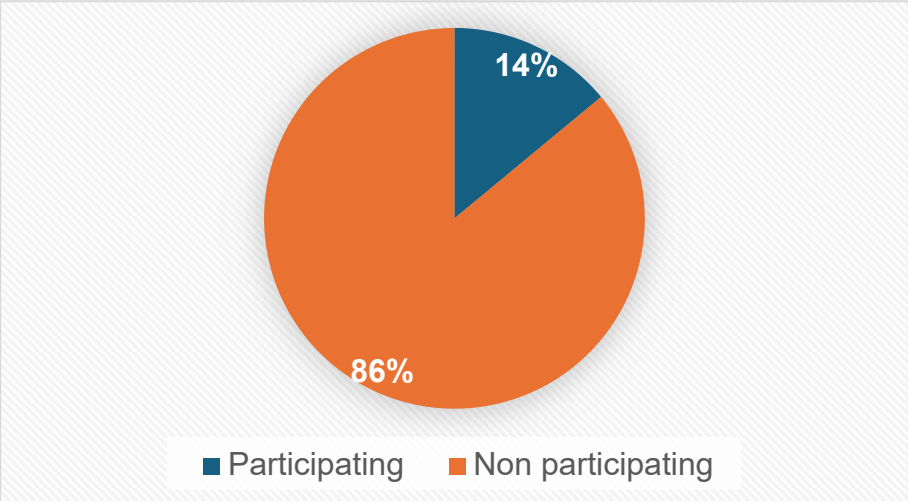
Appendix 2 – Trial outcomes

1. Carton recycling

1.1 Participation Rates

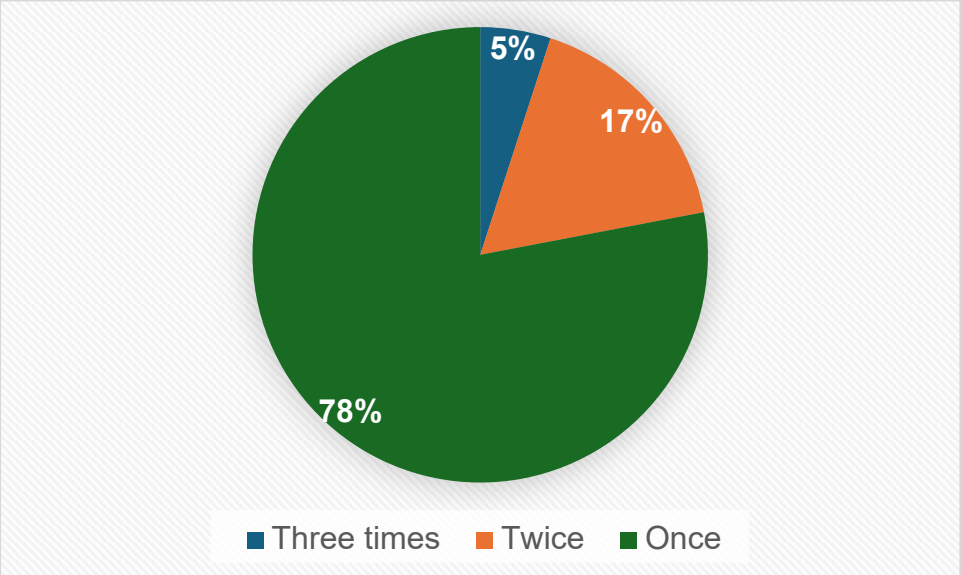
A total of 1,100 properties were monitored during the carton recycling trial over a consecutive three-week collection cycle. The results showed that 14% of households presented cartons at least once during this period, indicating relatively low engagement with carton recycling.

Figure 1 – Carton recycling household participation rates



Of the participating households, 78% of participants only presented a bag once in 3 weeks, 17% twice and only 5% every week.

Figure 2 – Frequency cartons presented in 3-week period



1.2 Set out rates

Across both trials, the set-out rate for cartons remained consistent. On average, only 5% of recycling containers contained cartons during any given collection cycle. This figure reflects the proportion of containers with cartons at the kerbside, rather than overall household participation.

1.3 Volumes

Survey results showed that 62.5% of respondents claim they never use cartons, 25% claim to use up to five per week and 12.5% using between five and ten per week.

Based on the set-out rate and the number of cartons used by householders, we have calculated daily volumes of cartons. Interim infrastructure is in place at the Waste Transfer Station works to handle carton collections from March 2026.

Figure 3. Carton volume estimates

Average number of cartons used/week	Estimated total cartons collected/week	Baling Frequency
1	3200	Every 2 weeks
2	6400	Every 6 days
3	9600	Every 4 days
4	12,800	Every 3 days
5	16,000	Every 2-3 days

2. Plastic bags and wrapping recycling

2.1 Set out rates

During the trial, 39.2% of households presented plastic bags and wrapping for collection. This figure represents the proportion of households that set out these materials during any given collection cycle.

2.2 Container Capacity

Inspections found that existing recycling boxes provided sufficient capacity to accommodate the low volumes of indoor collection bags and cartons. There was no evidence to suggest that households lacked adequate container space, with indoor collection bags and cartons fitting into black recycling boxes easily and securely.

No recycling containers were observed to be overflowing as a direct result of adding the indoor collection bag or cartons.

Survey responses supported this finding, with 70% of respondents indicating that their current recycling boxes were adequate for the materials collected.

2.3 Use of indoor collection bags

On-site inspections confirmed that indoor collection bags were securely placed within black recycling boxes, with no evidence of littering. Very few indoor collection bags were presented untied, indicating a low risk of littering due to unsecured bags. Instructions to tie the handles of the indoor collection bags will be a key message to include in all communications to residents.

No ripped indoor collection bags were observed during inspections indicating that the bag specifications meet on street collection requirements.

Inspections on windy collection days also found no evidence of indoor collection bags being blown from recycling boxes.

When separated from mixed plastics and metals at the Waste Transfer station, minimal loose plastic was observed from untied indoor collection bags.

2.4 Collection Efficiency

2.4.1 Average collection time

Trial results demonstrated that collections were completed more quickly at households using their existing recycling boxes (Option 1) compared to those provided with a kerbside recycling sack and asked to present card and glass in separate containers (Option 2).

The comparison was based on the average time taken to empty the containers presented at individual properties:

Figure 4 – Crew timings

	Average time (secs)	
	Option 1	Option 2
Crew 1	27.6	33.40
Crew 2	29.45	28.40
Crew 3	25.6	30.20
Crew 4	24.89	26.50
Average time	**26.89**	**29.63**

Although the difference was modest, Option 1 consistently required less time, indicating that the current container configuration supports more efficient collections.

2.4.2 Additional Stoppage Time for Plastics and Metals Transfer

Collections in streets using the kerbside recycling sack were slowed by the need for additional stoppage time to transfer plastics and metals to the top stillage in the collection vehicle. This process must be carried out when the plastics and metals stillage reaches capacity.

Under normal circumstances, crews can compact and level materials using rigid recycling boxes as they go, allowing more to be loaded between transfers. However, when using the kerbside recycling sack, this was not possible due to its non-rigid nature, which prevented compaction and levelling.

The frequency of transfers varies significantly depending on set-out rates and the demographics of collection rounds. Each transfer takes 60–90 seconds, and when sacks are used, the need for more frequent transfers could add measurable delays to the collection process.

3. Operational Challenges

Option 2 posed the following practical challenges for operational staff, some of which would have contributed to the slower collection times recorded.

3.1 Handling the kerbside recycling sack

- Emptying the kerbside recycling sack was difficult due to the lightweight nature of the materials, with smaller plastic items often remaining inside even after shaking.
- Returning recycling containers neatly to properties was more time-consuming when the kerbside recycling sack was included.
- The Velcro fastening on the kerbside recycling sacks frequently closed during emptying, especially when the sack contained very little material.
- Crews found it harder to identify contamination in the kerbside recycling sack compared to open recycling boxes.

3.2 Separating card and glass into individual recycling boxes

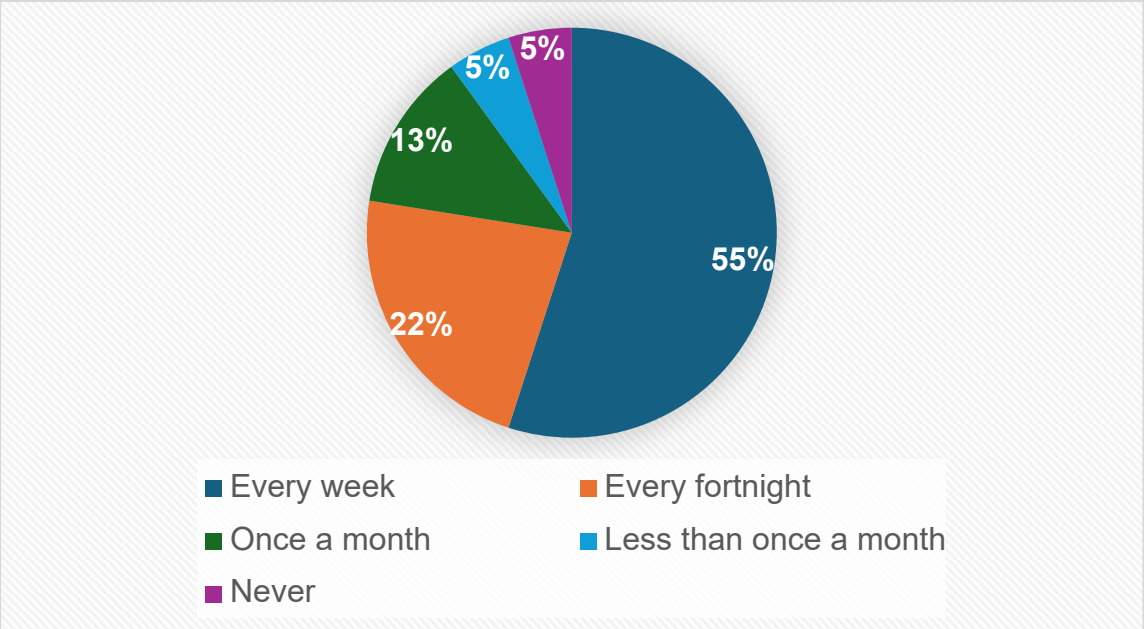
- Card and glass were sometimes mixed in both recycling boxes, creating delays as both recycling boxes required sorting.
- Recycling boxes designated for glass often only contained 1 or 2 items but still needed to be taken from the kerbside to the lorry.
- Some households only presented glass when their recycling box was full, making it too heavy for crews to safely lift onto the collection vehicle.

4. Householders feedback from survey

The online survey, completed by 40 households, highlights both behavioural trends and operational considerations.

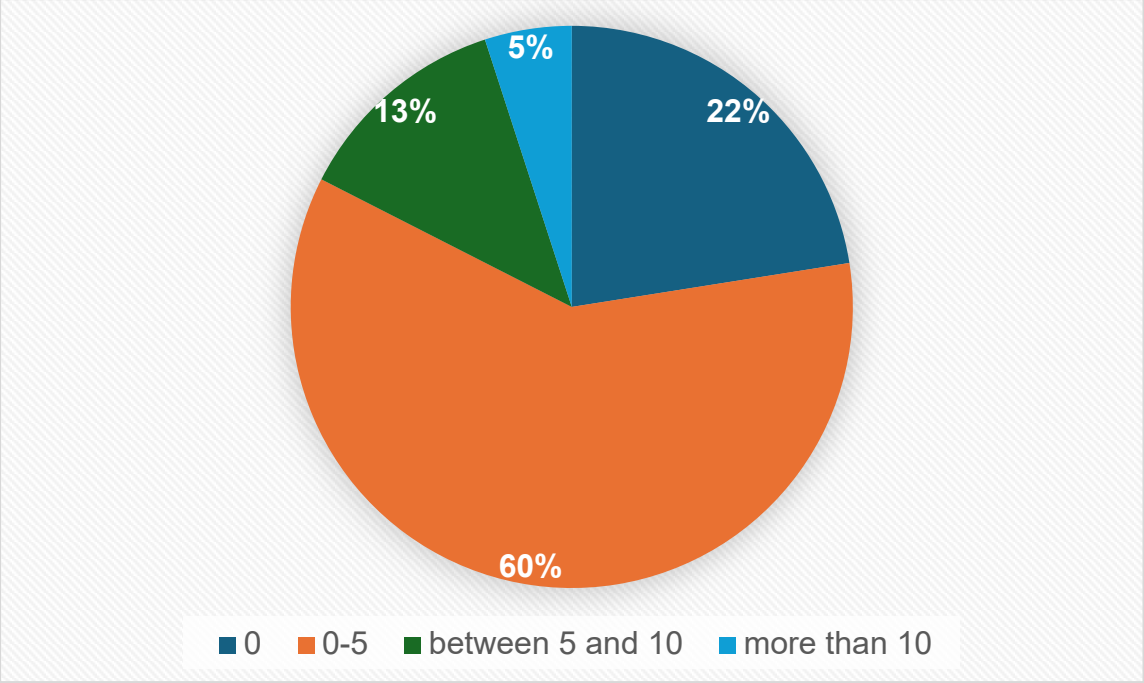
Over half of respondents (55%) expect to present an indoor collection bag of plastic bags and wrapping weekly, suggesting a steady stream of material that will require consistent collection capacity.

Figure 5. How often householders anticipate presenting an indoor collection bag



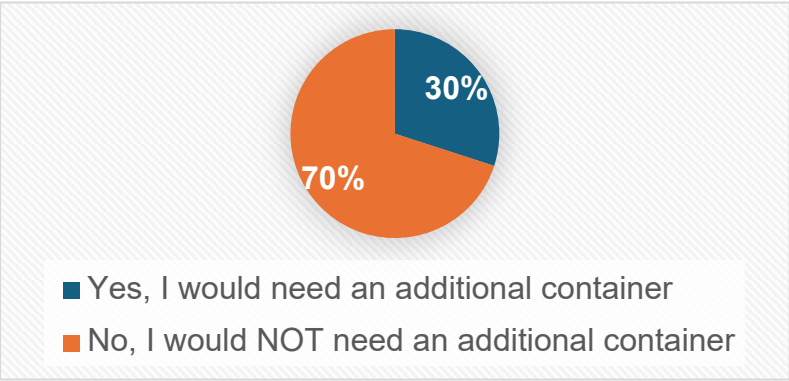
Carton usage is moderate, with 60% using up to five cartons per week and only 5% exceeding ten, indicating that while cartons will add volume, they are unlikely to overwhelm the infrastructure at the waste transfer station.

Figure 6. How many cartons householders use in a week



Container capacity feedback is particularly significant: 70% of households believe their black recycling box can accommodate cartons and a green collection bag.

Figure 7. Percentage of households who would need an additional container



To better understand container requirements, we examined these responses by household size. This analysis helped identify whether properties with more occupants were more likely to need additional recycling containers.

Figure 7.1 Households with two or less people

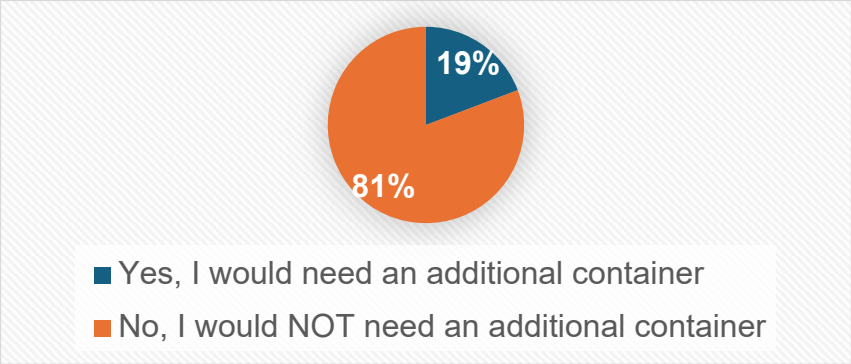
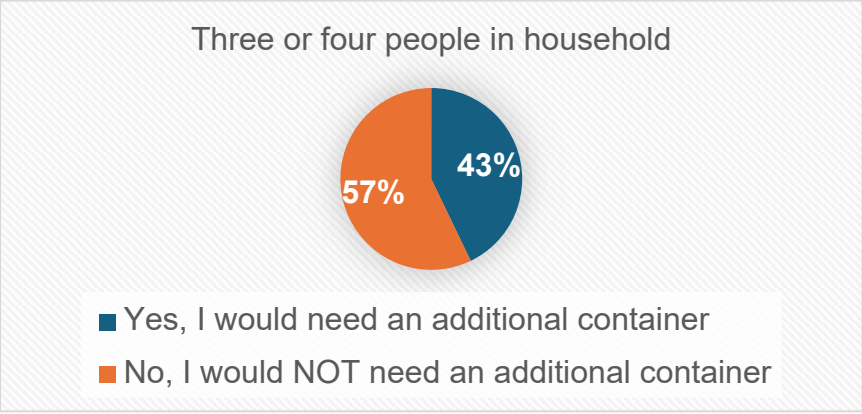


Figure 7.2. Households with three or more people



This split suggests that while most properties can adapt without extra resources, targeted provision of additional containers may be necessary for larger households or those with higher recycling volumes.

Survey responses from households trialling the kerbside recycling sack (option 2) indicate low satisfaction with this container type. Overall, participants reported that they did not like using the kerbside recycling sack, citing practical challenges such as not being able to keep it clean and a preference for existing recycling boxes.