes of newspapers, 2 to 3 tonnes of head rest covers as well as headphones, inflatable head rests and numerous other items left behind by passengers. For biosecurity reasons all this waste must be processed at the border, in this case sterilised on site at Auckland Airport.

The challenge

Auckland Airport needed to marry its desire to improve waste management generally as part of its overall sustainability programme with the Ministry of Primary Industries (MPI) need for strict quarantine controls at the border.

The airport company is obliged to have an airside waste transfer facility that meets MPI requirements. MPI regulations, as they stood, dictated that all cabin waste must be destroyed – either by incineration or steam

sterilisation and deep burial. Prior to July 2015 the airport's transitional waste facility delivered the simple but environmentally unsatisfactory solution of compacting all 40 tonnes per month of aircraft cabin waste before dispatching it for steam sterilisation and deep burial in landfill. To add to the challenge, MPI was looking to maintain or even tighten up its strict quarantine controls, in its mission to manage the country's biosecurity risk.

Airport sustainability manager Martin Fryer and his waste minimisation team were frustrated with existing waste management processes and the lack of innovation within the waste management sector to advance waste recovery and recycling in line with other Auckland Airport waste reduction initiatives.

The Auckland Airport solution

Unable to make satisfactory progress through existing channels, Fryer engaged OCS – a facilities management company specialising in sustainable solutions. That was to be the start of the multi-stakeholder, collaborative effort that led to Auckland Airport's revolutionary approach to the transitional waste facility.

OCS, working with the airport company's compliance team and MPI, began to investigate the possibilities. They carried out a waste audit and quickly began to recognise the opportunities.

OCS Wasteline Solutions Manager Tony Phillips says he found an existing facility that consisted of little more than two compactors and was being used by ground handlers to dump waste. Originally it had been set up as a dry waste area but more recently, as budget airlines came to town and passengers self catered, food waste would end up there.

Phillips spent plenty of time simply sitting in the building visualising how it could be. After much reflection and plenty of discussions with MPI and Auckland Airport, he developed a plan to put to them.

The plan which all three parties signed up to was built on the revolutionary approach of repurposing the facility to sort all the incoming cabin waste. It would be staffed by shift workers trained to sort waste to MPI specifications for which items could be reused or recycled and which must be quarantined and destroyed for biosecurity reasons. Phillips was also instrumental in identifying pathways for recycling and reuse.

MPI Senior Quarantine Officer Doug Farr says the Ministry supports recycling and sustainability initiatives but its top priority is biosecurity. He saw the potential of the OCS plan. He says given that previously 100% of cabin waste was considered a biosecurity risk and required to be destroyed, it was a daring move to think outside the box that there might be another pathway for a number of the waste items.

But he was happy to work with OCS and the airport team to identify non risk items that could be streamed off individually for reuse and recycling, without compromising biosecurity – things like disposable polypropylene head rest covers, paper, cardboard, wrapping, glass, cans and uncollected headphones. Previously all these items had ended up in landfill.

Air New Zealand, which accounts for approximately 55% of international flights in and out of Auckland Airport, was also a supporter of the new direction for the facility. Head of Sustainability James Gibson says waste is a major challenge for airlines generally and, as the main contributor to the cabin waste processed at Auckland Airport, Air New Zealand saw the facility as something that aligned with the airline's sustainability strategy and could produce tangible results.

After plenty of robust discussion and a little fine tuning of the OCS plan, all parties decided to take the plunge. Agreements were signed and a six month conversion of the existing facility, which saw one of the compactors removed and the building refitted with a purpose built sorting area and other equipment, was undertaken.



Aircraft cabin waste arrives at Auckland Airport's for processing.

OCS was appointed to manage the converted facility which began operations in June 2015. OCS's role includes recruiting, training and managing the staff who sort the waste. The sorting of cabin waste and general operation of the facility is subject to ongoing verification from MPI.

While Phillips light heartedly describes the initiative as "a \$40,000 do up of a run down building" he is quick to acknowledge that the thinking behind it, the collaboration between the stakeholders involved and their willingness to embrace new ways of doing things are the real success stories here.

Results

In its first three months of operation the facility received and processed 114,218kg (114 tonnes) of cabin waste. More than half of this (64,669kg) was recycled. That equates to an average of 695kg of recycling per day and means that 57% of the total waste processed was diverted from landfill.

While a number of waste items have been recycled and reconstituted as totally different products such as composite building materials, the facility also returns reusable items to Air New Zealand. In the first three months of operation, the airline has been able to reuse 1657 linen serviettes and tablecloths, 113 bedding straps, 420 economy mugs, 233 headsets as well as metal cutlery, unused amenity packs and service trays, thanks to the transitional waste facility.

Auckland Airport's Martin Fryer says the facility has exceeded expectations in terms of the amount of waste reused and recycled.

MPI's Doug Farr says the new process of sorting waste actually makes the real biosecurity risks easier to manage. Genuine risk items are much easier to steam sterilise once separated from a pile of other waste.

But the benefits of the new facility stretch beyond the process and numbers.

Additional benefits and future opportunities

Farr says the new facility is a double success in that it is delivering a more robust system, helping achieve MPI's biosecurity and sustainability goals and he is confident the approach could work at other airports.

Staff sort aircraft cabin waste into different streams for recycling.



In addition to the obvious environmental benefits Auckland Airport and OCS note there are also social benefits with the new facility staffed in shifts by seven local employees recruited and trained specifically for the role. This contributes to Auckland Airport's corporate responsibility goal to be a good neighbour and support local employment through its supply chain partnerships.

Air New Zealand's James Gibson says the new facility provides an important solution to part of the airline waste challenge. He also sees the facility playing a broader role as an example of environmental best practice for passengers as soon as they arrive in the country, underlining New Zealand's 100% Pure brand story.

He says Air New Zealand will continue to work with Auckland Airport and OCS to maximise the benefits of the facility as it looks to minimise its own aircraft waste.

OCS is also looking to build on the potential of the new facility and is already working on procedures for collecting back of house food waste from Auckland Airport and working on getting other airlines to look at their waste from aircraft.

Auckland Airport's Martin Fryer says stakeholders working together with no hidden agendas and a willingness to try and make a step change have created a win-win for all parties.

From airline slippers to fence posts

What started out as airline slippers or an in flight eye masks could well end up as fence posts or building panels after they pass through Auckland Airport's transitional waste facility.

The airport facility is providing waste - including airline slippers, eye masks, head rest covers, plastics and more - to an innovative Kiwi company with the technology to undertake next generation recycling and produce saleable, superior quality building products.

The technology and formulas behind the company's proprietary recycling processes are closely guarded secrets for commercial reasons. But broadly speaking it works like this...

Aircraft cabin waste, such as polypropylene head rest covers are melted down and mixed as part of a secret formula to produce an emulsion or bonding agent used in the production of building materials. Other cabin waste such as plastic bottles, eye masks, slippers, etc, is ground down to fine particles which are then mixed with the emulsion and can be compressed and shaped into building panels, beams, fence posts for farms and vineyards, and other building materials.

Not only are these products made from waste, via Auckland Airport and many other sources, they are free of the sort of toxins usually associated with building materials, e.g. formaldehyde in particle board or plywood and tanalising agents in fence posts. The new generation materials are also 100% waterproof, fireproof and vermin proof, unlike current particle board products.

And if the materials are damaged in any way or at the end of their life span they can simply be ground down again and recycled continuously using the same technology and processes.

In a world where the building industry is rapidly moving away from traditional wooden framing to steel framing and pre cast panels, the next generation of building materials made partly from aircraft cabin waste could soon become mainstream.