ROTORUA
LAKES COUNCIL

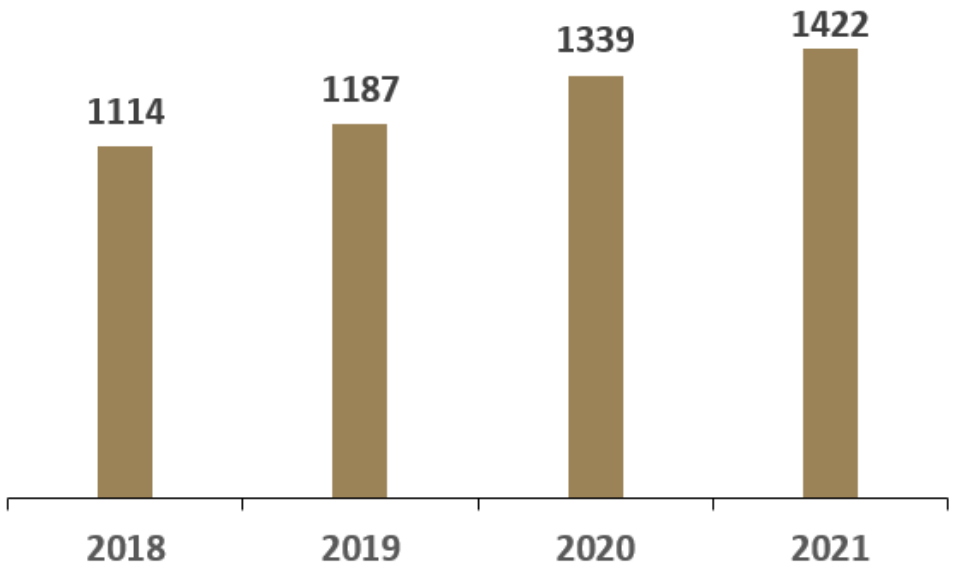
ORGANIC WASTE COLLECTION

Our Waste Situation

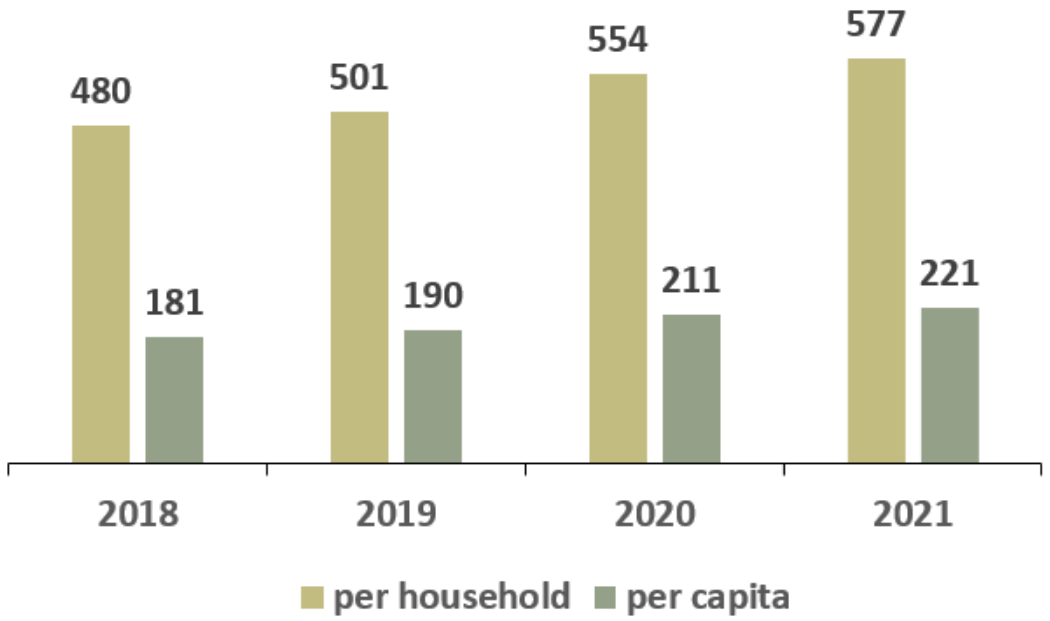
Rotorua's waste-to-landfill is increasing every year

28% increase in average monthly tonnage between 2018 and 2021

Average waste generation (tonnes/month)



Normalised waste generation (Kg/year)



Why Organic Waste?

1.
New/emerging regulations –

MfE mandating organics collection

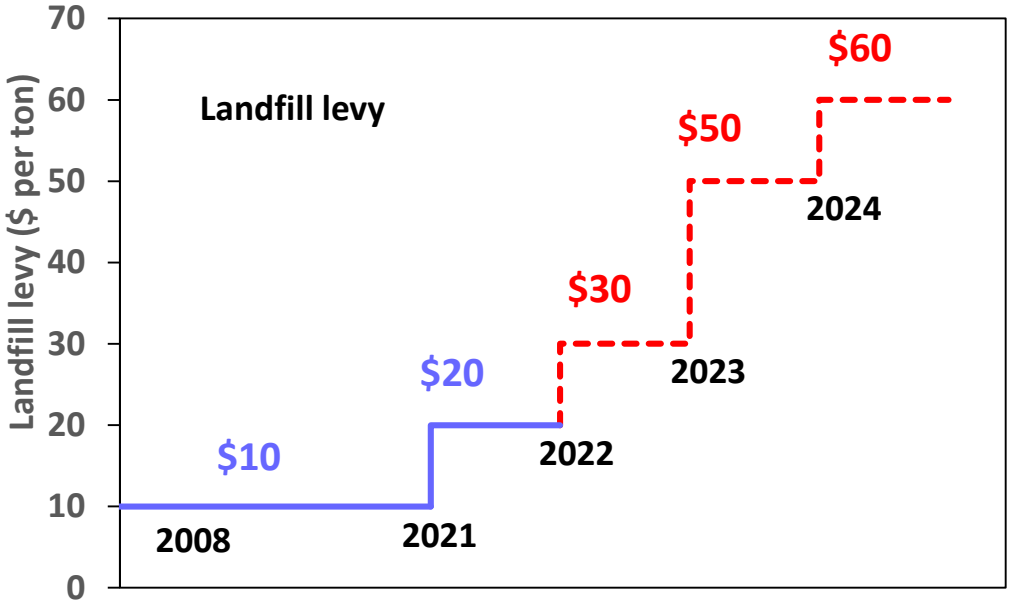
Transforming Recycling

- Mandatory food scraps collection
- Considerations for green waste collection
- Mandatory reporting
- Minimum performance standard
- Businesses to divert organics

Why Organic Waste?

Unprecedented rise in landfilling costs due to landfill levy and emissions trading scheme (ETS)

Landfill costs expected to increase by a million dollars per year by 2024

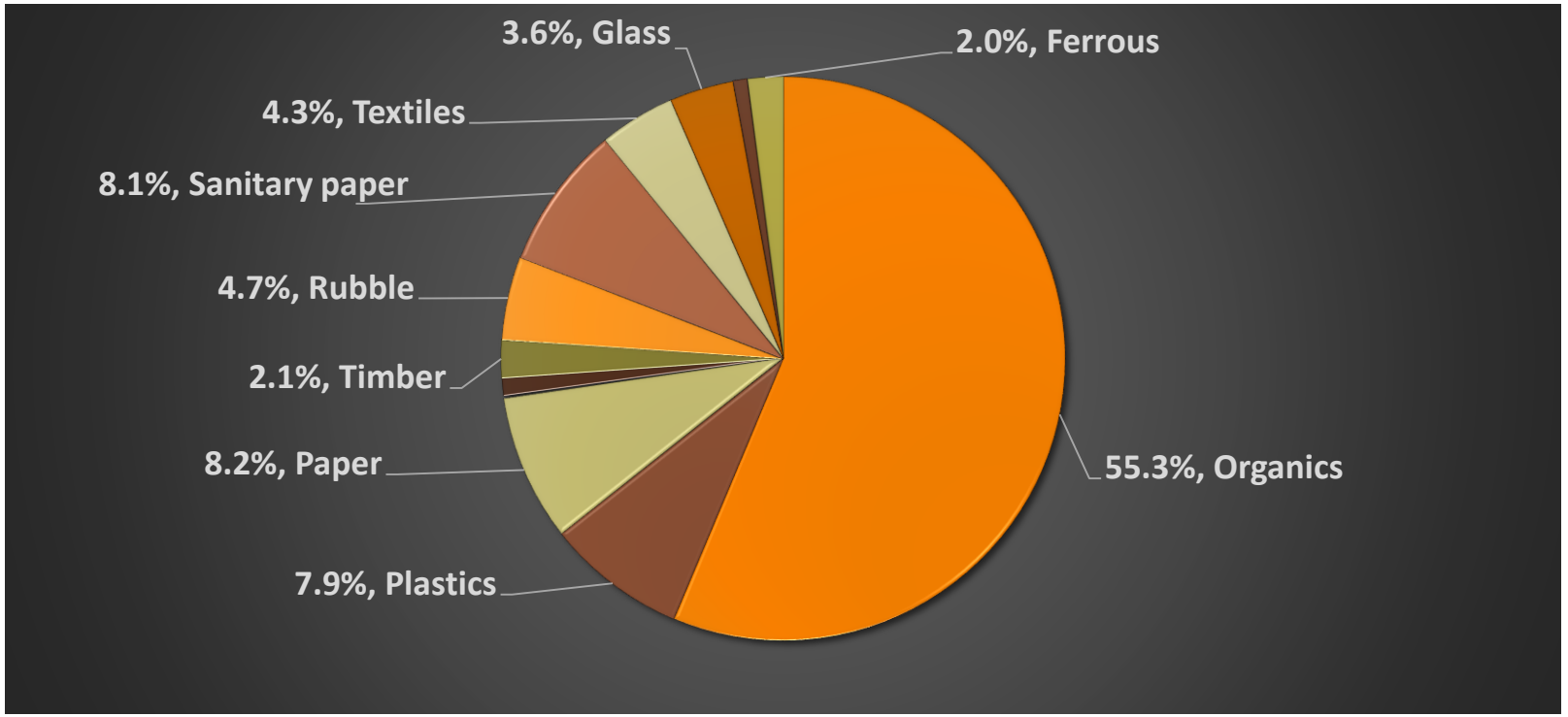


Why Organic Waste?

2.

Huge volumes –

Largest component in municipal waste (red bins)



≈55% waste comprised of organic materials

>60% waste comprised of compostable materials

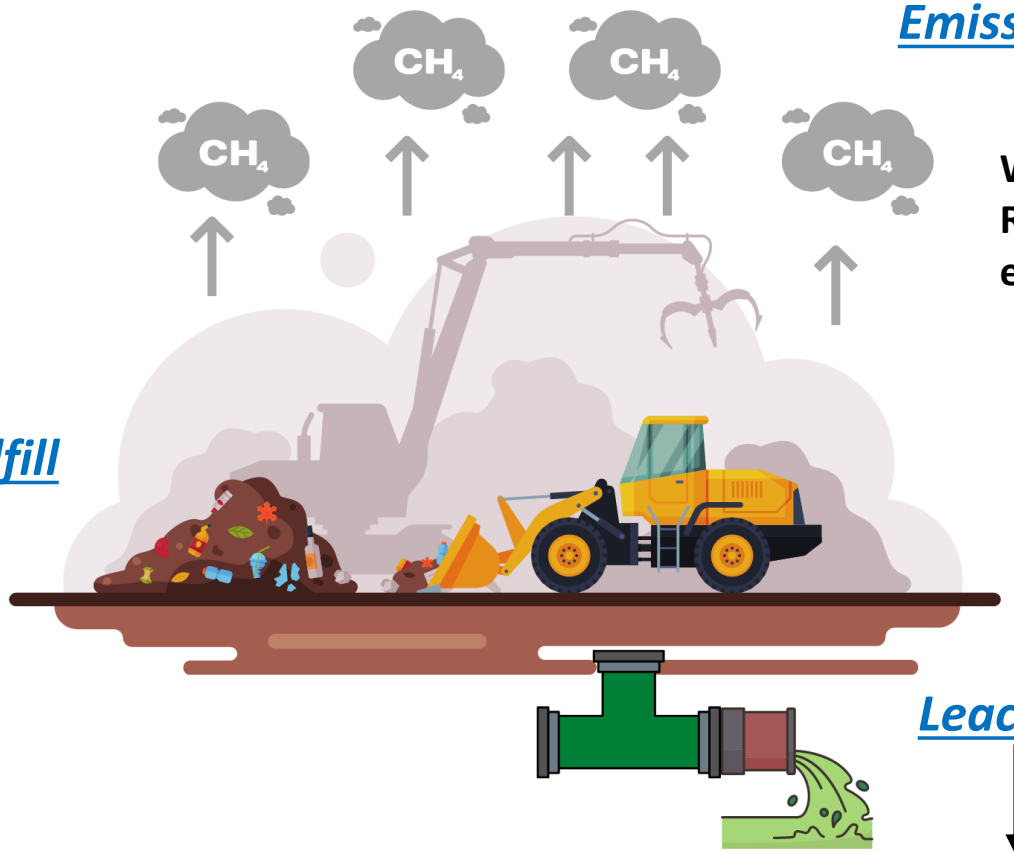
Why Organic Waste?

3.

Environmental impact

Primary sources of landfill methane; leachate

Landfill



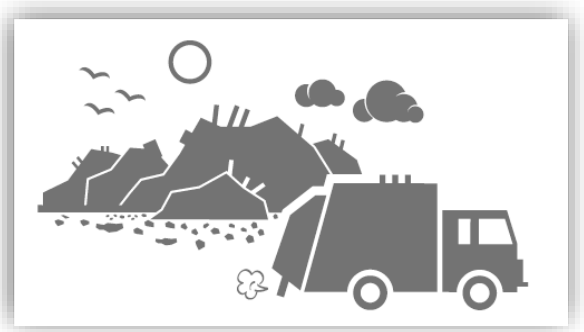
Emissions

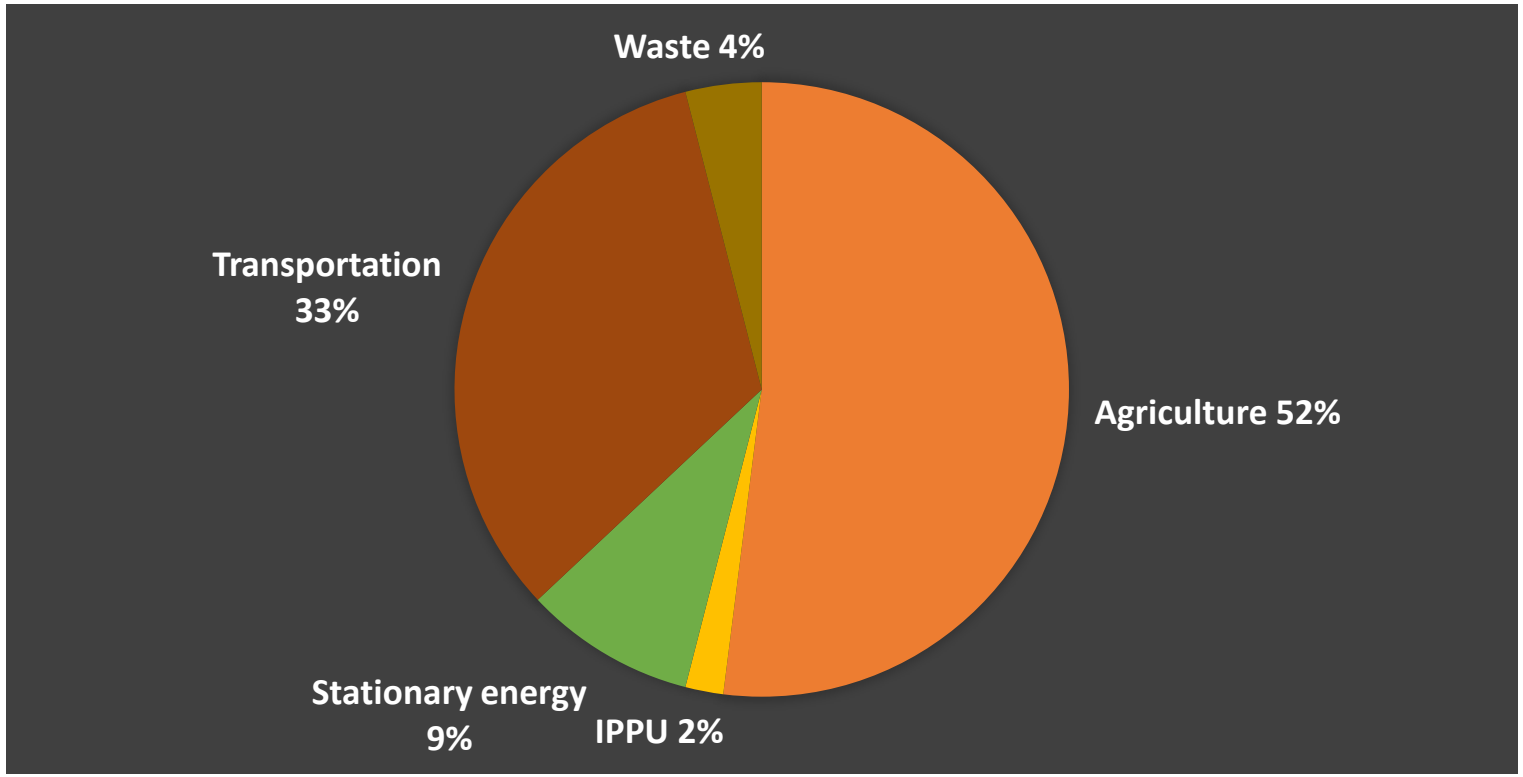
Waste responsible for 4% of Rotorua's greenhouse gas emissions

Leachate

By-product of waste degrading – abundant in nitrogen, phosphorus and other pollutants

Waste Emissions





Waste sector emissions are mostly methane (94%)

Solid waste emission footprint ≈65,283 tCO_2-e

Organics diversion included in Climate Action Plan

Why Organic Waste?

4.
Circular economy –

Resources to recover minerals and energy

≈90 GJ heat per ton

≈850 kWh electricity per ton

≈20 kg nitrogen per ton

≈3.2 kg phosphorus per ton

≈25 dietary minerals

<u>Unrecovered nutrients and minerals create capacity issues at WWTPs</u>

Indicative Steps for Organics Diversion

1. Collection
Kerbside collection/drop-off facilities for organic waste

2. Processing
Setup or partner with facilities for resource recovery from organic waste

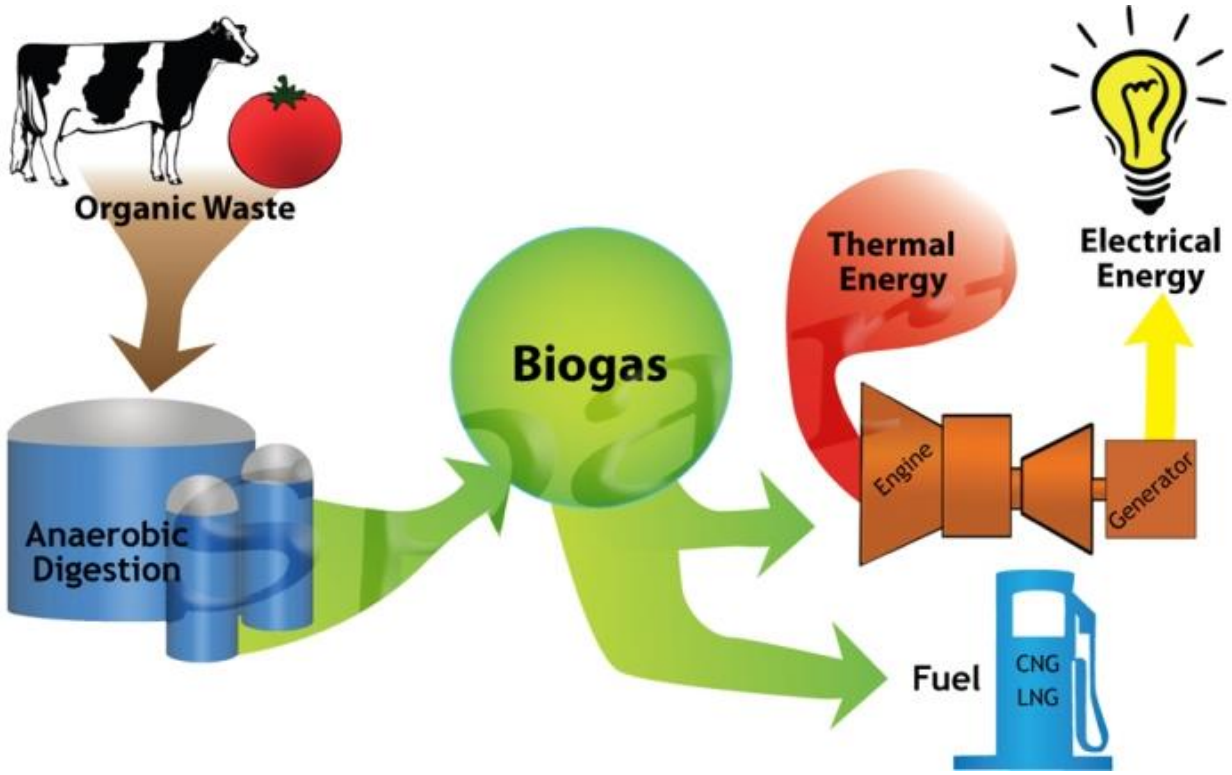
3. Education
Awareness/training on organics diversion and bin usage

Possible Disposal Options

Anaerobic digestion

Anaerobic biological process widely used to recover resources (e.g., energy, minerals) from food waste

- ✓ Well established proven technology
- ✓ Climate change mitigation potential
- ✓ New plant operational in Reporoa
- x Unsuitable for garden waste



Possible Disposal Options

Composting

Aerobic biological process widely used to recover resources (e.g. soil, minerals) from organic waste

- ✓ Well established proven technology
- ✓ Climate change mitigation potential
- ✓ Several facilities available
- x Composting food waste may be challenging

Static pile composting

Advanced composting technologies using controlled condition are often used for food waste.

In-vessel composting

Range of Collection Options

Green waste only (GO)

- ✓ Fortnightly collection
- ✓ Cheap windrow composting
- × 25% diversion from landfill

Mixed food and green (FOGO)

- ✓ Weekly collection
- ✓ Advanced composting
- ✓ High recovery (55%)
- x Food scraps segregation issues

Food waste only (FO)

- ✓ Weekly collection
- ✓ Digestion or composting
- x 25% diversion from landfill
- x Food scraps segregation issues

Separate food (FO) and green (GO)

- ✓ Weekly collection
- ✓ High and efficient recovery (55%)
- × High collection costs (two bins)
- × Food scraps segregation issues

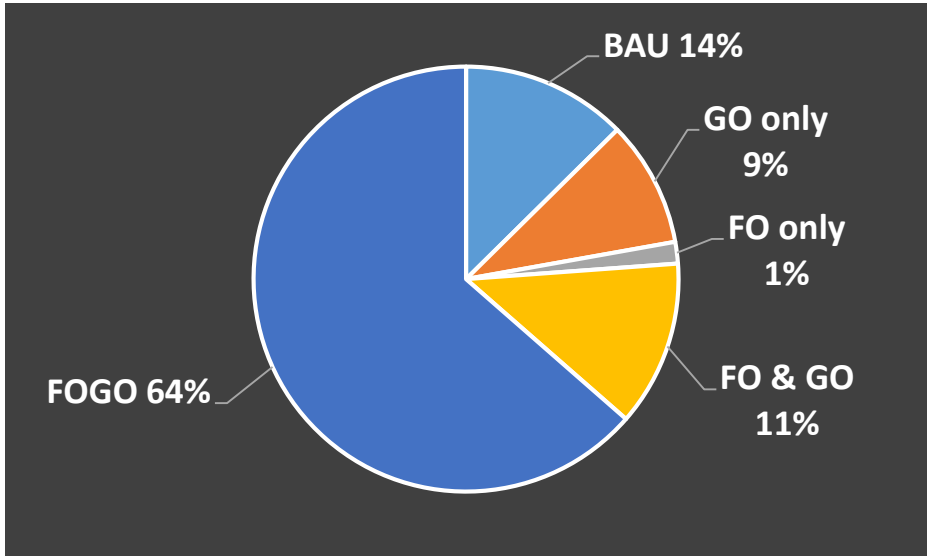
Indicative Options Analysis

Option area	Option 1 (BAU)	Option 2 (GO)	Option 3 (FO)	Option 4 (2+3) FO+GO (separate)	Option 5 (FOGO)
Description	-	Only garden waste	Only food waste	All organics	All organics
Max diversion	-	25%	25%	55%	55%
Processing technology	-	Composting	Composting/AD	Composting/AD	Composting/AD
Organics collection	-	Fortnightly	Weekly	Weekly/fortnightly	Weekly
Rubbish collection	Weekly	Weekly	Weekly	Fortnightly	Fortnightly

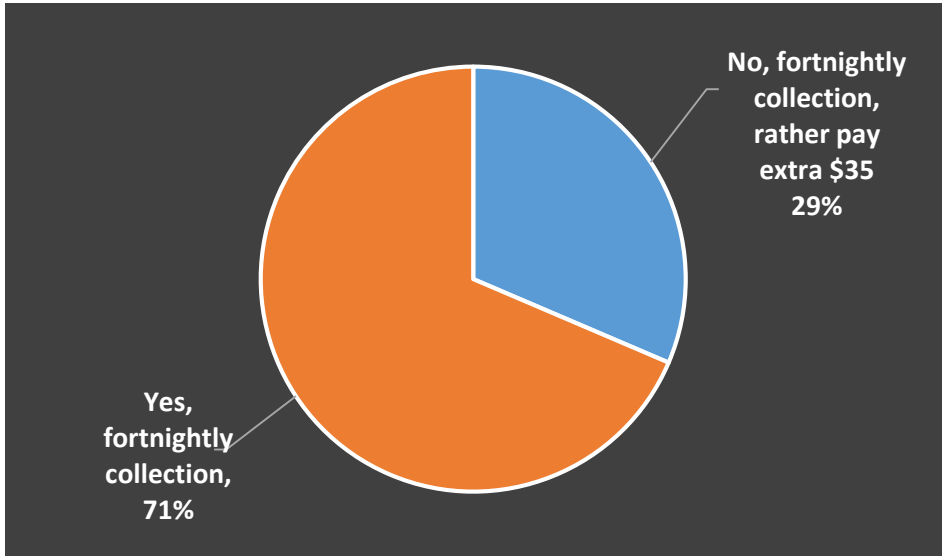
Key assumptions (Cost modelling)					
Landfill charges	Current level; levy to increase to $60 by 2024				
Organics collection	-	$40 per household per year			
Processing costs (per ton)	-	$60	$120	$60/120	$120
Transport costs	-	$16 per ton			
Receptacle costs	-	$120 per household			

Consultation

- 371 submissions received - 85% of respondents supported an organics diversion option – either FO & GO or FOGO



- Of the submissions supporting FO & GO or FOGO, 71% supported a reduction in rubbish collection frequency



64% of submitters had FOGO as their preferred option

FOGO – Indicative Financials

Scenario	Description	Targeted rate (per household per year)
Base case	*Base assumptions*	**$50**
Best case scenario	*Conditions generally favorable*	**$39**
Worse case scenario	*Conditions generally unfavorable*	**$66**
Worst case scenario	*Completely unfavorable conditions*	**$80**
Expected range	*Most likely scenario*	**$52 ± 6 ($46-58)**

Current fortnightly kerbside green waste collection services cost <u>>200 per year</u>

Uncontrollable factors – Landfill levy revenue, Emission trading costs, CPI

THANK YOU!