

Center for Sustainable Behavior & Impact

Motivating Residents to Improve Recycling at their Door

How Motivational Messaging, Education, and In-Home Bins Could Impact Recycling

Collier County, FL • 2022

The Recycling Partnership has worked with communities for years to reach residents in their mailboxes, recycling carts, and online but with less emphasis on reaching residents directly at their door. With 15 million tons of residential recycling unrecovered each year, we know there is a need for new forms of education to encourage positive behavior change.

In Collier County, Florida, we focused specifically on motivating residents at their door with recycling education and tools to increase recycling, with a focus on household plastics. In this study, we tested tactics with single family and multi-family households.

Single family: We deployed motivational interviewing by canvassers, an evidence-based behavior change strategy designed to resolve ambivalence and help people find the motivation to make positive behavior changes.

Multifamily: We tested delivery of in-home recycling bins with recycling information plus a follow-up door hanger. In-home bins help to make recycling easier by providing a dedicated container for residents to collect and transport recyclables.

The Recycling Partnership is grateful for the generosity of Collier County and WM 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



40% of residents at occupied single-family households opened their door to engage in a conversation about recycling. A total of **1,890 households participated in conversations**, sharing their concerns, feedback, questions about recycling, and in some cases, committing to improving recycling in their own homes.



There was an increase in some recyclable materials for the group of residents that received the doorstep education intervention, with a **20% increase in recyclable fiber in the single family intervention group**.



In a follow up phone survey after the interventions, there was a decrease in the number of residents that reported bagging their recyclables.



92% OF RESIDENTS THAT SPOKE WITH CANVASSERS RANKED THE IMPORTANCE OF RECYCLING AS A 7 OR HIGHER ON A 10-POINT SCALE.

Study Design & Implementation

The goal of this study was to explore the potential impact of door-to-door outreach on increasing recycling across all recyclable material groups, with an emphasis on increasing the capture of recyclable plastics, for both single-family and multifamily households.

This community is representative of community programs with relatively high recovery (over 500 pounds per household when the national average is 400 pounds per household for a community with curbside recycling in carts). Therefore, this was an exercise to test tactics in a higher recovery program versus a program that might be dramatically underperforming.

	Single-Family	Multifamily
Intervention	<p>Attempted in-person motivational interviews with follow up mailing</p> <ul style="list-style-type: none"> → Recycling canvassers knocked on resident's doors and conducted motivational interviews with all who answered. → Canvassers made one attempt to reach residents at home and those that did not answer the door received a door hanger with recycling information. → All homes received a follow-up mailer, focusing on recyclable plastics, immediately after all door-to-door efforts were complete. <div style="background-color: #e0f2f1; padding: 5px; margin-top: 10px;"> <p>Motivational interviewing is an evidence-based technique designed to resolve ambivalence and help people find the motivation to make positive changes in behavior.</p> </div>	<p>In-home recycling bin with recycling information card and follow-up door hanger</p> <ul style="list-style-type: none"> → In-home recycling bins were delivered to resident's doorstep, accompanied by an educational card with information on how to use the bin to capture recyclable materials in the home, where to take the material to be collected, and what items to recycle, with a focus on household plastics. → All doors received a follow-up door hanger focusing on recyclable plastics approximately two weeks after bins were delivered.

Motivational Interviewing

As part of the motivational interview, canvassers approached residents with curiosity, seeking to help the residents reflect on their own beliefs, challenges, and perspectives around recycling, rather than simply informing the resident what and how to recycle. This method is used successfully in changing behaviors for other topics. Listening curiously and empathetically helps the interviewee find their own motivations to make changes. This is important because self-motivators are more successful for behavior change over time than external motivators.

To prepare canvassers for these interactions, the team was trained in the technique of motivational interviewing and provided guidance questions. Dr. Teresa Donegan, a PhD in Clinical Psychology and expert in motivational interviewing, provided the expertise to develop these resources.

The trained team of canvassers consisted of four recycling outreach staff. One of the staff members was bilingual in English and Spanish. The team went door to door for four weeks from Tuesday to Saturday, canvassing from 9 am– 12 pm and then again from 3 pm – 7 pm.

Canvassers utilized a custom app designed for this study to collect qualitative data in the field derived from their conversations with residents. The data was not entered into the app during the conversation to prevent canvassers looking at their phone during the interaction as a key component of motivational interviewing is engaging in a genuine conversation. The data was entered into the app immediately after the conversation when the canvasser left the resident's home. Data was collected on the resident ranking of the importance of recycling on a 1-10 scale, conversation topics, barriers, and motivators to recycling, if the resident made a commitment to improve recycling, and the overall conversation tone.

Educational Materials

Working with a team of designers, The Recycling Partnership built on 10 previously tested concepts to develop 20 versions of visual designs. Designs were taken into message testing, and revisions were made based on the results. We then further tested the updated designs through interviews with nine participants to learn which messages were most motivating. In this Collier County study, the goal was to increase the capture of recyclable plastics, so the instructions on the cards used the logical message on the mailers and door hangers, focused on recycling plastics and the items recycled plastics become.



The informational mailers and door hangers distributed to each household included detailed information about accepted recyclables with an emphasis on accepted recyclable plastics. Along with a focus on programmatic plastic materials, the materials included images showing the recycling process to help residents understand and relate to the transformation of recycled material. All educational materials included Spanish translations that were localized for each community. In addition, all materials had a QR code with a directional message in Creole that linked the reader to a site with all materials translated in Creole.

The interventions were deployed over eight weeks in August through September of 2022. Approximately 9,000 households were reached with education interventions as part of this study.

- A total of 7,284 single-family households were provided with information in the mail with 1,890 of those households answering the door and participating in a motivational interview.
- A total of 1,713 multifamily households received an in-home recycling bin with recycling information and an additional follow-up door hanger.

The cost per tactic for doorstep education per single-family households was \$8.69 and \$17.56 per multifamily unit. This included staff costs to execute the door-to-door motivational interviews and deliver bins and door hangers to multifamily locations.



Evaluation Methodology & Findings

Examining multiple metrics associated with a recycling program can provide a more holistic picture of potential impacts. This study included three forms of measurement including a survey, route tonnage, and a recycling composition audit to capture changes to the recycling stream, amount of material recycled, and changes in resident recycling knowledge and perspective. The changes in the recycling stream were measured with a baseline and post-intervention back-of-truck recycling sort on the composition of the recycling for routes with households in the intervention area and control area. Separate sorts were conducted for the single-family and multifamily intervention and control groups.

All routes selected were analyzed and adjusted to have 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.

The baseline recycling sort for Collier County included materials from single-family and multifamily residences in June of 2022.

Single-Family Baseline Sort	Multifamily Baseline Sort
<ul style="list-style-type: none">→ 11 samples on 11 different routes→ Five routes in the intervention area, six in the control→ Each sample weighed about 200 pounds→ Material sorted into 14 categories	<ul style="list-style-type: none">→ Two samples for each of the properties that received an education intervention→ Each sample weighed about 200 pounds→ Material sorted into 14 categories

The post sort was originally scheduled for September of 2022 but had to be delayed due to a hurricane. Despite the logistical challenges resulting from this, the post-intervention sort was completed in December. Sampling was limited to routes that were least impacted by the hurricane and all viable routes were grouped as either intervention group or control. Composition data was adjusted for seasonality by reviewing samples from other material recovery facility audits in Florida.

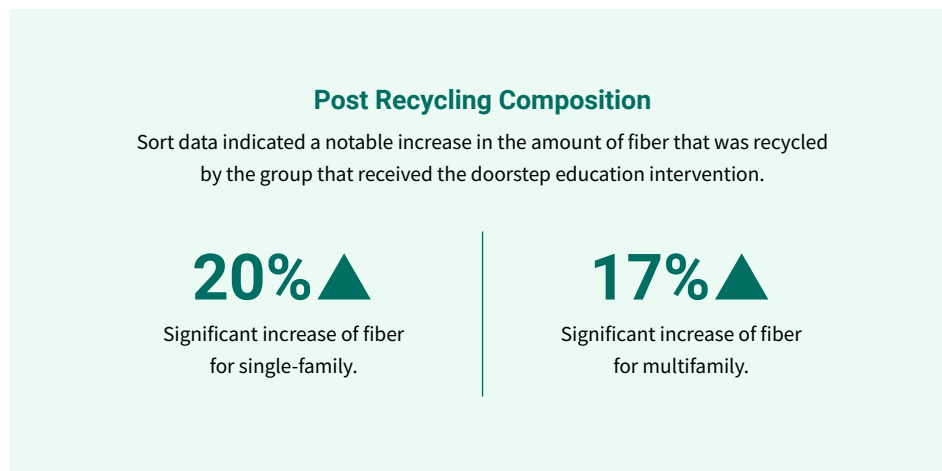
Recycling tonnage was also analyzed for the routes within the intervention and control group. Recycling tonnage was derived from scale house weights on collection trucks servicing the respective routes. Historical tonnage was analyzed, along with tonnage during and post intervention. Tonnage data was adjusted for seasonality.

Resident recycling knowledge and perspectives were measured with a phone survey conducted on both cell phones and landlines, with a higher percentage conducted on cell phones. Phone surveys were conducted in May prior to any intervention and again in December, at least eight weeks after any intervention. In Collier County, the survey included 372 respondents, with 65% of interviews being conducted on cell phones.

Impact on Composition of Recyclables and Recycling Tonnage

In this study, we did not detect an increase in recycling tons, but there was a change in the recycling composition. The amount of fiber, including paper and cardboard, in the recycling increased in both the single family and multifamily studies. In the single-family study, the residue also went down.

For both the single-family and multifamily studies, the post recycling composition sort data indicated a notable increase in the amount of fiber that was recycled by the group that received the doorstep education intervention. For single-family, there was a statically significant increase of 20% in fiber when compared to the change in composition for the control and adjusted for seasonality. Multifamily had a similar increase of 17% in fiber, however the multifamily results were not statistically significant. Additionally, in the single-family recycling composition, there was 19% statistically significant decrease in residue (material that is too small or soiled but would otherwise be recyclable) and contaminants such as yard waste, Styrofoam, construction debris, textiles, plastic film, and tangles. This result could be due to improved knowledge about what is recyclable as a result of the motivational interviews and educational materials.



Across the intervention and control groups in both the single-family and multifamily groups, there was not a detectable change in recycling tonnage at the route level. Since the campaign's focus was on recyclable plastics, and plastics make up such a small percentage of the recycling stream by weight, it is not surprising that a change was not detected at the route level. Route tons were included as one metric in this study since this data is readily available, but this was not the primary metric for measuring plastic recycling. Additionally, tonnage for several routes of this study was impacted by Hurricane Ian. The routes that experienced sizeable tonnage changes after Hurricane Ian were omitted from the analysis.

Impact on Resident Recycling Knowledge and Perspectives

The post survey for this study indicated two findings that warrant further exploration. When comparing the pre- and post-phone survey data, there was a decrease in residents who reported using plastic bags in their recycling bin. With bagged recycling and plastic bags being one of the greatest offenders for recycling contamination, this indicates doorstep education could reduce recycling contamination.

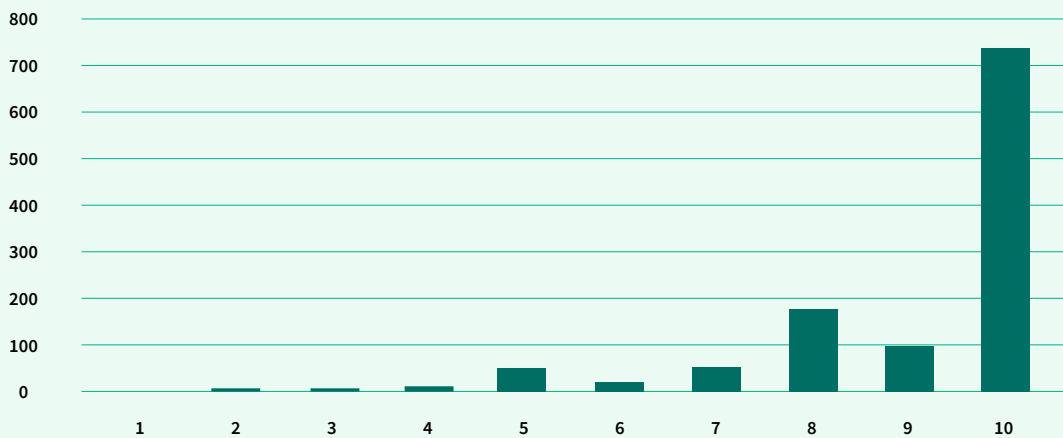
Collier County residents value recycling in their community and most recycle each week. 90% of survey respondents reported that they recycle each week and 94% of residents agreed that recycling is important. After the interventions, there was an increase in residents that believed Collier County was doing enough to support recycling.

Findings from Motivational Interviews

Conversations in Collier County were positive, and residents ranked the importance of recycling remarkably high. 92% of residents ranked recycling as 7 or higher on a 10-point scale. Of these, 69% of the single-family residents in Collier County ranked recycling at 10. In a similar study conducted by The Recycling Partnership in 2022 in Hammonton, NJ, we found a strong correlation between the resident ranking of recycling and participation in recycling. This could suggest that residents that rank recycling as 7 or higher are more likely to set out recycling.

Additionally, 35% of residents committed to improving recycling. Commitments are an important strategy for behavior change. Research has shown that when people commit to taking an action, they are more likely to follow through in changing their behavior.

Resident Ranking of the Importance of Recycling



Study Limitations

- The composition study is weight based and plastic materials are lightweight, making it more challenging to see changes that may occur in the stream. Measuring frequency of occurrence may be an alternative measurement method for future studies as this type of measurement is helpful for items that have are lightweight.
- Hurricane Ian occurred on September 23, 2022, immediately after the interventions concluded and measurement was set to occur. This impacted collection, the material stream, and resident behaviors.

Conclusion

Collier County has a strong recycling program with single family households recycling over 500 pounds per household. With a high level of recovery, it will take higher levels of engagement to improve the recycling program further.

Overall, The Recycling Partnership did not detect an increase in recycling tons collected at the route level for the single-family or multifamily interventions. While there was not a change in tonnage, there was a change in the composition of the recycling indicating that the recycling outreach and tools provided had impacts on recycling behaviors.

The motivational interviewing door-to-door campaign had success in engaging 40% of households and these motivational interviews could result in improved recycling in the future as it could help make residents more receptive to future engagement in recycling.

Recycling interventions at the doorstep warrants future analysis to further understand its impact on recycling behavior based on the substantial increases in fiber, increases in some plastic materials, and the durable and memorable nature of in-home bins.



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 Recycling Partnership is grateful to each of the communities and counties that participated. Additional information about each can be found at recyclingpartnership.org.

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