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A sustainability vision to be achieved through partnerships

**WASTE MINIMISATION
PLAN
2013**

Introduction

Sustainability is now synonymous with best practice facilities management. It is imperative that those operating and maintaining facilities ensure the efficient consumption of key resources such as energy, water and materials; reduce negative outputs such as waste, carbon and chemical pollution and ensure optimal health, safety and hygiene within workspaces.

The drivers for sustainable facilities management come from a number of directions. There are good economic reasons to adopt sustainable practice. Recycling is cheaper than disposal to landfill, so it already makes economic sense to recycle as much as possible. Furthermore the costs associated with landfilling (including collection, transport, disposal, gate fees and various fees and charges such as the waste levy and the impact of the emissions trading scheme) are forecast to increase in the medium to long term. Recycling operations will not be subject, to the same extent, to the same cost pressures so the relative savings of recycling will increase over time.

There are significant environmental costs associated with waste. Waste represents inefficient use of resources, and landfills represent a poor use of land, which is already subject to considerable demand pressures (especially in the Auckland Region). Although the engineering of landfills has improved markedly in the last 20+ years, the environmental effects of landfills - such as leachate and methane emissions, can not be completely eliminated.

Regulatory controls on waste management have also increased the impetus for facilities to take action to minimise their waste. The Waste Minimisation Act 2008, not only introduced the national waste levy, but also introduced a framework for product stewardship, and clarified the responsibilities of local government for waste management in their districts such as the ability to pass waste bylaws. In addition, Landfills become subject to liabilities under the Emissions Trading Scheme, from 2011.

Waste is perhaps the most visible indication of an organisations commitment to sustainable practices and an aspect that impacts and depends upon everybody. The redevelopment of airport waste management systems and practices to achieve significant waste minimisation, engage staff and enhance the sustainability culture is a key part of Auckland Airport's long-term sustainability strategy.

Auckland Airport has set a target of a 20% reduction in waste to landfill by 2020. OCS as the service partner responsible for delivering on this objective sets out to exceed this target; achieving a diversion rate of 35% by 2015 ensuring waste is a significant part of the Auckland Airport sustainability success story.

Key to a successful transition to sustainable operating practices is establishing the right organisational culture. All stakeholder groups and individual personnel need to share a vision of a sustainable future, be engaged with Auckland Airport's objectives and be willing to embrace the change necessary for making this vision a reality.

This Project Plan outlines the recommended project change management approach for delivering to the following vision and outcomes shared by the OCS Sustainable Solutions Manager, Richard Forward and the Auckland Airport Sustainability Advisor, Martin Fryer (Project Sponsors).

Purpose & Objectives

Auckland Airport is New Zealand's gateway to the world with the majority of international travellers passing through this airport. As a result of the high profile of the Airport, there is an increasing focus on implementing sustainable business practises and ensuring that users of the airport are aware of the focus of Auckland Airport.

Auckland Airport has contracted OCS WasteLine to deliver change in respect to waste systems and practices to reduce waste sent to landfill, improve public and site user awareness of and engagement with recycling and, ultimately, deliver cost savings.

It is recognised that waste management is one of the most visible indications of the airports commitment to sustainable operating practices. The quality and effectiveness of waste systems impacts upon the perceptions of internal and external stakeholders of the airport, its operations and its sustainability credentials.

The Auckland Airport Waste Minimisation Project requires the redesign of waste systems at Auckland Airport. The objectives of the project are wide ranging and include:

- ✓ *reduce waste to landfill in line with sustainable practices (target of 35% diversion from landfill by 2015)*
- ✓ *improve current cost performance and mitigate the risks of future disposal cost increases*
- ✓ *effectively manage bio-security risks around inbound international passenger waste*
- ✓ *develop a culture of awareness and engagement with waste minimisation and recycling*
- ✓ *establish Auckland Airport as a leader in waste minimisation in the aviation industry and in New Zealand in general*

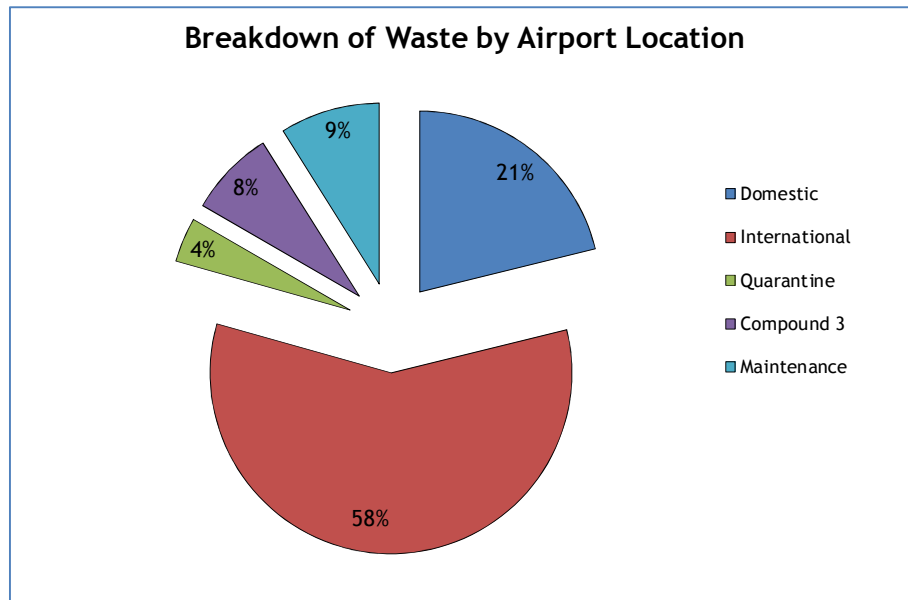
In redesigning systems it is also critical that day-to-day operations are not negatively impacted nor are operational cost increases incurred.

The Outcomes sought through the implementation of this Waste Minimisation Plan are:

- ✓ *Auckland Airport demonstrates best practice in environmental sustainability, operating waste management systems that focus on and deliver waste minimisation*
- ✓ *Airport and stakeholder employees embrace waste minimisation as a positive and important activity and understand how to contribute to this outcome*
- ✓ *Sustainable thinking underpins system, emphasising smart and efficient solutions across the entire waste generation, handling, movement, collection and disposal process*
- ✓ *Staff are engaged, inspired and perceive Auckland Airport as a sustainability leader*
- ✓ *Public and travellers perceive Auckland Airport as a sustainability leader*

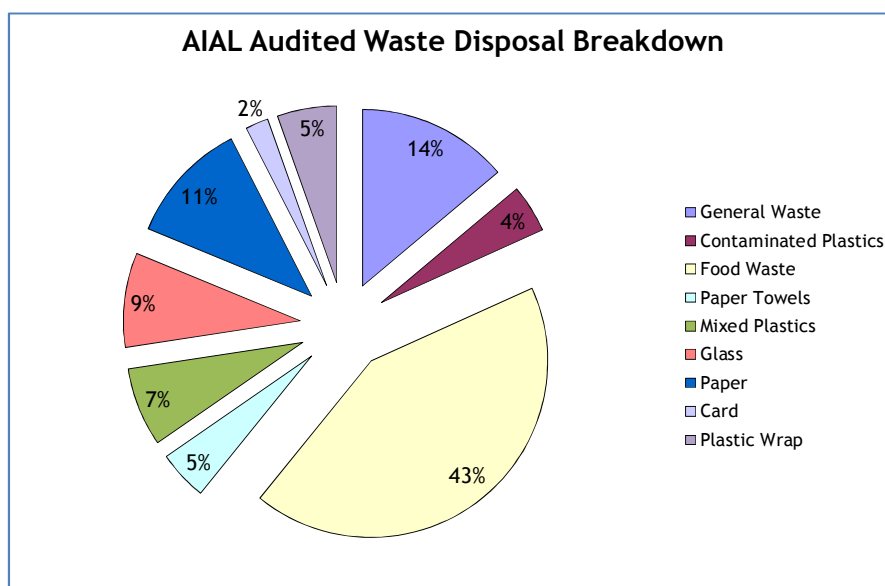
Current Situation

Data from the 2011 Financial Year shows that the Auckland Airport complex produced 1,958 Tonnes of Waste to Landfill. An additional 427 Tonnes of material was recycled (18% diversion from Landfill).



Analysis of waste tonnages collected from across the airport shows the majority of waste is produced from the International terminal. Because of the waste generating significance of the International Terminal, this area was selected as the first to have an in-depth waste assessment undertaken.

A Waste Audit conducted on waste collected from the airside of International Terminal Building showed the following composition data:



This composition data reveals that 35% of the waste collected from this area can be recycled, while a further 47% is compostable. However there are Biosecurity concerns associated with a portion of this waste, so it is more accurate to assume a theoretical diversion potential of 65%. OCS has set a target of diversion from landfill of 35% by 2015.

An analysis of the waste practices at the airport revealed the following:

- ✘ *Diversion from landfill rates are low at less than 20%*
- ✘ *Waste disposal costs are high with systems delivering significant cost inefficiency*
- ✘ *Public place recycling options and engagement with public around waste is limited*
- ✘ *Recycling amongst airport back of house operations including retailers and airline tenants is limited and understanding and awareness of waste issues and waste minimisation practices is low.*
- ✘ *Airside and landside waste is collected in a single location (landside cart dock) which prevents effective delineation of biosecurity and non-biosecurity risk waste*
- ✘ *Use of the landside cart dock is ineffective and its current set up provides limited space for waste and recycling collection services required to achieve waste minimisation objectives*
- ✘ *No dedicated site management over waste systems and practices with responsibility for driving improvement*
- ✘ *No clear vision and plan for waste minimisation established and communicated to all stakeholders (N.B. OCS service has commenced this process and this document seeks to articulate this plan for sign off and wider communication)*

Situation Appraisal

Recyclable material is currently captured through a range of mixed recycling and glass bins, paper bins and cardboard cages. While basic recycling services are provided there is not a culture of recycling and waste minimisation at the airport. User engagement with waste minimisation is low as a result of limited knowledge as to correct practices and poor supporting systems and services.

The majority of waste generated at Auckland Airport passes through the international cart dock where there are two compactors for landfill waste as well as cages and bins for recyclables. Traditionally all waste in the two compactors was sent for steam sterilisation prior to landfill disposal. A recent operational change initiated by OCS means that the yellow compactor is now for landside waste only and is sent direct to landfill. The Blue compactor is for airside waste only is sent for steam sterilisation. This is in line the current accepted delineation of waste for biosecurity purposes.

Both compactors are still located landside, which is not the most effective strategy for managing biosecurity risk.

Waste considered high risk, such as waste from aircraft, is captured in MGB (wheelie) bins at points of entry or FEL bins located airside for removal for steam sterilisation. Consultation with MPI officials (Doug Farr) indicate that high risk material, aside from aircraft waste, is limited to front of house airside locations where inbound international passengers may dispose of waste. As such there is scope to amend the current airside-landside delineation to enable improved waste diversion.

Both the general waste (yellow) and biosecurity waste (blue) compactors are no longer fit for purpose. They are prone to breakdown and are difficult to operate. The overall management of waste could also benefit from a technology upgrade to both compactors.

The current compactor equipment fails to meet health and safety requirements for use of compactors. This was highlighted during changes made by OCS as to the use of each compactor. At that time new signage was created and equipment modifications made to minimise risk however new compactors are required.

The current cart dock set up and operation does not meet the requirements of an effective waste minimisation programme. The existing layout presents space issues for the required expansion of service to include organics, paper and plastic wrap.

The cart dock is a multi-use environment, with airport services and deliveries arriving regularly throughout the day and night. This means that access to the compactors is frequently blocked by the delivery of goods and the various users are often getting in each others way.

Stakeholders

Critical to project success will be engaging key stakeholders across the functional areas of the airport. A shared vision will support effective assessment and diagnosis as well solution design and managing resistance.

Key Stakeholders

- Auckland Airport Sustainability Management
- Auckland Airport Terminal Presentation & Operations
- MPI
- Auckland Airport Retail Management
- Aeronautical services
- Air New Zealand
- Host Marriot Services
- OCS Cleaning
- City Park Services
- Menzies

Change Readiness

The majority of Auckland Airport stakeholders recognise the considerable scope for improving waste systems and outcomes. Senior management support change and recognise the reputational benefits. Individual users, however, have limited understanding as to how to correctly deal with waste and the current systems do not support them doing so.

This reflects the fact that awareness of, and engagement with, the waste minimisation program is low amongst stakeholders. To date there has been limited communications and a failure to develop a shared vision and a clear strategy and path for enacting change. Improving the level of communication is critical to project success as it will achieve buy in and facilitate the required change. All stakeholder groups possess significant operational and political knowledge that will be invaluable in minimising implementation and transition risks and reducing individual resistance to change.

OCS is a major participant in the overall waste management process. At a management level there is strong project support and willingness for change based on an understanding of the benefits to both the airport and the environment generally. Resistance to new systems and practices is possible where site cleaning management believe any new systems and practices will reduce the efficiency or quality of the cleaning operation. To overcome this OCS site cleaning management will participate in the design, trial and review of proposed new systems and practices. Procedures will be documented and training provided to cleaning staff.

Initial communications with cleaning staff indicate limited resistance to changing systems and practices. The key to most effectively moving cleaning staff to new systems will be ensuring they have the required skills, knowledge and equipment. Robust training and education of cleaners will be delivered.

The trials currently in operation on the international food court indicate that attendants are enthusiastic about recycling and keen to contribute to positive environmental outcomes. The main

risks are around staff either not possessing the required knowledge on material identification/sorting, or the added servicing requirements adversely affecting the ability to carry out the core food court operations function. To overcome this on the job training and education has been provided along with educational materials. Additional resourcing has been provided by OCS WasteLine and is included in the project budget.

It is expected that the public already hold an expectation that recycling options should be available. As such, little resistance is expected so long as the options provided effectively communicate required behaviours.

The initial change in compactor use demonstrated resistance from retail staff where individuals were not interested in change or believed the specific changes were counter-productive, unbeneficial or inconvenient. While these issues were exacerbated by poor initial communications, a level of resistance is expected from users in relation to future indicatives. Retailers will be a key participant in solution design and retail managers, both Auckland Airport and retailers, will need to act as influencers over retail staff.

Host Marriot Services (HMS) food and beverage operations already engage in some recycling and as such it is an accepted practice amongst staff. Systems changes will have less operational impact as a result. Management are willing to support change and have been heavily involved in work done to date. Again staff will need to buy-into the overall vision and view changes as beneficial to project objectives without negatively impacting their core tasks. Participating in solution development will achieve this and reduce resistance to changes. The same is true for both McDonalds and Zarbo as well as airline lounges.

Similarly MPI must be thoroughly consulted throughout solution development and implementation. Initial dialogue with MPI indicates a strong support for change and work has been done with them to ensure operational requirements are met (see Waste Management Biosecurity Risk Management Procedures).

It is not expected that airline and contactor office staff will demonstrate significant resistance as long as project vision and objectives are clearly communicated and specific solutions are developed in conjunction with each area.

Change Management Approach

Despite a clear vision and outcome having already been formulated with Auckland Airport management a consultative, participative change management approach is proposed. To successfully shift all stakeholders and users to the desired new state, engaging with redeveloped systems and practices, it is important that there is a shared vision and a clear project management plan.

The detailed resourcing and implementation plans below describe how this will be achieved.

Resources

The following human and financial resources are required to effectively deliver the project. The immediate project timeline outlined is for 12 months. Stakeholder participants will commit to 2-3 two-hour sessions over an initial planning month plus fortnightly operations meetings during the implementation phase and quarterly meetings on an on-going basis.

Project Team

Role	Responsibility
Sustainability Manager - OCS WasteLine	Manage overall project implementation and budget
Project Manager - OCS WasteLine Solutions Manager	Co-ordinate implementation and on-going management and development of solutions Deliver induction, training and education programmes to users Co-ordinate day-to-day operations and stakeholder liaison
Stakeholders	Contribute operational and political information and shape solution design. Enable effective implementation through influencing staff behaviour and facilitating access to staff for training and education. Providing feedback and review through implementation.

Risk Assessment

The main risks to project success are detailed below along with the recommended mitigation strategies.

Risk	Cause	Mitigation Actions
Staff do not buy into change vision	<p>In adequate education and training</p> <p>Staff do not understand reason for change</p> <p>Staff do not perceive value in recycling</p>	<p>Training program to all cleaning, retailer and airline lounge staff</p> <p>Presentation to staff on waste minimisation program vision</p>
Implemented changes are operationally ineffective	<p>Change result in reduced efficiency and productivity</p> <p>Users do not have necessary skills and knowledge</p> <p>Equipment does not meet operational requirements</p> <p>System is poorly maintained</p>	<p>Key users groups involved in design, implementation and review of solutions</p> <p>Communication</p> <p>Training and education</p> <p>Scoping of new compactors and collection bins</p> <p>Recycling stations and food court bussing stations</p> <p>Site operational management with responsibility for on-going system maintenance</p> <p>Quality Assurance inspections</p> <p>Set up trial solutions for testing prior to wider implementation</p>
Diversion from landfill not maximised	Contamination of waste streams	<p>Communication</p> <p>Training and education</p> <p>Quality control - Waste auditing</p>
		<p>Set up demonstration workspace and presentation boards (drawing on experience of other organisations)</p> <p>Group review and feedback sessions</p>
Biosecurity Risk	<p>Bio-security failure as a result of at-risk waste not being quarantined</p> <p>Incorrect identification and classification waste</p>	<p>Airside location for storage and collection of airside waste</p> <p>Development of segregation policies, procedures and systems in consultation with MPI and other stakeholders</p> <p>Consult with MPI to identify and classify all airport waste</p>
Health and Safety	<p>Equipment</p> <p>Procedural</p>	<p>Review of all equipment and locations</p> <p>Ensure health and safety is a criteria in all solution design</p>

Benefits not effectively measure or quantified	No KPI's and measurements	Clear KPI's and measurements
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Implementation Plan

Milestone	Activities	Timeline
Establish Project team	Appoint Project Manager Recruit Project Co-ordinator Identify and engage key stakeholders	May 2013
Project Launch	Initial communications to project team and staff on current state, vision of future state, project plan and timelines and roles and opportunity to participate	July 2013
Assessment & Diagnosis Review	Stakeholder interviews Operational observations Equipment review Contractors review MPI Biosecurity Risk Classification and Operational Procedures Analysis and review by project team	July 2013
Draft Design	Draft design of solutions Present proposed solution to user groups for feedback, identify practical issues and resistance Review and fine tune by project team based on feed back	September 2013
Solution Trials	Implement changes to waste collection areas (airside and cart dock) and roll out new equipment Implement trials and review process Communicate trial outcomes to user groups	July-Nov 2013
Final Design & Implementation Plan	Present final solution design and implementation and transition plan to user groups Contractor supply decision	Nov 2013
Wide scale Solution Implementation	Pre implementation communications Roll out new equipment Deliver training and education programmes Rewards & incentives for staff engagement - tbd Measurement and reporting instigated	Nov 2013 - Feb 2014
Immediate Review	Individual and group review sessions to identity work flow, culture issues Fine tuning as necessary	Feb - April 2014
Policy & Procedures	Develop policies and procedures for inclusion in Auckland Airport Waste Management Plan and Operations Manuals	April - May 2014

Next Steps

As at early July 2013, the assessments and diagnostics review has been largely completed. This means OCS WasteLine is in a position to progress to the draft design of solutions. The initiatives identified as being of highest priorities are:

Priority Project	Stakeholders	Date
<p>Collection and Disposal Infrastructure</p> <p>Changes to cart dock have been completed. Procure and install new compactors. Scope and rollout MGBs.</p>	<p>OCS WasteLine Auckland Airport Ops Retail/HMS</p>	<p>July - Aug 2013</p>
<p>Food Court and Surrounding Retailers in International Terminal</p> <p>Design an optimal food court waste and recycling station [including desirable number of stations and location(s)] and establish cleaning staff, retailer and customer protocols to maximise waste diversion and minimise staff operational costs.</p>	<p>HMS OCS Cleaning Retailers Auckland Airport Retail Manager</p>	<p>July - September 2013</p>
<p>Public Place Recycling</p> <p>Design waste and recycling stations for public use. Determine optimum locations for these stations and establish protocols for emptying.</p>	<p>OCS WasteLine Auckland Airport Presentation</p>	<p>August - October 2013</p>
<p>Bathrooms</p> <p>Establish suitability of bathroom waste [predominantly paper towels] for composting. If suitable, establish protocols for composting of bathroom waste.</p>	<p>OCS WasteLine OCS Cleaning</p>	<p>September - November 2013</p>
<p>Airport Lounges - Emperor Lounge</p> <p>Assess waste output from airport lounges and establish appropriate diversion solutions [possibly to include organics solution and separation of glass].</p>	<p>Auckland Airport OCS Cleaning</p>	<p>November - December 2013</p>
<p>Domestic Terminal</p> <p>Conduct waste audit of domestic terminal waste and conduct assessment of processes and systems currently utilised for domestic terminal waste management. Design optimum waste minimisation system and protocols.</p>	<p>OCS WasteLine</p>	<p>January 2014</p>

Proposed Operational Solutions

At-Source Systems & Streaming Strategies

Issue

- ✗ Very limited recycling services front or back of house e.g. public spaces, food courts, general and food retailers, offices, airline lounges (refer Audit)
- ✗ Current at-source systems do not support further streaming
- ✗ Current at-source systems do not communicate required streaming practices to user

Proposed Solutions

- ✓ Stream waste into the categories below as applicable to each operational area's waste stream
- ✓ Provide at-source disposal bins for each stream to each area. A mixture of small wheelie bins, flute board bins, 2-4 stream waste and recycling stations are recommended for various front and back of house areas. Custom designs are possible.
- ✓ Signage at source identifying key materials and their disposal stream
- ✓ Introduce colour coding system into bins, labels and signage

Streaming Strategies










Landfill











Recycling



Composted

Material Type	Service Outcome
General Waste - Non Biosecurity	
General Waste -Biosecurity	 Sterilised
Liquids, Aerosols & Gels (LAGS)	 Quarantine
Glass, Plastics, Aluminum/Tin	
Cardboard	
Paper	
Organics (food waste and compostable products)	

Plastic Wrap	
Polystyrene	
Green Waste	
Fluorescent Lighting Tubes	
Maintenance Waste	 
Electronic Waste	
Secure Document Destruction	

Colour Coding of Key Streams

Material Type	Colour Code
General Waste - Non Biosecurity & Bio Security	Red
Glass	Light Blue
Glass, Plastics, Aluminum/Tin	Yellow
Paper	Blue
Organics (food waste and compostable products)	Green

Key Requirements

- ? Confirm streaming strategy
- ? Identify suitable bins for each functional area
- ? Confirm colour coding system

Collection & Disposal Infrastructure & Services

Issue

- ✗ Incomplete set of services
- ✗ Lack of space
- ✗ Compactors do not meet operational requirements
- ✗ Lack of identifiable system in collection area
- ✗ Bio security issue
- ✗ Health and safety with compactor use

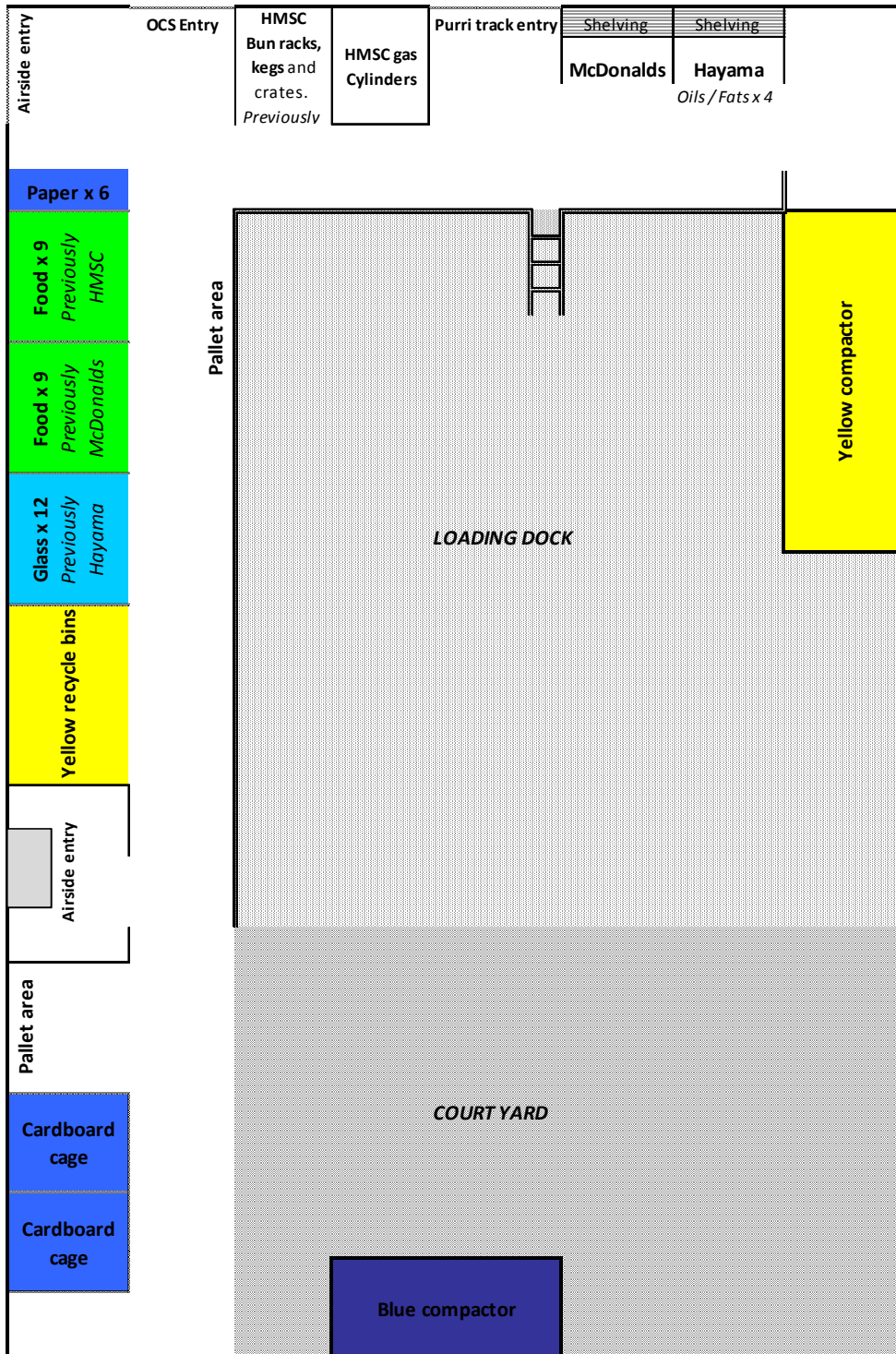
Proposed Operational Solutions

- ✓ Provide collection services and bins for new to site service (organics, paper and plastic wrap) Set up recycling services on an exchange basis at cart dock for internal users with a mixture of bins sizes (80l, 120l, 240l) to enable effective movement of material through site to collection areas
- ✓ Rationalise recycling collection frequencies to reduce the numbers of comingle bins required, but increase overall disposal capacity
- ✓ Reorganise cart dock layout as per plan on page 13 to bring all recycling services into one location for efficient use and disposal and signage (note plan does not reference proposed change in airside waste collection location as below)
- ✓ Assess potential to move air side waste services to an airside location
- ✓ Operational delineation for biosecurity waste is formally identified as airside food service areas accessible by inbound international passengers in line with MPI Biosecurity guidelines (i.e. airside food court, public bins and bathrooms)
- ✓ Introduce colour coding of throughout the waste system and services (i.e. at-source bins, labels, signage & collection bins across all airport locations. The colour coding below is recommended in accordance with ANZ standards: Signage into waste collection areas e.g. cart dock
- ✓ Restrict access times to dispose of waste to three blocks of 2-3 hours per day in line with cleaning and tenant shift changes

Key Requirements

- ? Identify and confirm airside location
- ? Address route for movement of waste by airside users and screening implications - detail
- ? Confirm quarantine delineation
- ? Design of compactors
- ? Agree waste streaming strategies and at-source systems
- ? Agree cart dock layout and use changes as per diagram below

Auckland Airport Cart Dock review



International Food Court

Issue

- ✘ bussing stations accessible by public, widely dispersed, lack of work area for sorting, poor set up for liquids
- ✘ attendant process at bussing station inefficient for increased waste separation
- ✘ staffing insufficient for waste separation, especially during busy times of
- ✘ limited staff skills in material identification

Proposed Operational Solutions

- ✓ Redesign of food court bussing stations (OCS to fund from waste savings).
- ✓ Design feature:
 - ◆ 3 stream separation
 - ◆ liquids ideally plumbed
 - ◆ dedicated space for sorting from trays
 - ◆ design based on efficient work flow
- ✓ centralised bussing station manned at all times (minimum peak times)
- ✓ no public access to bussing station bins
- ✓ remove public bins from the food court
- ✓ all clearing of tables done by food court attendants
- ✓ collection services for all waste streams in scullery (general waste, recycling and organics)
- ✓ provide additional attendant labour during peak periods (funded from waste disposal cost savings)

Key Requirements

- ? approve redesign of food court layout
- ? approve redesign of bussing stations
- ? approve change in food court attendant work procedures

Airline Lounges

Issue

- ✗ Very low levels of diversion as a result of limited streaming options at source
- ✗ Some limitations around biosecurity requirements - front of house material considered of risk
- ✗ High volumes of material and limited space within tenancy

Proposed Operational Solutions

- ✓ At-source and operational solution to be determined in conjunction with relevant stakeholders
- ✓ Provision of organic services to deal with food waste
- ✓ Back of house recycling and organics only for international lounges
- ✓ Full recycling and organics systems for domestic lounges
- ✓ Identification of intermediary location for storage of waste, recycling and organics

Key Requirements

- ? See Collection & Disposal Infrastructure & Services
- ? See At-Source Systems

Public Areas

Issue

- ✘ Limited recycling options for public.
- ✘ Very few dual waste and recycling bins with limited communication as to use.

Proposed Operational Solutions

- ✔ Implement waste and recycling stations - 4 streams (waste, glass, plastics/cans, mixed paper) with clear signage and colour coding
- ✔ Remove all existing general waste and recycling bins
- ✔ OCS to fund estimated 20-25 bins units, depending upon final design and costs
- ✔ OCS cleaners to empty stations at move to appropriate waste collection areas
- ✔ Implement paper recycling services into cart dock
- ✔ Clear liners to be used for all waste streams for easy identification of material
- ✔ Review of cleaning service methodology required to determine most efficient and effective model

Key Requirements

- ? Agree design, numbers and placement of waste and recycling stations

Bathrooms

Issue

- ✘ High proportion of paper towels in waste stream
- ✘ Currently paper towels being landfilled rather than composted

Proposed Operational Solutions

- ✔ Implementation of paper towel only collection service in cart dock
- ✔ Introduction of two streams within bathrooms (general waste and paper towels)
- ✔ Cleaners to move two streams to collection areas
- ✔ Cleaner liners used for all streams

Key Requirements

- ? Bin systems to be reviewed - potential supply of general waste bin at bathroom entrances