

**TO: TECHNICAL SERVICES COMMITTEE – 10 SEPTEMBER 2018**

**SUBJECT: FOOD ORGANICS GARDEN ORGANICS (FOGO) REPORT**

**AUTHOR: DIRECTOR TECHNICAL SERVICES – SCOTT ALLEN**

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### **EXECUTIVE SUMMARY**

This report is to provide Council with relevant information pertaining to a feasibility report for a food organics garden organics collection trial

### **RECOMMENDATIONS**

**That this report be noted and discussed at a Council Forum**

### **REPORT**

#### **1. BACKGROUND**

Council has deferred the introduction of kerbside recycling collection due to external factors. The introduction of kerbside recycling would not have been cost neutral. A Council report recommended the exploration of other potential strategies to reduce waste going into landfill.

Council officer initiated for Arid Lands Environment Centre (ALEC) to produce a feasibility report into food organics and garden organics collection.

#### **2. DISCUSSION**

Approximately 38% of residential waste Council receives consists of food waste and garden organics.

It is estimated that the introduction of a residential FOGO collection service would extend the life of the existing Regional Waste Management Facility by six months over the next ten years. This would result in a once-off cost saving of \$375,000 to Council.

By diverting 2,024 tonnes of organic waste a year through a residential FOGO collection service, it is estimated a saving of \$180,000 per year, by not having to process this as general waste. This figure is based on Council's current operating costs to manage its existing waste.

#### **3. POLICY IMPACTS**

**Alice Springs Town Council Strategic Plan: 2018 to 2021**

**Objective 3: Leadership in sustainability**

3.1: Reduce Council's carbon footprint

3.1.3: Reduce Council's waste production

#### 4. FINANCIAL IMPACTS

The cost estimates of conducting a FOGO collection trial are presented in Table 13 taken from the Feasibility Report, shown below. These figures are based on the assumption that the trial would run for a six - month period:

Table 13: Cost estimates for different trial estimates

Cost	100 households 6 months	200 households 6 months	100 households 12 months	200 households 12 months
Estimated trial costs (\$)	\$98,000	\$121,000	\$151,000	\$188,000

Note: These costs are indicative only, and only include a cost of \$25,000 for the establishment of a temporary composting facility. Costs are higher on a per unit basis, as only small numbers of equipment are being purchased.

Note: These cost estimates include costs of 100 to 200 mobile garbage bins, kitchen food caddys, the development of educational material and information packs, the distribution of these materials to households, plus some composting equipment. All of these costs would offset the net cost estimates of implementing a full service.

#### 5. SOCIAL IMPACTS

The FOGO has the potential to further enhance Council being seen as displaying leadership by increasing the landfill lifespan

#### 6. ENVIRONMENTAL IMPACTS

The implementation of strategies which could include FOGO will have a positive impact on the environment. The increased landfill lifespan will also be a positive for the environment

#### 7. PUBLIC RELATIONS

The increased landfill lifespan will be seen as a positive by the community

#### 8. ATTACHMENTS

**Attachment A:** Feasibility Report Investigating a Food Organics Garden Organics Service



Scott Allen  
DIRECTOR TECHNICAL SERVICES

**Investigating a Food Organics Garden  
Organics (FOGO) Service for Alice Springs**

**A Feasibility Report for Alice Springs Town Council**

Title	Feasibility Report: Investigating a Food Organics Garden Organics (FOGO) Service for Alice Springs
Author	Rachel O'Leary Project Officer Arid Edge Environmental Services
Date	1/8/18
Version	1.1

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## **1. Background**

The diversion of residential food and garden organic (FOGO) waste from landfill through a kerbside organic collection service is becoming more established throughout Australia. Approximately 42% of NSW Councils currently collect garden waste through a kerbside green waste service (Hyder 2012, p.3). The collection of food waste has been expanding significantly in the last five years, with 33% of Councils in NSW<sup>1</sup> and 14% of Councils in Victoria<sup>2</sup> offering a FOGO Collection Service. In the majority of cases, trials have been conducted in these Council jurisdictions prior to implementation.

The purpose of this feasibility report is to document a proposed methodology for a Food Organics Garden Organics (FOGO) Trial in Alice Springs, as well as to determine initial costings of a full-scale FOGO Collection Service in Alice Springs. This report does not take into account uptake from the commercial sector, which would most probably be offered as a fee-paying service.

## **2. Benefits of composting Food Organics Garden Organics (FOGO)**

In Alice Springs, approximately 38% of residential waste consists of food waste and garden organics (EC Sustainable 2015, p.vii). When buried, a proportion of organic waste does not decompose and subsequently contributes to the landfill's greenhouse gas emissions. The current Regional Waste Management Facility is fast approaching the end of its life. Concrete actions to divert organic waste will extend the life of the landfill and offset new infrastructure costs for the community.

## **3. Aims and objectives of a FOGO Collection Service**

The primary aim of the Food Organics Garden Organics (FOGO) Collection Service is to deliver a user-friendly service, which reduces organic waste to landfill, thereby extending the lifespan of the landfill. A further benefit is the production of large quantities of compost that can be sold to local farmers and community members to increase the organic content of arid zone soils.

## **4. Aims and objectives of a FOGO Collection Trial**

The aim of a FOGO Collection Trial in Alice Springs is to trial the separate collection of residential food and garden organics for reprocessing into a compostable product.

This would allow Alice Springs Town Council (ASTC) to meet the following objectives:

- To trial different FOGO service configurations, such as the frequency of collection and the use of compostable bags and receive participant feedback.
- To investigate the amount of food and garden waste captured per household (kg/household.week) and to document contamination rates and seasonal variations over the trial period.

<sup>1</sup> Calculated from a personal communication with Sian McGee from NSW 27/7/18

<sup>2</sup> <http://www.sustainability.vic.gov.au/Government/Waste-and-Resource-recovery/Kerbside-waste-and-recycling/Kerbside-organics-collection>

- To test the compost processing methodology to process the material into a reusable compostable product that meets Australian Standards AS 4454–2012.
- To develop and trial key educational messages tailored to the Alice Springs community.
- To trial run operational relationships with collection and processing contractors prior to the implementation of a full service.

## 5. Considerations for a FOGO Trial and full service delivery

### a. Types of waste to be collected

It is proposed that the Alice Springs FOGO Collection Trial would provide a separate 240L bin to trial participants, for the collection of both kitchen food waste and garden organics. The following waste could be accepted<sup>3</sup>:

- Grass clippings
- Weeds
- Flowers
- Garden prunings
- Leaves and bark
- Small branches (maximum 30cm long and 10cm diameter)
- Small timber offcuts UNTREATED and UNPAINTED (max. 30 cm long and 10cm wide)
- Food scraps – fruit and vegetables
- Food scraps – meat, seafood, chicken, dairy, eggs (cooked and raw)
- Bones
- Coffee grounds and tea leaves/bags
- Soiled paper e.g. paper towels, tissues, newspaper\*
- Pizza boxes\*

An extensive list of possible wastes accepted is outlined in Attachment A.

### b. Type of bin to collect FOGO waste

#### *Standard 240L bin*

240L mobile garbage bins are the most suitable size for a combined Food & Garden Organics Collection Service, and other State governments recommend combined food and garden organic bins to be dark green/black with a bright green/lime lid (DEC NSW 2007, p.2).

<sup>3</sup> Based on the City of Colac Otway, 2018 current FOGO service and \* the City of Greater Bendigo

*Aerated bin*

The use of aerated bins (known as Bio-insert bins) that have a slotted insert in the base of the bin are sometimes used for fortnightly collection frequency and in hot/wet climates. The benefit of Bio-insert bins is that the material is delivered to the processing place in an aerobic state, so the composting process has already begun (DEC NSW 2007, p.2). However, the design of these may slow collection rates and branches can get caught in the slotted insert (DEC NSW 2007, p.2).

**c. Kitchen food containers and liners**

It has been shown that providing kitchen food waste containers (also known as kitchen caddies) increases participation rates and the amount of food waste diverted (DEC NSW 2007, p.2; Zero Waste SA 2007, p.1). Kitchen food waste containers are typically 7L in size and retail for approximately \$5 each (Source Separation Systems, 2018).

*Compostable bin liners*

Compostable liner bags also increase customer satisfaction (DEC NSW 2007, p.2). Households generally use between 3 and 4 bags per week (Hyder 2012, p.60). These retail for \$8.50 for a roll of 150 liners (Source Separation, 2018), which should last a small household approximately one year. A large number of Councils provide liner bags free of charge to residents as part of the service. Lining bins with paper bags or wrapping scraps in newspaper has also been shown to be effective, and is currently used by Bathurst Regional Council<sup>4</sup> and Coffs Harbour Council<sup>5</sup>.

The pros and cons to both systems are outlined in Table 1 below.

Table 1: Pros and cons to compostable bin liners vs. newspaper liner

Type of liner	Pros	Cons
Compostable bin liners	<ul style="list-style-type: none"> <li>- Allow householder to feel like waste is easy to manage and contained.</li> <li>- Allows waste to breathe / stay aerobic.</li> </ul>	<ul style="list-style-type: none"> <li>- Additional cost of liners \$10/household/year.</li> <li>- Education required to help community understand that ONLY Council's compostable bags can be used, no other type acceptable.</li> </ul>
No liner or lined with newspaper/shredded paper/paper towel	<ul style="list-style-type: none"> <li>- Free/low cost.</li> <li>- Allows waste to breathe/stay aerobic.</li> <li>- Easier to manage plastic bag contamination at processing plant.</li> </ul>	<ul style="list-style-type: none"> <li>- Access to newspaper is lower now people read news online.</li> <li>- More cleaning is required by householder.</li> <li>- Customer satisfaction is lower than liner bags.</li> </ul>

<sup>4</sup> <https://www.bathurst.nsw.gov.au/residents/waste/kerbside-food-and-garden-waste-collection.html>

<sup>5</sup> <http://www.coffscoastwaste.com.au/bins/green>

The compostable liner-bags are generally made from certified organic cornstarch with soy-based inks. The liner bags allow transpiration enabling aeration of food scraps and microbial activity, but maintaining waterproof characteristics (DEC NSW 2007, p12). Residents are encouraged to empty the kitchen bench-top bin every two to three days, and place it in the green-organics bin for kerbside collection on a fortnightly basis.

Considerations for compostable liner bags include:

- Are the bags certified organic to Australian Standards (AS 4736-2006) to enable breakdown at the same rate as organic waste.
- Are the bags printed with soy-based inks so they leave no harmful residues after breaking down.

Recommendation:

- ASTC to trial both compostable bags and newspaper/paper towel liners.
- ASTC to trial the inclusion of soiled newspaper, paper towel and tissues in its FOGO Collection Service.

#### **d. Frequency of collection**

Weekly organic collection services generally provide the highest diversion and participation rates and also result in high customer satisfaction (DEC NSW 2007, p.2). In Port Macquarie Council, they moved from a fortnightly collection service during the trial to a weekly service and compostable bags during implementation. This increased the amount of organics by 39% (DEC NSW 2007, p.8). Table 2 outlines a list of regional Councils that currently offer a FOGO service, and whether the service is weekly/fortnightly.

Table 2: Regional Councils that have implemented a FOGO collection service, bin collection schedules and domestic waste management charges (where available).

Council	Population	FOGO service	Other service	Domestic Waste Mgt. Charge
Broken Hill	17,708 people 9,658 dwellings <sup>6</sup>	Fortnightly with bio-bin inserts <sup>7</sup>	Drop off recycling facility only Weekly waste	Not separately reported
Bathurst Regional Council	41,300 people 17,364 dwellings <sup>8</sup>	Weekly <sup>9</sup>	Fortnightly kerbside recycling Weekly waste	\$394 p.a. <sup>10</sup>
City of Greater Bendigo	92,379 people 41,035 dwellings <sup>11</sup>	Fortnightly <sup>12</sup>	Fortnightly kerbside recycling Weekly waste <sup>11</sup>	Not separately reported
Snowy Monaro Regional Council	9,772 people 4,925 dwellings <sup>13</sup>	Fortnightly (Cooma only) <sup>14</sup>	Fortnightly kerbside recycling Weekly waste <sup>14</sup>	Waste collection (\$246 p.a.) Recycling collection (\$101 p.a.) FOGO (\$46 p.a.) Total \$393 p.a. <sup>15</sup>

The majority of these Councils offer a fortnightly FOGO collection service, with a fortnightly recycling service and a weekly waste service. As identified in the cost analysis below, it is significantly cheaper for Council to implement a fortnightly system. A trial would help to determine whether this would be feasible during the hot summer temperatures in Alice Springs.

**Recommendation:**

- ASTC to trial both weekly and fortnightly collection of FOGO bins over summer.
- ASTC to investigate technologies that may support a potential fortnightly collection in an arid environment e.g. bio-bin inserts, charcoal lids.

<sup>6</sup> As of 2016 census, <https://profile.id.com.au/broken-hill/population>

<sup>7</sup> <https://www.brokenhill.nsw.gov.au/services/waste-and-recycling/waste-and-garbage/waste-and-garbage>

<sup>8</sup> As of 2016 census, [http://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/quickstat/LGA10470](http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA10470)

<sup>9</sup> <https://www.bathurst.nsw.gov.au/residents/waste/kerbside-food-and-garden-waste-collection.html>

<sup>10</sup> <https://www.bathurst.nsw.gov.au/residents/waste/kerbside-garbage-collection.html>

<sup>11</sup> As of 2016 census, [http://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/quickstat/UCL211003](http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/UCL211003)

<sup>12</sup> <https://www.bendigo.vic.gov.au/Services/General-Waste-Recycling-and-Organics/Organics-Bin>

<sup>13</sup> As of 2016 census, [http://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2011/quickstat/LGA12050](http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/LGA12050)

<sup>14</sup> <https://www.snowymonaro.nsw.gov.au/1326/Bin-Collection-Calendar>

<sup>15</sup> <https://www.snowymonaro.nsw.gov.au/256/Fees-and-Charges>

#### **e. Length of trial**

The trial length is dependent on costs and implementation timeframes. In Alice Springs it would be important to conduct the trial over the warmer months of the year, to get feedback on how a FOGO system would operate in high temperatures and how participants feel about a fortnightly collection service over the hotter months of the year.

Options for trial length include a:

- 3 month trial
- 6 month trial
- 12 month trial

Cost estimates for these three options will be presented in the costing section below.

#### **f. Size of trial and selection methodology**

The report 'Co-Collection of Domestic Food Waste and Garden Organics – The Australian Experience' (DEC NSW 2007) outlines approximately 15 local government FOGO trials. The number of households that could be included in a trial typically varied between 100 and 1000.

The ASTC trial could potentially include a variety of dwelling types, including households, townhouses, multi-unit apartments and commercial properties. It should be noted that composting garden organics in multi-unit apartments requires a slightly different approach to single dwellings, with a shared larger organics bin instead of each unit maintaining their own individual 240L bins (Hyder 2012, p.31). ASTC could choose to offer a FOGO service to multi-unit dwellings as a Stage 2 delivery of the program.

A good cross section of household incomes, owners/renters, government/private housing is important for the trial. Involving whole streets (from varying parts of town) would be easier to manage with physically collecting waste and talking to individual households. ASTC Technical Director Scott Allen suggested that streets could volunteer to be part of the trial, in order to build community spirit and acceptance of the service. This could be managed in the spirit of the 'War on Waste' program. Finally, it would be good to get streets from the following locations that participated in the 2015 residential waste audit:

- Larapinta, Araluen, The Gap
- Gillen
- Braitling
- East Side
- Larapinta Valley

**Recommendation:**

- ASTC to trial 100 - 200 households (budget dependent) across a wide socio-economic spread from all parts of town.
- ASTC to call for streets to volunteer to participate in a FOGO Collection Trial.

**g. Method of processing compost**

The US Environment Protection Agency (2018) outlines four main types of composting:

- i) Aerated (turned) windrow composting
- ii) Aerated static pile composting
- iii) In-vessel / enclosed system composting
- iv) Additional use of vermiculture (worm farm application).

Please see information on processing compost in Attachment B below.

In the absence of an existing commercial composting facility in Alice Springs, ASTC would need to either build their own composting facility or go out to tender for a composting facility to be built and managed in Alice Springs by an external contractor.

No particular system is recommended as part of this report. AEES recommends that Council contract a qualified design engineer to provide recommendations for the most appropriate composting processing system.

For the purposes of the remainder of this report, AEES assume the use of covered windrows, because this is a simple mid-level system capable of processing small volumes of compost.

There are two excellent publications available for reference on the design, construction and operation of a commercial composting facility. These include:

- Environment Protection Authority Victoria (2017), Designing, constructing and operating composting facilities, <https://www.epa.vic.gov.au/~media/Publications/ATTMX3PQ.pdf>
- Environment Protection Authority South Australia (2013), Compost guideline, [www.epa.sa.gov.au/files/4771342\\_compostguideline.pdf](http://www.epa.sa.gov.au/files/4771342_compostguideline.pdf)

The Compost Guideline gives guidance on:

- siting and design of the composting facility
- design of wastewater management systems and stormwater systems
- how to classify and manage incoming feedstocks
- methodology requirements for the production of compost
- quality assurance testing of the composted product
- product labelling requirements
- how to manage noise, dust, odour, vermin and litter
- records maintenance including environmental management plans
- closure of composting facilities.

The following Australian Standards should be considered when setting quality parameters for composted products:

- AS 4454–2012 Compost, soil conditioners and mulches
- AS4419–2003 Soils for landscaping and garden use
- AS 3743–2003 Potting mixes
- AS/NZS 5024 (INT)–2005 Potting mixes, composts and other matrices: examination for legionellae.
- AS4736-2006 Biodegradable plastics suitable for composting and other microbial treatment.

A recent email correspondence from the NT Environment Protection Authority (S Tocknell 2018, personal communication, 18 July) have provided the following information:

- The NT Government would not typically license a green waste or food waste compost facility.
- Animal effluent waste for compost is another matter and carries with it potential health and environmental risks.
- A commercial composting facility would need to comply with General Environmental Duty under the legislation.
- In the absence of a specific Compost Guide for the NT, the DENR did suggest the use of guidelines from another jurisdiction.

**Recommendation:**

- That ASTC contracts a qualified design engineer to provide recommendations and detailed costing for the most appropriate compost processing system for Alice Springs.

#### **h. Typical contamination rates and ways to minimise this**

Typical contamination rates for other Councils are low, ranging from less than 0.5% to 8% (DEC NSW 2007). Hyder (2012) also reported an average contamination rate of 3% of the ten Councils it reviewed.

Lismore Council successfully manages its FOGO contract to deliver contamination rates of 0.5% (DEC NSW 2007, p.2). It has a strong education/promotion campaign backed by a refusal to service (three strikes and you are out). Their education campaign targeted schools and the media. They reported that the coloured lids increased diversion.

In Port Macquarie, the collection contractor is responsible for managing contamination. They have colour CCTV in collection trucks which rejects contaminated loads. They have a policy that if a household presents three contaminated bins then they no longer receive the service (i.e. three strikes and you are out) (DEC NSW 2007, p.10).

In Broken Hill, a high contamination rate of 20% was reduced to 4% through a targeted education campaign. Bin audits, acceptable/not acceptable stickers on bins and a 'three strikes and out' rule helped to deal with contamination (DEC NSW 2007, p.11).

Finally, the NSW EPA recommends that the following points be considered in order to minimise contamination (DEC NSW 2007, p.2):

- Require both collection and processing contracts to meet contamination targets, with the use of penalties/compensation/enforcement action.
- Allocate sufficient funding for education and promotion of the service throughout the lifetime of the service.

#### **i. Education and promotion**

A well organised and resourced educational campaign is an essential component of all trials and services (DEC NSW 2007, p.3; DEC NSW 2006, p.vii). It is recognised that behavioural change is challenging and will take time to achieve the desired outcome.

The residents of Alice Springs Town Council are multi-lingual and many speak English as a second language. Educational and promotional strategies to engage these community members will need to be developed and resourced appropriately to ensure low levels of contamination.

Some basic ideas for Alice Springs could include:

- Use of pictorial images in stickers and signs to explain what can and cannot be put in the green FOGO bin.
- Use of talking posters in key locations e.g. Alice Springs Town Council library, shopping centres, etc. to translate key messages into multiple indigenous languages e.g. <http://www.onetalktechnology.com.au>
- Pop-up information stalls at key locations, such as shopping centres, Bunnings, the library, sporting facilities, bowling clubs etc. to explain how the FOGO service will work.
- Use of community waste champions to support the people in their street to understand what can/can't be composted in the FOGO bin.
- Provision of short videos to be placed on the ASTC website and promoted through Council and social media.
- Use of the local media in promoting the service.
- Provision of an information factsheet and FAQs
- Provision of phone support through ASTC.

A list of FAQs is presented in Attachment C.

Recommendation:

- That ASTC develops and resources a strong educational program for the implementation of a FOGO Collection Trial and Service to ensure high participation rates and low levels of contamination.
- That this educational program would include developing resources in Arrente and other key indigenous languages spoken in Alice Springs.

**6. Food and Garden Organics Estimates for Alice Springs**

**a. Mass (tonnes) of food and garden organic waste that would be diverted through a FOGO Collection Service**

Key assumptions used in the estimation of Food and Garden Organic waste were made from other local government experience and applied to Alice Springs. These are outlined in Table 3.

Table 3: Typical participation rates, contamination rates of FOGO services

Rate	%
Participation rate	66%
Contamination rate	10%
Food waste incorrectly put in residual garbage bin	10%

An average participation rate of 66% was reported for ten Australian Councils with a FOGO collection service (Hyder 2012, p.23). For the purposes of these estimates, it is assumed that Alice Springs would have a relatively high contamination rate to start (e.g. 10%), as residents have not had a recycling service in place. This is expected to reduce over time and would be minimised with a well-supported educational budget.

Finally, it is assumed that 10% of a household’s food and organic waste will be incorrectly placed in the mixed waste bin.

An average of 4.14 kg of food waste and 3.14 kg of garden waste (totalling 7.3 kg of FOGO organic waste) were collected from Alice Springs households during the household waste audit in 2015 (EC Sustainable, 2015, p.14). This average, combined with anticipated participation and contamination rates, was used to calculate an expected FOGO organic waste collection of 3.9 kg/household.week, as outlined in Table 4.

Table 4: Food and Garden Organic Waste estimates for Alice Springs based on a number of scenarios.

FOGO waste estimate	Kg/household.week	Kg/household.year	Total FOGO waste collected in Alice Springs (tonnes/year)
Based on Alice Springs waste audit data	3.9	202	2,024
Based on Lake Macquarie trial data (2017)	3	156	1,560
Based on Bathurst City Council implementation (2017/18) data	5.4	283	2,833
Actual green waste collected at ASTC RWMF (2016/17)	n/a	n/a	2,902

Under three scenarios, FOGO waste estimates would vary between 3 – 5.4 kg per household per week, resulting in a range between 1,560 and 2,833 tonnes per year of FOGO. This figure is in addition to the 2,902 tonnes per year of green waste collected at the ASTC Regional Waste Management Facility. If a green waste collection was in place, the amount of green waste dropped off at the tip may reduce slightly, but it is not thought to be substantial, as a lot of this waste comes from the commercial sector.

#### **b. Mass (tonnes) of compost that would be produced from FOGO Collection Service**

When raw organic material is composted and screened, it reduces to approximately 20% of the original material mass (Central Local Government Region of South Australia 2015, p.14). Using the 2,024 tonnes per year estimated to be collected from a residential FOGO Collection Service, an estimated 405 tonnes of compost would be generated (Table 5). This figure does not include composting the 2,902 tones of green waste already collected and managed by Council. It also does not include estimates of organics that would be diverted from landfill if a commercial composting service were established in Alice Springs.

Table 5: Mass (tonnes of compost that would be produced from Alice Springs residential FOGO Collection Service

Organic waste collected (tonnes/year)	Compost produced (tonnes/year)
2,024	405

**c. Mass (tonnes) of organic material diverted and compost produced through a FOGO Collection Trial**

The mass (tonnes) of organic material diverted during a FOGO Collection Trial is presented in Table 6 below.

Table 6: Mass (tonnes) of organic matter generated through a FOGO Collection Trial at varying trial size and length

Parameter	100 households 6 months	200 households 6 months	100 households 12 months	100 households 12 months
Total estimated weekly organic waste collection for trial households (kg per week)*)	389	779	389	779
Total estimated organics during trial period (tonnes)	10.1	20.2	20.2	40.5
Total estimated compost produced during trial period (tonnes/6 months)	2.0	4.0	4.0	8.1

\* based on an estimate of 3.9kg/household.week of food and garden waste for a typical Alice Springs household

To run a FOGO Collection Trial for a 12-month period would generate 4 tonnes (100 homes) and 8 tonnes (200 homes) of compost. To run a FOGO Collection Trial for a 6-month period would generate between 2.0 tonnes (100 homes) and 4.0 tonnes (200 homes) of compost.

**7. Cost of introducing a FOGO Collection Service**

**a. Cost in other jurisdictions**

The cost of providing a Food Organics Garden Organics (FOGO) collection service in Australia is estimated to range from between \$60 to \$76 per household per year (NSW EPA, 2006, pvii). In a Financial Assessment of Councils who generated low amounts of garden organics, collection of FOGO at kerbside was reported to cost \$17 per household per year more than sending all organics to landfill (NSW EPA, 2006, p.viii). One considerable difference between Alice Springs and other jurisdictions is that other States and Territories have a State Government waste levy rates. In South Australia, the 2018/19 waste levy ranges from \$50-\$100/tonne (regional - metro)<sup>16</sup>. In NSW, the 2018/19 levy is \$141.20 per tonne

<sup>16</sup> [http://www.epa.sa.gov.au/business\\_and\\_industry/waste-levy](http://www.epa.sa.gov.au/business_and_industry/waste-levy)

(Metropolitan areas) and \$81.30/tonne(Regional areas)<sup>17</sup>. This results in Council waste management fees that are higher than experienced in the Northern Territory and improves the cost-benefit for interstate Councils.

### b. Capital Costs of a FOGO Collection Service in Alice Springs

As part of this report, an estimate has been made for both the capital cost of installing a FOGO collection service and the ongoing costs of running a FOGO service for Alice Springs (Table 7). It should be noted that the establishment costs of a commercial compost facility have not been costed, as this can only be done once the type of facility has been determined. Rather, a range has been estimated, based on a review of the literature.

Table 7: Estimated capital costs of a FOGO Collection Service for Alice Springs

Budget expense	Estimated costs
240L MGBs, kitchen caddys, 12 months of compostable liners delivered to 10,000 households	\$710,000
Establishment of a commercial compost facility (for a low-mid range composting facility)	\$500,000 - \$2,000,000 + depending on the range between a low-cost or a state of the art mechanised system is installed.

Note: Costs do not include GST

The purchase and delivery of 10,000 240L Mobile Garbage Bins (MGBs), kitchen caddys and compostable liners is anticipated to cost approximately \$710,000. The cost of a commercial composting system is anticipated to range between \$500,000 and in excess of \$2 million dollars, depending on the method chosen.

A summary of costs of different compost processing methods is outlined in the Table 8 below.

Table 8: Capital cost ranges of commercial composting systems

System type	Cost range
Windrows	Low
Enclosed windrows	Low-mid
In-vessel aerobic composting	Mid-High
Anaerobic digestion	High

Source: Composting Council of Canada, date unspecified, p.14.

As highlighted earlier, AEES recommend that Council contract a qualified design engineer to provide recommendations and detailed costings for the most appropriate composting processing system.

<sup>17</sup> <https://www.epa.nsw.gov.au/your-environment/waste/waste-levy>

A useful Australian reference list for detailed costings of a commercial compost processing facility include:

- Central Local Government Region of South Australia (2015) Municipal Organic Management in regional Australia, which outlines some basic costs for a small-scale system.
- Hyder (2012) Food and Garden Organics Best Practice Collection Manual, which outlines some costs for plant and equipment (page 64).
- South Australian EPA’s Compost Guideline (2013), which outlines requirements for siting and design of compost facilities

**c. Funding opportunities for Capital Costs**

It should be noted that the capital costs of many of the organic collection services interstate have been funded by the relevant State Governments. The NSW Environment Protection Authority grant scheme offered local government up to \$1.3 million dollars to individual councils, of which up to \$100,000 could be used to fund an educational/communications plan<sup>18</sup>. Since 2013, a total of 49 Councils have been assisted. Similarly, strategies exist in Victoria and South Australia.

The Alice Springs Town Council could potentially source funding opportunities for the capital component of a FOGO collection service. These could include (but not limited to):

- NT Capital Grants
- Commonwealth Operating Grants
- Commonwealth Capital Grants

**d. Ongoing Costs of a FOGO Collection Service for Alice Springs**

Table 9 outlines cost estimates for the delivery of a FOGO Collection Service to 10,000 residential dwellings in Alice Springs that currently use the kerbside waste collection service.

Table 9: Ongoing cost estimates for a FOGO Collection Service in Alice Springs

Budget expense	Estimated costs
Education, promotions, project management (including materials and staff)	\$95,000
Annual compostable liners	\$85,000
Compost collection (weekly)	\$780,000
Compost collection (fortnightly)	\$390,000
Processing of compost	\$202,500
TOTAL cost for weekly FOGO service	\$1.16 million
TOTAL cost of fortnightly FOGO service	\$772,500

<sup>18</sup> <http://www.environment.nsw.gov.au/grants/lgo.htm>

The most significant contribution to the ongoing costs of the service is the collection cost. The total cost if the FOGO Collection Service is collected weekly is \$1.16 million dollars per year. The total cost of a fortnightly FOGO Collection Service in Alice Springs is estimated to be \$772, 500. The cost of processing compost ranges from \$25 to \$130/tonne of compost processed (Hyder, 2012, p.60). We used an estimate of \$100/tonne of compost processed for this calculation, assuming a low-mid cost composting solution such as static, covered windrows was used. This calculation can be fine-tuned once the appropriate composting processing facility has been selected by Council.

#### **e. Financial benefits from the sale of compost in Alice Springs**

##### *i. Compost markets in Alice Springs.*

A Farmer Compost Survey was conducted in 2017 (Arid Lands Environment Centre, 2017) to research the potential agricultural market for a locally composted product in Alice Springs. A total of seven farms (ranging from small hobby farms to commercial farms) were surveyed. Of these, six farmers were potentially interested in purchasing a locally composted product.

These farms included:

- Alice Springs Fresh Eggs (< 1 hectare)
- Arid Zone Research Institute (5 hectares)
- Desert Farm/Desert Springs Ali Curung (1000 hectares)
- Desert Fruit Company (75 hectares)
- Rocky Hill Grape Farm (61 hectares of grapes, 2000 hectares total)
- The Happy Farmer (< 1 hectare)

Typically they were prepared to pay between \$50 and \$150/tonne for the composted product. Currently they were importing compost from interstate, with significant freight costs. A total of 300 Tonnes per year could be sold to farms in the Alice Springs region (including Ali Curung). Farms from Ti Tree and Orange Creek were not part of this survey and would potentially increase the demand for compost in the region. Selling compost on a smaller scale to residents would also attract a higher price for smaller volumes (Jeffries sells its compost for \$10/30L bag<sup>19</sup>). Council could use any excess compost on its own parks and gardens.

Table 10 outlines a potential pricing structure for the sale of compost, with a tiered pricing system, to encourage the sale of larger quantities. The >5 tonne price is based loosely on the Jeffries sale price in Adelaide<sup>20</sup> of \$82/tonne. Individuals and farmers would still have to organise their own pickup of this material at their own expense. A delivery service fee could also be developed.

<sup>19</sup> Organic compost also sold for \$10.30/ 30L bag by Jeffries, as of 30/7/18, [http://shop.jeffries.com.au/index.php?route=product/product&path=20\\_27&product\\_id=66](http://shop.jeffries.com.au/index.php?route=product/product&path=20_27&product_id=66)

<sup>20</sup> Organic compost sold in bulk for \$41/unit, (0.76m<sup>3</sup> or 0.5 Tonne), calculated at \$82/tonne, as of 30/7/18 [http://shop.jeffries.com.au/index.php?route=product/product&path=20\\_27&product\\_id=30](http://shop.jeffries.com.au/index.php?route=product/product&path=20_27&product_id=30)

Table 10: Potential pricing structure for organic compost

Quantity	Price (\$/tonne)
< 0.5 tonne	\$120
1 – 5 tonnes	\$100
> 5 tonnes	\$85

Using the pricing structure in Table 8, and assuming that 300 Tonnes would be sold to the agricultural sector, and 50 tonnes each to low and medium compost purchasers, we calculate that 405 tonnes of compost will generate approximately \$36,500 per year in revenue for Council.

**f. Offset of new landfill (dollars and years)**

Table 11 outlines some of the parameters used to calculate the financial saving that would be acquired if a residential FOGO Collection Service were introduced.

Table 11: Parameters used to calculate savings from offsetting a new landfill

Parameters	Data
Total waste to landfill in 2016/17 (including clean fill) (tonnes/year)	41,698
Estimated total remaining capacity of the landfill (tonnes)	416,977
Amount of waste diverted through a residential FOGO service (tonnes/year)	2,024
Total amount of waste diverted through a residential FOGO service over ten years (tonnes/10 years)	20,244
Estimated extension of landfill lifespan	6 months
Cost saving by deferring new landfill by 6 months	\$375,000

It is estimated that the introduction of a residential FOGO Collection Service would extend the life of the existing Regional Waste Management Facility by six months over the next ten years. This would result in a once-off cost saving of \$375,000 to Council. This figure is based on offsetting the anticipated cost to establish a new landfill by six months, and placing this money in a fixed term deposit. This once-off saving could be used to offset the capital cost of investment of the FOGO Service, however we have not used this saving to depreciate the ongoing costs of running a FOGO service. The savings to offset a new landfill would be increased if the FOGO service were utilised by the commercial sector, however this has not been estimated as part of this report.

**g. Financial benefit of diverting general waste from landfill**

By diverting 2,024 tonnes of organic waste a year through a residential FOGO collection service, this is estimated to save \$180,000 per year, by not having to process this general waste as landfill. This figure is based on Council’s current operating costs to manage its existing waste.

**h. Net costs to run a FOGO Collection Service in Alice Springs**

Table 12 outlines cost estimates for a weekly vs. fortnightly FOGO collection service, and the net ongoing costs to the Alice Springs Town Council and households, once financial savings from the service are recognised.

Table 12: Ongoing cost estimates for weekly vs. fortnightly FOGO collection service for Alice Springs

Description	Collection frequency	Total costs (\$ per year)
Ongoing costs to run a FOGO Service	Weekly	\$1,162,500
Ongoing costs to run a FOGO Service	Fortnightly	\$772,500
Net ongoing costs to run a FOGO Service*	Weekly	\$946,300
Net ongoing costs to run a FOGO Service	Fortnightly	\$556,300
Net household cost	Weekly	\$95 / household.year
Net household cost	Fortnightly	\$56 / household.year

\* includes revenue from the sale of compost and financial savings from diverting general waste from landfill

Once these financial savings are included in the financial analysis, the net ongoing cost of running a FOGO Collection Service with a weekly collection is \$946,300 per year or \$95 per household per year. The net ongoing cost estimates for a fortnightly FOGO Collection Service is \$556,300 per year, or \$56 per household per year.

**i. Cost of running a Food and Garden Organics (FOGO) Collection Trial for Alice Springs**

The cost estimates of conducting a FOGO Collection Trial are presented in Table 13 below. These figures are based on the assumption that the trial would run for a six-month period.

Table 13: Cost estimates for different trial estimates

Cost	100 households 6 months	200 households 6 months	100 households 12 months	200 households 12 months
Estimated trial costs (\$)	\$98,000	\$121,000	\$151,000	\$188,000

Note: These costs are indicative only, and only include a cost of \$25,000 for the establishment of a temporary composting facility. Costs are higher on a per unit basis, as only small numbers of equipment are being purchased.

Note: These cost estimates include costs of 100 to 200 Mobile Garbage Bins, kitchen food caddys, the development of educational material and information packs, the distribution of these materials to households, plus some composting equipment. All of these costs would offset the net cost estimates of implementing a full service.

A detailed outline of cost estimates for the 6-month scenario at 200 households is provided in Attachment D.

## 8. Evaluation of a FOGO Collection Trial

A list of objectives of the Alice Springs FOGO Collection Trial are listed in Table 14 below, along with some suggestions for how the trial could be evaluated to determine whether it met the stated objectives.

Table 14: Evaluation methodology for a Food and Garden Organics Collection Trial in Alice Springs

Objective	Evaluation methodology
Trial different FOGO service configurations E.g. frequency of collection E.g. type of bin liner	Survey household satisfaction with the trial.  Conduct a focus group.  Survey ASTC staff and collection/processing contractors.
Investigate the amount of food and garden waste generated per household (kg/household.week).	Collect food waste collection statistics (tonnes/week).  Collect compost production statistics (tonnes of compost produced/week).  Conduct a FOGO bin audit to determine what the split between food and organic waste is.

	Consider partnering with CDU to establish a longer-term research project to monitor seasonal variations of garden waste over time.
Develop and test key educational messages and collateral for trial	<p>Survey household satisfaction with the trial, including comprehension of educational material.</p> <p>Determine contamination rates of compost through bin audits and compost audits.</p>
Process the material into a reusable compostable product that meets Australian Standards	<p>Test to see if the compostable product complies with Australian Standards.</p> <p>Meet with local farmers to determine whether the compostable product meets their needs.</p>
Test a relationship with collection and processing contractors prior to the implementation of a full service.	<p>Ensure that the contractors meets minimum KPIs of the trial.</p> <p>Survey ASTC staff and contracting staff to determine ways to improve the contract and the long-term delivery of the service.</p>

**9. Summary of Key Findings:**

- An estimated 2,024 Tonnes per annum of organic waste would be diverted from a residential FOGO Collection Service in Alice Springs, in addition to Council's existing green waste drop-off tonnages (2,902 Tonnes in 2016/17). This figure does not include organic waste that would be diverted from larger commercial businesses.
- An estimated 405 Tonnes per annum of compost would be generated from the processing of the residential FOGO organic waste. It is expected that the local agricultural market would be able to purchase up to 300 Tonnes of compost per year, with the remainder being sold to the community and used on Council parks and gardens.
- The Capital Costs of establishing an organic waste processing facility have not been estimated as part of this report. AEES recommends that Council contract a qualified design engineer to provide recommendations and detailed costings for the most appropriate composting processing system.
- The Capital Costs of purchasing and delivering green-lidded Mobile Garbage Bins, kitchen food containers and compostable bags to 10,000 Alice Springs households is approximately \$710,000. Territory and Federal Government funding opportunities could be sought to offset the capital costs associated with a FOGO Collection Service.
- The Capital Costs could also be offset by the anticipated saving of \$375,000, which would result from a six month extension of the landfill lifespan over the next ten years due to the implementation of a residential FOGO Collection Service. This saving would increase if there was uptake from the commercial sector in the FOGO Service.
- The estimated ongoing costs associated with running a residential FOGO Collection Service ranges from \$772,500 per year (fortnightly collection) to \$1.16 million dollars per year (weekly collection).
- The FOGO Collection Service is expected to generate \$36,500 per year from the sale of compost and save \$180,000 per year in diverting 2,024 tonnes of general waste from landfill.
- The **net** ongoing cost of running a weekly FOGO Collection Service is \$946,300 per year or \$95 per household per year. The **net** ongoing cost estimates for a fortnightly FOGO Collection Service is \$556,300 per year, or \$56 per household per year.
- The cost of a FOGO Collection Trial is expected to range between \$98,000 and \$188,000 depending on the number of participating households (100-200 households) and the length of the trial (6 - 12 months).

The FOGO trial will give Alice Springs Town Council the opportunity to test different FOGO Collection Service configurations, document captured organic waste, understand contamination rates and seasonal variations over the trial period. It will allow ASTC to test the compost processing methodology. Finally, it will receive feedback from participants and allow for key educational messages to be tested and tailored to the Alice Springs community.

**Recommendations for the FOGO Collection Trial:**

- ASTC to trial both compostable bags and newspaper/paper towel bin liners.
- ASTC to trial the inclusion of soiled newspaper, paper towel and tissues in its FOGO service.
- ASTC to investigate technologies that may support a potential fortnightly collection in an arid environment e.g. bio-bin inserts, charcoal lids.
- ASTC to trial both weekly and fortnightly collection of FOGO bins over summer.
- ASTC to trial 100-200 households across a wide socio-economic spread from all parts of town.
- ASTC to call for streets to volunteer to partake in a FOGO Collection Trial.
- ASTC develops educational resources/approaches tailored to the Alice Springs community and tests these during the FOGO Trial.
- ASTC evaluate the FOGO Collection Trial through surveys/focus groups of households and key ASTC staff.

**Attachment A: List of food and garden organics accepted in the ASTC Food Organics Trial<sup>21</sup>**

- Animal droppings in compostable bag, newspaper or loose (excluding cat faeces and kitty litter)
- Bones (raw and cooked)
- Branches (broken up)
- Bread
- Cereal slops
- Chicken bones, meat, skin
- Citrus
- Coffee grounds (no pods)
- Corn cobs
- Certified compostable bags
- Dairy products
- Eggs and egg shells
- Feathers
- Fish, fish bones
- Flowers
- Food leftovers / scraps
- Fruit & vegetable scraps
- Garden clippings
- Grass cuttings
- Hair
- Leaves
- Meat (raw or cooked)
- Nuts and their shells
- Palm frond & palm tree
- Paper Coffee Filters
- Pencil Shavings
- Plant cuttings
- Onions
- Seafood (soft shelled e.g. prawn, crab)
- Seaweed wrack / kelp
- Tea bags and tea leaves

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<sup>21</sup> Based on Lake Macquarie City Council's Food Organics Trial

- Vegetable scraps
- Weeds
- Wood / timber (untreated) / unpainted less than 30cm in length and 10cm in diameter

Waste that is not accepted<sup>22</sup>

- Logs or thick branches (anything thicker than your arm does not belong in the green bin)
- Treated or painted timber
- Timber furniture or toys
- Plastic bags (even if biodegradable)
- Cling wrap and alfoil
- Dish cloths or sponges
- Nappies or incontinence pads (even if biodegradable)
- Cigarette butts or ash
- Vacuum dust
- Kitty litter
- Cans or metals
- Glass or ceramics
- Liquids
- Old clothing

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<sup>22</sup> Based on City of Burnside, City of Greater Bendigo, City of Coffs Harbour, 2018 current FOGO services.

## Attachment B: Types of composting methods

Table 1: Types of composting methods

Composting methodology	Description	Considerations
Aerated (turned) windrow composting	<p>Suited for large and diverse volumes generated by towns and collected by local government, such as garden waste, vegetable scraps and animal by products.</p> <p>Waste is formed into rows of long piles called 'windrows' and aerated by turning the piles either manually or with machinery.</p> <p>The ideal pile height is 1.2m and 2.4m with a width of 4.3 to 4.9m. This size pile is large enough to generate heat and maintain its temperature and small enough to allow oxygen flow to the windrow's core.</p>	<ul style="list-style-type: none"> <li>- This method will yield significant quantities of compost.</li> <li>- Assistance will be required to market the end product.</li> <li>- Council may want to give the compost to residents at low cost/for free.</li> </ul>
Aerated static pile composting	<p>This method produces compost relatively quickly (between 3 and 6 months). It is suitable for garden waste and compostable food waste.</p> <p>Organic waste is mixed and placed in a large pile, with layers of loose materials e.g. wood chips/shredded newspaper added so air can pass through them. The piles are placed over a network of pipes to aerate the pile, which may be activated by temperature sensors or a timer.</p>	<ul style="list-style-type: none"> <li>- This method doesn't work well for food grease or animal by-products.</li> <li>- In arid environment, piles may need to be sheltered or covered to minimise evaporation.</li> <li>- Aeration may be more difficult in cold weather as the system relies on passive aeration (not mechanical turning).</li> <li>- Bio filters can be used to minimise odours.</li> <li>- This method requires significant cost to purchase, install and maintain equipment.</li> <li>- This method uses less land than the windrow method.</li> </ul>

<p>In-vessel composting</p>	<p>In-vessel composting can process large amounts of varied organic waste (meat, animal manure, food scraps, bio solids) in a compact space.</p> <p>This method involves feeding organic materials into a vessel e.g. a drum, silo, concrete-lined trench, which allows for good control of environmental parameters, such as temperature, moisture and airflow.</p> <p>The organic material is mechanically turned or mixed to ensure aeration.</p>	<ul style="list-style-type: none"> <li>- This method uses much less land and manual labour than the windrow method.</li> <li>- This method produces compost in weeks, but still requires compost to mature and the microbial activity to balance.</li> <li>- Electronic control of the climate allows year-round use of this method.</li> <li>- Very little odour or leachate is produced.</li> <li>- Recommended to be indoors in extremely cold weather.</li> <li>- This method is expensive and requires technical expertise to operate.</li> </ul>
<p>Vermicomposting</p>	<p>The worm farms are kept in bins and feed on food scraps, yard trimmings, and other organic matter to make compost. Worms break down material into high quality compost called 'castings'.</p>	<ul style="list-style-type: none"> <li>- Vermicomposting cannot accept material in anaerobic condition, and requires specialised bio-insert bins to prevent anaerobic breakdown of organics in the 240L collection bin.</li> <li>- Worms are sensitive to climate and direct sunlight and operate at optimal temperatures of 12<sup>o</sup>C to 25<sup>o</sup>C.</li> <li>- In hot arid climates, worm farms should be kept in the shade. Vermicomposting indoors can solve these problems.</li> </ul>

Source: US Environment Protection Authority (2018), *Types of composting and understanding the process*, <https://www.epa.gov/sustainable-management-food/types-composting-and-understanding-process>

**Attachment C: Typical FAQs about Food and Garden Organic Waste Collection (based on City of Coffs Harbour, 2018 and Lake Macquarie City Council)<sup>23,24</sup>**

**FAQ. What is the FOGO collection service and how does it work?**

Your Council is conducting a trial to collect Food and Garden Organic Waste (FOGO) at kerbside. By diverting food waste from landfill we can reduce greenhouse gas emissions from organic waste, as well as make a useful compost to improve local soils. By keeping organic waste out of landfill we also extend the life of our Regional Waste Management Facility.

Council will provide a small food scraps bin to separate food scraps from other waste in the kitchen, along with a year's supply of certified compostable bags which you can use to line the food scraps bin.

Residents are encouraged to place their food scraps and garden organics in the green-lidded bin, which will be collected weekly/fortnightly.

You will receive a starter kit for households, which includes:

1. An information pack outlining how the service works
2. A food scraps bin (7L) to sit on your kitchen bench and allow you to easily store your food waste scraps
3. Compostable liner bags to line the food scraps bin (a 150 bag roll expected to last a household one year)
4. A 240L green lidded wheelie bin, with pictorial stickers on the lid of the bin outlining what is/isn't accepted

**FAQ. What type of food waste will go into the green FOGO bin?**

The following waste is accepted<sup>25</sup>:

- Grass clippings
- Weeds
- Flowers
- Garden prunings
- Leaves and bark
- Small branches (maximum 30cm long and 10cm diameter)
- Small timber offcuts UNTREATED and UNPAINTED (max. 30 cm long and 10cm wide)
- Food scraps – fruit and vegetables
- Food scraps – meat, seafood, chicken, dairy, eggs (cooked and raw)
- Bones
- Coffee grounds and tea leaves/bags
- Soiled paper e.g. paper towels, tissues, newspaper\*
- Pizza boxes\*

<sup>23</sup> <http://www.coffscoastwaste.com.au/bins/green>

<sup>24</sup> <https://www.lakemac.com.au/page.aspx?&pid=2310&vid=24>

<sup>25</sup> Based on the City of Colac Otway, 2018 current FOGO service and \* the City of Greater Bendigo

**FAQ. I already compost or have a worm farm at home. Do I have to use the green bin for my food waste?**

It is your choice as to whether you use the green bin for food waste. The green bin provides an extra way to manage food that typically isn't usually composted or put in a worm farm at home, like meat, bones, dairy, seafood, onion and citrus, tea bags and coffee grinds.

The green bin also provides a way for you to manage your garden waste.

**FAQ. Can I place my animal waste in the green bin?**

Most pet droppings can be placed in the green bin and collected weekly provided it is not bagged in plastic. It can be contained in one of Council's compostable bag, loose, or wrapped in newspaper.

Cat droppings and kitty litter are not able to be processed at the composting facility and must be disposed of in the garbage bin. This is because cat droppings contain parasites and diseases that present significant health risks.

**FAQ. What happens to the food waste?**

Food and garden waste will be taken to the Regional Waste Management Facility where it will be processed into Australian Standard compost. It will be available for sale to the community, local farms, and used on Council's parks and gardens.

**FAQ. Why can't I put plastic biodegradable bags or compostable bags in the FOGO bin?**

Plastic contamination is one of the worst things that can happen when processing food scraps and garden waste. The first stage of the process involves shredding the contents of bins before it is placed into composting bays. When plastic goes through the shredder, it is ripped to pieces and impossible to remove. Plastic contamination can waste an entire load of compost.

Buying 'compostable' or 'biodegradable' plastic bags is a responsible choice. However we cannot manage them in the Green FOGO bin. This is because different biodegradable bags take longer to compost. The only type of compostable bag accepted in the Green FOGO bins are the ones provided by Council as part of the service.

Please place your store-bought compostable/biodegradable bags in the Red lidded General Waste bin. They will still break down in landfill!

**FAQ. What if I need extra compostable bags?**

Extra bags can be collected free of charge from the Council chambers/library or sold at certain retailers for a fee.

**FAQ. Will the current pickup areas and days remain the same?**

To be determined by Council.

**FAQ. Do I bag my food waste in the bin? <sup>26</sup>**

It is your choice as to whether you use a bag for your food waste, however the provided compostable bags are the only bags that are accepted in the green bin.

The certified compostable bags that will be provided by Council are:

- made with plant starch
- plastic free
- Australian Certified Compostable
- not the same as biodegradable bags

Please don't use biodegradable bags, standard plastic bags or bin liners in the green bin. They will not break down during our composting process.

Alternatively, you could line your food scraps bin with newspaper.

**FAQ. How do I manage odour from the FOGO bin?**

Hints and tips:

- Place garden clippings in your green bin first to help line the bottom of the bin.
- Wrap all your food scraps in newspaper or make your own bin liner.
- Freeze seafood and meat scraps until collection day to reduce odour.
- Sprinkle some bicarb soda in the bottom of your green bin after it is emptied, to help absorb odour.
- Wash out your bin each month.

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<sup>26</sup> (Lake Macquarie Council, 2018)

## Attachment D: Cost estimates for the FOGO Collection Trial for a 6-month scenario at 200 households

### Kerbside FOGO Collection Trial Cost Estimates

Number of households 200  
Length of trial (weeks) 26

Budget Expenditure - Capital Costs	Number of units	Cost per unit (\$)	Total cost	Assumptions
240L Mobile Garbage Bins (MGB)	200	80	16,000	Estimated at \$80 each for 100-200 (sold \$94 individually)
Food Scrap Containers	200	5.45	1,090	\$5.00 per unit (\$129 for a carton of 28).
Compostable liners bags (if required)	200	3.9	780	\$241 for 62 roll commercial pack with 52 liners/roll. Assume 1 pack per trial @ \$3.9 per roll.
Educational material - information brochure and stickers			2,875	Estimate of staff time to develop content (35 hrs x \$50/hr) plus print (\$1000)
Educational material - video			2,500	Estimate 50 hours to design, film and edit @ \$50/hour
Distribution of MGB, bins and information packs	200	3	600	Quoted \$2/household by Source Separation. Increased quote as this is a NSW based service.
ASTC staff - Project management & education	15	50	19,500	Estimated 2 days/week for 26 weeks @ \$50/hour
ASTC staff - part-time Composting technician	15	50	19,500	Estimated 2 days a week for 26 weeks @ \$50/hour
Establishment of a basic/temporary commercial composting facility	1		25,000	Establishment of a temporary compost facility. Based on LGRSA (2012), p, 12 costs of \$20k. This cost could be a lot higher, depending on the type of composting facility selected.
Processing equipment	4	500	2,000	Estimated at \$500/tonne due to such small scale of compost.
Tender to collect food waste (weekly) from 200 households for 13 weeks	200	5	26,000	Estimate based on \$5 per bin for 200 households per week for 26 weeks. This cost is a lot higher than typical bin lifts as there are only a small number of households participating.
Project evaluation			5,000	
<b>TOTAL COST</b>			<b>120,845</b>	

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