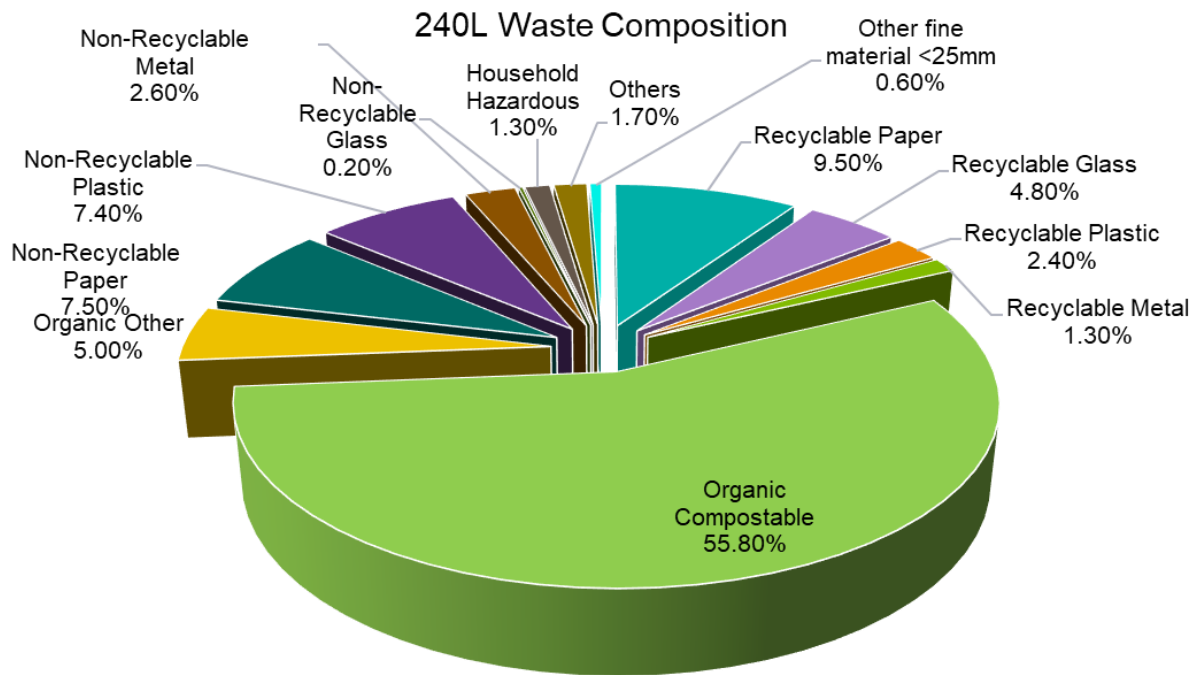


ATTACHMENT 2 – SCENARIO ANALYSIS AND MODELLING.

Sunshine Coast General Waste Bin Characterisation 2021

Characterisation studies of Sunshine Coast waste bins show that over 70% of material in general waste bins is reusable and could be diverted from landfill, with over 55% of the contents being organic and suitable for composting (refer Figure 1, below).

Figure 1 - Sunshine Coast General Waste Bin Composition - January 2020



Overview of Existing Garden Waste Collection

The existing opt-in garden organics collection service recovers approximately 11,000 tonnes of garden waste per year. The current uptake for the opt-in garden organics service is just over 37,000 properties, representing around 28% of the regions' households.

The current opt-in garden organics service is used by a combination of urban, rural residential and rural properties across the region (Table 1, below).

Table 1 - Residential Garden Waste Services by Property Type

Property Type	Total Property Numbers	Opt-In Garden Bin Service	% Uptake
Urban Residential	112,699	34,258	30.39%
Rural Residential	9,221	1,953	21.17%
Rural	11,373	823	7.24%
Total	133,293	37,034	27.78%

Organic Waste Options

Collection Services

Organic waste collection services can be tailored by service type and frequency. Table 2 (below) is a summary of possibilities. This outlines option 1 as the recommended opt-out garden organics collection, with a frequency mirroring that currently offered under Council's existing contract.

Table 2 - Organic waste collection possible configurations

OPTION	DESCRIPTION	COLLECTION FREQUENCY		
		GENERAL WASTE (140L OR 240L)	RECYCLE	ORGANIC
Base Case	Opt-in Garden Organics	Weekly	Fortnightly	Fortnightly
1	Opt-out Garden Organics	Weekly	Fortnightly	Fortnightly
2(a)	Region Wide FOGO	Weekly	Fortnightly	Fortnightly
2(b)		Weekly	Fortnightly	Weekly
2(c)		Fortnightly	Fortnightly	Weekly

It is noted that not all service arrangements will be suitable for the Sunshine Coast, for example -

Fortnightly collection of food waste:

- The local climate is not conducive with keeping food waste in bins for longer than one week, with potential to cause odour and amenity issues. Therefore, fortnightly food waste collection has not been considered.

Weekly service for general waste and organic waste bins:

- A region wide service involving the collection of both the general waste bin and the organic waste bin on a weekly basis would result in higher service cost. Servicing both bins on a weekly basis is estimated to add \$55.00 to \$60.00 per year to the Waste Utility Charge. This would be in addition to the costs that have been modelled further in this report. Therefore, a weekly general waste service and a weekly organic waste service has not been considered.

In summary, options 2(a) and 2(b) as shown in Table 2 have not been considered as suitable for the Sunshine Coast region. Option 2(c) has been evaluated as the most appropriate option as an eventual transition to FOGO.

Table 3 (below) displays the options that have been evaluated as appropriate for the modelling of opt-out organic waste collection services.

Table 3 - Organic waste collection options considered

OPTION	DESCRIPTION	COLLECTION FREQUENCY		
		GENERAL WASTE	RECYCLE	ORGANIC
Base Case	Opt-in Garden Organics	Weekly	Fortnightly	Fortnightly
1	Opt-out Garden Organics	Weekly	Fortnightly	Fortnightly
2	Region Wide FOGO	Fortnightly	Fortnightly	Weekly

Self-Haul Garden Waste

Council's Resource Recovery Centre's will continue to accept self-haul garden waste from domestic and commercial customers. Self-haul garden waste will continue to be mulched and made available to householders as per current arrangements. In the future, excess garden mulch could be diverted to a FOGO processing facility when available, to fill any shortfall in contractually guaranteed feedstock volumes.

Cost Analysis and Model

State Government Waste Levy Costs

To provide a clear price signal that all waste generators should take action to divert waste from landfill, the Queensland Government introduced a waste levy that applies to each tonne of waste disposed to landfill. The \$75.00 per tonne waste levy initially took effect on 1 July 2019 with a planned \$5.00 per tonne increase each year. As a result of Covid-19, the proposed 1 July 2020 increase was deferred until 1 January 2021. As of 1 July 2021, the levy rate is \$85.00 per tonne and pending State Government review may be subject to further increase in future years. To coincide with the introduction of the waste levy, the Queensland Government introduced an interim annual 'advance payment' to local government to offset the levy liability for household waste. The interim advance payment means that for the time being local governments do not apply a waste levy component to domestic waste utility charges or to domestic self-haul customers that use Council disposal facilities. It is understood that the interim waste levy advance payment to local government is under review by the Queensland Government and will either cease to apply from 1st July 2022 or will be incrementally reduced over a period of years (yet to be confirmed). Levy amount and increase is subject to ongoing annual review by the State Government.

To fund the domestic waste levy liability when the advance payment ceases, the average domestic waste utility charge will increase by approximately \$61.88 per annum unless the way that waste is managed across the region is improved to achieve the landfill diversion targets set by the Queensland Government. Council's domestic waste utility charges will be affected by a pending State Government decision regarding the future of the waste levy

advance payment to local governments to offset domestic waste utility charge costs. When the advance payment ceases (potentially as of 1 July 2022) or zeroes out during the term of the next generation waste collection contract, domestic waste utility charges will increase by approximately \$61.88 per annum, based on a waste levy of \$85.00 per tonne. This is calculated based on 728 kg of waste generated per year by a standard kerbside domestic wheelie bin collection service.

Bin Service Cost Scenarios – Business as Usual, Garden Organics and FOGO

Currently just over 37,000 properties across the Sunshine Coast have elected to have a garden organics collection service. For the 2021/22 financial year a standard 240L wheelie bin weekly waste and fortnightly recycling collection service costs \$316.80 per annum. The current opt-in garden organics bin service costs an additional \$62.10 per annum.

Chart 3 (below) illustrates pricing differential scenarios between:

- a current 240L collection service to domestic premises with no garden waste bin;
- a current 240L opt-in garden organics collection service to domestic premises;
- a proposed 240L opt-out garden organics collection service to domestic premises; and
- a proposed 240L FOGO collection service to domestic premises.

Each scenario is costed twice:

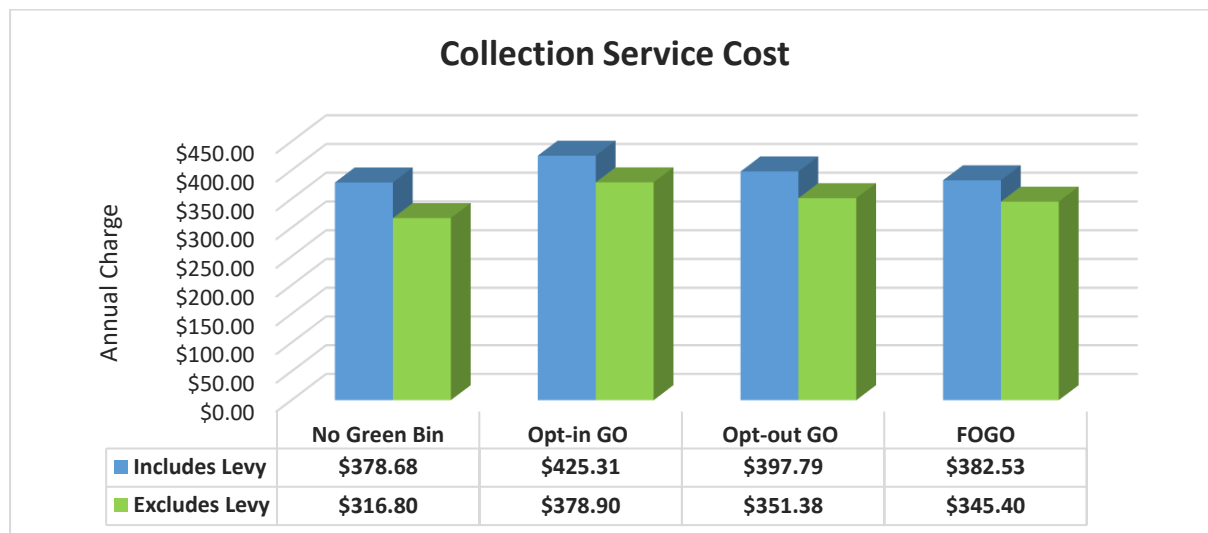
- Blue column, where the State Government waste levy advance payment to local government has ceased.
- Green column, where the State Government waste levy advance payment to local government continues to apply.

Note: All service option costs are inclusive of a fortnightly recycle bin.

Taking into consideration a sliding scale of collection charges relative to the number of organic bin services undertaken, increasing the number of properties receiving the service to 80,000 would reduce bin lift costs by approximately \$27.52 per annum, per participating property. A further bin lift cost reduction of approximately \$5.98 may be achieved if a region wide FOGO service is introduced.

By increasing the number of properties using garden organics bins, and by transitioning to a food organics / garden organics (FOGO) service, it is estimated that landfill diversion rates will increase by approximately 33,000 tonnes per annum. A 33,000 tonnes per annum reduction in waste to landfill would reduce waste levy payments to the State Government by approximately \$2.8 million per annum, equating to an annual \$24.75 waste utility charge reduction per property.

Chart 3 - Collection Service Cost Scenarios



It should be noted that the above pricing scenarios are indicative only. Pricing can vary depending on final organic bin service take up rates, processing costs, garden organic volumes diverted from landfill and future decisions by the State Government regarding the waste levy rate.

Opt-out Garden Organics Service

Aligned to commencement of the next generation waste collection contract, it is proposed that the current opt-in garden organics service be replaced with an opt-out garden organics service by extending the service to include a much higher proportion of domestic properties that generate garden waste.

Under the opt-out approach, a lime green lidded garden organics bin will be provided to all residential properties across the region unless they are eligible to opt-out based on yet to be developed specific exemption criteria.

Exemption Criteria

Council will develop exemption criteria that may be based lot sizes, building types or individual circumstances and will integrate these as part of the opt-out service delivery process to achieve maximum uptake.

By introducing exemptions under the proposed opt-out garden organics service, it is estimated that the number of properties with a garden organic service will increase to over 80,000, meaning an additional 13,000 tonnes of garden waste could be diverted from landfill per annum increasing total waste diversion from 37% to 42%. The garden organics will continue to be processed into mulch at Council’s Resource Recovery Centre’s.

Future Transition to Food Organics / Garden Organics (FOGO)

On the balance of environmental outcomes, social benefits and cost impact on the ratepayer, a FOGO collection service supported by organic waste processing technology that uses source separated garden waste and food scraps represents a low cost, sustainable option for Council to deliver landfill diversion targets established by the State Government.

Council has an opportunity to adopt a staged transition to FOGO by initially extending the existing opt-in garden organics service to become an opt-out service. This represents the next step towards a FOGO service. It will allow for the phased extension of organic waste bins across the region and supports an ongoing community engagement and education program aimed at gaining understanding and acceptance of the organic waste service by most households prior to a transition to FOGO.

It is proposed that the opt-out garden organics service transition to a FOGO collection service when a FOGO processing facility is established in the region. It is anticipated that a FOGO processing facility could be available as early as July 2025.

The FOGO collection service will utilise the same lime green lidded bins issued to premises receiving a garden organics collection service. However, the FOGO service will be provided to all residential premises and participating food waste generating commercial premises across the region. Prior to commencement of a FOGO service, lime green lidded bins will be issued to those premises not already participating in the opt-out garden organics service.

The flexibility of this arrangements means that lime green lidded bins can be used either as a FOGO bin, or as a dedicated food waste bin for properties that do not generate garden waste. Based on individual assessment, apartments in multi-unit dwellings could either have a dedicated FOGO bin or a shared FOGO bin. A FOGO collection service configuration will change to:

- FOGO – weekly;
- Recycling – fortnightly (as current); and
- General waste – fortnightly.

The FOGO service will provide numerous benefits including:

- A higher landfill diversion rate than business as usual and could achieve the State Government 2025 landfill diversion target.
- Diversion of multiple organic based materials.
- An opportunity to tailor a solution including dedicated food only bins and different sized bins based on dwelling types (multi-unit dwellings etc).
- The single greatest opportunity to improve landfill diversion by introducing a process and technology that offers a sustainable use of organic resources.
- A reduction in greenhouse gas from Sunshine Coast Council's landfills of approximately 21,000 tonnes (CO₂e) per annum which will significantly contribute to Council's Environment and Liveability Strategy aim to be a zero-net emissions organisation and the community is low carbon by 2041.

With most residential premises and many commercial premises across the region using a FOGO bin service, it is anticipated that an additional 33,000 tonnes per annum of organic

waste can be diverted from landfill compared to business as usual increasing total waste diversion to 54%.