

**PROJECT CITIES -
RECYCLE RIGHT - PRINT TAG
USER EXPERIENCE REPORT**

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EXECUTIVE SUMMARY

The City of Mesa has been attaching “Recycle Right” print tags to blue barrels to notify residents of improper recycling practices. These practices include placing contaminated items, plastic bags, and Styrofoam into the bins. As per City of Mesa ordinance 8-3-30, ongoing contamination violations can lead to the removal of the barrel from the household. The purpose of this study aimed to determine whether the ineffectiveness of the print tag caused repeated violations. This issue has raised sorting and disposal expenses for the City of Mesa, placing additional strain on the recycling system and the environment.

To address these challenges, our team conducted a usability study in collaboration with the City of Mesa’s Solid Waste Department through the Project Cities initiative. We interviewed four residents of Mesa, assessed their interactions and understanding of the print tag. Residents reported confusion regarding design inconsistencies particularly the mix of animated and realistic imagery. They also noted the tags should be more organized and presented consistently to convey more clarity and usability.

This study revealed that, making minimal usability changes to the tag, providing positive reinforcement for correct recycling, modifying the notification system for what residents can and cannot recycle, and including a permanent recycling guideline sheet can significantly improve residents’ understanding and adherence to recycling rules.

These updates will not only reduce contamination rates but also support Mesa’s sustainability goals, fostering stronger community participation in environmental initiatives. This report offers clear recommendations on how the Recycle Right messaging can be improved.

INTRODUCTION

When representatives from City of Mesa introduced this project, they mentioned their major concern was regarding residents placing contaminated items in recycling bins. Contamination occurs when materials that are not recyclable or that have not been thoroughly cleansed of food particles and liquids are put in the recycling bins. This increases the expenses of sorting and disposal, further straining the recycling process, and damaging the environment, these problems cost the City of Mesa a lot of resources.

To tackle this problem, the City had introduced "Recycle Right" print tags. These print tags include a list of non-recyclable items with checkboxes. Representatives from Mesa Recycles check the items they found in the barrel and attach the tag, notifying the residents of inappropriate recycling practices. This study aimed to determine how well these tags worked to lower contamination rates and to point out areas that may be improved. By refining the clarity and impact of the print tag, the City of Mesa can significantly lower operational costs, achieve its sustainability goals, and strengthen resident engagement in recycling efforts.

TEST OVERVIEW AND METHODS

Objective

The goal is to evaluate Mesa residents' understanding of the "Recycle Right" print tags, identify usability challenges, and recommend actionable improvements.

What We Did

Participants reviewed the print tags and completed tasks simulating real-world recycling decisions, such as determining if items like grease-stained pizza boxes and Styrofoam containers were recyclable. We captured their thought process through think-aloud protocols and interviews.

How We Did It and Why?

Four participants were engaged in online sessions via Zoom, where they reviewed the print tag and sorted common household items into recyclable and non-recyclable categories. We gathered feedback through direct observation and interviews.

Why This Approach?

Direct interaction and feedback provided valuable insights into user challenges, enabling a detailed assessment of the tags' effectiveness and actionable recommendations for improvement.

RESULTS

Result 1: Confusion About Items

Issue: Residents needed better clarity about the recyclability of specific items. This included Plastic Bags, Styrofoam and contaminated items like greasy pizza boxes or peanut butter jars: Participants were unsure whether these items were recyclable, often assuming they were.

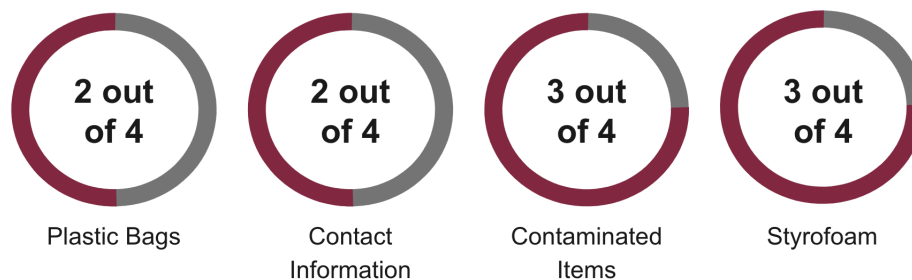
Impact: This confusion leads to incorrect sorting, resulting in higher contamination rates in recycling bins and increased processing costs for the city.

Participant Quotes:

"I am not clear about things like to-go cups." — Participant 4

"The only new thing on there that I've seen is plastic bags." — Participant 3

Suggestion: Include explicit guidelines with examples of non-recyclable items (e.g., "No greasy pizza boxes" or "No plastic bags"). Utilize visuals like icons or symbols to convey this information quickly.



Participant Confusion Insights

Result 2: Need for Consistent Visuals

Issue: The print tags featured a mix of animated and real images, causing confusion among participants. This inconsistency reduced the overall trust and usability of the design.

Impact: Participants found the mix of visuals distracting and less credible. A lack of a cohesive design made it harder for residents to understand the information at a glance.

Participant Quote:

"It is interesting that on the front of it, it's like cartoon pictures, and on the back, they're realistic pictures. I think having that is consistent. Sometimes it's nice to see realistic pictures." — Participant 4

"The tag looks really good. I mean, there's nothing else really that would look past this other than the fact that I would receive them." — Participant 3

Suggestion: Standardize all visuals across the print tags, using either realistic images or uniformly styled icons. Employ color coding to further differentiate recyclable and non-recyclable items.

Result 3: Missing Acknowledgment for Recycling Right

Issue: Participants noted a lack of positive reinforcement or acknowledgment for correct recycling behaviors.

Impact: The absence of motivational elements reduces engagement and does not encourage sustained compliance. Residents feel their efforts go unnoticed.

Participant Quote:

"I don't want another print tag. If I'm doing something wrong, it might be nice to get something in a month or two and say, 'Hey, good for you! You're doing better.'" — Participant 1.

"I would prefer some sort of message from the City of Mesa. I mean, you guys have my email through my account. So there should be no reason why I couldn't receive an email instead of just a tag that could not be received." — Participant 3

Suggestion: Add congratulatory messages or tokens of acknowledgment (e.g., "Thank you for recycling right!") to the tags. Explore a reward system to motivate proper recycling behaviors.

Result 4: Never Received a Notice

Issue: Some residents reported not receiving prior notice before their recycling barrels were removed, leaving them feeling unaware and unprepared.

Impact: The lack of communication led to frustration and dissatisfaction with the recycling program. It undermined trust in the system and discouraged compliance.

Participant Quote:

"I never got a first notice. I never got a second notice. I never got any kind of warning, and then all of a sudden, I couldn't recycle for three months." — Participant 3

"It is interesting that on the front of it, it's like cartoon pictures, and on the back, they're realistic pictures. I think having that be consistent... Sometimes it's nice to see realistic pictures." — Participant 4

Suggestion: Implement a structured warning notification system that ensures residents receive multiple notices (e.g., printed tags, email reminders) before any actions are taken. Clearly highlight contact information for inquiries on all notices.

Improvement Area	Improvement Area
Recycling Guidelines	Provide clear, concise guidelines on the tags about items that are recyclable and non-recyclable.
On-Bin Reminders	Attach a durable, laminated version of the tag directly to bins as a permanent reminder.
Font Size and Readability	Increase font size for critical information to improve readability.
Educational Content	Include a QR code linking to a video or page explaining the impact of recycling contamination.
Notification System	Implement a warning system that provides multiple notices before issuing penalties, to ensure transparency.
Positive Reinforcement	Send congratulatory messages or notices to residents who consistently recycle correctly to encourage compliance.
Contact Information	Increase the visibility of contact details on the tags to make them easier to find.

Analysis

The usability test revealed several critical gaps in the current recycling print tags. These gaps range from inconsistent visuals and unclear guidelines to a lack of acknowledgment and communication—directly impacting the effectiveness of the recycling program.

By addressing these issues, the city can achieve the following:

Improved Compliance: Clearer guidelines and consistent visuals will reduce confusion, leading to better sorting habits.

Increased Resident Satisfaction: Positive reinforcement and transparent communication will build trust and engagement.

CONCLUSION

Recommendations

Recommendation 1: Permanent Reminders

As suggested by a participant, distributing sturdy informational pamphlets which they could put where they find it convenient to look every day, will provide residents with a piece of reference information that they can refer to before placing anything in the bin. These pamphlets can include:

- **QR code to the Mesa Recycles website:** The residents can scan the QR code on the spot and check for any specific information or check if the item is recyclable or not, using the waste wizard on the website.
- **QR code for educational content:** adding a few educational videos about recycling like how recycling works, what happens if the residents do not recycle properly, how to recycle specific items, etc. will help residents understand the importance of recycling better and also clear their confusion on specific items which they want to recycle but are not sure how to do it right.
- **Do's and Don'ts:** The pamphlet will have a list of common recyclable and non-recyclable items to help residents make sure that they are recycling right.
- **Consequences:** Mentioning the consequences of not recycling properly or putting non-recyclables in the blue barrel, will help in making sure that they follow the guidelines.

How does this help?

- **Improves Recycling Accuracy:** Residents are less likely to make mistakes when guidelines are readily visible at the decision-making point.
- **Reduces Contamination Rates:** Clear instructions minimize the inclusion of non-recyclable items, ensuring cleaner recycling streams.
- **Enhances Resident Satisfaction:** Consistent, accessible reminders empower residents to recycle correctly, building confidence in their efforts.

Proposed Design



The proposed design consists of all the needed information and guidelines a resident might need. It consists of QR code of the City of Mesa website and educational videos for additional information. The reference for this design is taken from the [City of Mesa -Printable List](#).

Recommendation 2: Redesign the tag

The print tag is effective in most ways, but a few improvements could make it more efficient and helpful for residents. This study provided us with valuable resident perspectives on the print tag, leading to the findings discussed in previous sections. To address the identified issues, we propose the following changes to the print tag:

- **Larger font size and better layout** to ensure the information is easy to read and navigate.
- **Realistic, consistent images** to help residents quickly recognize recyclable and non-recyclable items.
- **More spacing above and below sections** to prevent important details, like contact information, from being overlooked when the tag is detached.
- **Clear consequences for repeated violations** to emphasize the importance of proper recycling practices.

- **Removal of the word “No” from the checklist** to avoid misunderstandings. For example, the phrase “No Styrofoam” could be misread as meaning “there was no Styrofoam,” when it actually means “Styrofoam was found and shouldn’t have been.”

How does this help?

- **Easier Recognition:** Clear, realistic visuals help residents confidently identify what belongs in the recycling bin.
- **Improved Clarity:** Removing confusing language and restructuring the layout makes the tag simpler to understand.

Proposed Design



☐ 1st Notice

☐ 2nd Notice



Plastic bags
Bolsas de plástico



Styrofoam
Espuma de poliestireno



Food or Grease
Comida ni grasa



Batteries or electronics
Pilas ni aparatos electrónicos



Yard waste
Desperdicios del jardín



Clothing
Ropa

☐ Other _____

Per City of Mesa Code 8-3-30, ongoing contamination violation may result in the removal of your recycle barrel.

Según el Código 8-3-30 de la ciudad de Mesa, las violaciones de contaminación en curso resultarán en la eliminación de su bote de reciclaje.

RECYCLE
ACCEPTED ITEMS



Cans

All metal food and beverage cans.



Cardboard

Clean and flat cardboard.



Paper

Mail, newspaper, copy, paper, empty cereal boxes, soda boxes, tissue boxes, paperboard packaging.



Plastic

Clean & dry Water bottles, milk jugs, detergent jugs, berry containers, condiment bottles.



Glass

Clean and dry bottles and jars



Visit mesarecycycles.org for more information.

480-644-4791 waste.info@mesa.gov

Stick here



Stick here

Recommendation 3: Positive Reinforcement

During the interview, when we asked what would help ensure that residents recycle properly, one of the participants mentioned that receiving positive feedback, such as a congratulatory note or email, would motivate and encourage residents to continue doing their part for Mesa's sustainability mission.

Sending a simple, personalized message of appreciation quarterly can help build a stronger relationship between residents and the city, supporting long-term compliance with the recycling guidelines.

This kind of appreciation for the minimal efforts they put in will motivate them to become more involved and contribute even more to the community and the City of Mesa.

How does this help?

- **Reinforces Positive Habits:** Regular recognition helps solidify good recycling practices, encouraging long-term commitment.
- **Boosts Satisfaction:** Residents feel valued and appreciated for their contributions, leading to greater satisfaction with the program.
- **Improves Community Engagement:** Positive messages create a sense of shared responsibility and inspire others to improve their recycling habits.

Proposed Design



Recommendation 4: Improve Notification System

Some participants mentioned not receiving the notice and that the barrel was removed without any prior information. This led us to question whether providing only physical print tags on the barrel is enough.

Hence, we came up with a solution of having a system for electronic communication as well. Along with the print tags being attached to the resident's barrel, if the City also sends an email notification mentioning the same, it would ensure that the residents were notified of the violation.

Relying on tags alone, which could be easily misplaced, could lead to miscommunication and have a negative impact on the residents. Therefore, we recommend sending an email to residents for each violation, informing them about the barrel removal, and providing next steps or potential solutions.

How It Helps:

- **Fewer recurring violations:** Supporting consistent recycling.
- **Ensures residents receive the notice:** Improving communication and compliance.

Recommendations and their potential impacts

Recommendation	Potential Impact on Recycling Rates	Potential Cost Savings	Potential Impact on Resident Satisfaction
Permanent On-Bin Reminders	Improved accuracy in recycling, reducing contamination rates	Lower processing costs by minimizing non-recyclables in bins	Increased satisfaction due to consistent, accessible reminders
Increased Font Size for Key Info	Better visibility, leading to higher compliance	Reduced contamination cleanup costs	Enhanced readability and ease of use for residents
Additional Visual Aids	Clearer understanding of restricted items, decreasing errors	Fewer processing interruptions, saving operational costs	Improved confidence in recycling decisions
Educational QR Code Link	More informed recycling habits, reducing contamination	Long-term savings through reduced contamination handling	Higher engagement and motivation through awareness
Structured Warning Notification System	Fewer recurring violations, supporting consistent recycling	Savings from avoiding bin removal logistics	Greater trust in a transparent, fair system
Positive Reinforcement Messages	Sustained positive behavior, supporting long-term compliance	Indirect cost savings through reduced contamination over time	Increased satisfaction and sense of acknowledgment
Consistent Visual Design	Enhanced recognition, reducing confusion and mistakes	Minimal impact on direct costs	Higher satisfaction due to cohesive, professional appearance
Improved Contact Information Visibility	Easier access to support, reducing confusion	Potential reduction in support call volume	Increased satisfaction due to accessible assistance

Overall, the print tag has minimal design changes, the major finding is if they have this information from the beginning and have a constant reminder like a guidelines sheet, it will help in ensuring that they are recycling right. Additionally, having a digital mode of communication along with the tags will make sure that the resident is notified of the violation.

APPENDIX

1. [Test Protocol](#)
2. [Mesa Recycles](#)