

Creative Commons

This publication is licensed under the Creative Commons Attribution 3.0 Australia License. In essence, you are free to copy, distribute and adapt the work, as long as you attribute the work and abide by the other license terms. To view a copy of this license, visit www.creativecommons.org/licenses/by/3.0/au



Disclaimer

This publication is for general information purposes only. The State of Victoria does not guarantee that this publication is comprehensive, without flaw or appropriate for your needs. You should make your own inquiries or seek independent professional advice before relying on anything in this publication. The State of Victoria disclaims all liability for any error, loss or damage that may arise as a result of you relying on anything contained in this publication.

Accessibility

If you would like to receive this publication in an accessible format, such as large print, telephone the Metropolitan Waste and Resource Recovery Group on (03) 8698 9800 or email metro.waste@mwrrg.vic.gov.au

Published September 2018

Contact

Level 4, Tower 4
World Trade Centre
18-38 Sidddeley St
Melbourne, VIC 3005

(03) 8698 9800
mwrrg.vic.gov.au

Introducing a kerbside food and garden organics collection service

A guide for local government

> START



> PRINT



Purpose

This guide is designed to support councils to implement a successful food organics and garden organics collection service. These combined services are known widely and throughout this guide as FOGO.

Scope

This guide is for councils contemplating introducing a FOGO collection as part of their residential kerbside service.

Metropolitan Melbourne councils asked the Metropolitan Waste and Resource Recovery Group to provide guidance on incorporating food into garden waste collection as it is considered the most cost effective option for councils and residents to deal with organic waste. Therefore this guide does not address bulk bin collections for food waste in residential areas, on-site treatment solutions for separated organics (anaerobic digestion or anaerobic composting) in multi-unit developments or commercial bulk bin collections that are not serviced by councils.

The commercial and industrial sector produces significant amounts of organic waste, some of which is treated locally using increasingly innovative systems. This guide may be useful for councils who include commercial and industrial businesses in their municipal collection.

Acknowledgements

The Metropolitan Waste and Resource Recovery Group (MWRRG) acknowledges the generous support offered by members of the FOGO Guide External Advisory Group in the development of this guide.

In particular we would like to thank: Bill Grant (Blue Environment), Lisa Coffa and Matthew Nelson (City of Yarra), Sue Phillips and Kellie Barnes (City of Darebin), Hayley Jarvis (Wyndham City Council), Tobey Henry (Nillumbik Shire Council), Michelle Van Gerrevink and Carmen Chesson (City of Glen Eira), April Williams (City of Monash), Natasza Purser (City of Boroondara), Katherine Cocks (City of Stonnington), Joanne Keeling (City of Frankston), Rod Irons (Moonee Valley City Council), Tim Cummins (Bayside City Council), Misty Johannsen (Cardinia Shire Council), Michael Jansen (City of Casey), Wendy Gomez (City of Port Phillip/City of Casey), Stephen Johnson (City of

Moreland), Brad Montgomery, (Goulburn Valley Waste and Resource Recovery Group), Ashley Pittard (Barwon South West Waste and Resource Recovery Group), Danielle Lisle, Joel Dickson and Michael Spiller (Bass Coast Shire), Veronica Schilling (Benalla Rural Shire/Get it Done Consulting), Bridgette McDougall (City of Greater Bendigo), Jason Rijnbeek (MRA Consulting), Viv Waller (Swinburne University), Amanda Molly Nelson (Sustainability Victoria), Clinton Grosvenor and Luke Wilson (Department of Environment, Land, Water and Planning) Steve Marshall, Tony Strobbo and Thomas Wetherill (Veolia), Rebecca McKeown and Adrien Scott (Solo RR), Rowan Willians (BASF), Michael Wood (Australian Organics Recycling Association and Oakwood Consultants), Melinda Lizza and Mark Globan (Cleanaway), Rivka Garson (Cardia Bioplastics) and Carlos Gros (Sacyr).



Components of designing, introducing and maintaining a FOGO service



Stage 1:
The case for change
Why recover food waste?



Stage 2:
Design the service
Opt-in vs universal, service frequency, bin configuration



Stage 3:
Develop a business case
Preferred service options and specifications, performance measures, implementation plan



Stage 4:
Procurement
Contract including agreed specifications, pricing schedules and service delivery plans



Stage 5:
Rolling out the service
Project planning, communications and education, container deliveries, monitoring and evaluation



Stage 6:
Monitoring and improvement
Expanding the service, ongoing communications, supporting food organics markets

At a glance

Reducing landfilled food and garden organics is a major waste minimisation priority for national, state and many local governments.¹ In Victoria, food and garden organics make up approximately 50 per cent of household garbage with food comprising on average 39 per cent (by weight) in metropolitan areas and 27 per cent (by weight) in non-metropolitan areas.² Diverting food organics from landfill represents a significant opportunity for councils to support their communities to reduce emissions associated with waste.³

An increasing number of councils in Victoria and around Australia are introducing kerbside food organic and garden organic (FOGO) collection services. The effectiveness of different

FOGO services can vary, and this guide has been developed by the Metropolitan Waste and Resource Recovery Group (MWRRG) to assist councils to design, implement and maintain a high-performing and cost-effective FOGO service and engage the community effectively throughout the process.

Providing a FOGO service is a community-wide behaviour change program. It requires well planned community engagement and education, with long lead times to ensure success. The successful introduction of a FOGO service is typically conducted in six stages.



Stage 1: Understand the case for change

Food waste – a major resource recovery opportunity

In 2016-17, councils in metropolitan Melbourne sent an estimated 878,000 tonnes of municipal solid waste to landfill. Food is estimated to make up over 36 per cent of landfilled garbage, and garden organics a further eight per cent.⁴

The Metropolitan Waste and Resource Recovery Implementation Plan 2016 (Metropolitan Implementation Plan)⁵ outlines the vision and strategy for managing Melbourne's waste. The plan focuses on identifying Melbourne's infrastructure needs and how they will be met over the next 10 years. The plan aims to significantly increase resource recovery and reduce the need for landfills and the burden they can have on nearby communities. This includes the aim to significantly increase the amount of organic waste that is recovered. The plan sets out ambitious targets for the recovery of organic waste from the municipal, commercial and industrial sectors.

A SNAPSHOT OF METROPOLITAN MELBOURNE'S KERBSIDE WASTE

[Table 1](#) demonstrates a summary of kerbside collection services for garbage, recycling and organics in 2016-17 in metropolitan Melbourne. The data demonstrates:

- an average kerbside organics recovery rate of only 21 per cent
- over 1 million households receive an organics collection service (about 59 per cent of all households that receive garbage collection services)
- an average household yield of 329 kg of organics, estimated to be mostly comprised of garden organics
- lower costs per tonne for organics recovery than for landfilling. This is due to less frequent collection (most councils have fortnightly organics and weekly garbage collection) and lower gate fees at organics reprocessing facilities than landfills.

A WASTED RESOURCE

Improving recovery of food organics is a priority for state and local government because food organics are highly putrescible and contain nutrients and energy which are lost when disposed of at landfill. Decomposition produces odours, leachate and greenhouse gases which can adversely affect community amenity, the environment and public health. Managing these issues at landfills is a long term economic, social and environmental imposition on current and future generations.

The main sources of food organics entering Victoria’s waste and resource recovery system are:

- food organics discarded by households, primarily in the residual bin
- food organics discarded by small business and commercial entities
- food-related materials from food manufacturers.

The Metropolitan Implementation Plan has identified FOGO collection as an opportunity to increase recovery of food organics from households. In June 2018, five councils in metropolitan Melbourne operated a FOGO service: Nillumbik, Moonee Valley, Wyndham (fruit and veg only), Hume (fruit and veg only) and Glen Eira and two councils were conducting trials: Darebin and Yarra. Regionally 14 councils had a FOGO service: Colac Otway, Benalla, Indigo, Wodonga, Wangaratta, Greater Bendigo, Corangamite, Southern Grampians - opt-in service to selected areas, Moyne, Moira, Greater Shepparton, Strathbogie, East Gippsland and Bass Coast and one council was conducting a trial: Warrnambool.

Data collection on the tonnes recovered through FOGO services began in 2015-16. Early indications estimated that around 7,000 tonnes of food organics may have been collected through these services. Sustainability Victoria expects to see an increase in local governments offering FOGO kerbside collection services.⁶



Figure 2 shows the typical composition of household garbage across the metropolitan region. On average, approximately 44 per cent by weight of Victorian municipal solid waste sent to landfill is food organics and garden organics. The majority is food organics (36 per cent). This represents a sizeable opportunity to reduce the amount of waste we send to landfill. If only 50 per cent of this food organics was recovered, landfilling of organic waste would fall by an estimated 20 per cent by weight. High-performing food organics recovery services have achieved levels of food recovery rates in excess of 50 per cent.

Table 1: Kerbside bin collection services summary, metropolitan Melbourne, 2016-17

Metropolitan Melbourne	Garbage	Recycling	Organics
Annual service cost	\$188,291,870	\$42,725,526	\$54,882,693
Tonnes collected	877,806	433,231	343,888
% of total	53%	26%	21%
Tonnes processed/recycled	-	403,825	343,738
Residential properties serviced	1,785,443	1,755,261	1,045,632
Cost per tonne	\$214.50	\$98.62	\$159.59
Cost per household	\$101.30	\$23.37	\$52.49
Household yield (kg)	472	237	329

Figures are calculated from (tonnes collected x 1,000) / TOTAL properties serviced – i.e. including kerbside collection services provided to small businesses, churches, schools etc.
Source: Victorian Local Government Annual Survey 2016-17, Sustainability Victoria

Figure 1: Kerbside bin collection services, metropolitan Melbourne, 2016-17

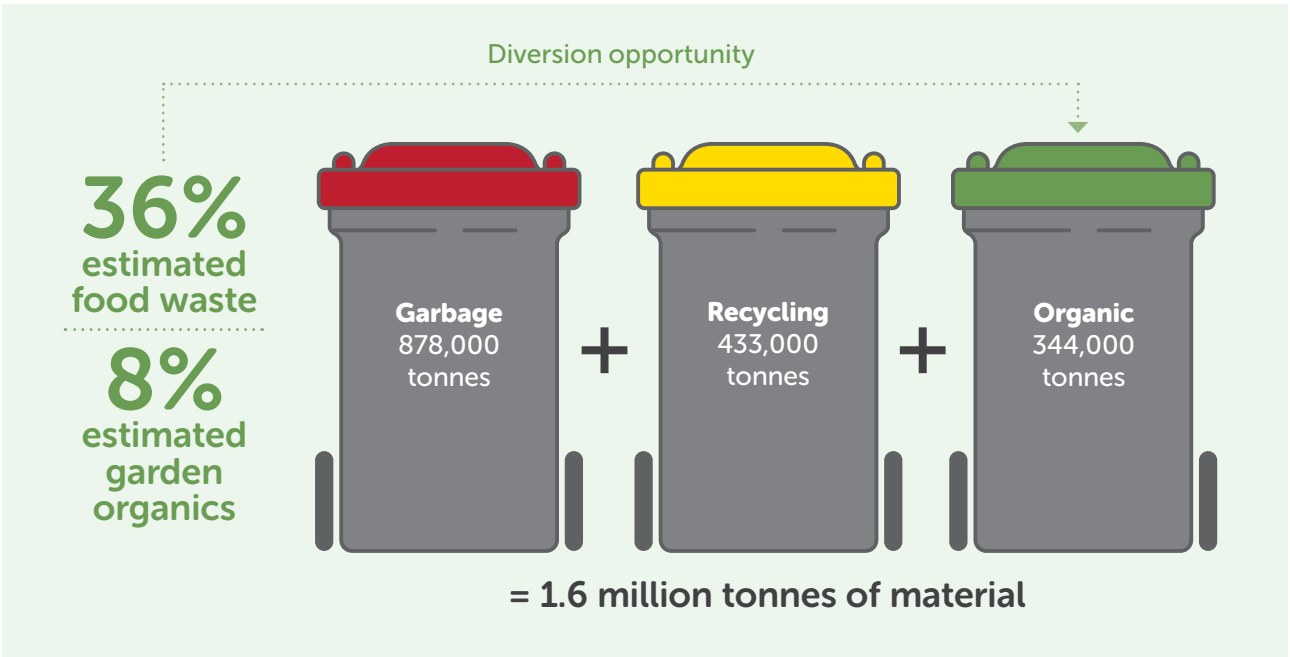
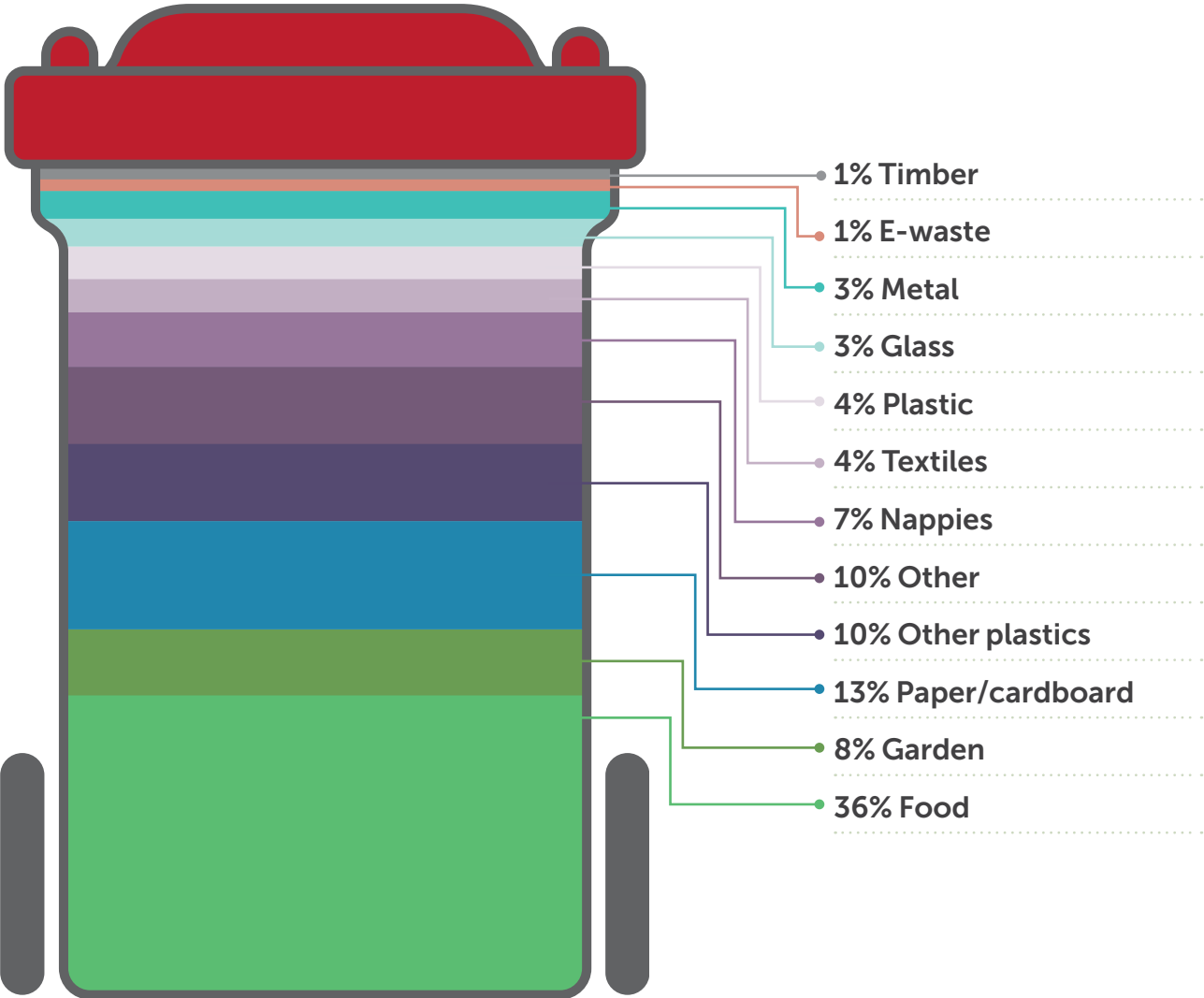


Figure 2: The typical composition of household kerbside garbage in Victoria



The actual proportions of garbage that are garden or food organics will vary from council to council depending on a number of factors including: housing density (larger blocks = more garden organics); average rainfall and 'leafiness' of suburbs (this varies, with western and northern areas having less rainfall than eastern and south eastern suburbs); garbage bin size (smaller bins generally means less garden waste and a higher proportion of food because other waste items will not fit in the bins); and demographics.

Source: Kerbside garbage bin audit 2014, Metropolitan Waste and Resource Recovery Group

POLICY CONTEXT

The successful implementation of FOGO services aligns with a number of Victorian Government policies, strategies and initiatives that aim to reduce food waste, increase food organics recycling and reduce greenhouse gas emissions.

The Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP) provides a vision that Victoria's integrated waste and resource recovery system:

- effectively manages the expected mix and volumes of waste
- reflects the principles of environmental justice to ensure that impacts on the community, environment and public health are not disproportionately felt
- supports a viable resource recovery industry
- reduces the amount of valuable materials going to landfill.

The Metropolitan Waste and Resource Recovery Implementation Plan 2016 aims to:

- reduce the amount of waste going to landfill
- increase organic waste recovered
- deliver community, environmental and economic benefits
- plan for Melbourne's growing population.

The Victorian Organics Resource Recovery Strategy aims to:

- increase community and business awareness of food waste and promote food waste avoidance
- support local governments, businesses and industry to minimise organic waste and reduce contamination in organic waste streams

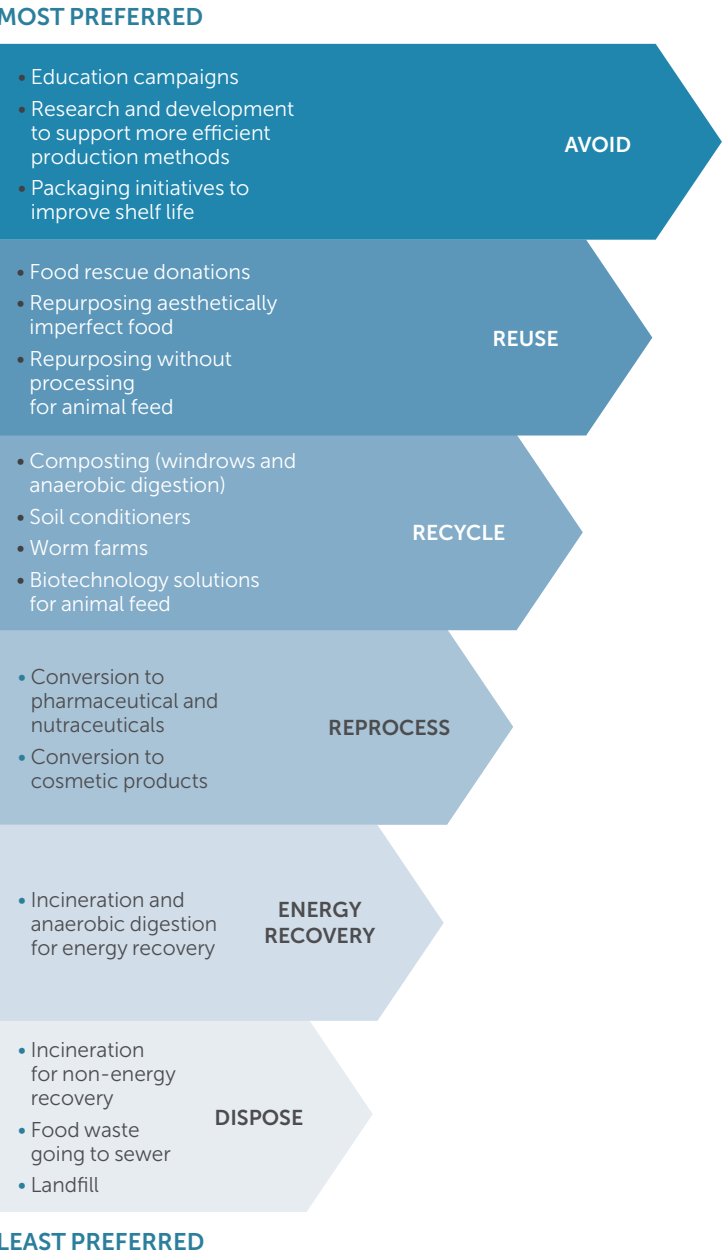


- provide local government and industry with the information and support required to build their capabilities in managing organic wastes, including:
 - a guide to organic waste collection services that assists local government to determine the most effective and efficient collection services
 - an economic modelling tool that considers all options for organic waste management
 - produce procurement guidelines that consider supply chain implications of collection systems, transport systems, processing/ treatment options and end market use of organics
 - develop contract mechanisms for metropolitan and regional organics management that specify contamination management controls for collectors, processors and products (including meeting minimum product standards)
 - investigate mechanisms for including 'buy-back' options in organics management contracts – for either compost or energy.

WASTE HIERARCHY

Traditionally, waste management in Victoria is based on the concept of resource efficiency. The *Environment Protection Act 1970* establishes the waste hierarchy for Victoria, which provides a list of preferences for management options ranging from avoidance as the most preferable to disposal as the least preferable. [The National Food Waste Strategy](#) has developed a useful example of the waste hierarchy which is specific to food.

Figure 3: Waste hierarchy



BENEFITS OF FOGO

Implementing a FOGO service provides a range of benefits for councils, including:

Economic benefits

- potential reduced landfill disposal costs (depending on the FOGO and garbage service option chosen and collection frequencies)
- potential to generate carbon credits under the [Australian Government's Emissions Reduction Fund \(ERF\)](#).

Environmental benefits

- producing compost that can be used as a soil improver/fertiliser
- reducing greenhouse gas emissions (methane) and associated climate change impacts
- reducing leachate in landfills caused by rotting food organics
- reducing public health risks of methane gas escaping from landfills.

Social benefits

- meeting community expectations of responsible environmental management by council
- helping to improve food security through sustainable agricultural productivity.

METHANE A GREENHOUSE GAS - A MAJOR DRIVER OF CHANGE FOR GOVERNMENT

In landfill, organic waste is decomposed by bacteria in anaerobic conditions to produce methane, a potent greenhouse gas with at least 25 times stronger global warming potential than carbon dioxide.

Most landfills serving metropolitan Melbourne collect some landfill gas, but only 30-50 per cent of emissions from food organics are likely to be captured at most landfills. Keeping organics out of landfill is the most effective way of reducing emissions.

It is therefore preferable to process organic material either via an aerobic process such as composting or under controlled anaerobic conditions so that the methane is captured and used for energy production.

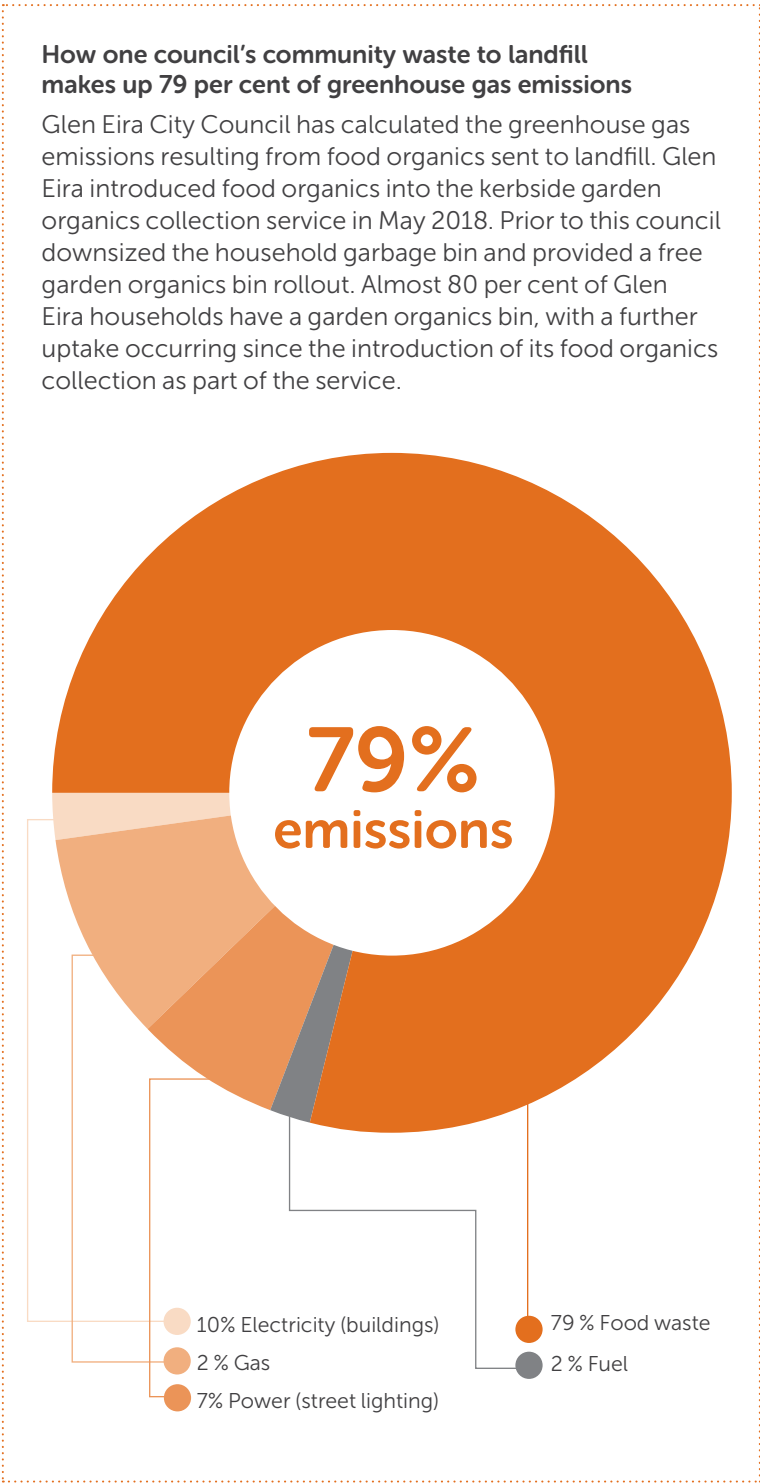
[Victoria's Climate Change Act 2017](#) establishes a target of net zero greenhouse gas emissions by 2050. In line with this, councils are developing Net Zero Emissions plans and considering how to reduce greenhouse gas emissions from waste.

Preliminary work done by local government Greenhouse Alliances has found that the opportunity for member councils to reduce emissions from organic waste is substantial and if they work together they can benefit from aggregating their greenhouse emissions savings and potentially use this to gain funding for their FOGO programs from the Australian Government's Emission Reduction Fund.

Funding opportunities through the Emission Reduction Fund

The Australian Government's Emissions Reduction Fund (ERF) allows those councils diverting organic waste from landfill to generate 'carbon credits' via the Carbon Credits (Carbon Farming Initiative—Source Separated Organic Waste) Methodology Determination 2016 (see www.legislation.gov.au/Series/F2016L00098).

Councils can apply for this funding for any 'new' diversion of organics from landfill applying the methodology set out in the determination. Applications for ERF funding need to be made before councils have committed to introducing new kerbside services.



Source: National Food Waste Strategy p 16



Stage 2: Design for success

Designing a FOGO service requires the consideration of a number of factors including: setting targets, managing contamination and effective community engagement.

WHAT IS A SUCCESSFUL SERVICE?

A successful FOGO service has the following features:

- high participation rates
- high diversion rates of food and garden organics per participating household
- the lowest contamination levels possible to ensure the material is acceptable to the processing facility and the end user
- strong evidence base through data collection and analysis
- community support for recycling food waste
- an assessment of expected performance and net costs and benefits of options
- an analysis of service options to identify a preferred option
- a staged rollout.

PARTICIPATION AND DIVERSION RATES

Factors that increase the likelihood of household participation and the level of food organics diversion include:

- community awareness of the availability of the FOGO service, this requires effective community engagement and prompts to use the service
- ease of service use
- provision of kitchen caddies and if accepted by council's processing contractor, compostable bags/bin liners
- the frequency of the garbage and organics collection services - weekly organics collection coupled with fortnightly garbage collection has been shown to have the highest participation and diversion rates. Councils in the North East region of Victoria have found this collection combination to reduce garbage by 30-50 per cent.



Target setting for FOGO performance

Participation and diversion targets vary depending on the type of service offered and the types of households in the municipality. For a universal FOGO service, (garden organics bin provided as part of the general waste service to most households, often with the exception of multi-unit developments) a reasonable participation target is at least 80 per cent of households regularly using the service.

Recommended diversion targets are at least 60 per cent diversion of food and 80 per cent diversion of garden organics.⁷ Diversion rates are best measured by the decrease in total waste landfilled per household before and after the FOGO service is introduced.

Focus on diversion rather than additional recovery

It is important to focus on increasing the diversion of organics from landfilled garbage rather than simply increasing the recovery of organics. This is because providing organics bins to residents as a new service often results in additional garden organics being recovered that were previously not disposed in the household garbage bin.

Typically, the amount of garden organics recovered is two to three times greater than the quantity previously disposed in garbage bins.⁷ This increases the costs of recovering organics, but does not necessarily contribute to a matching reduction in landfilling costs. To avoid this, it is important to encourage residents who are currently home composting and/or using worm farms to recycle their organic waste to continue to do so.

Options for achieving food and garden waste reduction include:

- participation in food waste reduction programs such as Sustainability Victoria's [Love Food Hate Waste](#)
- promotion of low waste gardening, including reducing lawn areas and planting trees and shrubs that require less maintenance
- promotion of home composting, green cones and worm farms
- household bin audits before and after the FOGO service is introduced.



Low contamination

Most councils that have recently introduced FOGO services have found that contamination rates are manageable and similar to those already experienced with garden organics services. In order to maximise successful outcomes, councils should carefully design a service that aims for contamination levels below 1-2 per cent by including:

- effective community engagement with strong marketing including images showing what can and cannot be placed in the FOGO bin. Programs for multi-unit developments and hard to reach demographics (e.g. students, non-residents, tourists and people from Culturally and Linguistically Diverse (CALD) backgrounds) may be required
- a collection contractor that has systems in place for detecting contamination and linking the contaminant source to locations. On-vehicle cameras and GPS systems can be used to pin-point sources of contamination
- effective compliance programs that remind residents found with contaminated bins to keep materials clean. In most instances, residents provided with reminder notices do not re-offend, but councils may develop systems for enforcement and suspension of service for repeated gross contamination of FOGO bins
- engaging a FOGO processing contractor that has systems and equipment in place to manage contamination. Front end pre-sorting as well as various methods for screening products can virtually eliminate contamination in finer and higher quality grades of product. Contaminated 'oversize' screened materials may have alternative uses but should not be marketed as a compost or mulch products. The Australian Standard for compost, mulches and soil conditions (AS 4454-2012) should be applied as a minimum standard for achieving product quality
- standardised bin colours to meet the Australian Standard, AS 4123.7 (dark green bins with different coloured lids: garbage = red lid, recycling = yellow lid, and FOGO = light green lid).

MANAGING CONTAMINATION RATES

A food and garden organics service with high diversion at the kerbside, but accompanied by high contamination is an under-performing service. When contamination exceeds 10 per cent it is likely that the truck load will be rejected by the organics processor and incur financial penalties. Councils will be guided by their organics contract requirements for contamination thresholds and associated penalties, either through the MWRRG collective contracts or via individual arrangements. The MWRRG South Eastern Organics Contract has a Contamination Protocol that sets out clear parameters and actions for contamination management. This document is available from MWRRG on request.

A poorly designed and implemented FOGO service is likely to lead to high contamination levels. And high levels of contamination are costly. These include costs associated with higher gate fees for contamination and landfilling, as well as expenditure related to education, engagement and enforcement activities required to retrospectively respond to high contamination. Addressing contamination resulting from a poorly designed service is also likely to require significant council staff resources.

CREATING AN EVIDENCE BASE

In all stages of developing and implementing a FOGO service, data collection and analysis is critical to the success of the program. Types of data collected by councils include annual waste service tonnages and costs, waste stream audits, community demographic data, community surveys, website and social media analytics. Over the life of the FOGO service, data will assist with:

- understanding the context, opportunities and challenges
- providing evidence to support decision making
- identifying key barriers and benefits
- monitoring progress
- gathering and sharing feedback
- reporting on program outcomes
- reviewing whether the program meets objectives
- sharing program lessons
- identifying future program opportunities.

Research conducted for MWRRG by Swinburne University identified the importance of councils having a good relationship with their waste contractors to help reduce contamination by relying on proactive truck drivers to monitor contamination via cameras and then report offending households for follow-up action.

In the case of [Yarra City Council's Food Scraps Recovery service](#) the council has established a Contamination Monitoring Protocol and a Contamination Squad to visit households which have had contamination stickers placed on their food collection tubs. The Contamination Squad provide face to face explanation to residents on how their tub is contaminated.

Waste data and audits

Specific waste stream audits can be useful for comparing behaviour and performance when a new service is introduced and/ or when trialling alternative collection arrangements. Before introducing FOGO it is recommended to obtain baseline data by undertaking an audit of the total amount of waste produced, and the type and volume of organics currently in the residual waste stream. Councils could also use aggregated data from previous years' audits to provide an indication of the community's waste profile rather than undertaking a new 'snapshot' audit.

A household by household audit, or aggregated sampling, enables measurement of household generation of waste, recyclables and organics to determine the composition of each waste stream and assist in monitoring the performance of the FOGO service. The residual waste stream can then be audited, using the same metrics, seasonally (at least summer and winter) to obtain the best data for comparison of results. Audits of the organics and recyclables will also determine whether the introduction of the FOGO service has had any other impacts, such as reduction in total waste produced, and material capture rates. Councils will need to calculate the quantity of organics that could be diverted from the residual landfill bin as a result of the introduction of the FOGO service.

It is also important to conduct seasonal waste audits of the residential residual, recycling and garden organics bins to provide baseline data as the amount of food and garden organics will vary, especially in holiday periods and during periods of high growth such as in spring or during low growth periods such as in summer.

The data can then be used to calculate potential benefits and cost-effectiveness, and help shape the scope and design of the FOGO service. Councils can refer to [Sustainability Victoria's Guidelines for Auditing Kerbside Waste in Victoria, 2009](#) to develop an audit methodology for planning and carrying out weight-based physical audits to determine the composition of each waste stream for household residual, recyclables and organics collection services.



LESSONS FROM INTERSTATE AND REGIONAL EXPERIENCES

In 2017, MWRRG commissioned Swinburne University⁸ to undertake qualitative research on the experiences of interstate councils providing a FOGO service. From 49 identified councils, detailed interviews were conducted with officers from 12 councils from across Australia as well as [Moir Shire Council \(see Appendix 6\)](#) in regional Victoria.

The rollout of services in South Australia (SA) arose from a major pilot study undertaken by Zero Waste South Australia in 2009-10. The study was conducted over 12 months and involved 17,000 households across 10 municipalities. Many subsequent services have been informed by these trials. Metropolitan councils in SA are constrained by legislation that mandates a weekly residual service and this has led to the adoption of a fortnightly organics service. This legislation was implemented following adverse public reaction to the reduction of garbage bin services from weekly to fortnightly in two council areas following their FOGO trial.

In addition to service configuration, the research and interviews explored a full range of service considerations including designing an education and engagement program both pre and post introduction of a FOGO service, supply of caddies and compostable bags/liners, and overcoming barriers and challenges including problematic waste such as nappies.

The City of Wodonga and Indigo Shire in the North East region of Victoria began a three bin system to collect food and organic waste in 2012 with the support of funding from Sustainability Victoria. A final milestone report was published in 2016. In 2017, the Goulburn Valley Waste and Resource Recovery Group published its report on garden and food waste collection by four councils, Moira, Strathbogie and Mitchell from 2012.⁹ In 2018 Barwon South West Waste and Resource Recovery Group commissioned Blue Environment to review the experiences of Victorian and interstate councils in introducing FOGO services.

Based on these reports, the main factors found to influence the performance and uptake of the FOGO service are:

Whether the FOGO model is a universal or voluntary opt-in service

Universal services generally have higher diversion and recovery rates, although levels of food diversion per household are determined by other factors such as garbage collection frequency and bin sizes. Fortnightly garbage services promote food and garden organics diversion and increased commingled recycling. The best performing systems coupled this with a weekly FOGO service and in doing so, achieved diversion from landfill of 30-50 per cent by weight. By contrast, the best performing councils with weekly garbage and fortnightly FOGO have only reduced landfilled garbage by 20-25 per cent by weight.⁹ Some councils have had strong community opposition to moving to a fortnightly garbage service, but most have found that this manageable if a weekly FOGO service is provided.

The effectiveness and intensity of community engagement programs

Effective community engagement is essential to the success of a FOGO service. Getting households to divert food waste is a significant behaviour change for most people. Some residents (20-30 per cent) will initially feel that they do not need a FOGO service because they 'don't produce much food waste' or 'compost everything at home'. However, once FOGO services are introduced they are typically popular and supported by 80-85 per cent of the community.⁹ Most households are familiar with and supportive of commingled recycling, and effective promotion of FOGO has achieved impressive levels of diversion. In the Goulburn Valley region, the adoption of the Back to Earth Initiative dramatically improved the service uptake and reduced contamination issues.

The quantities of additional food and garden organics disposed of via the FOGO service

This can be significant, Blue Environment² estimates that typically, Victorian residents without a garden organics or FOGO service dispose of less than 60 kg per household per year of garden waste to garbage. Garden organics and FOGO services often collect more than 250 kg per household per year of garden organics. On average, existing kerbside organics services in metropolitan Melbourne collect about 293 kg per household per year, but this ranges from 194-366 kg per household per year.

The relative costs of landfill disposal compared to organics recovery

Where landfill costs are significantly higher than organics recovery, services can be close to cost neutral or even save councils money. This will depend on how much additional food and garden organics are recovered through the service. In most situations, residents can be provided with a convenient FOGO service for less than \$1-2 per household per week.

Whether kitchen caddies and compostable bags/liners are provided

Kitchen caddies and compostable bags/liners make a significant difference to on-going participation in food waste diversion. Compostable bags/liners can help councils maintain fortnightly FOGO services because they contain odour and mess, and when coupled with a fortnightly garbage service, can result in significant cost savings. Compostable bags/liners can only be used if the FOGO processor can manage them. Some councils provide caddies only, others provide compostable bags/liners and no caddies, and some provide both. Some councils commit to providing compostable bags/liners for the first six to 12 months and then require residents to purchase them if they wish to keep using them. Regardless of which option is adopted, the key is effective community engagement. It is important that residents only use compostable bio-plastic bags/liners or paper liners and do not mistakenly use bags labelled as 'degradable'.



GAINING COMMUNITY SUPPORT FOR A FOGO SERVICE

A good understanding of social demographics of the local government area will assist councils to provide a FOGO service that meets the needs of their community. Councils can assess community support for a FOGO service by using demographic data, research, surveys, and feedback. Responding to residents' feedback and being open to adapting the service along the way will lead to increased participation rates and reduced contamination.

Demographic factors to be considered include:

- population size
- density
- age
- socio-economic status
- Cultural and Linguistically Diverse (CALD) communities

- detached housing with small, medium or large gardens
- multi-unit developments (MUDs)
- single unit developments (SUDs)
- urban, semi urban, peri urban, rural fringe, rural
- permanent residential, semi-permanent residential, temporary residential, short term rentals, holiday homes
- seasonal factors such as holiday destinations, influxes of visitors and tourism.

It is recommended that this information be collected, mapped and considered as part of the FOGO service design and implementation plan. Engage early in the process of planning a FOGO service, both internally and externally.

Useful demographic information can be found at <https://home.id.com.au/demographic-resources/>

Community attitudes towards FOGO

In May 2017 MWRRG commissioned social research to explore the likely success factors for introducing a FOGO service into metropolitan Melbourne.

The research focussed on four south eastern municipalities (Monash, Glen Eira, Frankston and Bayside) who had expressed interest in exploring a FOGO service under MWRRG's joint facilitated South Eastern Organics Processing Contract. Monash and Glen Eira provide a garden waste bin as part of a universal standard residential waste service, while Frankston and Bayside operate under a user pay subscription model.

The key objectives of the research were to:

- establish the appeal of a FOGO service
- explore optimal service designs for the service rollout
- understand barriers/concerns and motivations to participate in the FOGO service
- understand the impact of supporting tools on the successful implementation of the FOGO service
- explore the most appropriate messaging and terminology to use to ensure optimal understanding of the service.

The research also touched on understanding community perceptions of landfill and environmental concerns (as a means of setting the context for FOGO introduction) and understanding current recycling behaviours (in an attempt to predict potential contamination/diversion activities of respondents).

SOCIAL RESEARCH RECOMMENDATIONS

Based on analysis of feedback and findings, the social research made the following recommendations:

- Roll out of a universal FOGO as a weekly collection
- Maintenance of a weekly general garbage waste collection
- Kitchen caddies provided as optional
- Compostable bags universally provided by council
- Communicate the benefits of FOGO to the community

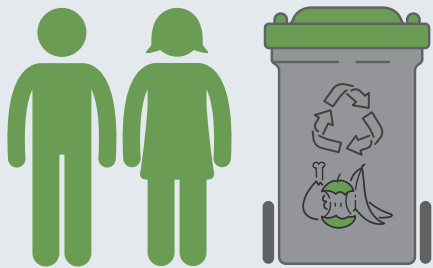
Based on their behaviours and attitudes survey respondents broadly fell within four segments:

FOGO lovers – 28%

- Love the FOGO concept
- Very likely to use the FOGO bin
- High food recycling
- Very unlikely to contaminate

This segment loved the FOGO concept, would be likely to use a FOGO service and appeared unlikely to contaminate it.

This group would be the easiest to manage and could become advocates for the FOGO service.

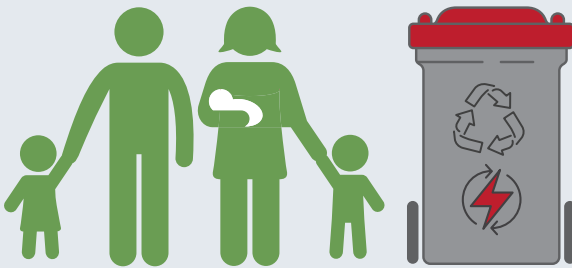


FOGO's OK – 40%

- Like the FOGO concept
- Likely to use the FOGO bin
- Average food recycling
- May contaminate

The biggest segment, this group liked the concept and were likely to use the service. This group is a key demographic as they are less likely to already use some kind of home based solution compared to the FOGO lovers. However, this segment may contaminate based on their current reported experiences with the recycling bin.

Engagement, education and support would be critical for appealing to this group to ensure success of the service.

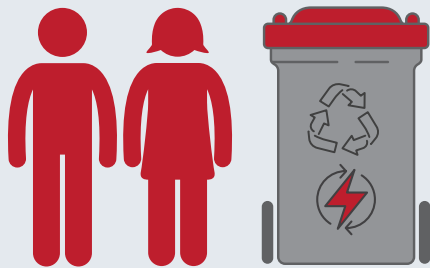


Non food recyclers – 22%

- Dislike the FOGO concept
- Unlikely to use the FOGO bin
- No food recycling
- Likely to contaminate

This group disliked the FOGO concept and said they would be unlikely to use the service.

This is the segment most likely to resist the concept of a FOGO service and respond negatively. Education and enforcement would be required to manage this segment of the community.



Composters – 10%

- Dislike the FOGO concept
- Unlikely to use the FOGO bin
- Very high food recycling
- Unlikely to contaminate

This group reported being unlikely to use the service because they were happy with the food recycling systems they had in place. This segment would be unlikely to contaminate the FOGO bin.

Although this segment reported they were unlikely to participate, there are opportunities to promote FOGO as a service that will allow them to recycle the food scraps they would be unlikely to place in a worm farm or compost heap such as citrus, meat scraps etc.



Recommendations based on social research findings

Frequency of collection			Supporting tools	
Roll out	FOGO collection	General waste collection	Kitchen caddies	Compostable bags
Universal	Weekly	Weekly	Optional	Universally provided by council
Most residents believe it should be rolled out to everyone equally - creating social norms and encouraging as many as possible to participate.	Both acceptors and rejectors were concerned about the smell of food waste. Other concerns include maggots and vermin, especially in summer.	Large concern amongst residents about losing the weekly general waste collection - this can be revisited.	Quite expensive to universally distribute. Make optional to residents who require/would like a caddie from council. Some are negative about the caddie and others wish to find their own vessel.	Compostable bags being provided by council had the highest uplift in likelihood to separate food waste into a FOGO bin.

ASSESS SERVICE OPTIONS

The table below compares options and recommends that councils favour a compulsory/universal system with limited capacity to opt out. The exception to this are councils that already have voluntary green organics services with participation

rates of more than 60-70 per cent. Compulsory FOGO is favoured because it will maximise diversion of organics and allow councils to promote the message that no food or garden organics should be disposed to household garbage.

Options	Advantages	Disadvantages	Recommended approaches
Compulsory/universal Provide all residents with a FOGO service	Typically achieves the highest participation and diversion rates. Easiest administratively to provide all residents with bins and include service charge in rates. Generally lowest cost per participating household and per tonne of organics recovered and diverted. Universal FOGO has been popular with communities where it has been introduced.	Highest capital and operating costs. Contamination rates can be higher. Quantities of 'additional' recovered organics are generally higher, increasing the costs of processing without a decrease in total landfill costs. Likely community opposition from those who feel they do not need the service.	Adopt a compulsory/ universal service, or aim for voluntary participation rates of 60-70% or more. Limit the ability of households to opt out of the service and require those that do to accept a small garbage bin.
Universal with opt out or limited exclusions Provide a universal FOGO service with some exceptions e.g. large MUDs where shared waste disposal services make it difficult to avoid contamination and/or households who opt out	Most households will generally opt to use the service. Allowing an opt out may mean there is less likelihood of contamination. Otherwise as for universal (above).	Higher administration and management costs. Otherwise as for universal (above).	
Voluntary Provide a FOGO service to residents who order it (opt in)	Generally lower capital and operating costs. Generally higher diversion and recovery rates per participating households. Generally lower contamination rates. Cost-recovery and 'user pays' fee for service means those generating more waste and using the service pay more for this.	Generally higher costs per participating household and per tonne of recovered organics. Unlikely to achieve as high participation and diversion rates as a universal service, and therefore less diversion to landfill. Can recover large quantities of 'additional' organics per participating household that were not previously disposed to garbage. Often has high administration costs per household and per tonne of organics recovered. Not compatible with fortnightly garbage collection as only those who opt-in have the service.	



Collection frequency

A key decision for councils to make is how frequently the service will operate. Many councils have found that adopting a fortnightly garbage service with either a weekly or fortnightly FOGO service is highly effective in gaining community

acceptance for FOGO. Some councils introducing a universal weekly FOGO service and fortnightly garbage service have reduced landfilled garbage by 40-50 per cent by weight due to increased organics recovery and increased commingled recycling.²

Options	Advantages	Disadvantages	Recommended approaches
Weekly FOGO and weekly garbage collection	Research showed most residents want a weekly garbage service.	Highest cost option. Can reduce participation and diversion rates as there is no incentive to participate. Requires behaviour change as residents are used to alternating bin fortnights.	Highest performing systems use weekly FOGO and fortnightly garbage collection. This responds to concerns about restricted garbage bin capacity and unsorted waste rotting in a FOGO bin for two weeks, which may result in low uptake of the service.
Weekly FOGO and fortnightly garbage collection	Several councils have achieved 40-50% by weight reduction in landfilled garbage by switching to weekly FOGO and fortnightly garbage collections.	Fortnightly collection is not appealing to some residents due to perceptions about odour, overflowing bins and pests in the garbage bin.	FOGO bins should be smaller than 240L to reduce the quantities of garden and other waste disposed via the FOGO service.
Fortnightly FOGO and weekly garbage collection	Cost neutral if garden waste already collected. Aligns with garden waste collections so doesn't require much behavioural change.	Research showed most residents would not use FOGO bin if only collected fortnightly. Typically diverts about half as much organics and recyclables from landfill.	Bigger garbage bins or extra collections could be provided for people with special needs, e.g. nappies or medical waste disposal.
Fortnightly FOGO and fortnightly garbage collection	Forces a reduction in volume of garbage and food and garden organics. Reduced collection costs.	Fortnightly collection is not appealing to some residents due to perceptions about odour, overflowing bins and pests in the garbage bin	Councils may wish to introduce fortnightly garbage collection over time once weekly FOGO collection is established and resident concerns have been addressed.



Kitchen caddies and compostable bags/liners

Most councils with a FOGO service have found that the highest levels of on-going participation and food diversion are achieved by providing a kitchen 'caddy' (a small tub with a handle that can be kept in food preparation areas for food scraps collection) and/or compostable bags/bin liners.⁸ In NSW, some councils have achieved good levels of food diversion providing only a caddy (and promoting the use of newspaper or compostable bags/liners bought by the residents).

Other councils have had success in only providing compostable bags/liners (i.e. no caddies provided). The use of compostable bags/liners should only be considered if the organics processor can accept them. All facilities accept paper liners.

The table below outlines the advantages and disadvantages of options, as well as recommended approaches. The key to any of the approaches is making sure residents are aware of their availability and correct use of the service.

Options for provision of caddies

Options	Advantages	Disadvantages	Recommended approaches
Kitchen caddy supplied on opt in basis and delivered to residents	Lower cost and limits the risk of supplying unwanted caddies. Councils can have their contractor deliver the caddies to save council staff time and money.	Participation may be low.	Sealed caddies are provided on an opt in basis. Caddies are delivered to households by the collection contractor with an information pack and supply of compostable bag/liners (subject to contractor being able to process compostable bags/liners).
Kitchen caddy is supplied and delivered to every resident	Potentially higher levels of participation.	Significant financial and environmental cost of supplying unwanted caddies to up to 15% of households. Some residents want to use their own containers to suit their kitchen décor.	
Kitchen caddy supplied for free at council for collection	No delivery costs.	Participation may be low as residents might find it inconvenient to have to go to council for collection.	

Kitchen caddy types

Options	Advantages	Disadvantages	Recommended approaches
Sealed kitchen caddy	Reduced spillage when carried out to food and green organics bin. Doesn't require a compostable bag/liner. Gives the user the idea that odours stay inside the caddy.	Food scraps sweat more in a sealed container, more noticeable in warmer weather.	Only compostable bags/liners displaying the Australian standard AS 4736 can be used. Kitchen caddies kept inside on or under the kitchen bench should be around 8L in size. Larger caddies risk odour.
Vented kitchen caddy	Reduces the sweating of food scraps. Grooves on the bottom of the caddy capture potential spills.	More potential for spillage. People may perceive them to smell more than the sealed caddy. Must be used with compostable bags/liners.	A smaller caddy can still be used to transport food scraps to the tub. Bio-filter lids can be used to reduce odour in caddies and FOGO bins.

Compostable bags/liners

Options	Advantages	Disadvantages	Recommended approaches
Compostable bags/liners supplied	Residents prefer compostable bags/liners, convenient and less 'yuck' factor. Cost of bags could be factored into their waste service charges. Ability to track participation rate.	Not all contractors can process compostable bags/liners.* It can be seen as contrary to the messages about reducing 'plastic bag' use. Cost to council to supply on an ongoing basis.	Only compostable bags/liners displaying the Australian standard AS 4736 can be used. Compostable bags are delivered to residents as part of the roll-out. Bags to be coloured for ease of identification.
Compostable bags delivered to resident	Possible higher chances of participation based on social research. Councils can have their collection contractor deliver the compostable bags/liners to save council staff time and money.	More expensive. Higher chances of residents misusing bags for dog droppings. Unable to track participation rates. Residents may discontinue participation in FOGO when they run out of bags.	Use Back to Earth Initiative compostable bags/liners to reinforce communications strategy. Provide clear messaging on use of the bags/liners and how to manage requests for replacements. Councils should make it easy to find information about obtaining additional bags/liners.
Compostable bags/liners collected at council location	Cheaper to rollout. More likely to attract "genuine" FOGO participants which may limit risk of contamination. Ability to track participation rate.	Inconvenient - people don't have time to go to council - possibly lower participation rate.	Order brightly coloured bags for visibility and to differentiate from single use bags. *Where bags/liners are not accepted by contractors, food scraps can be wrapped in newspaper or paper towels and layered in the FOGO bin between grass clippings, leaves etc.
No bags provided	Less chance of having plastic bag misuse. Organics processor able to better detect contamination	Potential barrier to residents, as separating food organics may increase odour issues, attract pests around un-bagged food organics.	



BIN TYPES AND SIZES

The type and size of garbage and FOGO bins can influence diversion and recovery rates. Moonee Valley City Council introduced an aerated bin for the collection of its organics and subsequent FOGO service. Aerated bins are specially designed with air vents that allow natural aeration flow to reduce the weight and contents of the bin.

Smaller standard garbage bins promote diversion of food and garden organics as well as other recyclables, but can result in overfilling and contamination of FOGO and recycling bins. Providing larger FOGO bins may encourage residents to dispose of additional garden organics material.

Configuration of the bins sizes will depend on how frequently bins are collected. If garbage and FOGO bins are collected weekly, then smaller standard bins can be provided, but if they are collected fortnightly larger bins are needed.

It is recommended that councils consider offering financial incentives to residents who choose to use smaller bins or have bins collected less frequently. That way, residents who enjoy the convenience of a larger volume FOGO bin for garden organics can pay more for the service, and those who generate less waste or home compost, pay less. Smaller organics bins can also be popular with older residents because they are easier to manoeuvre.

A key issue with many councils is how to transition from existing fortnightly garden organics services using 240L bins and weekly garbage with smaller standard bins (80L, 120L, 140L or 180L) to a service with weekly FOGO and potentially less frequent garbage collection.

Converting existing fortnightly 240L garden organics bins to weekly FOGO will give households more capacity to dispose of garden organics via the service. This would increase FOGO transport and processing costs without achieving matching savings from reduced landfill costs. Similarly, moving from a smaller weekly garbage bin service to a fortnightly service can result in overfilling and community concern about odour and maggots unless the standard size of garbage bins is increased.

Many councils that already have high levels of participation in garden organics services decide to initially retain the current bin configurations and maintain weekly garbage services combined with a fortnightly or weekly FOGO service, but anticipate reducing the frequency of garbage services when the FOGO service becomes established. Councils without, or with low participation rates in, existing garden organics services will need to upgrade bin stock and could allow residents with existing 240L garden organics bins to keep the larger bins while offering smaller FOGO bins as the standard for new users of the service.

Transitioning to a fortnightly garbage and weekly or fortnightly FOGO service will require the rollout of new standard bin stock in most circumstances and MWRRG recommends this is undertaken as part of the procurement of FOGO collection services and built into the supply contract. Councils can also consider building in an upgrade of their suite of bin lids so they conform to the AS 4123.7 bin colours at the same time.

Bin colours

Standardised bin colours will help make correct use of waste and recycling systems 'automatic' for most people and also allow the use of consistent communications to reinforce the correct use of bins.

The standard includes a red lid for residual landfill bin, yellow lid for commingled recycling bin and light green lid for organics bin.

Examples of suggested standard bin sizes for different types of households

Household type	Standard bin sizes
Low waste Singles, pensioners, avid composters and recyclers, small or no garden	Garbage = 80L weekly, 140L fortnightly FOGO = 80L weekly, 140L fortnightly Recycling = 180L or 240L per fortnight
Standard Average household size (2-4 people), medium sized and low waste gardens	Garbage = 120L or 140L weekly, 180L or 240L fortnightly FOGO = 120L or 140L weekly, 240L fortnightly Recycling = 240L or 300L fortnightly
Large Larger households (>4 people), households with children in nappies, larger gardens	Garbage = 180L weekly, 240L or 300L fortnightly (with option of ordering additional bins) FOGO = 240L weekly, 240L or 300L fortnightly (with option of additional bins) Recycling = 240L or 300L fortnightly

Fruit and vegetable scraps only or all food categories

Some FOGO services limit the range of organics that can be placed in the bin, and may only allow fruit and vegetable scraps. Other services accept a wider range of organics including plate scrapings, meat, dairy, bones, and even pet wastes. Waste audits have found that fruit and vegetable scraps, spoiled fruit and vegetables and plate scrapings make up most of the unpackaged food waste in garbage. The main factors determining what can go in the FOGO bin relate to:

- What the organics processor is able to receive, fruit and vegetable scraps typically have lower odour risk than other materials. Some processors prefer to receive only fruit and vegetable scraps because they believe contamination rates will be higher if a wider range of food waste is received.
- The frequency of collection and whether compostable bags/bin liners are used. Fruit and vegetable scraps have lower odour, mess, and pest risks than meat, dairy and pet wastes. If weekly FOGO and/or compostable bags/bin liners are used these risks are reduced.



Options for types of food waste collected

Options	Advantages	Disadvantages	Recommended approaches
Fruit and vegetable scraps only (no bones, meat or dairy)	Reduced odour and bin mess concerns (real and perceived). May result in less community resistance and more people using the service for food. Compatible with common home composting, so many people are familiar with this.	Based on trials this achieves lower diversion rates.	Although the option of allowing all food waste to be recovered is favoured (see below), this option might be considered if the FOGO processor places restrictions on what can be received and if compostable bags/liners are not used. Fruit and vegetable collections might be promoted initially and then expanded to include a wider range of organics later.
All food waste including meat, bones, dairy, plate scrapings and fruit and vegetable scraps	Higher diversion rates.	Potentially higher contamination rates. Will typically require use of compostable bag/bin liners.	Include all plant material and food scraps but provide tips to reduce smell. It's important to tell residents that research has shown there is no difference in odour levels between garden organics bins containing food scraps and residual waste bins containing food scraps.
All food (as above) and pet wastes	Higher diversion rates and a solution to pet waste disposal (important if fortnightly garbage service is adopted).	Only compostable (not 'degradable') dog waste bags and compostable kitty litter can be used, and some commercial products are not suited to composting. Contamination risks are higher. Provision of compostable liners as dog waste bags would be very expensive and most commercial products are not compostable. Residents use supplied compostable bags/liners for animal droppings and then run out. This has proven to be a problem as residents expect council to provide more bags, increasing the service cost.	Only consider if the FOGO processor is willing to receive pet wastes. Education for pet owners to purchase and only use and dispose of compostable bag/liners and litter in FOGO bins would be essential.



Nappies

Moving to less frequent collection and/or smaller garbage bins may not be an attractive option for households with children who wear nappies. Bin odours are generally well contained so long as bins remain shut, but over-filling of bins (as may occur with a smaller standard bin and if children are using nappies) can result in offensive odour. This can be managed by:

- maintaining a weekly garbage collection
- promoting the use of 'tie-able' liners or de-odourising liners to contain high odour wastes
- offering an optional additional weekly collection service for households using nappies. Social research revealed that 64 per cent of families using nappies reported they would opt into an additional weekly service
- providing a larger residual bin to households using nappies.

Options for high-density housing

Although most existing garden organics services are provided in lower density housing areas, population growth is resulting in a higher proportion of people living in higher-density and multi-unit developments (MUDs). These areas generate less garden waste per premises, and mainly need systems for the recovery of food organics. Councils may decide to provide a separate food scraps only collection service using small 23L tubs or in the case of multi-unit developments, provide shared 120L food only collection bins or commercial food dehydration units.

Such a service could also be offered to businesses in high-density areas that have a large number of food and hospitality premises. Key considerations include:

- food organics without garden organics can be messy, soiling bins and making them unpleasant, compostable bin liners are essential to avoid this

- food is dense therefore smaller bins can be used to service MUDs, in the UK, some councils supply 30L 'tubs' that are manually collected
- shared bins or food organic skips can be provided, but there can be issues associated with a lack of shared responsibility for contamination. Effective engagement of tenants and body corporate/facilities managers is critical
- shared on-site organics dehydrating/processing units could be used. Such units are more widely used in MUDs in South Korea, Japan and Denmark. Once again, engagement of tenants and facilities managers is needed.

A food only collection service is currently being trialled in MUDs by the [City of Yarra](#). See [Appendix 1 - City of Yarra case study](#).



STAGING OF ROLLOUT

Some councils have rolled out FOGO in stages, commencing with trials and adapting their approaches as they have progressed. For examples see [Darebin City Council and Wyndham City Council case studies Appendix 2](#).

The advantages of a staged approach are:

- council resources are less ‘stretched’ during implementation
- options can be trialled and refined to get a system that is the ‘best fit’ for a particular council
- any unexpected negative outcomes are more contained and can be addressed
- capital and operating costs of new bin infrastructure and FOGO collection and processing costs can be spread over more than one financial year
- rollout of bin supply over a longer period means medium sized suppliers can be competitive, improving the competitiveness of tender processes
- ‘easy’ areas can be targeted first, with more problematic situations (such as multi-unit dwellings) addressed once the system has been refined
- organics processing contractors can adjust to changes in the waste stream over time.

Disadvantages include

- it is harder to run engagement and communications activities and maintain community interest in the introduction of the service. This may reduce participation, but can be managed by building anticipation of rollout in each area
- there may be confusion and frustration within the community about when services will be provided to areas
- implementation may be drawn out, meaning council staff need to be dedicated to the task for a longer period.

MANAGING RISKS

There are a number of potential hazards that might arise when introducing a FOGO service. These need to be identified and assessed early in the planning stages to minimise the likelihood of them occurring and impacting the delivery and/or performance of the FOGO service.

Examples of the risks that can affect delivery operations include:

- service implementation delays, cost overruns or poor rollout of service
- absence of tailored solutions to suit different types of properties e.g. MUDs, transient populations (holiday lettings, short term accommodation)
- unexpected contractual issues impacting service collections
- low service uptake and unmet community expectations
- additional costs with households switching from home composting to FOGO.

Examples of the risks that can affect the performance of a FOGO service include:

- high levels of bin contamination resulting in rejected loads at the composting facility and/or reduced compost quality
- lack of community awareness and understanding of the FOGO service and how to use it correctly
- nuisance factors (vermin, pests, odour) deterring people from taking up and/or maintaining a FOGO service
- insufficient demand for soil products made from recycled food and garden organics
- resistance to having a FOGO service and having to pay for it from sections of the community e.g. home composters.

FOGO risk matrix - identification and management of risks

Risk	Mitigation
Contamination	Conduct effective community engagement. This includes rolling out community engagement 18 months before the start of service and ongoing. Prepare FOGO specific information pack for residents with key messages and collateral developed for all council media channels. For an example of risk minimisation see Appendix 5 City of Glen Eira case study .
	Develop a contamination plan for initial, periodic and entrenched contamination by identified households. Conduct bin surveillance - driver collection reports detailing observations of contamination and a record of offending properties, letters to residents advising of contamination, contamination squad visits properties, tags/stickering of contaminated bins, refusal of servicing contaminated bins, education and communication to offending households, warning and penalty provisions to householder, removal of organics collection service.
Cost overruns	Plan carefully using long lead times, conduct FOGO feasibility assessments, develop a business case with costings, develop contingency plans, ensure contracts are flexible and ensure your communications are clear.
Householders not participating	Implement an effective community engagement plan, ensure convenience by minimising the effort required to separate organics, supplying kitchen caddies and compostable bags if accepted by the processor. Some regional councils have involved local community groups in the door-to-door distribution of the caddies and information packs. For an example of risk minimisation see Appendix 1 City of Yarra case study .
Inadequate project management	A period of 12-18 months is recommended for planning the FOGO service, develop a detailed project management plan, include adequate resourcing - both finance and staff, conduct audits of waste streams to gain baseline data and surveys of community attitudes.
Difficult properties	Consider providing an option of different bin sizes for different types of households, if moving to a fortnightly garbage bin collection and weekly FOGO bin collection, consider providing optional additional weekly collection service or larger garbage bin for families with nappies, provide food only collections and/or food dehydrators for MUDs, work with managing agents and body corporates to engage with MUD residents. For an example of risk minimisation see Appendix 1 City of Yarra case study .
Contractual issues	Work with MWRRG to participate in a regional organics processing contract, participate in MWRRG's Organics User Group meetings to discuss and resolve contractual issues, work with organics collection contractor to ensure contracts are flexible, ensure contract KPIs are subject to all standard requirements for recycling contracts.
Nuisance factors (vermin, pests, odour)	Encourage householders to line non aerated caddies with newspaper or paper towel and consider providing compostable bags (if accepted by the organics processor) with aerated kitchen caddies. Encourage householders to empty the caddy regularly, use bi-carbonate of soda to neutralise odours and line FOGO bins with cardboard to avoid organic waste sticking to the base. Other advice includes placing smelly food scraps in the freezer until bin night and layering food scraps in between garden organics in the FOGO bin. Consider providing certified compostable bags with aerated kitchen caddies and providing local bin cleaning services. Consider seasonality and the possible provision of weekly collections in summer and fortnightly collections in winter.
Poor communication	Keep residents informed and motivated. Provide effective long-term community engagement and communications starting 18 months before the service starts. Provide regular feedback to stakeholders.
Lack of demand for generated products	Encourage council departments to use recycled organic products, make recycled organic products available to the community/schools for use in gardens, support market development efforts by organics processors, control contamination.
Poor rollout of service	Conduct a trial to assess the community appetite for a FOGO service. Conduct a staged rollout of the FOGO service. Ensure residents have access to collection and disposal resources such as caddies and the right bin. Design an effective community engagement and communications plan. Measure performance over time. Ensure adequate and well briefed staff resources during rollout to deliver resources, answer customer service enquiries and respond to issues.
Additional collection costs with home composters switching to FOGO	Continue to encourage home composting while providing composters with specific advice on what is accepted in the FOGO bin that can't be home composted e.g. citrus.

Extreme High Medium Low



Stage 3: Develop a business case

Critical to the decision-making process, this section provides guidance on the typical issues to address when developing a business case for a waste service.

WHAT IS A BUSINESS CASE?

The role of developing a FOGO business case is to support the decision-making process. It should identify whether, and in what form, the FOGO service should be implemented, and ideally will provide all the necessary details required to make a decision. Suggestions on the typical structure and inclusions within a business case are provided in this guide, but the business case document will need to reflect individual council's information requirements to achieve sign off and approval.

What makes a good business case?

A good business case will capture the rationale and supporting evidence to enable the selection of a FOGO service. It will also include alternatives in order to provide decision makers with options. This approach will help to address questions that may arise during the approval or implementation process.

A business case for introducing a FOGO service will consider issues such as:

- the total and net costs of introducing and maintaining the FOGO service compared to business as usual kerbside services. This will need to consider both the costs of the FOGO service and cost savings from reduced waste to landfill

- the environmental benefits of a FOGO service - avoided greenhouse gas and other pollution emissions from landfill, as well as the benefits of converting recovered organics into compost and/or bio-energy
- social impacts - kerbside organics services provide households with a convenient way to manage unwanted food and garden organics. Where FOGO services have been introduced, community surveys have found very high (80-85 per cent) community satisfaction and support for the services.

Commonly, the business case will describe the:

- background to the project
- drivers and expected benefits of a FOGO service
- different service options (including a business as usual option)
- options appraisal including technical performance, costs and risks, and explanation of the reasons for either rejecting or carrying forward each option
- recommended approaches for FOGO implementation, including the preferred option.

The analysis of the various components will provide the justification for recommending the selected FOGO service option.

NET COSTS

Councils need to consider how different FOGO service options are likely to perform in terms of diversion from landfill and quantities of organics collected, and how this will affect the total and net costs.

The net costs to introduce and maintain a FOGO service is the costs of providing the combined FOGO and garbage services compared to the costs of existing services under a business as usual baseline. Although there are significant costs in introducing and maintaining a FOGO service, the cost-savings from reduced waste to landfill will reduce net costs and can even result in net cost savings if organics recovery is significantly cheaper than landfill costs.

The following factors influence costs:

- **The diversion of waste from garbage and the quantities of FOGO materials collected**
The experience of most councils introducing both garden organics and FOGO services has been that on average households use the availability of bigger bins and/or more frequent collection to dispose of more garden organics than they would normally put in their garbage bin. The higher volumes of organic waste means that even if FOGO processing facility gate fees are cheaper than landfill, the total costs of processing FOGO materials can be higher than the savings from reduced landfill costs. Councils that already have a high-performing garden organics service will benefit more from introducing a FOGO service than councils with no garden organics service or a service with low participation rates. It is also possible there will be more food organics in the FOGO bin than is normally placed in the garbage bin if households stop using their backyard composts once the FOGO service is introduced.

- **Collection, transport and processing costs compared to landfilling costs**
Gate fees for FOGO materials are generally cheaper than landfill gate fees, inclusive of the landfill levy. Collection and transport costs per tonne per kilometre are similar, so the main differences are due to the relative distance or transport time to FOGO processing and landfills. For example, at the time of writing, the costs of collection, transport and processing of FOGO are typically \$20-35 per tonne cheaper than landfilling costs. This means a high performing FOGO system will save money compared to a moderately to high performing garden organics service.
- **The costs of processing FOGO compared to the current costs of processing garden organics materials**
Gate fees for FOGO may be higher than for garden organics because of contamination and higher levels of processing technology required for FOGO. All organics, including garden organics materials will incur the higher cost.
- **Frequency of collection**
Bin lift costs are similar for garbage and FOGO per bin but if one is collected weekly and the other fortnightly then the annual pick up cost for the weekly service will double.
- **Capital costs associated with the purchase of bins**
These costs depend on suppliers and sizes of bins, but typically cost in the order of \$70-85 per unit delivered to the kerb. The bins have an expected life of 10-15 years and can have a salvage value. Depreciated costs are therefore less than \$10 per bin per year.
- **The costs of caddies and compostable liners if they are provided**
Caddies have a depreciation cost of about \$2 per caddy per year, and compostable bags/liners have ongoing annual costs (if provided for free by council) of around \$5-10 per household per year.

- **Contamination rates**
Processing contracts typically have financial penalties for exceeding specified contamination thresholds. Continued high contamination levels will incur penalties and make processing less viable if costs increases.
- **Potential revenue from FOGO diversion**
There is an opportunity to obtain 'carbon credits' under the Emissions Reduction Fund for avoided greenhouse gas emissions from landfill. Although councils generally do not benefit from the sale of compost, if a processor produces a high market-value product they will be able to charge lower processing gate fees. MWRRG has developed a FOGO performance model to help councils estimate the likely performance, net costs and environmental benefits of different FOGO options. This model is available on request by councils as a supplement to this guide.



Comparison of three scenarios

The following scenarios provide modelling of three councils introducing a FOGO service:

[Council 1](#) does not have a regular garden organics or FOGO service.

[Council 2](#) has a voluntary garden organics service with a 40 per cent household participation rate.

[Council 3](#) has a universal garden organics service with an 80 per cent household participation rate.

These scenarios reflect the common services offered in the Melbourne metropolitan area, and the data used in the modelling is based on three real councils, which is why the baselines in each scenario have different figures.

The FOGO options modelled are:

- Universal fortnightly FOGO and weekly garbage collection.
- Universal weekly FOGO and fortnightly garbage collection.
- Universal weekly FOGO and weekly garbage collection.
- Universal fortnightly FOGO and fortnightly garbage collection.

In all instances it is assumed the FOGO systems will perform well. It is assumed landfilling costs are \$208 per tonne and FOGO costs about \$165-170 per tonne for collection, transport and disposal or processing.



Scenario 1:

MOVING FROM NO GARDEN ORGANICS TO FOGO

The table below summarises the modelled performance and costs of service options, and Figures 4, 5 and 6 compare the expected quantities of garbage and organics, net costs, and greenhouse gas emissions savings for different FOGO options.

- The weekly FOGO and fortnightly garbage is expected to be most successful in diverting organics, reducing landfilled waste by 38 per cent. Although it has the highest recovery of organics, it is expected to be more expensive than options with fortnightly FOGO and weekly or fortnightly garbage collection.

- All FOGO options modelled will increase net costs compared to not providing any organics service. The cheapest option is expected to be the fortnightly FOGO and fortnightly garbage option, which is expected to reduce landfilled waste by about 27 per cent.
- The fortnightly garbage options have the greatest reduction in greenhouse gases from landfill. Aerobic composting and transport have minor emissions per tonne of recovered organics, but this is very minor compared to the potential emissions from organics in landfill. Even where landfills have high gas capture rate there are significant emissions from food because it degrades more rapidly and can emit methane before effective gas management systems are in place.

Table 2: Summary of expected performance of FOGO options compared to a baseline of a council without an existing garden organics or FOGO service

FOGO system	Total organics recovered	Garbage landfilled	Total collected at kerb	Garbage service costs	Organics service costs	Total kerbside service cost	Net cost compared to base case	Net costs per h/hold per year	Difference in per h/hold costs
	Tonnes / year	Tonnes / year	Tonnes / year	\$/year	\$/year	\$/year	\$/year	\$/hh/yr	\$/hh/yr
Baseline 1 - no garden organics	0	21,460	21,460	4,462,600	0	4,462,600	-	120	-
Weekly FOGO, fortnightly garbage	16,420	13,410	29,830	2,857,600	2,850,020	5,707,620	1,245,010	150	32.13
Fortnightly FOGO, weekly garbage	11,990	15,660	27,650	3,782,000	1,713,690	5,495,690	1,033,080	140	26.66
Fortnightly FOGO, fortnightly garbage	11,990	15,660	27,650	3,146,000	1,713,690	4,859,690	397,080	130	10.25
Weekly FOGO, weekly garbage	15,190	14,630	29,820	3,544,140	2,749,720	6,293,870	1,831,250	160	47.26

Figure 4: Expected change in landfill and recovered organics for a council without an existing garden organics or FOGO service

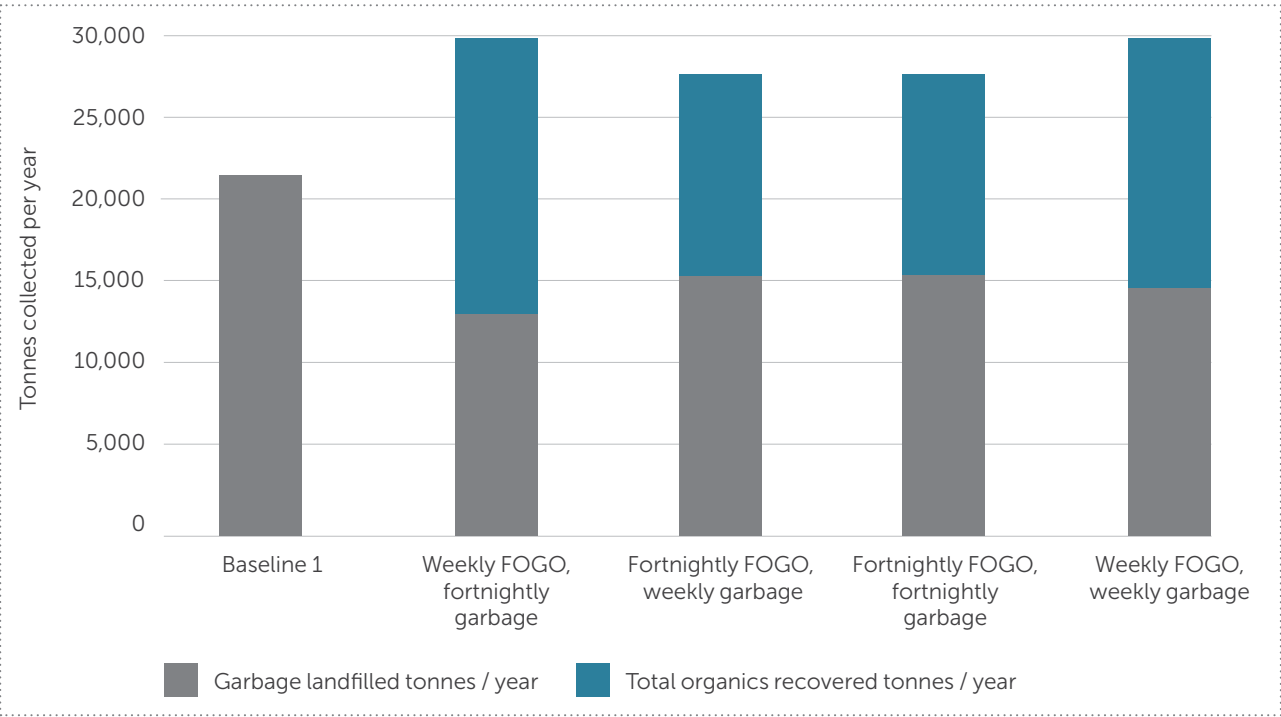


Figure 5: Indicative relative costs of providing FOGO services compared for a council without an existing garden organics or FOGO service

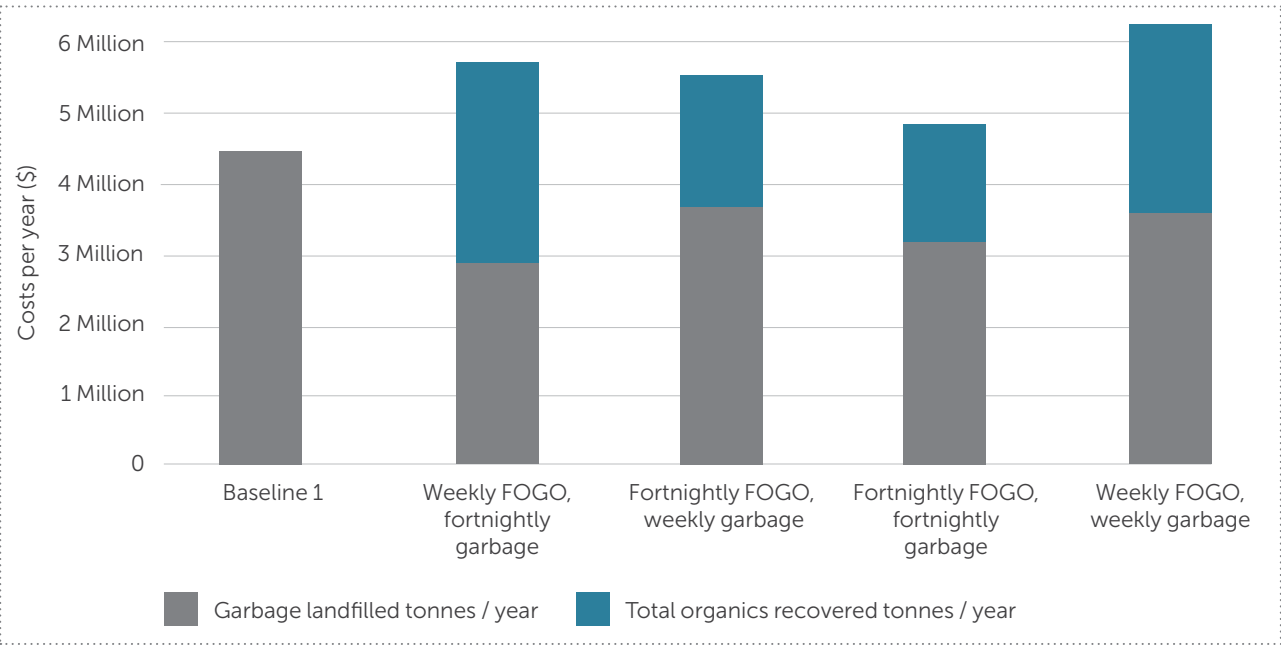
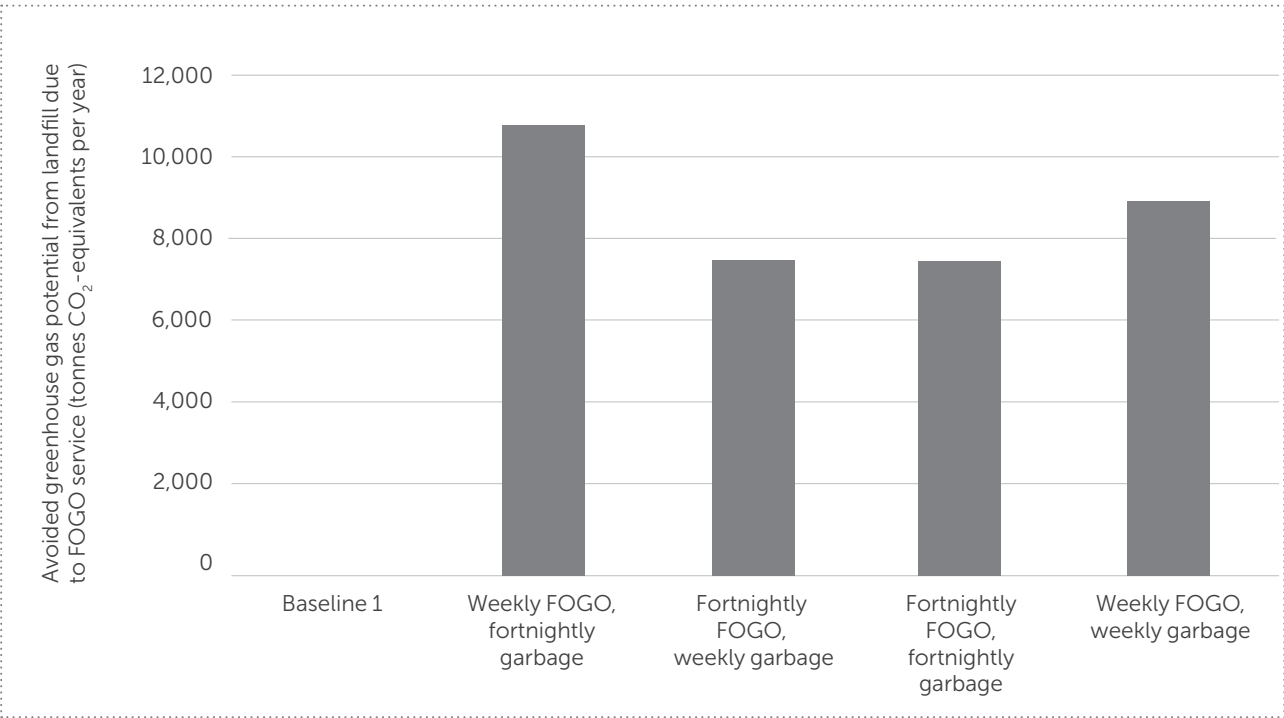


Figure 6: Relative avoided landfill greenhouse emissions associated with FOGO service options for a metropolitan landfill with gas recovery at the state average (the actual savings will depend on the level for gas capture at the receiving landfill)



Scenario 2:

COUNCIL MOVING FROM VOLUNTARY GARDEN ORGANICS TO UNIVERSAL FOGO

This scenario assumes a current household participation rate of 40 per cent for the FOGO service. The modelled outputs are shown in Table 3 and Figures 7, 8 and 9.

- The options with fortnightly garbage collection are expected to have the best performance.
- Only the FOGO option of fortnightly garbage and fortnightly FOGO is expected to reduce net costs.

This will also depend on differences in organics processing facility gate fees for garden organics or FOGO materials.

- The expected cost increases are in the order of \$12-32 per household per year, with the weekly FOGO, fortnightly garbage option having the lowest costs and the weekly FOGO/weekly garbage option having the highest costs.
- Greenhouse gas savings are significant, with options diverting more food and garden performing better.

Table 3: Summary of expected performance of FOGO options compared to a baseline of a council with a voluntary garden organics service

FOGO system	Total organics recovered	Garbage landfilled	Total collected at kerb	Garbage service costs	Organics service costs	Total kerbside service cost	Net cost compared to base case	Net costs per h/hold per year	Difference in per h/hold costs
	Tonnes / year	Tonnes / year	Tonnes / year	\$/year	\$/year	\$/year	\$/year	\$/hh/yr	\$/hh/yr
Baseline 2 - no garden organics	3,100	24,380	27,480	5,524,110	765,920	6,290,030	-	120	-
Weekly FOGO, fortnightly garbage	18,760	15,240	34,000	3,548,490	3,644,870	7,193,370	903,340	130	16.64
Fortnightly FOGO, weekly garbage	14,030	17,800	31,830	4,767,070	2,173,190	6,940,250	650,220	130	11.98
Fortnightly FOGO, fortnightly garbage	14,030	17,800	31,830	3,876,120	2,173,190	6,049,310	-240,720	110	-4.43
Weekly FOGO, weekly garbage	17,370	16,630	34,000	4,468,780	3,530,930	7,999,710	1,709,680	150	31.50

Figure 7: Expected change in landfill and recovered organics for a council with an existing voluntary garden organics service

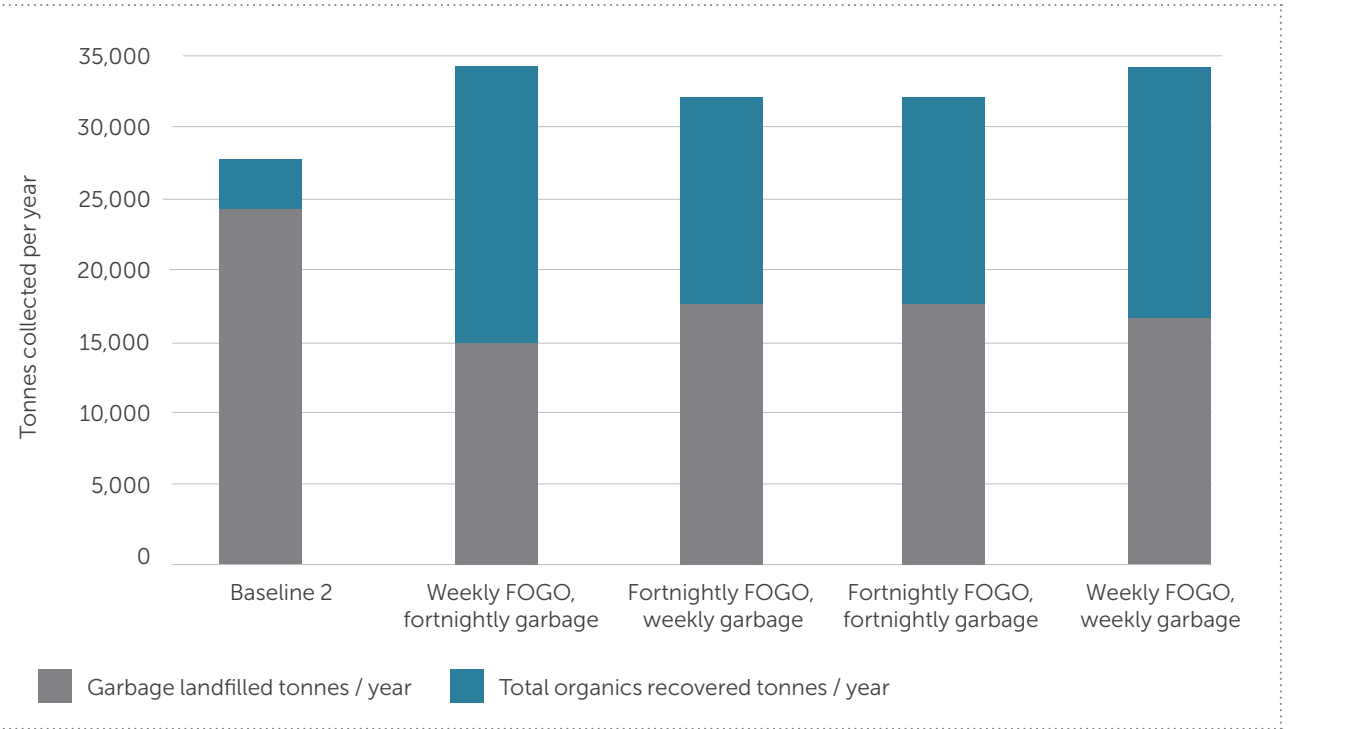


Figure 8: Indicative relative costs of providing FOGO services compared for a council with an existing voluntary garden organics service

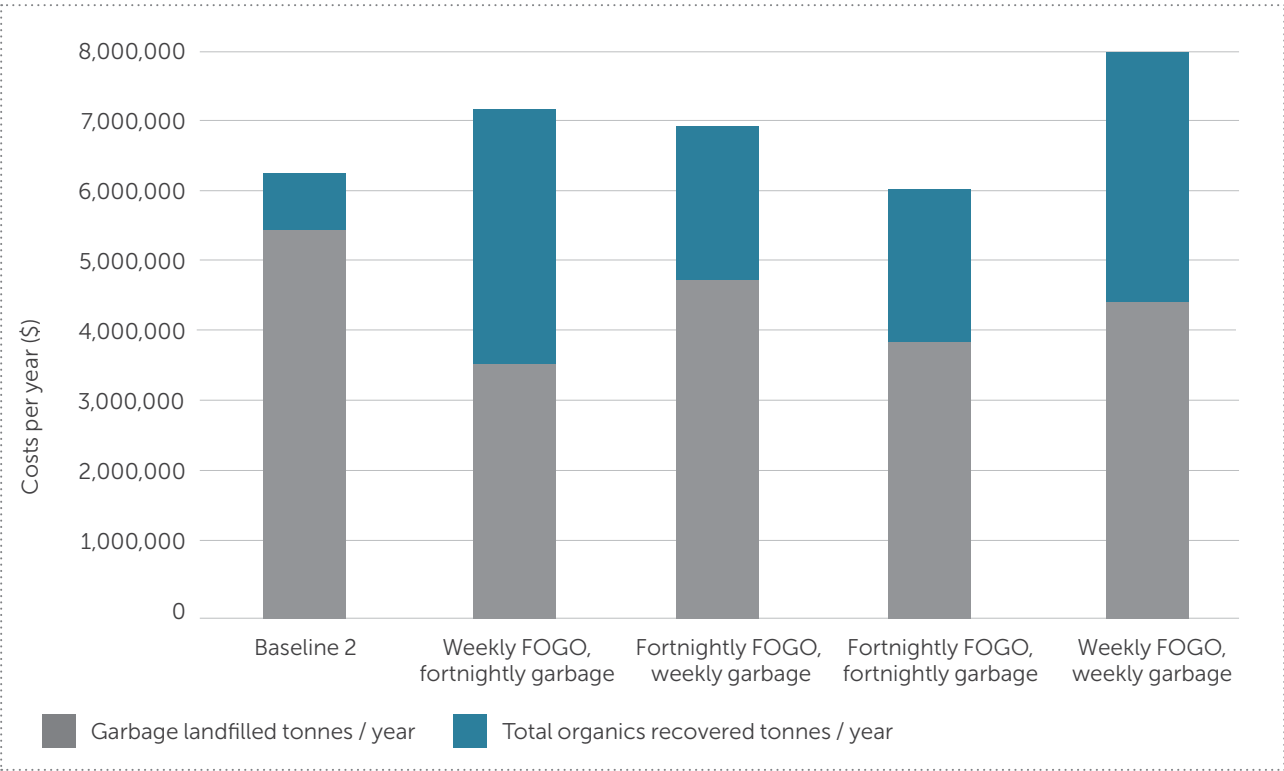
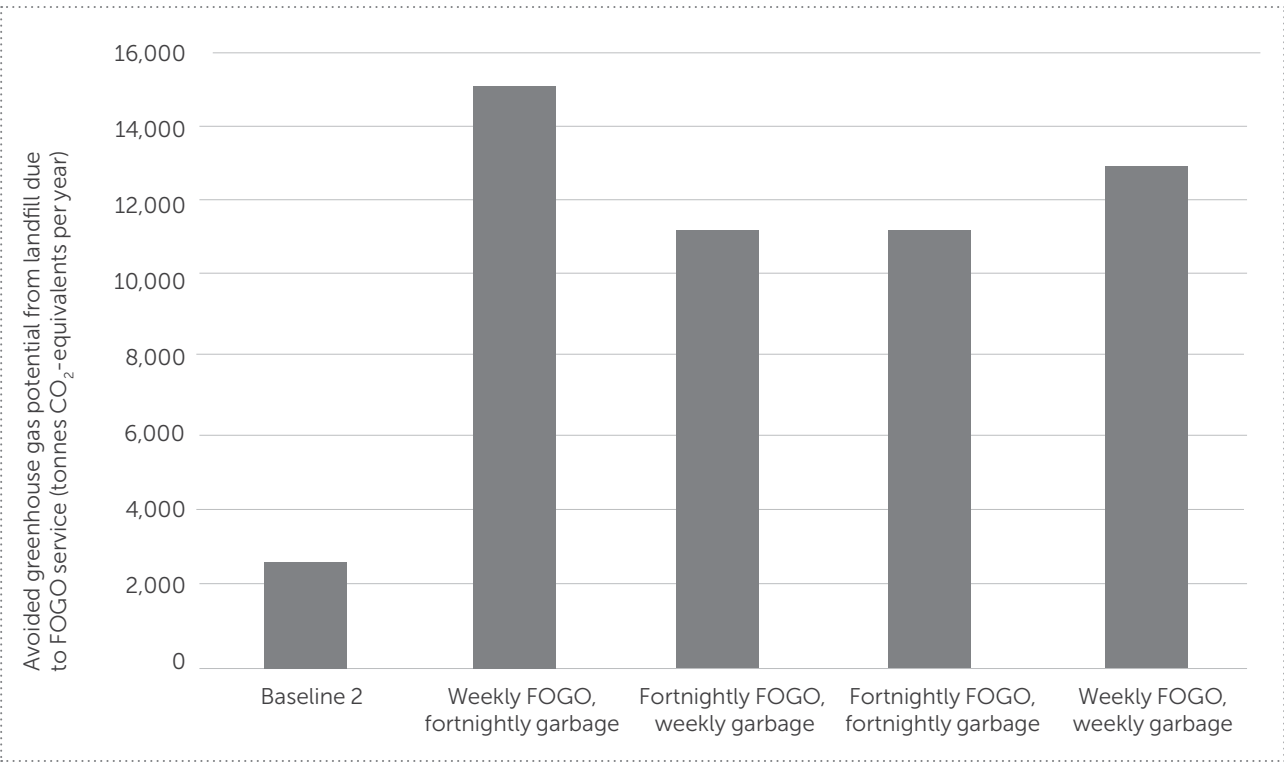


Figure 9: Relative avoided landfill greenhouse emissions for a council with an existing voluntary garden organics service



Scenario 3:

COUNCIL WITH HIGH-PERFORMING UNIVERSAL GARDEN ORGANICS SERVICE

This scenario considers a council where 80 per cent of households currently use the universal garden organics service. The modelled performance of this option is summarised in Table 4 and shown in Figures 10, 11 and 12.

- Councils with a universal garden organics service could expect all FOGO options other than weekly FOGO, weekly garbage to deliver cost savings.

This will depend on the relative costs of landfill and FOGO processing gate fees, as well as the current costs for garden organics processing and management.

- The total tonnes collected would not increase significantly because high volumes of garden organics are already recovered. The actual result will depend on the extent to which current home composters decide to use the FOGO service for food.
- Expected greenhouse savings are still significant because of the diversion of food from landfilled garbage.

Table 4: Summary of expected performance of FOGO options compared to a baseline of a council with an existing universal garden organics service

FOGO system	Total organics recovered	Garbage landfilled	Total collected at kerb	Garbage service costs	Organics service costs	Total kerbside service cost	Net cost compared to base case	Net costs per h/hold per year	Difference in per h/hold costs
	Tonnes / year	Tonnes / year	Tonnes / year	\$/year	\$/year	\$/year	\$/year	\$/hh/yr	\$/hh/yr
Baseline 3 - no garden organics	13,040	29,450	42,490	6,103,600	2,072,430	8,176,030	-	160	-
Weekly FOGO, fortnightly garbage	25,250	18,410	43,660	3,907,870	4,115,690	8,023,550	-152,470	150	-2.89
Fortnightly FOGO, weekly garbage	20,910	21,500	42,410	5,168,590	2,707,740	7,876,330	-299,700	150	-5.69
Fortnightly FOGO, fortnightly garbage	20,910	21,500	42,410	4,303,730	2,707,740	7,011,470	-1,164,560	130	-22.10
Weekly FOGO, weekly garbage	23,570	20,090	43,660	4,843,460	3,978,020	8,821,480	645,450	170	12.25

Figure 10: Expected change in landfill and recovered organics for a council with an existing universal garden organics service

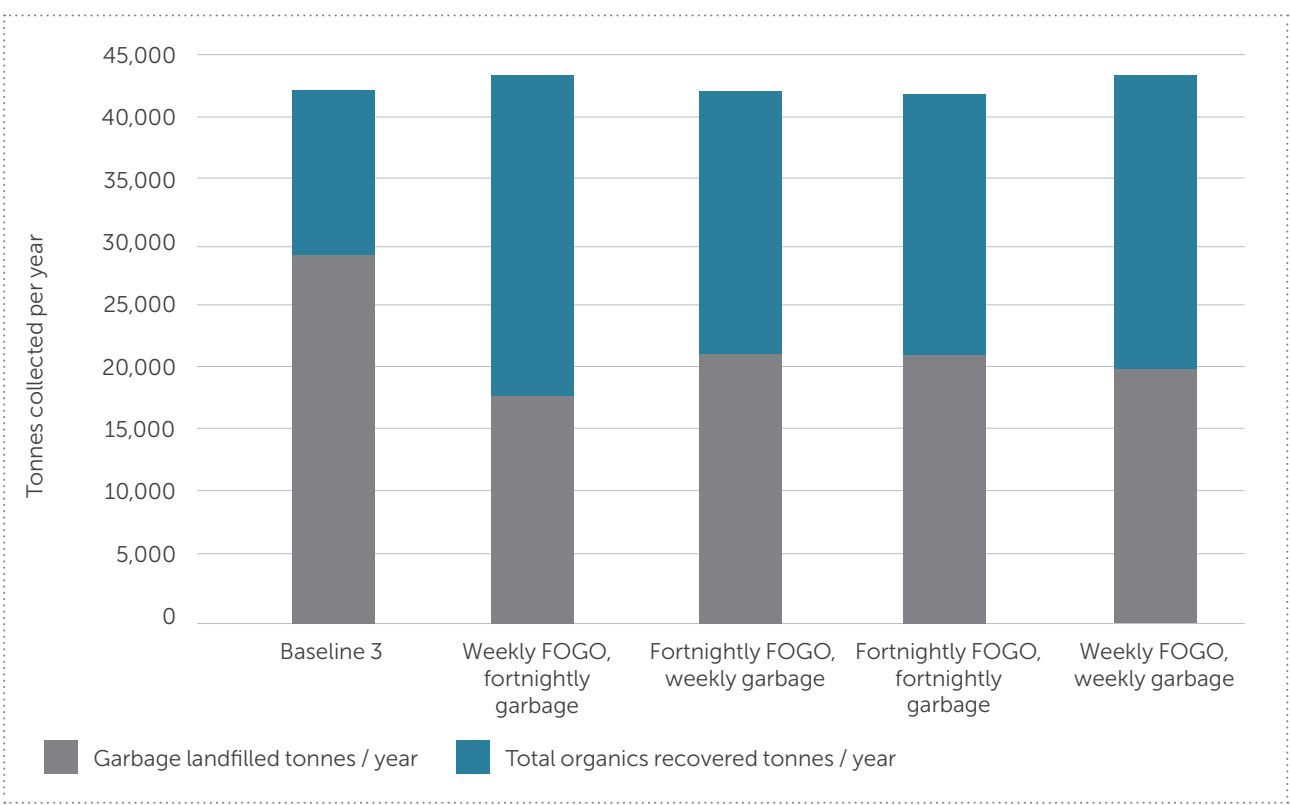


Figure 11: Indicative relative costs of providing FOGO services compared for a council with an existing universal garden organics service

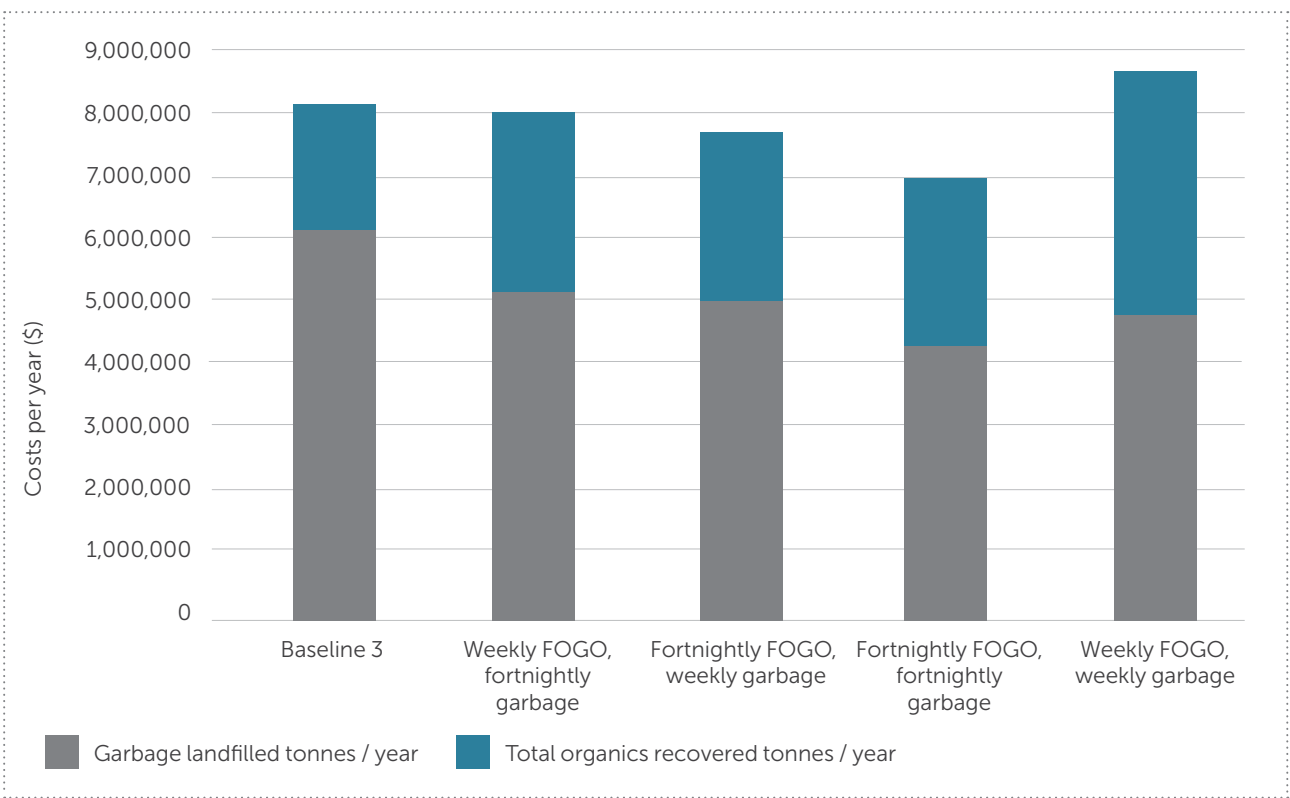
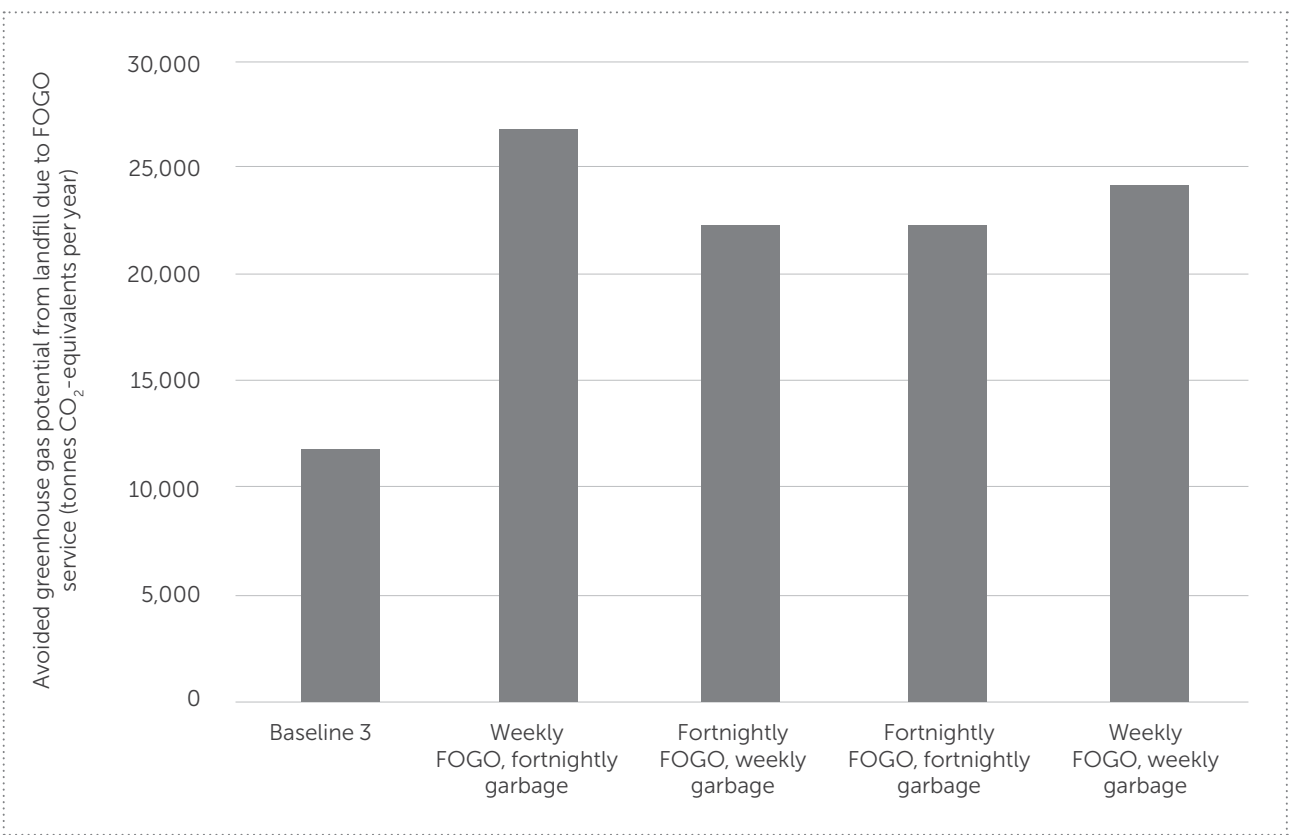


Figure 12: Relative avoided landfill greenhouse emissions associated with FOGO service options for a council with an existing universal garden organics service



GREENHOUSE GAS EMISSIONS

Diverting FOGO material from landfill will reduce greenhouse gas emissions. Figures 6, 9 and 12 (above) show the relative savings in greenhouse gas emissions under different scenarios. These represent significant savings and potentially have Australian Carbon Credit Units (ACCU) value under the Emissions Reduction Fund (ERF) of about \$12-14 per tonne of CO₂-equivalents of methane avoided. In the metropolitan area, this has an approximate value of \$10-15 per tonne of new FOGO material diverted from landfill. The ERF only allows credits for new diversion, so Council 1 would have greatest potential for ACCU revenue.

Where composts are used to build soil carbon in agriculture and horticulture, ACCU may also be credited, with an indicative value of about \$5-10 per tonne of compost, or about \$10-20 per tonne of FOGO material diverted. Bioenergy from FOGO material may also be eligible for ACCU or other climate change funding support.

Councils will need to negotiate 'ownership' of such credits with their FOGO processing contractor, and could potentially choose to use or purchase ACCU to off-set emissions from other services. In some instances, councils will be able to achieve 'Zero Net Emissions' targets by gaining ACCU for the FOGO material they divert from landfill and have used in land carbon projects.



Preparation of business case

The development of the business case for FOGO services will require the collation of technical and financial data and appropriate staff resources to deliver the business case. Data is likely to be required for the existing council waste service, plus equivalent data from comparable councils for the food waste where available. Typical data requirements include:

- waste composition and tonnage data, including current landfill diversion performance
- collection (including crews, vehicles and containers), transport, transfer and treatment requirements and costs to deliver FOGO service
- estimated additional publicity, service management and administrative requirements and costs.

TYPICAL STRUCTURE AND INCLUSIONS

The following summary of potential inclusions reflects the typical contents and issues addressed within business cases for waste services.

Executive Summary

A high-level section to explain the business case in summary. This is likely to include:

- objectives, background, rationale and key drivers for introducing FOGO
- key options (e.g. weekly/fortnightly/opt-in, container types and business as usual), including consideration of risks
- summary of results of options appraisal, costs, benefits and risks
- a recommendation on the preferred service options and potential next steps.

Background

This will summarise the scope of the business case and rationale for FOGO. This is likely to include:

- scope of the business case
- key objectives
- description of and broad rationale for FOGO (landfill diversion, environmental benefit, proven elsewhere)
- broad projections of waste flow and cost data
- any key assumptions to inform the reader, including regulatory/legislative changes
- potential dependencies and timeline.

Options assessment, including cost benefit analysis

This is likely to include:

- definition of the options (including business as usual), including operational/service characteristics and key assumptions
- technical appraisal with criteria potentially including deliverability, diversion performance, environmental performance, constraints and risks, market analysis
- financial/cost and benefit appraisal which evaluates the costs and benefits for all defined options and business as usual including associated risks. This section may also define budget requirements and resources
- identification of preferred option, potentially using a multi-criteria analysis approach, including any compelling results from the analyses and the rationale for the preferred option.

Recommended approaches, preferred option, governance and implementation

Summary of key recommendations for FOGO implementation and confirmation of the preferred option. Depending on the preferred scope and structure of the business case, the recommendations (or subsequent sections) can include additional information such as:

- next steps, with suggestions on how best to proceed with the project if approved
- project governance
- resource and budget requirements
- risk quantification and management
- outline of an implementation plan and timescales (including communications, service rollout, monitoring and review).

Business case costs

- container costs, including bins, kitchen caddies and compostable bags (if provided)
- vehicle costs including:
 - capital expenditure
 - operational expenditure.
- staff costs including:
 - collection crews
 - other extra staff potentially including:
 - » communications and engagement
 - » call centre
 - » other operational staff including temps for rollout (e.g. container delivery costs), ongoing monitoring and review
- transport and transfer costs (where relevant and not included above)
- treatment facility gate fee costs
- landfill gate fee costs (to determine potential savings)
- additional publicity and communications costs (including leaflets, door knocking as appropriate).

Options assessment scenarios

The cost categories above will be needed for each of the comparative scenarios considered in the options appraisal (i.e. different cost data/assumptions will be needed for each scenario).

A business as usual scenario for comparison (only relevant against some of the cost categories above), i.e. the costs associated with the existing service.

The various types of FOGO scenarios will have differing costs, mainly due to:

- container types
- provision of liners (or not)
- collection frequency (usually weekly)
- service type (opt-in or universal).

How cost data can be used

The costs will typically be used to build up total system costs for FOGO service and will assist with:

- cost analysis within the options appraisal, including comparison with current service costs (business as usual) and other scenarios (different FOGO service options)
- decision making
- identifying and obtaining resources
- budget setting.





Stage 4: Procuring FOGO services

Some, if not all, of the new FOGO services are likely to be delivered through new contractual arrangements. The scope of procurements for new services will be informed by the nature of the council's current services and the extent of changes needed to deliver the new services.

WHAT SERVICES WILL BE INCLUDED?

New service components are likely to include a combination of new container supply, collection and organic waste treatment services. Depending on the extent of existing and planned contractual arrangements for containers, collections and treatment services, the required services can be packaged as part of a new procurement.

Collection containers

Collection containers may include a combination of caddies, compostable liners and additional bins to service properties, for example MUDs, not previously provided with a garden organics service.

Councils may procure containers directly from manufacturers and suppliers independently or in partnership with other councils. In some joint arrangements, an initial pre-qualification stage may have been undertaken and an approved supplier list may be in place. The benefits of a joint approach may include reduced procurement costs, timescales, delivery lead-times and lower contract prices for individual councils.

In some instances, collection contractual arrangements (discussed below) may also include options for container supply, depending on how the contract is 'packaged'.

Collection services: properties, vehicles and rounds

Most councils provide some form of garden organics collection service to their residents, however these services are not usually provided to MUDs and other properties without gardens. Therefore, introducing food organics collection may need the redesign of rounds and allocation of new rounds.

Notably, food organics is a relatively dense and heavy waste stream when compared to garden organics so collection vehicles will reach their carrying capacity more quickly. Accordingly, an increase in vehicle fleet and collection crews is likely to be needed. The extent of new vehicle and collection crew requirements will be informed by the availability of spare collection capacity within the existing fleet and associated staff resources.

Where collection services are provided in-house, a formal contract may not be in place and the procurement of new services may not be necessary. In this case, it is likely that some form of new or revised local service level agreement will be required to deliver the new services.

Similar to container provision, councils may procure vehicles directly from manufacturers and suppliers either independently or via joint vehicle procurement arrangements in partnership with other councils.

If an external contractor provides the council's collection services, there may be options for amending the existing contract to include the new services. Contractors can be requested to provide a description of the revised working practices and associated costs, with the new services delivered under a contract variation. Where contract amendments are not an option, new FOGO services are likely to be procured and contracted with other core collection services, including residual and recyclable collections. These procurements commonly occur in seven-year cycles which reflect the depreciation period of the collection vehicles: the biggest capital investment component of the collection service. Depending on when the collection contract expires, councils will need to decide on whether to amend their existing contracts or wait for the next procurement for all core services, informed by their preferred timescales for introducing FOGO.

Organic waste treatment services

Some councils may have direct contractual arrangements with organic waste treatment service providers. Other councils may also be signatories to joint contractual arrangements for treatment services, such as those managed by MWRRG on behalf of participating member councils.

Treatment facility contracts usually include a gate fee charge per tonne of material delivered to the facility. The gate fee includes components for capital and operating costs and also profit for the facility operator. For existing garden organics only services treatment methods are most likely to consist of open windrow operations, which generally have comparatively low gate fees. Gate fees for more advanced organic treatment facilities, such as anaerobic digestion and aerobic in-vessel systems, are generally higher than for windrow systems, largely due to their higher capital and operational costs.

Again, organic waste treatment services can either be procured independently or packaged as part of wider contractual arrangements, including collection services, depending on councils' preferred contract inclusions.

Council procurement team

The agreed services will usually be procured using the council's in-house procurement team's expertise, processes and procedures. Inputs will also be needed from other appropriate teams potentially including technical, finance, legal, health and safety, communications and planning teams.

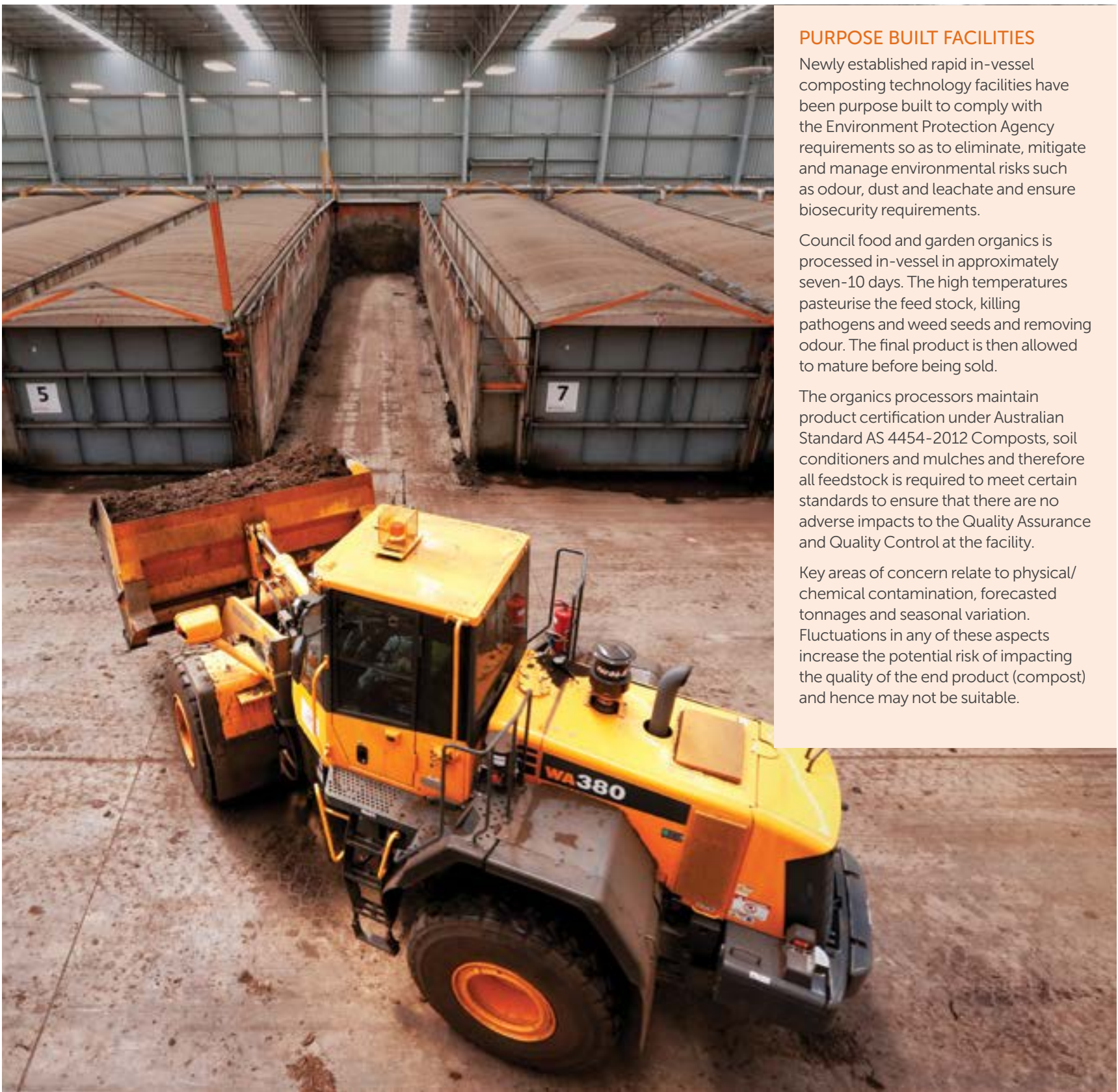
Accordingly, adequate internal and external resources will need to be identified and allocated to ensure the procurement is successful. Staff time will need to be planned and allocated across the procurement program. It is likely that waste teams may take the lead role for a FOGO procurement, supported by other disciplines and expertise as appropriate.

Contracts

Most metropolitan Melbourne councils are participants in organics processing collective contracts procured and managed by MWRRG. The contracts are with contemporary facilities capable of receiving all kerbside organics collected by metropolitan councils until at least 2030.

These contracts also provide for increased uptake in council collection services attributable to population growth, adoption of FOGO, and expansion of service coverage.

Other metropolitan Melbourne councils can apply to participate in any one of these processing contracts or in other short term solutions procured by MWRRG.



PURPOSE BUILT FACILITIES

Newly established rapid in-vessel composting technology facilities have been purpose built to comply with the Environment Protection Agency requirements so as to eliminate, mitigate and manage environmental risks such as odour, dust and leachate and ensure biosecurity requirements.

Council food and garden organics is processed in-vessel in approximately seven-10 days. The high temperatures pasteurise the feed stock, killing pathogens and weed seeds and removing odour. The final product is then allowed to mature before being sold.

The organics processors maintain product certification under Australian Standard AS 4454-2012 Composts, soil conditioners and mulches and therefore all feedstock is required to meet certain standards to ensure that there are no adverse impacts to the Quality Assurance and Quality Control at the facility.

Key areas of concern relate to physical/ chemical contamination, forecasted tonnages and seasonal variation. Fluctuations in any of these aspects increase the potential risk of impacting the quality of the end product (compost) and hence may not be suitable.



Stage 5: Rolling out the service

To ensure a successful rollout, councils will need to develop a project plan to guide all aspects of implementation.

PROJECT PLAN

Key tasks to be covered under a project plan include:

- notification of intention to go FOGO - under the MWRRG Organics Processing Contract, member councils who wish to introduce a FOGO trial and/or full service are required to notify MWRRG at least six months in advance with the expected quantity of the feedstock to be introduced e.g. food organics
- IT and database management - this is needed to collate different sources of data about ratepayers, non-rate paying residents and levels of service currently provided. There is also a need to create interactive online and telephone systems for residents to obtain information and book their preferred service options
- comprehensively review waste management assets and services (chiefly the numbers and locations of kerbside bins used for organics services)
- procurement tenders for the provision of delivery of equipment and service
- procurement tenders for the salvage and recycling of obsolete bins or lids.

IMPLEMENTATION PLAN

Councils involved in MWRRG organics contracts are required to produce an implementation plan that:

- details the expected trial/ implementation (number of households, collection area)
- expected tonnages/quality of stream
- type of containers/collection method
- length of expected trial period or implementation period (start and duration)
- education program (consistent with terms of the contract)
- evaluation/monitoring plan
- methods and measures council will take to minimise the level of contamination
- any other detail or supporting information as requested
- the plan for transition to a full-scale program.

THE PROJECT TEAM

Resourcing the implementation of a FOGO service will typically involve:

- appointing a project manager to oversee developing and implementing the FOGO service program
- coordination of, and resource scheduling for, different council business units including those responsible for waste services, communications, customer services, IT and data management and procurement.

The project manager will need to ensure all business units are involved in the program and aware of their responsibilities and the resources that will need to be allocated at different times. The project manager will need to interact and coordinate with people from across council including:

- councillors
- council's executive team
- waste management team
- sustainability team
- finance
- planning
- customer service
- IT
- media and communications
- community development
- economic development
- aged care
- anyone providing services that involves interaction with the community as they can act as ambassadors for the program and/or become a source of feedback.

Councils may need to assess the need for external/contract resources to assist project delivery.

A project plan template has been provided – [see Appendix 3](#).

AUDITING

Councils introducing a FOGO service will need to develop an auditing plan to prevent, reduce, measure and improve contamination rates. In order to measure the success of the FOGO service regular bin audits and consistent data reporting is required. The data can also inform policy decisions and ensure an appropriate level of resourcing.

Research conducted for MWRRG by Swinburne University⁸ has identified that there is a lack of consistency in the methods of auditing and reporting waste management data. For example, some councils report diversion and contamination by weight, others by volume.

It is recommended to report by both weight and volume⁸ at least yearly, but ideally twice a year, using a consistent method.



Communications and engagement

Building and supporting engagement is imperative in the lead up to service implementation.

CREATING CHANGE

Residents are motivated to participate in food waste recycling when they understand the end use and benefits.⁹ This approach provides opportunities over time to build positive social norms around food and garden waste services (much like recycling).

However changing or creating social norms is a lengthy process. The recycling behaviours seen today have been established over years. So, councils may not see high take-up and diversion rates initially. Therefore there needs to be a commitment over the long term to encourage residents to recycle food waste.

Getting support

Communication and engagement about introducing a FOGO service may be a new and unknown project for council communications staff but MWRRG has supported the rollout of garden organics and FOGO for a number of councils. In addition to campaign resources such as the successful Back to Earth Initiative, MWRRG's Communications and Engagement Team can support strategy development, help create collateral that works and advise on messaging.





BACK TO EARTH INITIATIVE

The [Back to Earth Initiative](#) was developed by MWRRG and runs in partnership with 19 metropolitan Melbourne councils that are part of collective organics procurement contracts. Three councils in the Goulburn Valley region have also adopted the Back to Earth Initiative. As a communications and education campaign it goes beyond instructional messages and provides a link between what residents put in their bins and the process that goes into creating an end product that can be used on gardens and farms.

The Back to Earth Initiative includes a website, Facebook page and a series of videos showcasing farmers who use compost resulting from organics collection. Participating councils are supported with a communications guide, advice and collateral development. Competitions are staged during active campaign periods encouraging schools, early learning centres and community groups to nominate a gardening or green space project for the chance to win up to \$5000. Evaluation has found that the Back to Earth Initiative concept and messaging is highly effective at:

- building awareness of what happens when garden organics leaves the kerbside

- building awareness of the benefits of recycling garden organics
- improving levels of knowledge about what can and can't be placed in a garden organics bin
- increasing confidence that collected garden organics are being put to good use.

The Back to Earth Initiative messages have good recall, even after a couple of years.

Although initially established to support garden organics collection, the Back to Earth Initiative has increasingly been used to support councils rolling out FOGO collection.

HOW BEST TO POSITION THE FOGO SERVICE TO RESIDENTS?

Social research⁹ commissioned by MWRRG, assessed the best way to position a FOGO service for residents. The findings are summarised in the following table.

Messaging	Terminology	Contamination	Encouragement vs enforcement
Benefits to community and fresh produce	Keep it simple	Bin stickers and education	Encouragement
The benefit to society is a universal environmental driver, while linking the use of compost made from garden waste to grow the fresh produce consumed by people personalised the benefits.	It was evident that confusion exists with recycling terminology, so simple plain language terms will assist. While there doesn't appear to be a direct correlation between poor English skills and contamination and diversion rates, materials targeted to CALD groups is important for ensuring success.	People were unsure what could go in a FOGO bin and need handy reminders to ensure minimal contamination.	Residents respond well to education and encouragement as the latent acceptance and belief is there. Enforcement can come based on outcomes of rollout if required.



Recommended terminology

- ✓ Food waste
- ✓ Food scraps
- ✓ Compost/compostable

Not recommended

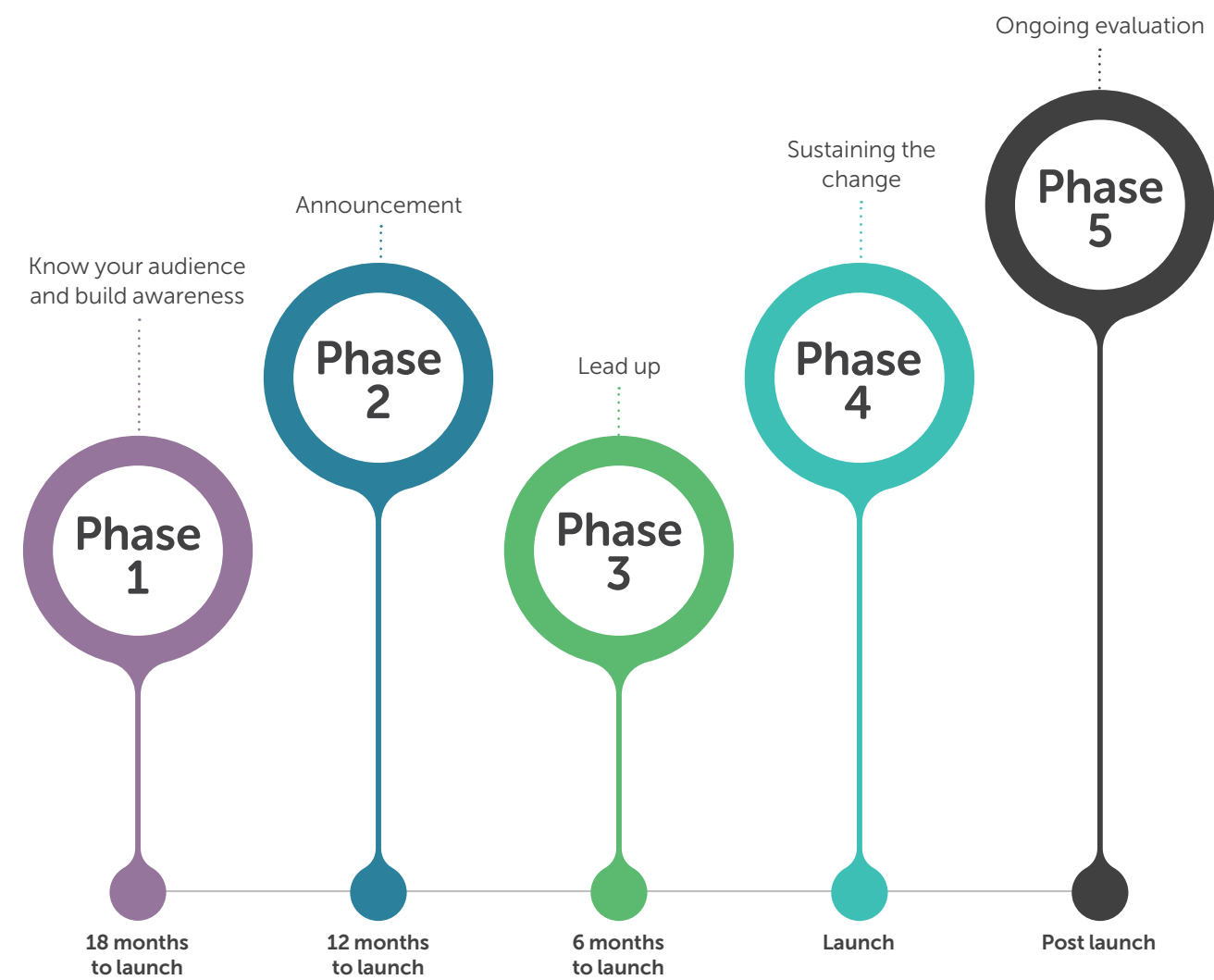
- ✗ FOGO
- ✗ Organics/organic waste
- ✗ Contamination
- ✗ Resource recovery
- ✗ Residual waste

COMMUNICATIONS PLAN

A communication and education plan needs to be created and implemented – ideally commencing 18 months prior to service launch.

Communications and community education plan timeline

The plan has been designed in five phases.



Phase 1:

Know your audience and build awareness

This phase starts 12-18 months before the launch. Improving community understanding about what should/should not go in the FOGO bins is particularly important if a council is introducing food organics to an existing garden organics bin service. In the lead up, councils can also educate residents to reduce food waste. For an example of how to build awareness see [Glen Eira City Council case study – Appendix 5](#).

Strategy	Key messages	Tactics
<ul style="list-style-type: none">Nominate a dedicated project communications lead from your council communication team to attend regular meetings and be part of the project team.Ensure project plan includes resources and budget to fully engage with residents, communities and stakeholders.Contact MWRRG Communications and Engagement Team for support and advice with collateral development, images and other resources. Take the resident on the journey right from the start.Communicate the issues and start educating on the solutionsConsider existing research and information and undertake further research where needed to understand resident expectations, priorities, opportunities, barriers and potential reactions to the food waste service.Consider how different people might react, and start engaging people from the different groups early on so that they can be involved in the decision making process, reducing the likelihood of negative reactions.Prepare a communications and engagement strategy, including an internal council communications strategy.	<p>Back to Earth overarching messaging:</p> <ul style="list-style-type: none">We're turning food and green waste into valuable compost that helps farms, gardens and public spaces grow.We're putting your food and garden waste to good use.Ever wondered what happens to your food scraps and garden waste after it's picked up?Your food and garden waste is helping farms grow. <p>Love Food Hate Waste campaign messaging:</p> <ul style="list-style-type: none">Each year in Victoria, households throw out 250,000 tonnes worth of food – enough wasted food to fill Melbourne's Eureka Tower.Check out Love Food Hate Waste for fantastic tips on how to reduce food waste and landfill.	<ul style="list-style-type: none">Use Back to Earth Initiative collateral. For examples see Appendix 7.Back to Earth Initiative branded collateral at events.Use of council communications tools e.g. newsletter/social media.Undertake a community survey. For an example see Appendix 8.

A communications action plan template has been provided – see Appendix 4.

Phase 2:

Announcement of the service launch

This phase starts six to 12 months before the launch.

Strategy	Key messages	Tactics
<ul style="list-style-type: none">Reinforce the issue you are trying to resolve and the main benefits of the service.Make sure your residents know the changes will soon be underway.Communicate what success looks like (low contamination and high diversion rate) and current state versus future state (garden and food waste in landfill versus being composted and used to help farms grow).Provide details of household support - supply of compostable bags/caddies/bins to previous non-subscribers.Define how you will capture resident feedback.Identify potential media risks and action media opportunities, including local member of parliament involvement.Establish clear roles and responsibilities for communications and engagement.Identify council events and engagement activities and develop a calendar of activities to commence community engagement.Build on the research and information gathered in Phase 1 to inform messages and approach moving forward.Keep in touch with MWRRG Communications and Engagement Team for support and trouble-shooting as well as collateral development, images and other resources.	<ul style="list-style-type: none">Continue with general Back to Earth Initiative and Love Food Hate Waste messaging and activities (see Phase 1 key messages)Make sure your residents know the changes will soon be underway: "Soon we will be putting your food waste to good use."	<ul style="list-style-type: none">Consider further research such as online surveys or phone interviews to find out people's views, opinions, attitudes and motivations in reaction to the announcement which will be helpful when you want to influence behaviour and test reactions to the FOGO service.Promote The Back to Earth Initiative Farmers' Stories videos through social media and digital platforms.Use social media and online discussion forums, blogs and surveys as a cost effective way of gathering unstructured feedback.Arrange tours with the contractors to organic processing facilities for Councillors, customer service and communications staff. Offer to local schools if possible.Announce service changes in newsletters, rates notice inserts.Develop general FAQs on why service is being introduced, justification of changes to waste services (see Appendix 9).Develop approach for people who don't want to participate, e.g. home composters (include messages on things that can go in the bin that most people can't/don't compost).Identify potential ambassadors/champions.

Phase 3:

Lead up and launch

This phase starts six months before the launch.

Strategy	Key messages	Tactics
<ul style="list-style-type: none">Build awareness of the change amongst residents and stakeholders.Notify all stakeholders before the FOGO service commences and at key milestones including all council staff (they should be your biggest advocates).Identify who may be a council spokesperson and how to manage any negative reactions. Engage with local member of parliament's offices to help promote the message.Check that everyone involved in delivering the project understands their role and responsibility to manage the experience of residents, communities and stakeholders during the delivery phase.Set up monitoring and feedback systems to check progress from the residents' perspective.Early checks with residents will make ongoing communications easier and enable delivery improvements.Consider what project milestones warrant a news release or what reminders are needed.Be prepared to adapt the plan if the unexpected happens.Consider testing messages and collateral with residents including those with specific needs prior to launch.	<ul style="list-style-type: none">The communications approach moves to delivering more instructional/operational messages supported by the Back to Earth Initiative overarching messages.Provide messages on the rollout of the service e.g. – supply of bins to those who don't have them, how to obtain optional caddies - alternative options for bags - ways for home composter/worm farmers to participate (inclusion of items that are not easily composted).Create simple Do's and Dont's brochure/bin caddy sticker as well as more detailed information for people to access online.Keep messages positive and constructive - avoid being preachy or dismissing odour concerns etc.If processor accepts compostable bags:<ul style="list-style-type: none">Ongoing bag messaging - where to get them, what happens if residents are using too many – it's ok not to use bags, they are just there to make it easier with some types of waste, particularly meat, table scraps.	<ul style="list-style-type: none">Create awareness through: advertising, social media, collateral and merchandise, events and/or community partnerships.Update web content, ensure it meets accessibility standards and caters for CALD audiences.Develop support material such as Do's and Don'ts collateral.Contact MWRRG Communications and Engagement Team for help with producing collateral that works.Run pop up information sessions and workshops.Keep listening across media, web, social media and be prepared to respond to negative reactions.Look at cross promotional opportunities through the council events calendar and have caddies/ bags (if they can be used) on hand at council events to use for food waste and scraps.Have a communication response planned to address contamination.Develop internal communications.

Phase 4:

Immediately post launch
to sustain the changes

Strategy	Key messages	Tactics
<ul style="list-style-type: none">Continue communications activities to reinforce the change and engage with new residents.Develop ongoing working relationships with local real estate agents to provide information to new tenants.Get hold of supporting resident and stakeholder information - both objective (e.g. data) and subjective (e.g. opinions) - to understand the impact of the project on people.Collect stories to celebrate success and/or to learn from. Share externally through media, social media and partners.Collect visual and audio material to support communications, marketing and learning.	<ul style="list-style-type: none">Provide messages to people around any changes to presentation rates for weekly residual - important for building a case to reduce the service to fortnightly at a later date.Use good news stories to celebrate success highlighting the amount of food waste that has been diverted to build momentum around food waste avoidance messaging and tools (e.g. those provided through the Love Food Hate Waste program).Refer to 'Communication challenges and responses' for key messages in Appendix 9 (following the FAQs).Thank residents for doing their bit.If processor accepts compostable bags have messages and FAQs in place for dealing with bag distribution issues for people who run out. Reinforce that bags are not 100% necessary, and residents can use other options such as paper.	<ul style="list-style-type: none">Include regular reminders across council channels that food waste can be recycled.Consider a pledge campaign - we're putting food and green waste to good use.Report back on initial results and thank residents – run a story via council communications channels and leverage local media.Work with real estate agencies to educate new tenants.Target schools to provide ongoing education.

Phase 5:

Post FOGO service launch and
ongoing evaluation

Strategy	Key messages	Tactics
<ul style="list-style-type: none">Use audit results to report back to the community on the project's progress.Continue to get feedback from your residents and customer service staff to continue to improve and adapt.Use resident research for a before and after comparison.Share results with the residents, including showing the documented results and share in the success.Do not shy away from negative project results. This is when good communications and engagement can show residents that you genuinely care, accept responsibility, and want to put things right from lessons learned. If projects are moved from one team to another then handover arrangements should include any communications and engagement activities.Work with your communications lead to ensure continuity of communications and engagement activity by ensuring business as usual arrangements are in place.Evaluate the success of the communication strategy and adjust ongoing communications if required.	<ul style="list-style-type: none">Continue to remind residents about what they need to do.Continue to celebrate success highlighting the amount of food waste that has been diverted to build momentum around food waste avoidance messaging and tools (e.g. those provided through the Love Food Hate Waste campaign).Continue to thank residents for doing their bit.	<ul style="list-style-type: none">Continue to remind residents that food waste can be recycled.Be proactive with sharing good news stories with the media.Recognise and reward good behaviour (individuals or particular streets).Report results back to residents every year.Use all research, consultation and feedback information to influence long term plans and record lessons learned. Share this information with partners and other councils.Ask the processor to provide educational tours of the facilities for schools and community groups.



Stage 6: Monitoring and improvement

Monitoring will enable councils to understand how the FOGO service is performing, and to identify opportunities for improvement. Monitoring involves regularly measuring outcomes such as customer satisfaction, participation rates, contamination rates and diversion rates. Councils should adopt a process of continuous improvement by applying what they learn from their monitoring activities.

OUTCOMES

The monitoring and improvement program can:

- measure customer satisfaction and user attitudes to establish how these are impacting on the performance of the FOGO service
- measure progress against objectives and targets (for example less than 3 per cent contamination, more than 80 per cent participation, more than 60 per cent diversion and 95 per cent customer satisfaction)
- identify successful systems as well as problems or performance issues; focus efforts on those neighbourhoods where improvements will make the most impact
- assess expenditure and control costs, in terms of anticipated quantity of organics collected, demand for compostable bags, and the impact on education and processing costs of different contamination levels
- evaluate return on investment to justify existing budgets or persuade budget holders that more money is required to achieve targets
- plan service expansions and design (or redesign) so that targets are met or exceeded
- plan targeted communications to improve performance
- address the issues that are really impacting on FOGO service success.

WHEN TO MONITOR

In order to assess the effectiveness of the FOGO service, monitoring needs to occur before, during and after the service is introduced. The purpose of monitoring prior to the start of the service is to establish a baseline from which the change can be compared to and measured.

MONITORING METHODS

Various methods can be used to demonstrate the effectiveness of the FOGO service, such as:

- tonnage data analysis, for example increased tonnage of organics and decreased residual waste tonnage
- waste auditing per bin, or aggregated via a visual waste audit, or physical waste characterisation
- bin placement and participation rate monitoring, for example identifying 80 per cent of all organics bins are put out for collection but only 50 per cent of them contain food organics
- organics capture analysis
- stakeholder feedback
- communication evaluation.

[A Monitoring and Evaluation Plan Template has been provided – see Appendix 10.](#)

Endnotes

1. Department of Environment and Energy, National Food Waste Strategy: Halving Australia's Food Waste by 2030, Canberra, 2017. [Back to article](#)

2. EC Sustainable prepared for Sustainability Victoria, Victorian Statewide Garbage Bin Audits: Food, Household Chemicals And Recyclables, Melbourne, 2013. [Back to article](#)

3. City of Glen Eira, Environmental Sustainability Strategy 2016-2021, Caulfield, 2016. [Back to article](#)

4. Sustainability Victoria, Victorian Local Government Annual Waste Services Report 2016-17 (unpublished), Melbourne, 2018. [Back to article](#)

5. Metropolitan Waste and Resource Recovery Group (MWRRG), Metropolitan Waste and Resource Recovery Implementation Plan 2016, Melbourne, 2016. [Back to article](#)

6. Sustainability Victoria, Statewide Waste and Resource Recovery Infrastructure Plan, Melbourne, 2018. [Back to article](#)

7. Blue Environment prepared for Barwon Waste and Resource Recovery Group, Food organics and garden organics resource recovery directions plan, Melbourne, 2018. [Back to article](#)

8. Swinburne University of Technology prepared for MWRRG, Municipal FOGO services: success factors, Melbourne, 2017. [Back to article](#)

9. Goulburn Valley Waste and Resource Recovery Group, Garden and food waste collection, Final Report, Shepparton, 2017. [Back to article](#)



Appendix 1: City of Yarra case study

In 2017, City of Yarra rolled out a food waste collection trial. What made this trial unique is the innovative alternative to green waste bins that was tested.

SEEKING A LONG-TERM SOLUTION

Audit data from 2014 showed that Yarra households produced around 7 kg of food waste each week. Residents had been lobbying Council to provide a solution to this problem for a number of years.

With no green waste bin service and significant numbers of MUDs, Council looked for an innovative solution to remove food waste from landfill.

A PHASED TRIAL

Phase 1

Phase 1 commenced in August 2017, and was completed in June 2018.

For this phase, food waste tubs were delivered to 179 single dwellings, while 200 MUD units were provided with shared 120L bins. Participants were located in Abbotsford.

This phase was intended to gauge the community's appetite for a food waste collection service and the ability of residents to participate successfully (achieve low contamination and reduction of food from the waste bin). It was also used to test and refine the communication, education and engagement campaign.

Phase 2

Phase 2 will run from July to December 2018.

The trial will explore the introduction of green waste bins to single dwelling households, comparing opt-in and opt-out models, the impact of charging and moving to a fortnightly garbage collection.

Onsite technology will be trialled for high density MUD and commercial sites.

PROJECT SNAPSHOT

Description

Phase 1 – a trial 179 single dwelling households, plus 200 MUD units.

Goals

- Test approaches and interventions to develop a best practice, long-term food waste kerbside collection service.
- Inform how a large scale service would work in practice and produce the best outcomes to divert scraps from landfill.

Results from Phase 1

Participation rate was approximately 50 per cent. Single dwellings performed well with low contamination and good diversion.

MUDs experienced high contamination and lower diversion.

WHAT WAS TRIALLED

Bin configuration	A separate 23L food waste tub to all household participants and a 120L bin for MUD units (bins were shared, so a total of 10 bins were provided)
Frequency	Weekly collection
What could be composted	All food waste
Cost	No charge to residents



PHASE 1 ROLLOUT AND RESULTS

Communications and engagement

Phase 1 trial included significant promotion and community education, with an emphasis on direct and face-to-face communication. All households received information with their tub when it was delivered. Face-to-face conversations were held with half of the single dwelling households. The aim was to find out if face-to-face engagement had a significant impact on increasing participation and compliance with the service.

Results from Phase 1

The table below provides a summary of results from the trial to date:

	Single dwellings	MUDs
Average Presentation Rate	49.53%	50.6%
Total kg	7200 kg	640 kg
Average kgs per Household/Unit per week (based on bins presented)	2.82 kg	0.2 kg
Average Contamination Rate Contamination rate measured by the number of bins rejected on a weekly basis.	1.01%	19.75%

Diverting food waste out of landfill has been successful, particularly within the single residential dwellings. When compared to the results for single dwellings, the results for the multi-unit site appear poor. However, the results highlight a number of differences between single dwellings and multi-unit sites including:

- bins at the multi-unit sites are shared bins, which reduces accountability

Monitoring and intervention

Participation rates, weight of food waste and contamination were recorded in Phase 1.

- Households - collection crews inspected every tub. If a tub was contaminated it was not collected, and a contamination sticker was placed over the tub. This was followed by a visit from the Contamination Squad to help participants use the system properly.
- MUDs - weekly updates were provided to tenants on the percentage of contamination and weight diverted.

- bins are placed in a central location and residents need to walk some distance
- different demographics and lifestyles.

The Phase 1 trial demonstrated that residents will respond to education and services provided in order to divert organic material from landfill.

PHASE 2 DESIGN

Based on the Phase 1 results, Council considers that:

- an alternative model is required to divert organics from MUD sites
- providing a food only service to residents does not solve the problem of fully diverting green organics out of the landfill stream.

Shifting towards a FOGO Service appears to be a more attractive and beneficial option. Off the back of these findings, Phase 2 has been designed to test different service combinations for a FOGO service for single dwellings, and the impact of charging for the service. Alternative solutions for MUDs will also form part of the trial. It will run from July to December 2018.

Single dwellings

Three different bin combinations will be tested amongst single dwelling households:

Current trial area 1 (179 households)	Additional trial area 2 (250 households)	Additional trial area 3 (250 households)
Single dwelling	Single dwelling	Single dwelling
120L weekly FOGO collection	120L fortnightly FOGO collection	120L weekly FOGO collection
Fortnightly garbage	Weekly garbage	Weekly garbage
Cost: no charge	Cost: \$ amount tbc	Cost: \$ amount tbc
Opt out	Opt out	Opt in

MUDs

Two different solutions will be tested for MUDs:

Current MUD trial area (200 units)	Additional MUD trial area (200 units)
Food only	Trial technology onsite (Closed Loop Machine)
Trial technology onsite (technology type tbc)	120L fortnightly FOGO collection
Partially financed by Sustainability Victoria grant	Weekly garbage
Cost: \$ amount tbc	Cost: \$ amount tbc
Include commercial sector on site	Food only

Commercial trial area

Commercial trial area
Food only
Trial technology onsite (technology option tbc)
Partially financed by Sustainability Victoria grant

Cost: \$ amount tbc

Appendix 2:

Darebin City Council case study

In December 2017, Darebin City Council rolled out a six month trial for kerbside collection of food waste. The trial is still underway with completion in June 2018.

INFORMING A FUTURE FOOD COLLECTION MODEL

On average, household waste bins in Darebin contain over 40 per cent food and green waste (by weight). The bulk of that is food.

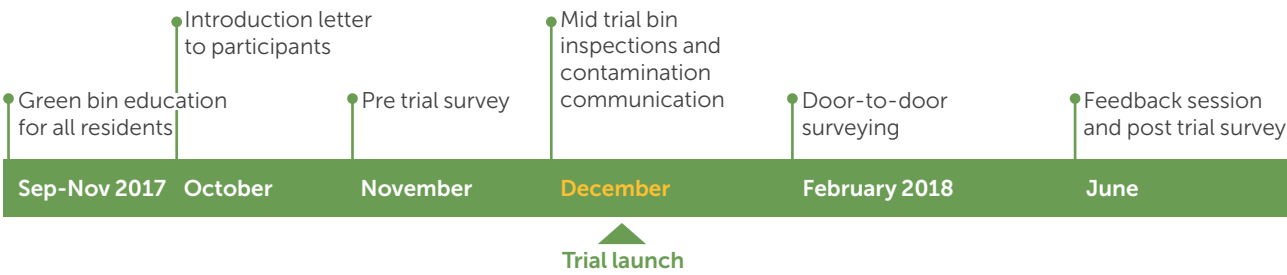
Reducing waste to landfill and increasing green waste recycling are key goals of Darebin's Waste and Litter Strategy 2015-2025. Council intends to use the trial to inform the development of a final food collection model for Darebin. The trial is intended to assess levels of diversion that could be achieved and likely contamination rates. Council aims to maintain the quality of green contents, with contamination under 1.5 per cent.

USING EXISTING GREEN WASTE BINS

With over 60 per cent of households having a green waste bin, Darebin Council has chosen to rollout the trial to 1,024 of these households. Kingsbury was selected as it had the highest concentration of green waste bins.

TIMING

Darebin Council chose to implement the trial in summer, as this season was likely to cause the most issues or problems for residents. This would enable the council to identify and address problems at the small trial scale, and be prepared for full rollout, if that occurs.



PROJECT SNAPSHOT

Description
Trial the inclusion of all food waste as part of the existing green bin service. 1,024 households with a green bin were invited to participate in the trial.
Goals
Use the trial to inform the development of a final food collection model for Darebin with particular focus on drivers and barriers to participation, issues during trial and the effectiveness of Council's education.
Results
Trial is still progressing, final results are expected after June 2018.

WHAT WAS TRIALLED

Bin configuration	Invited 1,024 households with an existing green bin (opt-in service)
Frequency	Fortnightly collection
What could be composted	All food
Cost	Kitchen compost caddies were offered as a free trial incentive
Compost bags	Not permitted to be used

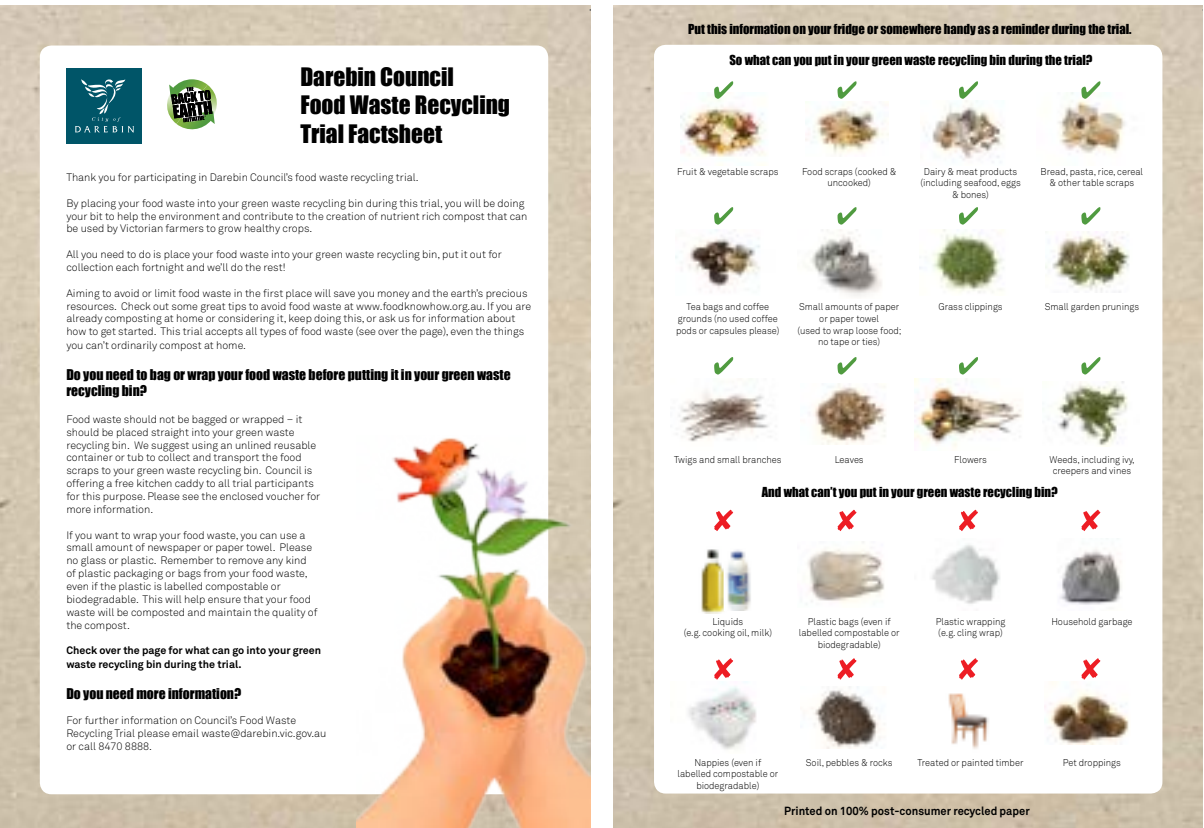
Communications and engagement phases

Targeted communications were developed for participants. As a result of media misrepresentation, additional communications were required to address confusion amongst residents who were not part of the trial.

Communications were split into three phases:

Pre-trial	Mid-trial	Post-trial
General education for all residents to encourage appropriate use of the green waste bin. Targeted communications to trial participants to: <ul style="list-style-type: none">introduce the trialprovide information about what can/can't be put in green waste bins and address frequently asked questionscollect data about current food waste practices (pre-trial survey).	Participants were invited to be part of a closed social media group to share ideas and concerns. Visual bin inspections conducted across 343 trial households and contamination letters provided to residents. A door-to-door survey will be conducted to determine participation rates and assess how households are finding the trial.	Participants will be able to attend a feedback session and be asked to complete a final survey. Results will be communicated publically through local media and council channels.

Darebin Council elected to use the Back to Earth Initiative branding for its communications to trial participants, and used communications such as the Farmers Stories videos on social media in the lead up to the trial.



MONITORING

- Darebin will monitor the trial using:
- truck weight – both green and general waste trucks. Weights were also recorded before the trial
 - visual bin assessments of 343 trial households
 - contamination issues reported by the green waste processor
 - trial household surveys to assess participation, barriers and issues.

RESULTS TO DATE

- 3.3 per cent of households responded to the pre-trial survey
- 81 per cent of respondents intended to join the trial
- 9.3 per cent of households collected a free caddy.

MID-TRIAL BIN INSPECTIONS

- 343 household green waste bins have been visually inspected during trial:
 - 31 (9 per cent) had food in them
 - 3 of those bins were contaminated
 - Contaminants: plastic bags, cling-wrapped food, cigarette butts.



TIPS FOR OTHER COUNCILS

1. Understand your food waste volumes and costs – analyse your data carefully to know what volumes of food waste are being produced, and understand the cost for a food waste service versus costs for food waste going to landfill.
2. Work closely with your organics processor to be clear on what can and can't be accepted.
3. Tackle the toughest issues – a trial can assess the issues that are most likely to cause problems. For example, test issues related the season (Spring = more green waste, Summer = hot bins, less green waste). Use this information to plan solutions for full rollout.
4. Choose communication channels carefully – in a trial, decide how much information you want participants to know versus the wider community. Carefully select channels according to the message and audience to be communicated.
5. Start communication early – remind the entire municipality how to use their green waste bins properly and build awareness that the green waste is tuned into a valuable resource.
6. Plan for how you will address any contamination issues – determine if and how you will do any education or further communication.
7. Assess half way – conduct audits and gain participant feedback half way through the trial to assess how it is tracking and if any part of the education program needs to be changed.
8. Provide feedback to participants at the end of the trial – include feedback as part of the communications plan. Ensure participants understand if they should continue to place food scraps in their green waste bins or stop.

Wyndham City Council case study

In March 2016, Wyndham City Council participated in the Food into Green Project Trial, having recently introduced fruit and vegetable scraps to the green organics kerbside collection. The success of the trial led the council to implement a permanent service for its residents.

TRIAL RESULTS

Prior to the trial in 2016, audits of household bins showed that on average 49.5 per cent was made up of potentially compostable material.

Wyndham City Council already offered garden waste bins to residents on an opt-in basis. Benchmark contamination rates of these bins prior to the introduction of fruit and vegetable scraps was 3 per cent.

During the trial, the overall contamination rate was 4 per cent. The contamination found was classified as general waste.

TIMING

Wyndham City introduced fruit and vegetable scraps into their green bins in September 2015 as a trial initially.

Participation in the Food into Green trial in March 2016 cemented fruit and vegetable scraps as a permanently acceptable item in green bins

At the time of the permanent service rollout, approximately 20,000 residents had a green waste bin.

PROJECT SNAPSHOT

Description

Introduction of fruit and vegetable scraps into the green waste service.

Goals

- Increase the recovery rate of food waste and divert it from landfill.
- Keep contamination below 5 per cent.
- Increase green bin subscriptions.
- Build community engagement and involvement in food waste diversion.
- Reduce compostable material being sent to landfill.

Results

For 2016, green bin subscriptions were above the anticipated rate, food organics in green waste increased marginally. Contamination was 4 per cent.

WHAT WAS TRIALLED

Bin configuration	All residents with a 240L green bin (approximately 20,000). Green bins are provided on an opt-in, user pays basis
Frequency	Fortnightly collection
What could be composted	Fruit and vegetable scraps only (the intention is to move to all food waste in the future)
Cost	Kitchen compost caddies were provided as an incentive as part of the trial only (4,500 given away, representing approximately a quarter of green bin users)
Compost bags	No

COMMUNICATIONS AND ENGAGEMENT PHASES

Wyndham City Council developed the ‘Scrap That’ campaign to support the rollout. The audience for the campaign were residents with a green waste bin and residents who didn’t have a green bin but were generating a lot of food waste.

The campaign was split across four phases:

- pre-launch communications
- information when the service was rolled out
- a monitoring and feedback program
- ongoing education to householders.



An extensive range of media was used to raise awareness of the service and educate residents:

Pre-trial	Mid-trial
Direct marketing	<ul style="list-style-type: none">• An introduction pack for all residents with a green bin - included a bin sticker, fridge postcard and introductory letter explaining the reason behind the service
Advertising	<ul style="list-style-type: none">• Quarter page ads in local newspaper• Social media ads• Bus shelter ads• Cinema ads to promote what goes into the green bin• Branded collection trucks• Postcard with FAQs relating to diverting fruit and vegetable scraps
Community engagement	<ul style="list-style-type: none">• Green waste and composting workshops to promote the campaign• Scrap That messages translated into three different languages, workshops and events with CALD groups• Pop up info sessions at shopping centres and train stations• Showcased champion green waste recyclers in Wyndham News• Pledge commitment to gain kitchen caddy• Static display at Civic Centre and a number of key community centres• Children’s cooking demonstration promoting fruit and vegetable scrap campaign
Reminders	<ul style="list-style-type: none">• Fridge magnets• Bin stickers (applied to new green bins at time of delivery)• Educational videos looped on customer service screens
Council digital channels	<ul style="list-style-type: none">• Website• E-news• Social media
Give-aways	<ul style="list-style-type: none">• Compost giveaways to residents and community groups to raise awareness of what happens to green waste after it is picked up• Kitchen caddies

MONITORING

Wyndham City Council monitored the service using:

- J-Track collection system - JJ Richards drivers report contaminated bins and the council sent contamination letters to residents.
- Annual waste audit nine months after introduction.

RESULTS

- Green bin subscriptions grew to 24,485 at the end of 2016-17 representing 31 per cent of residents (a 1 per cent increase taking into account Wyndham’s rapid growth).
- The introduction of fruit and vegetable scraps into the green bins resulted in some additional contamination initially, however the latest audit shows 4 per cent contamination.
- All caddies have been issued to residents (approx. 4,500).

- Wyndham City are hoping to provide greater access to green bins for their growing rental population. To achieve this, the cost of service is reducing from \$103.50 to \$75 per year from 1 July 2018.

- TIPS FOR OTHER COUNCILS**
1. Kitchen caddies proved to be a practical tool to transport food scraps but also a great conversation starter and educational tool to promote the change in service.
 2. Continue the campaign after initial launch - Wyndham City ran a multi-year educational campaign to ensure fruit and vegetable scrap messaging was embedded.
 3. Use the green bin delivery to help broadcast the message (for example, stickers added to new green bins promoting the inclusion of fruit and vegetable scraps).



Appendix 3:

Project plan schedule example based on City of Glen Eira FOGO service rollout

Action	Responsibility	Status	Notes
Establish residual waste baseline aggregated data - seasonal variation			
Establish organics baseline aggregated data - including seasonal variation			
Assess greenhouse gas emissions from community waste			
Conduct demographic analysis to determine FOGO acceptance			
MWRRG collective organics contract liaison: Identify waste and organics contract timeframes for introduction of FOGO			
Assess performance of opt-in or universal organics collection service			
Trial - identify trial community			
Full Service - plan a phased rollout across the community			
Conduct community survey to determine FOGO acceptance			
Set targets for FOGO diversion			
Use the FOGO Guide model to assess FOGO performance options			
Develop business case for FOGO			
Develop RFQ for feasibility study for FOGO service to inform council about the options to introduce FOGO			
Complete MWRRG FOGO Implementation Plan			
Establish cross functional FOGO project team with roles and responsibilities - e.g. waste management, operations, education, communications, research, customer service, contractors			
Appoint project coordinator			
Determine project structure			
Develop detailed project plan including: communication and education plan, risk management plan - contamination management, monitoring and evaluation plan			
Plan bin inspection program: visual bin inspections, face to face engagement with residents, truck audits			

Action	Responsibility	Status	Notes
Formalise agreement with organics processing contractor			
Identify what food categories are accepted by your processor in the FOGO service			
Assess cost/benefits of organics collection containers e.g. aerated bins, caddies, certified compostable bags/liners			
Kitchen caddies procurement			
Order sample caddies for promotions			
Finalise implementation plan with MWRRG			
Meet with collection contractor to finalise service change			
Contract variation to collection contractor for caddies			
Order kitchen caddies			
MWRRG Organics Contract User Group - review contamination protocol guidelines			
Plan post service bin inspections			
Plan post service waste audits at processor			
Communications			
MWRRG Engagement and Communications Team liaison: participation in Back to Earth Initiative			
Assess performance of current waste education programs for food waste avoidance and home composting			
Develop engagement/communications plan			
Prepare executive report			
Liasion with internal media and communications team			
Prepare Council report			
Prepare CEO email/councillor comms to staff			
Notify mayor and councillors of food waste recycling commencement			
Customer service centre training			
Draft letter to residents			
Prepare media release			
Prepare Facebook adverts (paid)			
Prepare news articles			

Communications	Responsibility	Status	Notes
Prepare Leader ads			
Prepare sustainability and gardening e-newsletters			
Prepare messages on hold			
Council website content creation			
Prepare social media posts			
Prepare 'Have your say' community survey			
Recruit Sustainability Champions network			
Send flyers to real estate agents in municipality			
Create Facebook Sustainable Living Group			
Collateral creation			
Update organics bin lid stamps			
Prepare DL flyer for caddy			
Update FOGO online booklet			
Prepare A6 flyer order kitchen caddy			
Develop logos and branding			
Prepare Food Pledge Kits for Just Eat it event			
Create story of food infographic/banner			
Contact MWRRG to update council information on the Back to Earth Initiative website			
Prepare icon stickers and captions			
Prepare caddy lid hot stamp			
Prepare bin tags for inspections			
Prepare web banner for service commencement			
Prepare customer service TV screen ads			
Update Waste Services Guide			
Prepare online caddy preorder form			
Develop FOGO specific App			
Create FOGO video content			

Events	Responsibility	Status	Notes
Plan food waste related movie screening event and Food Waste Pledge with an incentive if possible (i.e. chance to win a voucher)			
Plan stalls at council and community events			
Plan pop-up events			
Review meetings			
Schedule Project team meetings			
Items to order			
Sample caddies			
Resident competition prizes			
Teatowels from Sustainability Victoria			
Prepare Evaluation Report 1 - Waste audit			
Prepare Evaluation Report 2 - Community consultation			
Prepare Evaluation Report 3 - Communications			
Finalise overall evaluation report			

Appendix 4:

Communications action plan

Action		Due date	Responsibility	Status
Phase 1: Know your audience, build awareness	Nominate a dedicated project communications lead			
	Communications and engagement strategy			
	Announcement of service changes in newsletter/e-news, web, social media			
	Commence educating residents about: <ul style="list-style-type: none">volumes of organic waste sent to landfillthe problem of waste in landfillissue of food wasteusing green bins correctly.			
	Conduct research to understand resident expectations, priorities, opportunities, barriers			
	Engage key stakeholder groups			

Action		Due date	Responsibility	Status
Phase 2: Announcement	Promote the benefit of compost from green waste (Farmers' Stories videos)			
	Organic processing facilities tours for Councillors, customer service and communications staff			
	Announcement of service changes in newsletter/e-news, web, social media			
	Media release			
	Develop FAQs			
	Develop approach for people who don't want to participate, e.g. home composters			
	Identify potential ambassadors/champions			

Action		Due date	Responsibility	Status
Phase 3: Lead up and launch	Introductory communications to households (eg, letter, info pack)			
	Media release			
	Launch event			
	Newsletter/e-news articles			
	Advertising			
	Advertising (newspaper, magazine, TV screen, transport, outdoor)			
	Truck branding			
	Digital channels			
	Social media posts			
	Web banner			
	Web content development/update			
	Update council content on Back to Earth website			
	On hold message			
	Video			
	Update council waste app			
	Collateral			
	Factsheet/postcard			
	Dos and Don'ts			
	FAQs			
	Posters			
	Banners			
	Translations			
	Update existing communications (e.g. waste calendar)			
	Bin stickers/caddy stickers			
	Caddy order form			
	Bin inspection feedback (sticker, bin tag, fact sheet)			
	Surveys and testing			
	Set up resident feedback system to check progress			
	Community engagement			
	Pop up info sessions/Council events			
	Composting workshops			
	Workshops/events with CALD groups/community groups			
	Internal communications			
	Staff email			
	QandAs			
	Intranet announcement			
	Customer Service training			

Action		Due date	Responsibility	Status
Phase 4: Sustaining the change	Information packs for real estate agents			
	Collect success stories			
	Media release (success stories, results, thank residents)			
	Advertising (newspaper, magazine, TV screen, transport)			
	Regular reminders across social media, e-news, etc			
	Pledge campaign			
	Schools and community groups education, processor tours			
	Resident survey/feedback			

Action		Due date	Responsibility	Status
Phase 5: Ongoing comms and evaluation	Rates notice messaging			
	Communicate successes			
	Regular reminders across social media, e-news, newsletters, etc			
	Schools and community groups education, processor tours			
	Communications evaluation			

Appendix 5:

City of Glen Eira case study

In May 2018, the City of Glen Eira launched a FOGO service across the municipality. A comprehensive campaign supported the rollout and achieved high rates of awareness.

Prior to the launch, most of the 45,000 stand-alone households in Glen Eira had a green waste bin, so the council introduced the new food recycling service into this existing fortnightly green waste collection. Communications started six months prior to launch, and by the time the service was implemented, 60 per cent of residents were aware of the forthcoming service, with most reporting that they were likely or very likely to participate.

BUILDING AWARENESS AND CHANGING BEHAVIOUR

The City of Glen Eira developed a comprehensive, multi-channel communications campaign to support the rollout. Key elements of the strategy to build awareness and achieve behaviour change were:

Engaging material

Visual materials and humour were used to engage the community and the concept was applied consistently across a full range of channels, including paid print and digital media.

Face-to-face contact with the community and schools

The council created a presence at community events, libraries and shopping centres to encourage residents to participate in food waste recycling. Branded pop-up stands and shopping centre displays were created to support face-to-face engagement. The council also recruited schools to help raise awareness with information provided to send home with children and schools asked to participate in the food waste pledge.

Food waste pledge

The pledge was developed to secure public commitment to change behaviour and build a sense of community that people are acting together for change. The pledge process also enabled the council to capture email addresses for ongoing communications.

Reminders and feedback

There was a focus on reminders and feedback at point of action to encourage behaviour change. Kitchen caddies included reinforcing messaging and bin inspections provided an opportunity to use bin tags to alert households to contamination issues or encourage households doing the right thing.

Local champions

The council recruited local celebrities and business owners as champions to motivate community participation. Households that were successfully recycling food scraps were also promoted as local champions with their stories used to build a sense of community and embed food waste recycling as a norm.



WHAT SERVICE WAS IMPLEMENTED

Bin configuration	Food collection was introduced as part of the existing green waste collection service
Frequency	Fortnightly collection
What could be composted	All food waste except tea bags
Cost	No additional charge to residents

KITCHEN CADDIES

The City of Glen Eira offered free caddies to residents to encourage them to use the new service. Residents could order the caddies on-line or call the council customer service line. Council's kerbside waste contractor delivered the caddies to all households free of charge. Approximately 7,000 caddies were delivered.

REDUCING FOOD WASTE

Council also raised awareness of the impact of food waste and encouraged residents to reduce food waste overall. In addition to council branded communications, such as a Food Smart Guide, existing programs such as Sustainability Victoria's Love Food Hate Waste were leveraged to deliver this part of the plan.

RESULTS TO DATE

- 7,000 kitchen caddies delivered to residents.
- 60 per cent of residents said they were aware of the new service prior to implementation.
- Approximately 70 per cent of residents said they were very likely or likely to participate.
- Results on diversion from landfill are not yet available.

Appendix 6:

Moira Shire Council case study

In 2014, Moira Shire was the first council in the Goulburn Valley region to introduce a kerbside food and garden organics collection service. The strength of the partnership between the council, the regional waste and resource recovery group, the collection contractor and the organics processor has seen the service achieve one of the lowest contamination rates in the state, at less than 0.3 per cent.

SUPPORTED BY A REGIONAL APPROACH

Following a successful trial in 2012, the Goulburn Valley Waste and Resource Recovery Group, (Goulburn Valley WRRG) secured \$550,000 from Sustainability Victoria's Organics Support Package to assist councils in the region to introduce a full service.

Moira Shire started first in December 2014 followed by Shepparton and Strathbogie Councils. Moira Shire was supported by \$145,000 for the procurement of caddies and compostable bags.

A PARTNERSHIP APPROACH

The strong partnership between Moira Shire, Goulburn Valley WRRG, the collector, DS Kendall Waste Services, the processor, Western Composting, and the funding from Sustainability Victoria has been critical maintaining low contamination and high presentation rates.

Prior to the introduction of the service the waste management team collected and analysed baseline waste data to enable modelling and good business decisions and to gain council buy in.

Council works very closely with the collection contractor, overseeing service suspension if contamination becomes a problem, ringing repeat offenders, and supplying clear contamination bags.

The collection contractor can identify contamination when the bin is emptied using a camera in the back of the truck. Contaminates are removed from the truck and placed into the clear contamination bag which is left beside the bin.

An orange contamination sticker is placed on the bin lid to explain to the resident that the bin was contaminated and that their service is suspended until they call the office to discuss the issue.

Each bin has a serial number which identifies the address for the bin and this is tracked over time. Repeat offenders can have their service suspended for up to 90 days.

The council also conducts regular meetings with the contractor to continually improve the service. It is a true partnership with both parties very keen to supply a cost effective service which has the lowest contamination rate that is viable to maintain.

What CAN go in the green-lidded bin?

- ✓ Food scraps (using your kitchen basket & **purple compostable bags**)
- ✓ Small prunings & cuttings
- ✓ Small branches that will fit into the bin (eg. 10cm diameter x 60cm long)
- ✓ Lawn clippings
- ✓ Leaves
- ✓ Weeds
- ✓ Cut flowers
- ✓ Hair
- ✓ Shredded paper
- ✓ Animal droppings (loose, NOT in bags)
- ✓ Deceased animals (eg. Rodents)



The green-lidded bin is **NOT** for...

- ✗ **Plastic bags - even biodegradable ones (the only bags that are acceptable are the purple compostable bags that you received with your caddy)**
- ✗ Household garbage
- ✗ Painted or treated timber
- ✗ Dirt, soil or sand
- ✗ Plant pots
- ✗ Stones, rocks, bricks or rubble
- ✗ Large logs or stumps
- ✗ Bottles and/or cans
- ✗ Nappies
- ✗ Cardboard
- ✗ Paper (unless shredded)
- ✗ Garden tools
- ✗ Garden hose

You have received this notice because there was contaminated product in your bin. At this point, our driver has recorded the residential and bin details.

Failure to rectify the problem in the future may result in a suspension of the service. Continued abuse of these guidelines may result in a cancellation of your service.

We look forward to your co-operation.

Regards,



For more information, please visit
http://www.moira.vic.gov.au/Environment/Waste_Management/Organic_Waste
 or contact DS Kendall Waste Services on 1800 041 041 or 5862 1053

EFFECTIVE COMMUNITY ENGAGEMENT THROUGH BACK TO EARTH INITIATIVE

An integral part of the success of the service is the effective community engagement through the Back to Earth Initiative developed by the Metropolitan Waste and Resource Recovery Group. The aims of the Back to Earth Initiative are to:

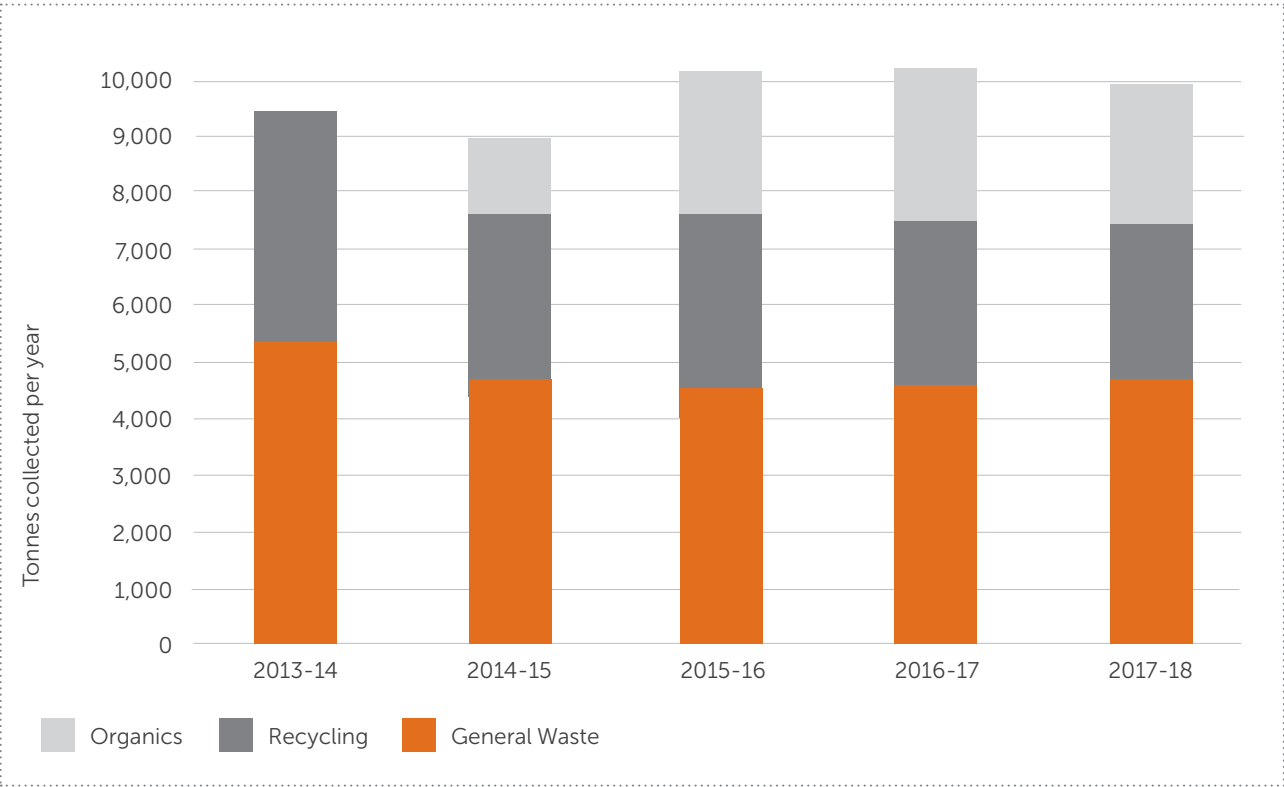
- promote the correct use of the organics recycling service
- educate the community on the value of the kitchen caddy and compostable bags
- improve levels of knowledge about what can and can't be placed in the organics bin
- reinforce the importance of no contamination in the bin
- promote the value of compost produced at the regional processing facility
- increase awareness of the environmental benefits of organic recycling
- increase confidence that materials are being recycled.

The Back to Earth Initiative messages emphasised that material collected at kerbside is processed into compost and mulch that is put back into the soil on farms, gardens and public open space such as parks and ovals.

The Back to Earth Initiative was used in a comprehensive communications campaign that included bought and earned media, outdoor advertising, waste truck signage and community competitions. Celebrity science commentator Dr Karl Kruszelnicki was recruited to be the 'face' of the campaign. The branding was extended through purple corn starch compostable kitchen caddy liners that reinforced the message that only those bags can be safely composted through Western Composting's process. The compostable bags were provided free to residents for the first two years of the service.



Moira Kerbside Waste Profile



OUTCOMES

In implementing the FOGO service, Moira Shire's objectives were to:

- introduce a fortnightly, full organics kerbside collection service that combines garden and food organic waste streams
- provide approximately 9,000 properties with a 240 litre mobile organics bin, an eight litre kitchen caddy and a roll of 150 compostable liner bags to make organics separation and collection easy
- engage, motivate and sustain the community in its use of the FOGO service.

In the first month of implementation Moira Shire recorded:

- an estimated 0.32 per cent contamination rate
- 75 per cent bin presentation rate
- 30 per cent reduction in kerbside residual waste to landfill.

Moira's kerbside waste to landfill has continued to decrease over time, from 5,336 tonnes in 2013-14 without the organics service to 4,635 tonnes in 2017-18 with the organics service. The organics collection has averaged 2,593 tonnes per year for the past three years. A breakdown of the percentage of food vs garden organics is not available.

TIPS FOR OTHER COUNCILS CONTEMPLATING A FOGO SERVICE

- Engage contractors who share your objectives (consider service quality in contract development and assessment).
- Clearly define and map the area and number of households for contact distribution lists, rates database.
- Make council policies and resolutions accessible to the public.
- Enlist councillors to advocate for the service.
- Ensure customer service, rates, IT and communications departments are supportive.
- Persevere and learn from your mistakes.

Appendix 7:

Back to Earth Initiative collateral

The Back to Earth Initiative was developed by the MWRRG and runs in partnership with 19 Melbourne metropolitan councils that are part of collective organics procurement contracts. Three councils in the Goulburn Valley region have also adopted the Back to Earth Initiative. As a communications and education campaign it goes beyond instructional messages and provides a link between what residents put in their bins and the process that goes into creating an end product that can be used on gardens and farms.



The Back to Earth Initiative is helping farms grow.



H.V McNab and Son in Ardmona is using Back to Earth compost to reduce the need for watering by keeping the soil around the orchard crops hydrated, while increasing soil activity at the same time. Farmer Mitch is asking residents to keep plastic out of their green bin.

“Our mission is to grow the best quality fruit so the consumer can have the best quality experience eating it.”

Follow the journey of your green waste, and meet the farmers who are using it to improve soil health and grow the food we eat.

View our Farmers' Stories videos at backtoearth.vic.gov.au/farmers-stories





Pick up your free kitchen caddy

Want a free kitchen caddy to collect your food waste for the green waste recycling bin?

Pick yours up at Darebin Council's Customer Service Centres or Reservoir Library between Monday 13 November and Friday 22 December 2017.



Exchange this voucher for your caddy at a Customer Service Centre location:

- 32-38 Separation Street, Northcote
- 274 Gower Street, Preston
- 23 Edwardes Street, Reservoir (co-located with Reservoir Library)

Please print your address

Printed on 100% post-consumer recycled paper

Appendix 8:

Green waste recycling survey



GREEN WASTE RECYCLING SURVEY

Q1. Thinking about your household waste, how important would you say separating your green waste is from your garbage to you personally? Is it...? (Select one response only)	Very important	<input type="checkbox"/>	Not at all	<input type="checkbox"/>
	Important	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
	Not very important	<input type="checkbox"/>		

Q2. Which of the following items can go into your GREEN WASTE BIN ? (Select all that apply)	China/pottery/porcelain	<input type="checkbox"/>	Branches	<input type="checkbox"/>
	Fruit and Vegetable peelings	<input type="checkbox"/>	Timber	<input type="checkbox"/>
	Left-overs from dinner plate	<input type="checkbox"/>	Plant pots	<input type="checkbox"/>
	Dog/ cat poo	<input type="checkbox"/>	Cat litter	<input type="checkbox"/>
	Egg shells	<input type="checkbox"/>	Biodegradable bags	<input type="checkbox"/>
	Contents from vacuum cleaner	<input type="checkbox"/>	Compostable bags	<input type="checkbox"/>
	Bread/ pasta/ Rice	<input type="checkbox"/>	Soil	<input type="checkbox"/>
	Tea bags	<input type="checkbox"/>	Bricks/pavers/ terracotta pots	<input type="checkbox"/>
	Things that are marked as compostable	<input type="checkbox"/>	Plastic bags	<input type="checkbox"/>
	Things that are marked as biodegradable	<input type="checkbox"/>	Coffee grounds	<input type="checkbox"/>
	Nappies	<input type="checkbox"/>	Meat/ chicken scraps (fat/ bones)	<input type="checkbox"/>
	Lawn clippings	<input type="checkbox"/>	Glass and bottles	<input type="checkbox"/>
	Tree stumps and roots	<input type="checkbox"/>	Seafood scraps (eg. fish, prawns)	<input type="checkbox"/>
	Leaves and twigs	<input type="checkbox"/>	Other (Please specify)	<input type="checkbox"/>
	Other (Please specify)			<input type="checkbox"/>

Q3. Have you seen recent communications from your council about changes to your green waste service. (If no, skip ahead to Q12)	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
	Can't recall	<input type="checkbox"/>

Q4. If yes- do you recall what the changes were? (Select all that apply)	The price of the collection service has changed	<input type="checkbox"/>
	The collection day has changed	<input type="checkbox"/>
	I can now put new items in the green waste bin	<input type="checkbox"/>
	Council is giving away kitchen caddies	<input type="checkbox"/>
	Can't remember	<input type="checkbox"/>
	Other (please specify):	<input type="checkbox"/>

Q5. What materials do you recall seeing? (e.g. information in local paper, letter, brochure)	
--	--

Q6 Was the communication from your council... (Select all that apply)	easy to understand?	<input type="checkbox"/>
	difficult to understand?	<input type="checkbox"/>
	helpful?	<input type="checkbox"/>
	irrelevant?	<input type="checkbox"/>
	relevant?	<input type="checkbox"/>

Q7 If you have seen the information about changes to your service have you taken any action? (Please select one response only)	Yes - I now put allowed food items in the green waste bin (go to question 9)	<input type="checkbox"/>
	No- I don't put any food items in the green waste bin	<input type="checkbox"/>
	Other	<input type="checkbox"/>

Q8 If you have not taken any action please list the reasons why. (Select all that apply - when complete go to question 11)	Don't have any food waste to put in the bin	<input type="checkbox"/>
	Use a compost bin	<input type="checkbox"/>
	Use a worm farm	<input type="checkbox"/>
	Feed food scraps to pets (cats/dogs)	<input type="checkbox"/>
	Feed food scraps to chickens	<input type="checkbox"/>
	Too much hassle to separate food waste from rubbish	<input type="checkbox"/>
	Too much hassle to separate different kinds of food that can and can't go in the green bin	<input type="checkbox"/>
	Bin is too far away from house	<input type="checkbox"/>
	The bin will smell if food waste is put in	<input type="checkbox"/>
	Bin is too full of garden waste	<input type="checkbox"/>
	Bin will attract flies/ maggots, rats/ mice	<input type="checkbox"/>
	Not sure what items are accepted in the bin	<input type="checkbox"/>
	Other: (please list)	<input type="checkbox"/>

Q9 If you have taken action to put food items into your green waste bin, which activities do you do in order to manage this waste?					
	Never	Occasionally	Often	All the time	Don't know
1. I put food loose (unwrapped) into the green waste bin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I wrap food inside a plastic bag before putting it into the green waste bin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I wrap food inside a compostable bag before putting into the green waste bin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I use a kitchen caddy or container to store food before I put it into the green waste bin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I store food scraps in the fridge or freezer before I put them into the green waste bin before collections day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I wrap my food scraps in newspaper or paper towel before I put them into the green waste bin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q10 What barriers, if any, did you encounter while putting your food items into your green waste bin? (Select all that apply)	Too much hassle to separate food waste from rubbish	<input type="checkbox"/>
	Too much hassle to separate different kinds of food that can and can't go in the green bin	<input type="checkbox"/>
	The bin smelt	<input type="checkbox"/>
	Bin was too full	<input type="checkbox"/>
	Bin attracted flies/ maggots	<input type="checkbox"/>
	Bin attracted rats/ mice	<input type="checkbox"/>
	Confused about what items were accepted in the bin	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>	

Q11 Taking everything into account, do you have any comments or suggestions about the food waste recycling trial that would make it easier or more convenient for your household?	
---	--

Q12 Which of the following do you think happens to the contents of green waste bins?					
	Don't know	Know this doesn't happen	Think this doesn't happen	Think this happens	Know this happens
1. Goes to the landfill/tip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Councils gives it to parks and gardens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Used to produce agricultural products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Council mulches it and sells it to residents/businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Council mulches and gives it away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. It is processed and turned into compost and soil products to Australian standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. It is processed and turned into compost and soil products to Australian standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q13 How confident are you that the green waste items put out for recycling are actually recycled? (Please select one response only)	Very confident	<input type="checkbox"/>
	Not always confident/ not sure if everything is recycled	<input type="checkbox"/>
	Not confident/ don't trust the system at all	<input type="checkbox"/>
	Can't say	<input type="checkbox"/>
	Other answer (please specify):	<input type="checkbox"/>

Q14 How well do you feel that you understand the environmental benefits of recycling the waste that goes into green waste bins? (Please select one response only)	Very well	<input type="checkbox"/>
	Fairly well	<input type="checkbox"/>
	Not very well	<input type="checkbox"/>
	Not at all	<input type="checkbox"/>

Q15 Which of the following do you think are true about recycling of green waste?					
	Definitely False	Probably False	Maybe	Probably True	Definitely True
1. Reduces carbon emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Reduces the amount of waste sent to landfill/tip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Produces garden products that can help to save water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Produces garden products that can help to increase soil nutrients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Provide useful products for agricultural/horticultural products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Increases air pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q16. Finally, we would like to ask you some question about you and your household, to ensure that we have spoken to a good cross section of households. Please be assured that you answers will be kept confidential and will only be used in aggregate analysis. In to which of these age groups do you fall?	Under 20	<input type="checkbox"/>	20 – 29	<input type="checkbox"/>
	30 – 39	<input type="checkbox"/>	40 – 49	<input type="checkbox"/>
	50 – 59	<input type="checkbox"/>	60 – 69	<input type="checkbox"/>
	70 or over	<input type="checkbox"/>	I'd prefer not to say	<input type="checkbox"/>

Q17. Are you...?	Male	<input type="checkbox"/>	Female	<input type="checkbox"/>
	Prefer not say	<input type="checkbox"/>		

Q18. Were you born in Australia or overseas?	Australia	<input type="checkbox"/>	Overseas	<input type="checkbox"/>
--	-----------	--------------------------	----------	--------------------------

Q19. If you were born overseas, please state which country.	
---	--

Q20. Which council area do you live in?	Brimbank	<input type="checkbox"/>	Moonee Valley	<input type="checkbox"/>
	Wyndham	<input type="checkbox"/>		

Q21. Would you describe your household as...? (Please select one response only)	Couple with no children	<input type="checkbox"/>	Couple with children at home	<input type="checkbox"/>
	Single parent with children at home	<input type="checkbox"/>	Couple/single parent - children left home	<input type="checkbox"/>
	Single	<input type="checkbox"/>	Group/shared household	<input type="checkbox"/>
	Other	<input type="checkbox"/>		

Q22. Is the place you are living in...? (Please select one response only)	Rented	<input type="checkbox"/>	Owned or being purchase by you	<input type="checkbox"/>
	Other	<input type="checkbox"/>		

Thank you for your time. Don't forget to include your competition entry form if you wish to go in the draw to win a Coles Myer voucher.

Appendix 9:

Frequently Asked Questions for customer service staff – example based on City of Darebin Food Waste Recycling Trial

Question	Answer
What is the Food Waste Recycling Trial?	<p>Darebin City Council is conducting a food waste recycling trial with selected participants to help divert food waste from landfill.</p> <p>By placing food waste into green waste recycling bins, participants will be helping to reduce the amount of greenhouse gases generated from the breakdown of organic waste in landfill and contribute to the creation of nutrient rich compost that can be used in agriculture, horticulture, community parks and gardens.</p> <p>All participants need to do is place their food waste into their green waste recycling bin, put it out for collection on Friday each fortnight, and we'll do the rest!</p>
Who is participating in the trial?	<p>The trial is limited to Friday's Darebin's East collection zone involving a set number of households with green waste recycling bins. Participants have been notified of the trial by mail.</p> <p>The selected area has been chosen because it has a high number of households already with a green waste recycling bin and the area meets specific collection requirements that enable measurement of green waste and general waste collections. This information will help council to monitor progress and determine the trial's level of success.</p> <p>Trial participants will not incur any additional costs for participating in the trial.</p>
When is the trial?	<p>The trial will commence on [DATE] and run for X months.</p> <p>Council will evaluate the trial in mid-[YEAR] to determine future rollout across the Darebin community.</p>
Have participants been contacted about the trial?	<p>All participants have been sent a letter explaining the trial, a voucher to collect a free kitchen caddy (see question below for more on this), and a factsheet on the trial including what food waste can go in the green waste recycling bin.</p> <p>Participants have also been invited to complete an online survey which asks about household food waste practices. This information will help council when planning for the trial.</p> <p>Participants can request a hard copy of the survey with a reply paid envelope by contacting Customer Service. Please submit a Waste Policies, Bin Issues, Bin Charges (WSWP04) form and an Environment Support Officer will action the request.</p>
Why are we doing a trial?	<p>The trial will test the new food and green waste collection system to identify and solve any unforeseen problems and to determine if the service can be introduced to the wider community.</p>
What can I put in my green waste recycling bin?	<ul style="list-style-type: none">• Fruit and vegetable scraps• Food scraps (cooked or uncooked)• Dairy products and meat products (including seafood, eggs and bones)• Bread, pasta, rice, cereal and other table scraps• Tea bags and coffee grounds (no used coffee pods or capsules please)• Small amounts of paper or paper towel (used to wrap loos food; no tape or ties please)• Grass clippings• Small garden prunings• Twigs and small branches• Leaves• Flowers• Weeds, including ivy, creepers and vines

Question	Answer
What can't you put in your green waste recycling bin?	<ul style="list-style-type: none">• Liquids (e.g. cooking oil, milk)• Plastic bags, even if labelled compostable or biodegradable• Plastic wrapping (e.g. cling wrap)• Household garbage• Nappies, even if labelled compostable or biodegradable• Soil, pebbles and rocks• Treated or painted timber• Pet droppings
Why can meat and dairy go in the green waste bin? Won't these contaminate everything?	<p>Green and food waste is composted at very hot temperatures, so can break food down effectively and kill any pathogens.</p>
Does food waste need to be bagged or wrapped before putting it in the green waste recycling bin?	<p>No – we would rather it wasn't.</p> <p>Food waste can be put loosely into your green waste recycling bin; it doesn't need to be wrapped or bagged first. We suggest using an unlined reusable container or tub to collect and transport the food scraps to your green waste bin. Council is offering a free kitchen caddy to all trial participants.</p> <p>If you want to wrap your food waste materials, you can use a small amount of newspaper or paper towel. Please no glass or plastic. Remember to remove any kind of plastic bag, wrapping or packaging from your food scraps, even if they are labelled biodegradable or compostable, before placing them in your green waste bin. This will help prevent micro-plastics in the end product and maintain the quality of the compost.</p>
Can participants get a free kitchen caddy?	<p>Yes – FREE kitchen caddies are available to trial participants. Participants have been sent a kitchen caddy voucher (copy of DL sized voucher below) which can be taken to Customer Service Centres between Monday 13 November and Friday 22 December in exchange for the caddy.</p> <p>Participants are asked to include their address on the caddy voucher so we can track which households have collected caddies.</p>
How can participants stop their kitchen caddy from smelling?	<p>Keep odours in check by rinsing your kitchen caddy after each collection and sprinkling a little bicarbonate soda into your caddy with each day's food scraps.</p> <p>The same can be done for your green waste recycling bin to minimise odours.</p>
What if participants have lost their kitchen caddy voucher? Can they get another one?	<p>Participants can request a new kitchen caddy voucher to be posted to them. Please submit a Waste Policies, Bin Issues, Bin Charges (WSWP04) form and an Environment Support Officer will action the request.</p>
What happens to the green and food waste after it's collected?	<p>The collected green and food waste is still taken to the Veolia organics recycling facility located at Bulla.</p> <p>The facility transforms green and food waste into valuable compost, mulches and soil products, which are used right here in Victoria for agriculture and horticulture.</p> <p>All of Darebin's green waste kerbside collection is taken to Veolia's Bulla facility – including those households who are not participating in the trial.</p>
How can participants provide feedback about the trial?	<p>Council strongly encourages feedback on the trial. Feedback will be collected before, during and after the trial. Participants have already been invited to complete an online survey prior to the commencement of the trial.</p> <p>Participants can provide feedback during the trial via this email address waste@darebin.vic.gov.au and via [insert yoursay website address]</p>
I'm not in the trial area, can I put food waste into my green waste recycling bin?	<p>No – at this stage the only residents who can put food waste in their green waste recycling bins are those in the trial area. Council will let all residents know IF this trial is to be rolled out more broadly across the municipality.</p>

Communications challenges and responses

Resident issue	Suggested response
Concerns of smell	<p>Empty caddy at least 2-3 times per week and rinse after every use. The rinse water is great for your plants!</p> <p>Sprinkle a little bicarbonate soda into your green waste recycling bin with each day's food scraps.</p> <p>Food scraps can be wrapped in paper towel or newspaper to help reduce smells and odours.</p> <p>Keep the lids closed on your kitchen caddy and garden waste recycling bin, don't overfill them.</p> <p>Particularly smelly foods like seafood and meat scraps can be kept in the freezer and taken out on bin night.</p>
Concerns of mess and 'yuck' factor	<p>Use the free kitchen caddy voucher - then you can use your caddy to collect and carry your food waste to your bin.</p> <p>If you like, you could line your kitchen caddy with 1-2 sheets of newspaper (maximum), which may help create less mess.</p> <p>Newspaper absorbs liquids, and makes it easier to keep the kitchen caddy clean.</p> <p>Don't have newspaper? Butchers paper, deli paper or paper towel will also do the job - as long as it's not glossy and you don't use too much.</p> <p>Rinse your caddy with each use.</p>
Concerns about pests	<p>Don't worry – research shows that pests are not a common problem with food waste collections, if food is kept in closed containers.</p> <p>Keep your garden waste recycling bin closed to decrease opportunities for pests.</p> <p>If your bin lid is broken or does not fit properly, contact your council to organise a repair or replacement lid.</p>
Concerns about flies	<p>Having food in your caddy is like having food in your inside household bin, so treat it the same way – empty and rinse as needed. If you do this, you should have no increase in pests or flies.</p> <p>Using an enclosed kitchen container with a close fitting lid, like the free caddies provided by council, should also help eliminate any potential issues.</p> <p>Ensure your kitchen caddy and wheelie bins are not overfilled, that lids close tightly and are always closed when not in use.</p>
Residents that already compost and give their food waste to chickens	<p>Great! Keep it up. Composting, worm farms and chickens are all great ways to reduce food waste, as well as using your green bin.</p> <p>Use the food waste recycling service to complement your existing system – not replace it. This means you can recycle 100% of your household's food waste.</p> <p>Food waste you may not put in your composting system can be added to your garden waste recycling bin such as noxious weeds, citrus, meat, bones, seafood, dairy or leftovers, as well as regular fruit and vegetables, cooked and uncooked food are all accepted!</p> <p>The garden waste recycling bin can also be used for food waste when your compost, bokashi bin or worm farm is resting or at capacity.</p>

Resident issue	Suggested response
Residents feel they don't waste much food	<p>That's great that you don't have much food waste. But remember – the trial is free, it's simple and it means you'll be recycling 100% of your food waste conveniently.</p> <p>Also - every bit counts! Test yourself – set up a container or caddy in your kitchen and put ALL plate scrapings, bones, citrus, egg shells, fish, meat, dairy and food scraps into it – you may be surprised how much is there!</p> <p>The trial accepts all types of food waste, including that from food preparation, unwanted leftovers, small bones and foods past their expiry date.</p> <p>There are benefits to recycling any food waste, no matter how small. Even small amounts contribute to the creation of nutrient-rich compost and reduce the amount of greenhouse gas created.</p>
Confusion about what can go in the garden waste recycling bin.	<p>Provide bin stickers on green bins and kitchen caddies showing what goes in each bin.</p> <p>Provide garbage and recycling calendars which include information on how to recycle food waste.</p> <p>We will hold specific information workshops for apartment residents to educate on what can go in each bin.</p>
Residents want to use regular plastic bags	<p>As always, no plastic bags are permitted in garden waste recycling bins. The garden waste is still going to the same recycling facility – so you can still not use any bags.</p> <p>A small amount of newspaper or paper can be used to wrap your food if desired.</p>
Residents don't remove fruit stickers or elastic bands from herbs and some vegetables.	<p>Food waste is turned into compost, so it's important that plastic and other rubbish doesn't end up in green waste bins.</p> <p>Remove stickers from fruit and elastic bags from herbs before they go in your green waste bin.</p>
Rotten food waste gets stuck in the bottom of the green waste recycling bin and doesn't get collected.	<p>Put bulky garden waste in the bottom of your green waste recycling bin first and food waste on top of this.</p> <p>Clean your bin with some water and an outdoor broom. Check out this article on how to clean your wheelie bin at home (www.bhg.com.au/how-to-clean-your-wheelie-bin) and remember to prevent water pollution by stopping any waste going down the stormwater drain.</p> <p>Find a local bin cleaning service to clean your bin if needed.</p> <p>If the above don't work, wrap your stickier food waste in a sheet of paper before putting in your green waste bin.</p>
The garden waste recycling bin is already too full.	<p>Set up a home composting solution for your household's food waste to reduce the amount of food waste going into your green waste recycling bin.</p> <p>Let grass cuttings and leaves dry out in the sun for a week before placing in your garden waste recycling bin – you'll be amazed how much more fits in! In some gardens, you can also use grass cuttings on your garden as mulch.</p> <p>You also have the option to get a second garden waste recycling bin, or upgrade to a bigger bin.</p>
Residents don't understand the importance of putting food into their green waste recycling bin and why it is important to recycle it.	<p>Your garden and food waste in your garden waste recycling bin is taken to an organics recycling facility. There it is processed and transformed into valuable compost which is used here in Victoria for agriculture and horticulture. Visit backtoearth.vic.gov.au to find out more.</p> <p>Recycling your food and garden waste means less waste is sent to landfill. These types of waste decompose creating greenhouse gases. Recycling instead of landfilling helps reduce the amount of greenhouse gas created when organic waste breaks down. Recycling it also produces a reusable product – compost!</p>

Resident issue	Suggested response
Residents don't want to use the kitchen caddies because they are ugly and take up too much bench space.	<p>The Council-provided kitchen caddy is optional.</p> <p>Feel free to use whatever container or system that will work best for you. There are many alternative options available from commercial shops or you can reuse something from home. We strongly suggest a container with a lid.</p> <p>The caddy does not have to be kept on the bench, it can be stored in a cupboard, under the sink or in a drawer when not in use.</p>
Concerns about other people putting the wrong things in their bin.	<p>Council will be doing bin inspections to check that people are doing the right thing and help them along the way.</p> <p>We want the trial to be a success so that it can be rolled out across the municipality, so if people are doing the wrong thing we will be taking an active role in preventing this from happening.</p>
Reaching culturally and linguistically diverse (CALD) communities	<p>Create materials that have images and crosses and ticks rather than words</p> <p>It is generally only a very small proportion of residents who are responsible for most of the contamination, so it is important to identify these residents and tailor education to them, and if necessary, having a council officer visit them to teach them how to correctly use the waste services.</p> <p>Have fact sheets and web copy translated into the most common languages spoken</p> <p>Provide translators at workshops where possible</p> <p>Provide bin stickers on green bins and kitchen caddies showing what goes in each bin</p> <p>Refer to MWRRG 'Engaging with diverse communities on waste, resource recovery and litter – a Kit for educators' guide for further advice.</p>
More information	Always provide multiple ways residents can obtain information including options that are accessible.
More support	The MWRRG Communications and Engagement Team can provide advice, guidance and support on planning and delivering communications and engagement activities. We encourage councils to contact our office to arrange a face to face discussion.

Appendix 10:

Monitoring and Evaluation Plan: FOGO service development and implementation

Consider objectives relating to: Implementation “products”, Engagement and Education “people”, Environment “planet”

Objectives	Outcome/s	Output	Performance measure (KPIs)	Evaluation method	Who	When
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•