

Center for Sustainable Behavior & Impact

Increasing Recycling Volumes with Strategic Messaging

How Empathetic and Emotional Messages Successfully
Increased Average Recycling Volumes in Single-Family Homes

Chicago, IL • 2022

There is no clear roadmap to increase participation and capture in recycling for all—but there are tools and resources that we believe can help along the way. In this study, The Recycling Partnership's Center for Sustainable Behavior and Impact piloted how our interventions, including in-home tools and strategic messaging, improve recycling behaviors.

To do so, 14 tactics were tested in single-family homes in Chicago, Illinois. These pilots compared the impact of motivational messaging alone to the impact of messaging combined with in-home tools to make recycling easier, such as an in-home recycling bin or spatula (for container cleaning). In this study, strategic messaging was developed using surveys and focus groups to create data-driven motivational messaging that resonated with infrequent recyclers.

The Recycling Partnership is grateful for the generosity of the City of Chicago for collaborating and graciously offering staff time, resources, and ideas to strengthen this study. Without their partnership, this would not have been possible.

Key Takeaways



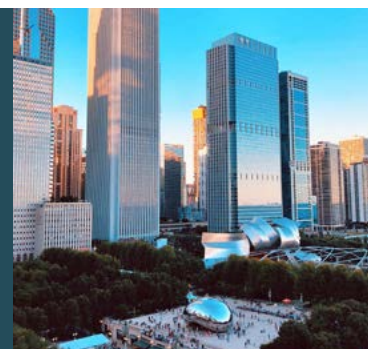
In total, **3,360 homes** received recycling interventions and outreach including in-home tools, as well as strategic messaging delivered by mail, cart tag, or included in an in-home bin.



There was a **statistically significant increase** in average recycling volume in three groups that received strategic messaging. This suggests tactics that motivate residents with messaging could be more impactful than in-home tools – a finding worth future study.



Chicago collects recycling every other week in alleys, giving us an opportunity to monitor recycling behavior on non-recycling weeks. We observed that Chicago residents, on average, **move recyclables from their home to their cart throughout the off week and week of recycling collection**, opposed to holding recyclables until their recycling week. This could indicate household behavior and material flow.



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Study Design & Implementation

In this study, 14 different intervention strategies were tested using various combinations of motivational messaging and in-home tools to determine which strategies are most promising for increasing recycling.

In-Home Tools

We tested in-home tools including an in-home recycling bin and a spatula to help make recycling easier. In-home bins provide a container to collect and transport recyclables from inside the home to the recycling bin and serve as a durable and visible reminder to recycle. The spatula is a tool for residents to use to clean out containers like a peanut butter jar to make it easier to prepare materials for recycling.

While the spatula is a tool to reduce food contamination, it is also a tool to help tackle the ‘ick’ factor of recycling which has been reported as a barrier to participation in The Recycling Partnership’s consumer research and surveys. If it takes extra effort to recycle or if it is going to be smelly and messy, some residents are less likely to participate and more likely to just place recyclables with food in the trash. There is also general confusion around how clean recyclables need to be. The idea in this study was to see if we could alleviate the barriers people felt vis a vis cleaning their recyclables and cue that we want these materials back. The theory was that this would drive participation while having the bonus of encouraging people to remove contaminants.

Motivational Messaging

The messaging utilized one of three different motivational messaging types (emotional, logical, or empathetic) to test which led to changes in behavior. This messaging was delivered to residents by mail, cart tag, or in-home bin, all messaging avenues that have been utilized by community recycling programs.

To create the motivational messaging used in these pilots, The Recycling Partnership worked with a team of designers to develop 20 different visual designs from 10 different data-backed concepts. We interviewed nine infrequent recyclers for 30-40 minutes each to learn which messages were most motivating. The three designs that resonated most with this audience were:



- **Empathetic Message (left):** This design was relatable. “This cat gets me!” is something we heard several times.
- **Logical Message (middle):** This wasn’t in the original set of designs. We had a design that mentioned 60 days from the recycling cart to the shelf. Everyone wanted to know that story: How does that happen? We put together these visuals and they tested well.
- **Emotional Message (right):** This image didn’t test as high as the others, but everyone seemed to remember it.

Households were divided into 14 intervention groups and one control group. This study deployed interventions over groups of 240 households each, with a control group of 240 households. This approach can help inform which tactics should be tested and studied further. The nature of the small sample size does not provide a definitive correlation to the interventions applied, but it can allow a program to rapidly prototype and test education techniques.

The intervention groups and the control group had a similar demographic makeup based on average household income, race, and level of education from the U.S. Census Bureau's 2019 American Community Survey 5-Year Estimates.

Approach		Tactics			
Intervention Group	Message Theme	Mailers	Cart Tag	In-Home Bin with Info Card + Bin Label	Spatula
		Cost per Household			
		(2) \$1.50	(2) \$3.50	\$13.75	\$1
1A	Empathetic			●	●
1B	Empathetic		●	●	●
2A	Empathetic			●	
2B	Empathetic		●	●	
3A	Logical			●	●
3B	Logical		●	●	●
4A	Logical			●	
4B	Logical		●	●	
5A	Empathetic	●			
5B	Empathetic	●	●		
6A	Logical	●			
6B	Logical	●	●		
7A	Emotional	●			
7B	Emotional	●	●		

The interventions were deployed over five weeks in June and July 2022. In total, **3,360 homes received recycling interventions and outreach**. This included:

1,917	954	1,680	1,440
Homes received bins with info cards and bin labels.	Homes received spatulas.	Homes received cart tags.	Homes received two informational mailers.

The cost per tactic varied between \$1.50 and \$18.25 per household, with the mailing-only group being the lowest cost and the groups that received cart tags, spatulas, and in-home bins with info cards and labels being the highest cost.

Evaluation Methodology & Findings

The volume data from the households were reviewed to determine if there was an impact on the volume of recycling set out for collection, community participation, or material quality.

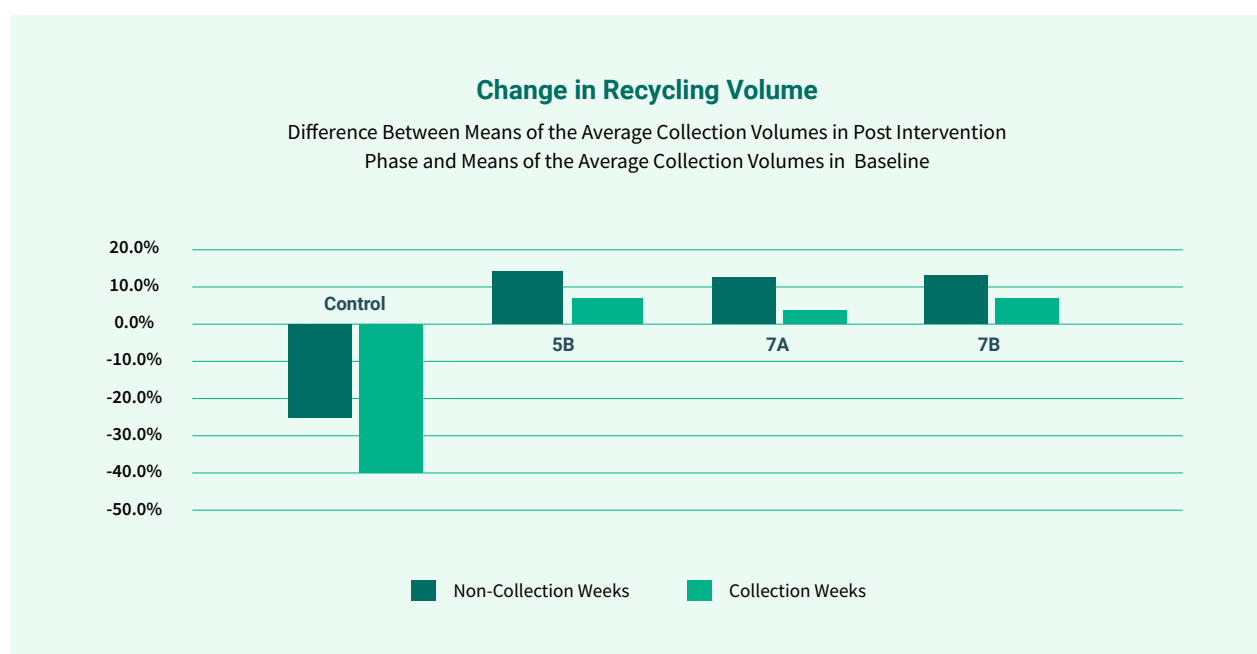
The measurement method was a visual inspection of carts at each household, noting the volume of material in each cart. Field inspectors took photos of the contents of each cart and noted the fullness of each cart for 12 weeks—four as a baseline, four during the interventions, and four post-intervention. The volume was categorized as 0% (empty/near empty), 25%, 50%, 75%, 100%, or 125% (over 100% full/overflowing).

The volume was assessed at the time of collection by the field inspectors. There were two consistent field inspectors for the duration of this study. This increases the validity of their assessments as it is likely consistent over time, even if there are concerns over the reliability of the assessment. This type of measurement is a relatively low-cost way for recycling programs to evaluate program performance, especially in recycling programs with existing staff to focus on this type of effort.

Impact on Volume of Recyclables

When comparing the pre- and post-recycling volumes, the average volume decreased. This is unlikely due to the addition of interventions, but rather other external factors such as seasonality. The average recycling volume declined across both the intervention groups and the control group. This highlights the critical role of a control group when conducting a study.

Relative to the baseline, there was a statistically significant increase in average recycling volume in three groups: 5B, 7A, and 7B. These three groups were all focused on deploying strategic messaging, suggesting that tactics that seek to motivate residents could be more impactful than those that seek to overcome in-home recycling barriers with tools. The findings from this analysis suggest that these tactics would be good candidates for future study. Due to various data limitations, we could not draw conclusions about which of these three tactics had the most significant volume change. And the other tactics tested may have had an impact on recycling behavior, though it was not detected in this study.



Impact on Community Participation

There was not a noticeable difference in how often residents were using their carts during the study. Due to the alley collection system in Chicago, many residents leave their recycling carts in the alley and do not actively set out their carts on collection day.

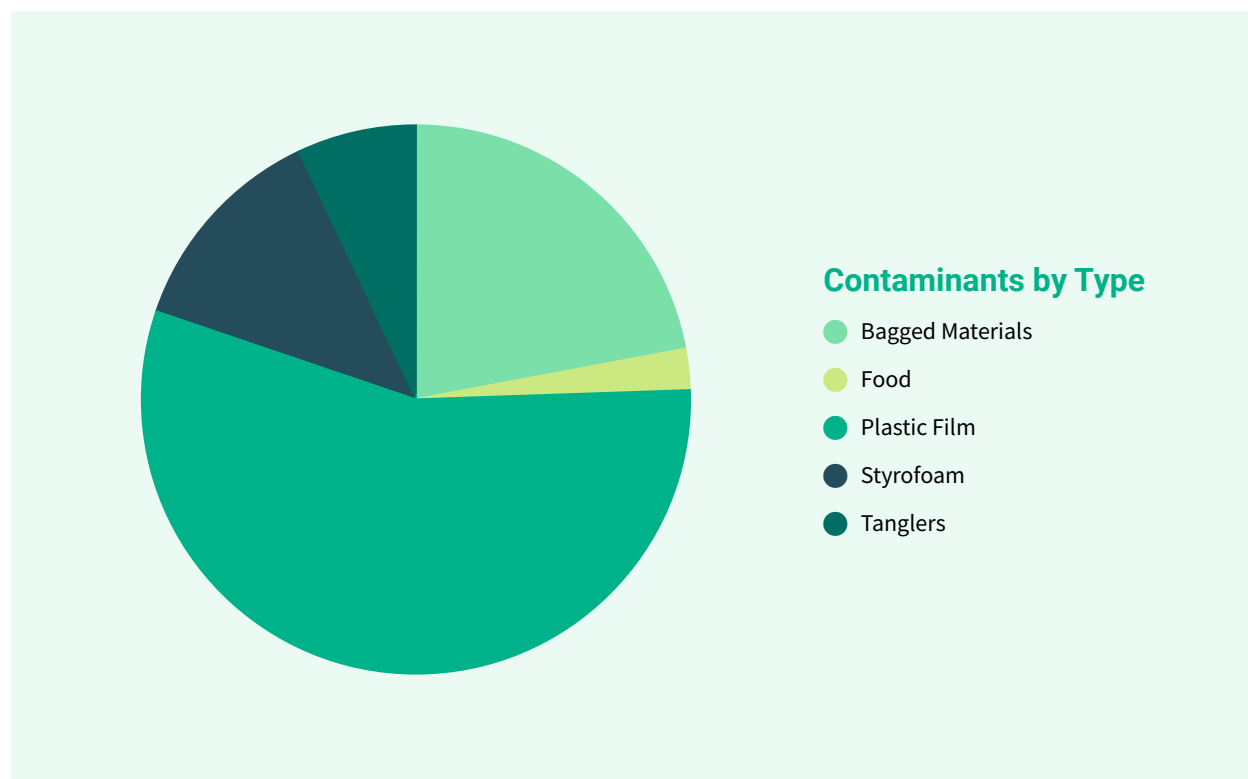
While there was not a noticeable increase in participation, we did learn more about the use of recycling carts from residents in the pilot area households. Because Chicago has an alley-based collection, the field team could observe the recycling carts' fullness on non-collection weeks. The team noticed that on average, residents **move recyclables from their home to their cart throughout the off week and week of recycling collection**, opposed to holding recyclables until their recycling week. This could indicate household behavior and material flow.

Impact on Materials Quality

The focus of these pilots was on increasing recycling volume and participation and the messages were primarily motivational. We were curious if this would also improve recycling material quality, but there was no detectable change in material quality.

Over 23,000 photos collected across the baseline and post-intervention phases by the field staff were run through an artificial intelligence system to identify five contaminants in the recycling: bagged materials, plastic film, Styrofoam, tangles, and food. **By far, the most common contaminant by occurrence was plastic film.**

In the baseline photos, 26% of carts contained contaminants and in the post-intervention photos, 24% contained contaminants. This change is not material, meaning that there was not a detectable change in recycling contamination because of the interventions.



Study Limitations

- The sample size for each group was small at 240 households per group. With this sample size, it is difficult to detect small changes in behavior.
- The volume was measured in 25% increments. A 25% change in recycling volume is a significant shift. It is possible that residents that received interventions increased recycling, but not by enough to be observed in this study. For example, if a resident increased their recycling from 50% full cart on collection day to 60% full cart on collection day, this would not be recorded by the field team due to rounding.

Conclusion

This study suggests that empathetic and logical messaging delivered by mail and cart tag seem to have connected with residents and would be good candidates for future study. In this study, the in-home tools, including in-home recycling bins and spatulas, to aid in container cleaning, the tools did not produce a measurable impact. However, they could still be impactful tools to help assist residents in recycling.

There is no one-size-fits-all, clear roadmap to increase participation and capture in recycling but there are tools and resources that The Recycling Partnership believes can help communities, counties, and states along the way. In 2022, The Recycling Partnership conducted a series of pilot projects in communities across the country through its Center for Sustainable Behavior & Impact to test types of messages, methods for education, and interventions. The project in Chicago, IL, was conducted with support from the Walmart Foundation. The Recycling Partnership is grateful to each of the communities and counties that participated. Additional information about each can be found at recyclingpartnership.org.