

3.5. Food Waste Trial

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ATTACHMENTS: Nil

PURPOSE:

This report provides an overview of the results of the six month Food Scraps Trial in Multi Unit Dwellings (MUDs).

EXECUTIVE SUMMARY:

State Government legislative framework requires Councils to implement food and garden organics collections for all NSW households by 2030.

The previous Council resolved to undertake a six-month food waste collection trial to determine to what extent a separate Food Organics collection and processing service is feasible in (MUDs) which make up approximately 90% of the housing stock in the LGA.

The trial was implemented in May 2022 and ran for six months. It examined the participation and food scraps contamination rates whilst gathering cost and operational data. Such data is required in order for Council to make long-term strategic decisions on resource recovery options prior to the renewal of the waste collection and processing contracts in June 2029 (includes the extension options having been exercised for these contracts). Preparation of Tender documents for Food Organics Collections and Processing services would require at least a two-and-a-half-year lead time before Tenders are sought for such services. Additionally, the successful contractors would require at least 18 months lead time to mobilise the necessary plant and equipment to fulfill their obligations prior to the commencement of the new contract/s in June 2029. This assumes there will be a viable food processing facility available for Council to deliver the food organics for processing.

The main objective of the trial was to engage a diverse sample of MUDs large enough to generate data that is a good representation of the LGA. MUDs are inherently more difficult to manage due their high transient population. To reduce the risk of the results being biased or distorted a direct random sampling method of recruitment was used. A total of 413 individual unit dwellings were recruited across 10 MUD blocks in four suburbs. Participants were provided with the necessary infrastructure such as kitchen caddies and compostable caddy liner bags to ensure the Trial ran smoothly. Each building was provided with 120 L MGBs allocated on a shared basis. Participants were supported by educational resources including wall posters for lobby notice boards, bin and caddy stickers, bin bay signage, brochures etc.

The once weekly collection was undertaken by Councils contractor, URM. The material was delivered to Earthpower owned by Veolia in Camelia where it was bulked up and transported to Wormtech in Forbes for composting.

As the trial progressed, audit results showed a decline in the amount of food waste separated by the participants as well as an increase in the contamination levels. Detailed results of the Trial and suggested options for Council to consider moving forward will be presented by APrince Consulting at the Environment Reference Group meeting.

FINANCIAL IMPLICATIONS:

Council was successful in securing a grant for \$ 180,000 from the State Government to assist with the delivery of the trial. The funding program allowed eligible councils to apply for a grant of up to \$180,000 to undertake projects that will increase the recovery of organics in the red-lid garbage bin.

The total cost of the project was \$215,000 which is less than the original project estimate of \$220,000. The Domestic Waste Management Budget funded \$40,000.

There are no financial implications for the purposes of this report.

RECOMMENDATION:

1. THAT the Food Waste Trial report be noted.

LINK TO COMMUNITY STRATEGIC PLAN

The relationship with the Community Strategic Plan is as follows:

1. Our Living Environment

1.1 Protected, enhanced and biodiverse natural environment

1.2 Environmentally sustainable community

BACKGROUND

According to the DPIE's NSW Waste and Sustainable Materials Strategy 2041, an average resource recovery target of 80% from all waste streams by 2030 has been established for the waste management industry. To achieve this target, councils are required to undertake waste management practices which minimise waste disposal at landfill and maximise resource recovery, including implementing a Food Organics or Food combined with Greenwaste collection service by 2030.

Council currently offers and undertakes the following resource recovery initiatives-

- All recyclables collected in the yellow lidded bin are transported to Visy at Smithfield for sorting and processing. Scrap metals (whitegoods) from bulk waste cleanup collections are taken to scrap metal merchants.
- All greenwaste collected at kerbside is transferred to an organics processing facility.
- To reduce food waste from being landfilled, Council provides subsidised compost bins and worm farms through the Compost Revolution program (the bins and worm farms are offered to residents at subsidised prices and residents are encouraged to participate in workshops to enhance their knowledge of composting and the need to reduce material going to landfill). 172 compost and worm farm bins were provided to residents in the last 12 months.
- Recyclesmart program for difficult to recycle items (books, toys, textiles)
- Promotion of the Bower Reuse and Repair Centre for household furniture, bikes, some electronic appliances, building materials, bric-a-brac, kitchenware, and books.
- Textile, ewaste, hazardous waste, batteries etc recycling at the CRC
- Resource recovery and waste avoidance messages and workshops

Prior to 2019, Council had contracted Suez to transfer the material collected in the red bins, to a processing facility at Eastern Creek. At this facility, the material was separated into various streams and valuable resources such as metals, plastics and organics were processed; this resulted in landfill diversion of approximately 65% of the contents of the red bin. The organics waste stream was ultimately converted into a compost like material used in mine rehabilitation and broad acre agriculture applications. However, the NSW EPA rescinded the waste exemption orders that allowed for such applications, resulting in the entire red bin being landfilled.

As a result of increased waste generation and landfilling, governments, both state and federal, have lobbied that the organics fraction of the red bin, approximately 40% of the bin's contents, should be source separated and processed at recognised Food Organics and Garden Organics facilities.

In 2021, Council resolved to undertake a six-month food waste collection trial to determine to what extent a separate Food Organics collection and processing program was feasible in MUDs which make up approximately 90% of the housing stock in the LGA. Under the trial, 413 multi-unit dwellings were to be given a separate food waste bin. The food waste thus collected was to be transferred to Veolia's Earthpower facility at Camellia where it was bulked up and transported to Wormtech in Forbes for composting. The aim of the trial was to determine whether the material collected was suitable for processing, the extent of contamination in the food waste collected and whether such a program could be rolled out throughout the LGA in the long term.

Unfortunately, the trial was delayed due to the COVID lockdowns and supply chain challenges including: -

- Limited capacity at Earthpower – Veolia advised that Earthpower has no capacity to accept additional material from any sources. Additionally, the facility runs strict contamination thresholds meaning organic waste which contains materials such as plastic bags are rejected and landfilled. Earthpower has been closed for waste processing.
- Earthpower were in negotiations with alternative processing facilities outside of the Sydney Metropolitan Area, including a site near Forbes and Wormtech at Yenda, NSW. Essentially, Veolia's Camellia facility was used as a transfer station for collected food waste before being transferred to a rural location. Again, contamination management being the major concern.

To achieve the mandated 80% resource recovery target, it is imperative that there are financially viable processing options within the Sydney Metropolitan Area. Councils are required to provide their residents waste management processes which meet community expectations and provide value for money. Currently there are limited food waste processing options available to Sydney councils – Veolia's Earthpower and Suez's Kemp Creek facility (both of which have no excess capacity). Barriers to entry for new participants is high: -

- It requires sizeable capital investment to acquire/build/operate an appropriate site.
- Government regulations surrounding noise and odour management and the use of end-products can be arduous to overcome.
- Councils are generally bound to long term contracts which inhibit competition for new players.
- There is a lack of end-market use for the resultant compost products.
- Contamination management is a major drawback for waste feed stock generators.

In August 2021 Council wrote to the NSW State Government to provide the waste management industry with more assistance, both regulatory and financial, to incentivise the development of new waste processing facilities with the Sydney Metropolitan Area. Councils and industry players require long term certainty over processing contracts (price and feed stock quality) and over the regulatory environment.

A one-stop policy, such as a separate food waste collection and processing option, does not suit all councils. North Sydney Council is unique with a high multi-unit, high-rise apartment demographic combined with a high transitory population and sites with limited bin storage capacity. These characteristics have proved that contamination management is an expensive and difficult problem, resulting in poor quality feed stock that is not suited for processing at facilities that currently operate under stringent contamination guidelines.

CONSULTATION REQUIREMENTS

Community engagement has occurred in accordance with Council's *Community Engagement Protocol*.

DETAIL

The purpose of the trial was to test the demand and to gather cost and operational data of implementing a food scraps recycling collection service. Such data is required for Council to make long-term strategic decisions on resource recovery options noting the current legislative framework requiring Councils to implement food and garden organics collections for all NSW households by 2030. The current Waste Collection and Disposal Contracts expire 30 June 2029 (includes the extension options having been exercised for both contracts). Preparation of Tender documents for Food Organics Collections and Processing services would require at least a two and a half year lead time before Tenders are sought for such services. Additionally, the successful contractors would require at least 18 months lead time to mobilise the necessary plant and equipment to fulfill their obligations prior to the commencement of the new contract/s (June 2029). This assumes there will be a viable food processing facility available for Council to deliver the food organics for processing.

Selection of participants

Given that small, medium, and high-density apartments represent almost 90% of the housing stock in the local government area, the multi-unit dwelling (MUD) community were targeted in the trial. Single detached dwellings which represent 7 % of the housing stock, were excluded from the trial because the results from food waste trials at other councils indicates this group consistently performs significantly better than MUDs in their participation and contamination rates. Individual waste disposal facilities are a contributing factor why houses outperform MUDs in food waste trials.

The objective was to generate a diverse sample of MUDs large enough to generate robust data that is a good representation of the local government area. MUDs are inherently more difficult to manage due their high transient population. ABS census data revealed that of the entire housing stock in the North Sydney local government area, 46% are owner occupiers and 51% are tenanted. Other variables that were considered included building age, size (number of units), presence/absence of a building manage/caretaker and site conditions i.e., location of garbage bin rooms, presence/absence of internal waste chutes, internal/external access, and bin bay storage capacity for additional food scrap wheelie bins. These factors had an impact on the quality and quantity of the food waste that was separated.

To reduce the risk of the results being biased or distorted a direct random sampling method of recruitment was used. 413 individual unit dwellings were recruited across 10 MUD blocks in 4 suburbs, North Sydney, Cammeray, Kirribilli, and Neutral Bay.

Methodology

Waste consultant, APrince Consulting, supported and assisted the Council with the planning, design, recruitment of participants, audits, data collection, surveys, and reporting functions.

A baseline food scraps audit of the selected households was undertaken prior to the commencement of the Trial. The results revealed 35% of the contents of the red bins comprised of food scraps.

To make separating food scraps for processing simple, registered participants were provided with the appropriate infrastructure and educational resources and support including a kitchen caddy and liners and shared wheelie bins.

During the Trial an online platform (closed forum) was used to engage participants to engage with each other to find out more information, build a community of practice, discuss user experience and feedback/ideas for improvement etc. This approach facilitated participant self-service and enabled a central point of communication to and by Council.

The following engagement methods were used:

Method	Target Stakeholders	Engagement Level	Purpose
<i>Introduction letter and follow up letters</i>	<i>Strata and participating residents</i>	<i>Inform</i>	<i>Informed strata and participants of the trial, what is involved, what they are asked to do and how they can provide feedback and raised contamination issues during the trial</i>
<i>Council website (and Your Say North Sydney web page)</i>	<i>All</i>		<i>Informed the community and participants about the Trial. Include FAQs.</i>
<i>Postcards (advising of Trial prior to commencement and delivery of caddies and bin liners)</i>	<i>Participants</i>		<i>Informed the participants about the Trial and encourage involvement in it</i>

<i>Survey (hard copy and online)</i>	<i>Participating</i>	<i>Consult</i>	<i>Obtain feedback on the Trial as a potential solution to diverting waste from landfill and desired user experience, via a two-stage survey (onset and completion)</i>
<i>Online Forum</i>	<i>Participants</i>	<i>Consult/Involve</i>	<i>Closed forum open only for registered Trial participants to find out more information, build a community of practice, discuss user experience and feedback/ideas for improvement etc.</i>

The food organics bins were collected by URM every Wednesday, being the same day as the red bin service for the participating households. The material was delivered to Earthpower in Camelia where it was bulked up and transported to Forbes at Wormtech- composting facility.

APrince Consulting (APC) completed the following tasks:

- A baseline waste audit and resident survey – completed in June 2021
- Weekly visual monitoring of bin presentation and contamination for 4 weeks after trial implementation
- Fortnightly monitoring of bin presentation and contamination for 5 months after trial implementation
- Mid-trial waste audit to assess progress – completed in August 2022
- Post (end)-trial waste audit and resident survey – completed in November 2022

Overview of the Results

The Food Organics (FO) trial ran for 6 months before the final audit was conducted to determine how the trial progressed from the last mid-trial audit. The introduction of the FO bins, although undertaken in a small sample size, demonstrated positive behaviour as it manifested in the reduction of general waste generation by 1.08 kg/unit/week. The reduction in food waste (loose and containerised food) of 0.8 kg/unit/week contributed largely to this general waste reduction.

While the 9% decrease in loose food (from 26% to 17%) over the 3-month initial period of the trial looked very promising, this was not sustained. In the post (end)-trial audit, a 6% reduction was observed. Compliance declined after 3 or 4 months of commencement of the trial. Similarly, the food recovered in compostable bags decreased by 8% from the mid-trial to the post-trial with an increase of loose food in the FO bins. This has management implications considering that contained food materials will minimise risks of odour and pests.

Contamination during the trial also deteriorated with an increase from 7% midway through the trial to 13% post-trial by weight. The amendment to the NSW EPA Guidelines on limiting the acceptable materials to food, compostable plastic kitchen caddy liners and fibre-based kitchen caddy liners (e.g., paper or newspaper) used to collect and transfer food waste to the FO bin may have affected the contamination rate. The change which took effect in July 2022 after the commencement of the programme did not provide Council enough time to raise awareness. If these changes have not been implemented yet, contamination rate would have increased to 10.5% by weight. Nevertheless, the increase in contamination rate from the mid-trial to the post-trial period indicates the need for sustained awareness.

It is also prudent to consider the materials which are highly contaminating the FO bins such as food in non-biobags, contaminated paper and textiles as these three materials comprise 86% of all contamination by weight. Soft plastics also occupy substantial volume of contamination. The elimination of these materials is critical to FO product quality especially when the food waste will be composted along with other organic materials.

The behaviour of residents in different block sizes as manifested in the audit results should be also considered when planning for an extended coverage of the food scrap collection programme. The trends over the entire trial period indicate higher waste reduction and more food waste recovery in small MUDs than large MUDs. Contamination of food waste bins is also lower in small MUDs than medium-sized units. This reflects the significance of MUD block size to the waste dynamics.

The final audit also allowed determination of current recovery rate of food organics which is 32%. There is still a potential to further increase recovery through proper messaging of the food scrap collection programme. The estimated current diversion rate from the landfill is at 9%. This can also be further improved through intensification of the programme. A potential diversion of 38% can be achieved if all loose food and containerised food are placed in the FO bins or if a more conservative 60% recovery of loose food is taken, a 31% diversion rate could be achieved.

Resident Feedback

10 % of the total participants responded to the final survey. The participants that provided feedback generally found the foods scraps trial to be a positive experience. Some found it helped them lead a more sustainable lifestyle and incentivised them to compost. Some residents noticed a decrease in the amount of general waste and were made aware of the amount of food scraps being disposed of and indicated they 'felt good to be helping the environment'.

The negative comments given were that the kitchen caddy liners decomposed after only 2-3 days and food scraps needed to be double bagged. General contamination in the burgundy lidded bin was noted by some residents. A few of the residents remarked that the kitchen caddy is an inconvenient size and shape for the kitchen benchtop. The burgundy bin was found to be dirty, and fly blown by some. The bin rooms needed more space for the food scraps bins.

Other comments were that further education is needed to reduce contamination in the food scraps bins, bins should be cleaned regularly after collection, stronger caddy liners required, caddy lids should be able to be secured and one comment was that the burgundy lidded bins should be more accessible and not in the garbage room. Overall, the main comment from the participants that provided the feedback was the disappointment that the trial came to an end as they wanted to continue separating food scraps.