

Organics Collections and Processing

An assessment of the different options for collecting and processing organic waste from businesses and households

What is Organic Waste?



Garden/Green Waste



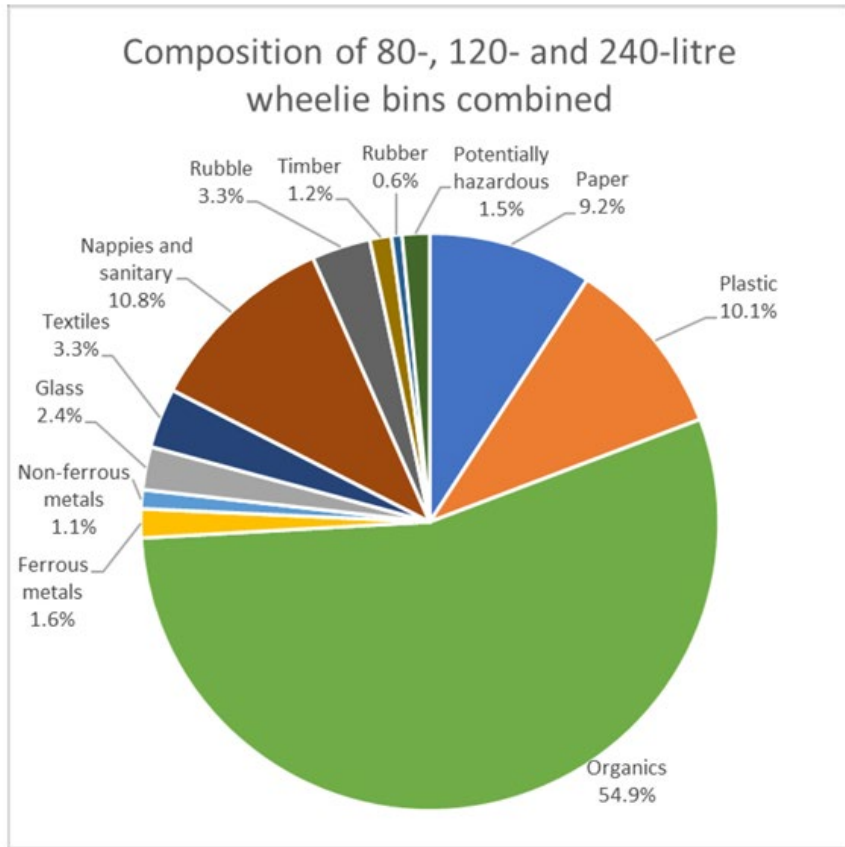
Food Waste

+ Biosolids



Organic Waste in Lower Hutt

2022 Sunshine Yates Kerbside Audit



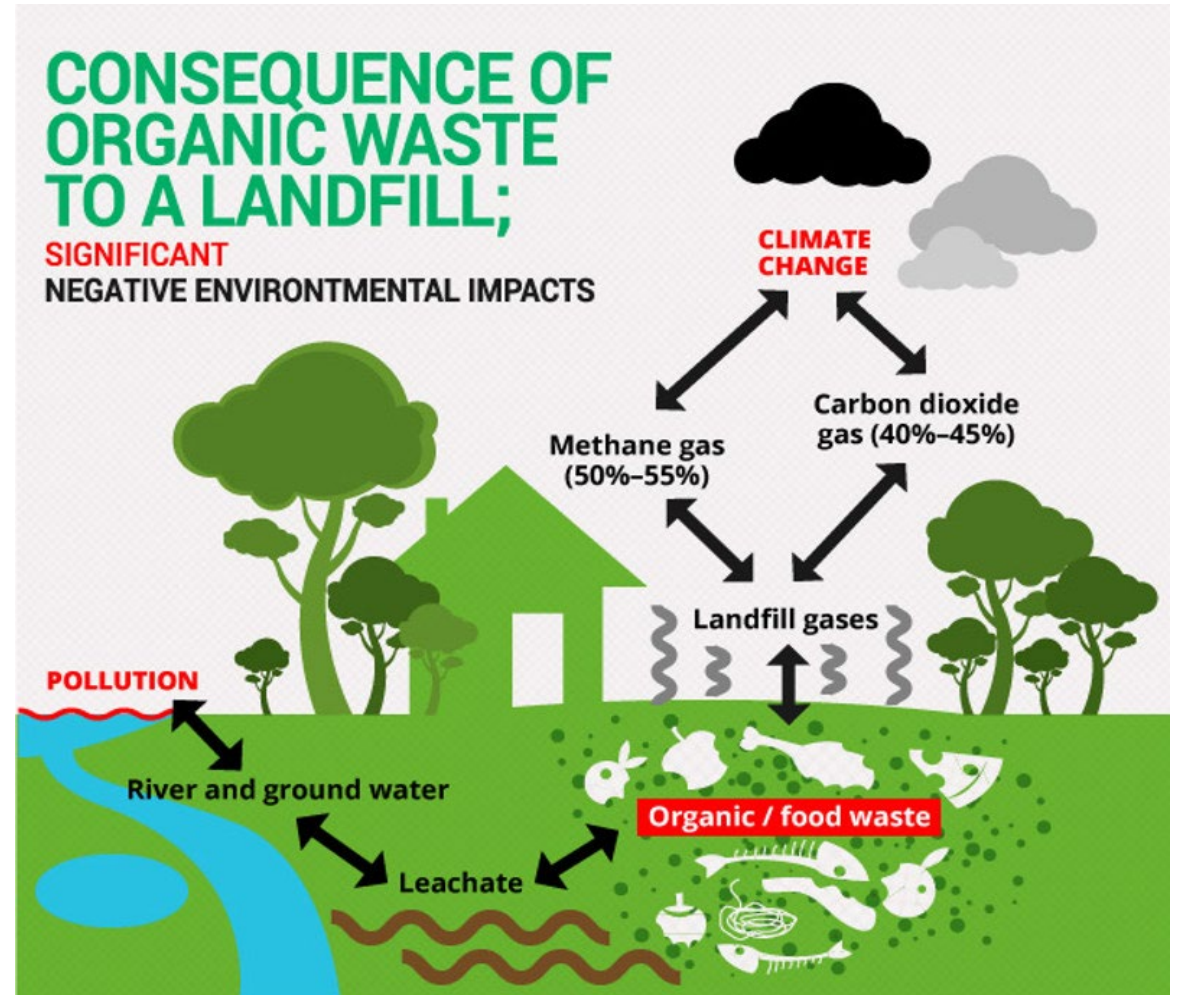
2022 SWAP Analysis

Primary composition of overall waste to landfill - February/March 2022	% of total	Tonnes/week
Paper	7.5%	188 T/week
Plastics	10.2%	254 T/week
Organics	23.8%	594 T/week
Ferrous metal	2.4%	60 T/week
Non-ferrous metal	0.6%	15 T/week
Glass	2.0%	50 T/week
Textiles	5.1%	127 T/week
Sanitary paper	4.0%	100 T/week
Rubble & concrete	12.7%	316 T/week
Timber	15.2%	380 T/week
Rubber	1.2%	30 T/week
Potentially hazardous	15.5%	387 T/week
TOTAL	100.0%	2,501 T/week

Why Organic Waste?

Environmental

- Primary source of landfill methane and leachate
- Preserving the Silverstream Landfill
- Lower Hutt's Emissions



- Methane's warming effect is 28 times greater than carbon dioxide!
- 7% of Lower Hutt's Emissions come from landfill

Strategic

- **Upcoming MfE requirements/mandates**
- **NZ Waste Strategy**
- **Emissions Reduction Plan (2022)**
- **Waste Management and Minimisation Plan (WMMP)**

What are we trying to achieve?

- Residents and businesses have access to appropriate organic waste recovery options
- Deliver affordable and cost-effective organic waste recovery for residents and businesses
- Reduce the need for residual waste disposal



Process so far

- Early 2022 HCC, PCC agreed to develop a business case for organics processing and collections (WCC joined in at a later date)
- Mid 2022 PCC undertook a procurement process – Tonkin and Taylor selected as the consultant to undertake business case.
- Stakeholder Engagement → Options Report → Business Case



HCC stakeholder engagement

- Targeted engagement
- In person and online
- Community groups, waste operators, businesses, large-scale food processors

	Businesses	Community Groups/NGO;s	Waste Processors
Barriers	<ul style="list-style-type: none"> - Collection frequency - Bin size - Cost 	<ul style="list-style-type: none"> - Behaviour change - High demand of compost - Health and Safety requirements 	<ul style="list-style-type: none"> - Lack of storage - Securing land - Contamination
Opportunities	<ul style="list-style-type: none"> - Behaviour change - Continue to support community scale 	<ul style="list-style-type: none"> - Behaviour change - Connections between groups and council 	<ul style="list-style-type: none"> - Have capacity - Collaboration - Behaviour change



Field Trips



Options report

Draft Received 16/05

Potential Processing Options



Vermiculture



Aerated Static Pile



Windrow Composting



In Vessel



Wet Anaerobic Digestion



Dry Anaerobic Digestion

Vermiculture



Overview: Piles or windrows, worms used to break waste down into liquid

Pros: Proven technology, low capex and opex, high demand for output, large range of general feedstock accepted

Cons: Bulking agent required, long processing times, possible odour and leachate issues; logs, branches and grass clipping not accepted.

Input: Food and Greenwaste

Output: Vermicast (solid and liquid fertiliser)

Aerated Static Piles



Overview: internal piping within piles feeds oxygen to microorganisms that facilitate the breakdown of the organic waste

Pros: Low capex and opex, proven technology

Cons: Bulking agent required, poor quality output, long processing times, possible odour and leachate issues

Input: Food and Greenwaste

Output: Compost

Windrow Composting



Overview: Same process as ASP, but machinery is used to turn piles and provide oxygen

Pros: Moderate capex and opex, proven technology, moderate processing times, moderate quality output

Cons: Bulking agent required, possible odour and leachate issues

Input: Food and Greenwaste

Output: Compost

In Vessel Composting



Overview: Vessels undertake the same processes as ASP, but the operation is enclosed and automated

Pros: Proven technology, short processing time, large range of feedstock accepted, high quality output, minimal odour or leachate issues, small to moderate land area required

Cons: High apex costs, bulking agents required

Input: Food and Greenwaste

Output: Compost

Wet Anaerobic Digestion



Overview: Solid and liquid waste broken down in automatic vessels by microorganisms without oxygen

Pros: Proven technology, digestate has a wide range of uses, can process waste-water and solids from dairy sector, short processing times, minimal odour or leachate, bulking agents not required

Cons: Very high capex costs, products require further processing e.g. biogas generator

Input: Food waste, liquid feedstock

Output: Biogas, digestate (liquid fertiliser), compost

Dry anaerobic Digestion



Overview: Similar to wet AD, but feedstock has less water content, e.g. straw, grasses, silage

Pros: Digestate has a wide range of uses, moderate processing times, moderate odour or leachate, less after-processing required

Cons: Very high capex costs, unproven technology, suitable for small scale operations only, bulking agent required.

Input: Food Waste, other green waste

Output: Digestate (liquid fertiliser)

Community Composting- coexisting



Collection Options

Frequency

Collection
Method/Vehicle

Containment →



Food waste
only



Green waste
only



Mixed food
and green
(FOGO)



Separate
food and
green
waste



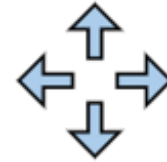
Assessment Criteria



Diversion from landfill



Affordability



Flexibility



Greenhouse gas emissions



Capital cost



Markets



Environmental impacts



Cultural impacts



Technical risk

Next Steps

- Finalise options report
- Develop business case
- MfE funding applications



Questions?