

Alameda County Waste: An examination of Livermore residents'
interactions with and perspectives on their waste

By Shirley Liang

Introduction and Background:

Proper waste sorting is crucial for the maintenance of the planet and the integrity of disposal programs in Alameda County. The urgency of the problem is clear: The World Health Organization stated that between 2030 and 2050, climate change is projected to cause approximately “250,000 additional deaths per year” (“Climate Change”). Sorting waste diverts certain material from entering the landfill, where they would otherwise be left untouched for years. By diverting the otherwise-disposed-of material, certain material can be turned into new products and organics can be composted. This strengthens the livability and longevity of the planet and its ecosystem – something people are naturally concerned about.

Conversely, when waste is sorted incorrectly, recyclable and compostable materials are disposed of in the landfill, where they will be unable to be reclaimed. Furthermore, organics disposed of in landfills also decompose without oxygen, generating greenhouse gas that contributes to climate change. Incorrect sorting (contamination) in recycling and organics carts can “reduce the quality of recovered materials”, “increase processing costs”, and even result in “otherwise clean recyclable or compostable materials being disposed of in the landfill” (Livermore Recycles). In fact, according to Livermore Recycles, improper sorting in recycling and organics may cause the “whole load to be sent to the landfill”. Evidently, improper disposal techniques are a point of concern due to the impact they create on the planet.

This research paper aims to explore the underlying causes of incorrect waste sorting in Livermore, a city in Alameda County, and identify appropriate solutions. The goal is to identify how effective residents are at separating garbage, recycling, and compost, and what barriers prevent residents from proper waste sorting. Through various sources, a thorough examination of Livermore waste disposal system in relation to its residents will occur.

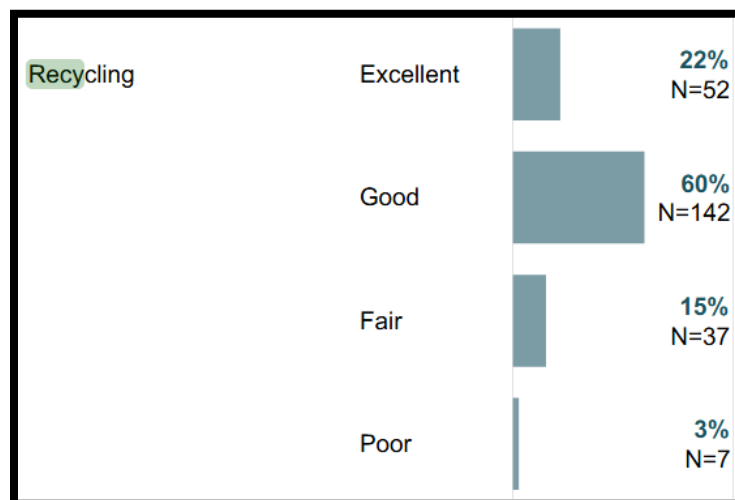
Existing Literature Analysis

A survey conducted of a random sample of 350 residents in September 2024 by Alameda County found that “the most commonly reported barrier to properly sorting waste into recycling and composting bins was that ‘it is confusing’” (City of Alameda). In fact, “sixty-five percent of the respondents” felt that “they did not understand how to properly sort” their waste (City of Alameda). Yet, despite the confusion and lack of confidence in their waste-sorting capabilities, residential waste must continue to be sorted. Thus, it reveals how since sorting waste is a necessity in everyday life, people continue sorting waste incorrectly despite feelings of inadequacy.

Noticeably, there is a lack of a thorough way to measure contamination (“error rate”) and gauge how well residents of Livermore are sorting their garbage. This is because of the sheer amount of residents, and therefore waste. Instead, “biannual lid flip audits” occur in Livermore along “selected” residential routes. During these audits, only the “top layer of material in each cart to identify common sorting issues”. Thus, the findings are not truly representative of the absolute contamination rates in Livermore, but are instead intended to indicate “trends and changes in resident sorting behaviors over time” (Livermore Recycles). This makes it extremely difficult to see the relationship between people’s confidence in their waste sorting and the actual waste sorting accuracy, or even understand if there is an inaccurate-waste-sorting problem in Livermore.

Landfill diversion rate is the “percentage of waste” diverted from landfills (“How to Calculate Your Waste Diversion Rate”). On a positive note, Livermore’s landfill diversion rate in 2025 was at 69%, an increase of 1% from 2024 (Livermore Recycles). In other words, it might reflect more recyclables and organic materials being sorted correctly into their respective bins, instead of garbage bins.

The 2025 National Community Survey Report for Livermore revealed a general positive public opinion on Livermore’s recycling service quality. Thus, improper sorting would most likely not result from disillusionment in recycling.



Picture 1: [Source](#)

Methodology

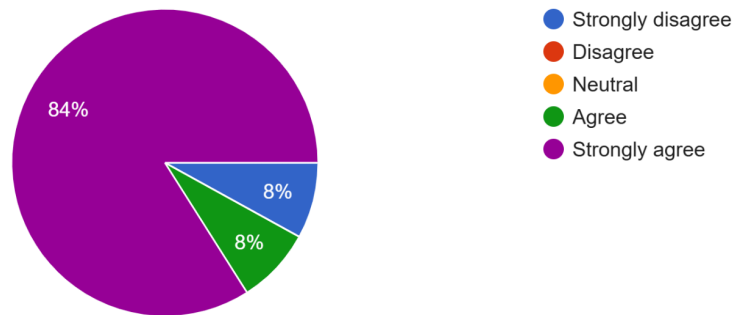
A short survey was created that asked questions about participants’ views on recycling, the environment, and local recycling resources. The survey was distributed to the local library and through D1 Alameda County’s social media.

Although the aim was to get a representative sample of Livermore to participate, this goal was not exactly achieved due to the voluntary nature of participation in the survey. All the participants in the

survey were below 25 years old, reflecting a young demographic. A possible explanation for this phenomenon is that since the survey is online and was distributed to the library via a flyer with a QR code, younger residents are more comfortable with the technology, and thus more likely to complete it. The results of the survey are not meant to represent all of Livermore, but just see a general trend at a limited scope. The limits of the survey results will and should be kept in mind. With 25 participants, the results will be analyzed below.

Results and Discussion

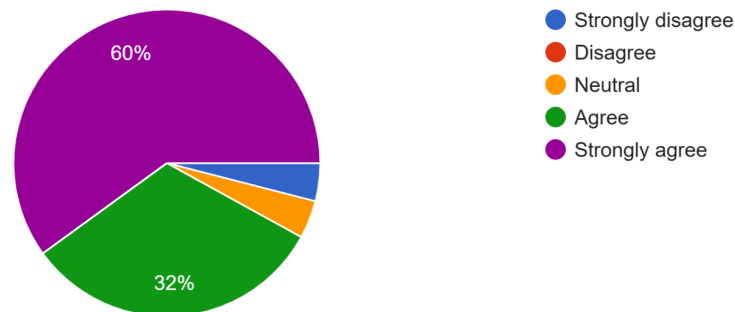
I believe that protecting the environment is important.
25 responses



Protecting the environment is on people's radar, as 92% of the respondents selected agree or strongly agree in response to the statement "I believe that protecting the environment is important".

I believe that recycling is important.

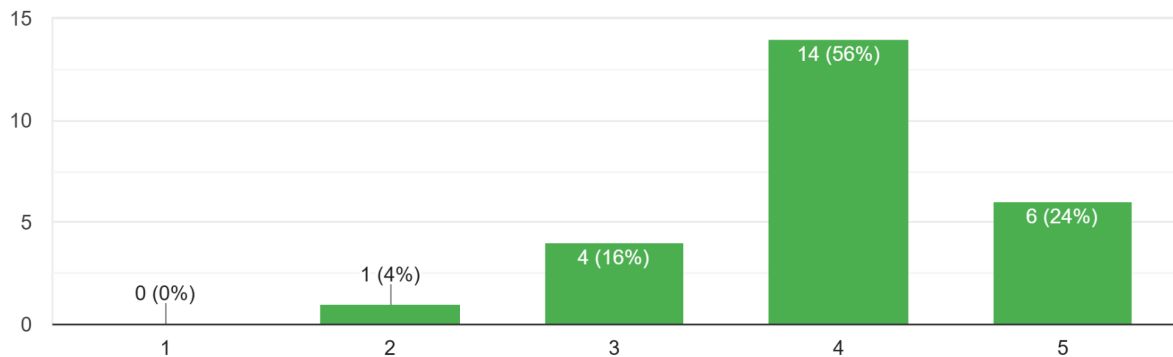
25 responses



Although 92% of the respondents selected agree or strongly agree in response to the statement “I believe that recycling is important”, similar to the results above pertaining to the environment, there is a greater number of ‘agree’ than before. This suggests that according to the respondents, recycling is closely but not perfectly synonymous to protecting the environment. This connection could motivate people to take recycling seriously.

How important is following recycling rules to you? (extremely important - 5, not important at all - 1)

25 responses

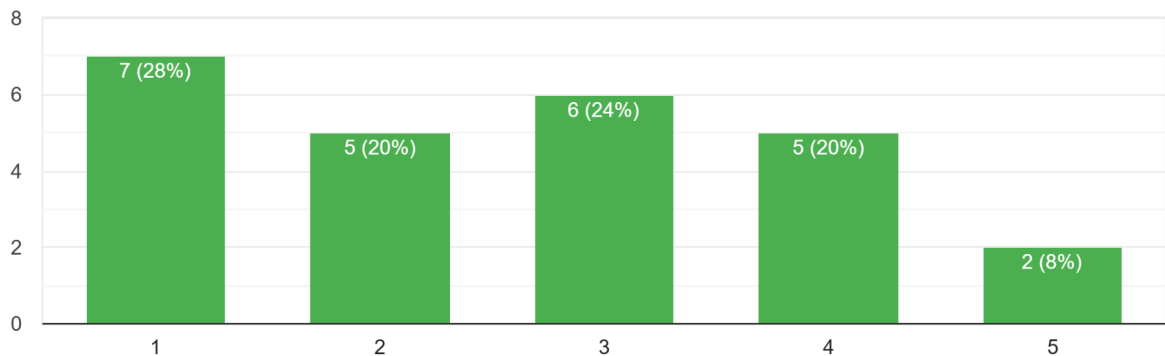


Now, we see less concentration at the most extreme point (5). The top two options (4 and 5) no longer add up to 92%, instead adding up to 80%. This general trend from the last three graphs illustrates the

following: a gradual loss of importance and connection between protecting the environment, recycling, and finally following recycling rules.

How would you rate your understanding of where your waste goes in Livermore? (great understanding - 5, no understanding - 1)

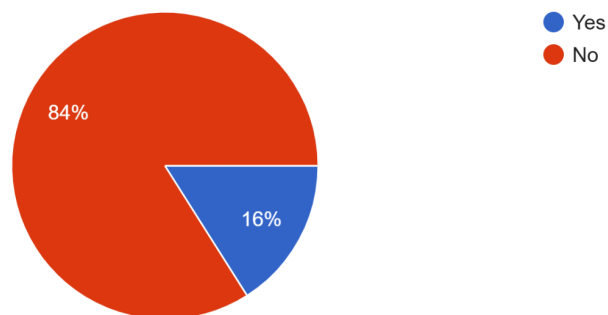
25 responses



The results above are the most varied out of all the questions. Still, the most picked option is '1' (28%), which means that the respondents who picked that had no understanding of where their waste went in Livermore. This disconnect could result in less emphasis being placed in waste sorting since all of the waste disposal business would feel so far away.

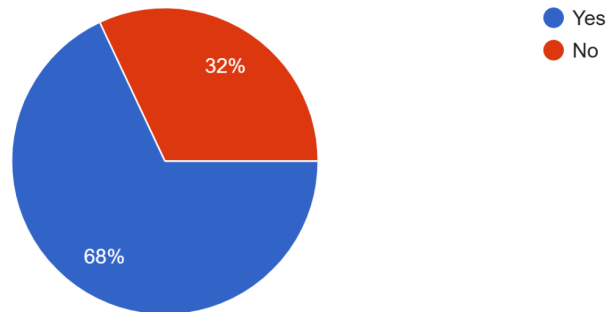
Have you heard of or visited the website RE:Source?

25 responses



Have you ever used recycling guides/infographics like this one?

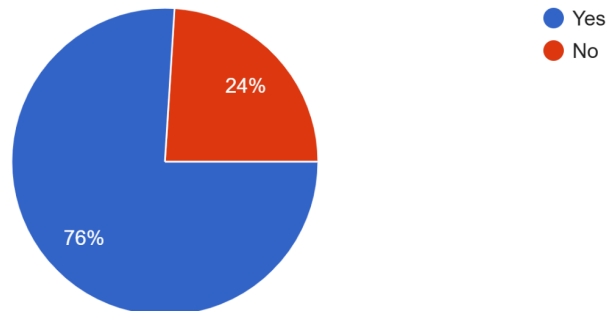
25 responses



The three survey questions above were intended to gauge how accessible recycling resources are and how often it is being used. Recycling guides were seen by 68% of the respondents, while RE:Source, a website that tells you how to sort waste, was known by only 16%. Recycling guides can be overwhelming, but the website can help package that information and make it more digestible. However, it is the lesser-known resource of the two.

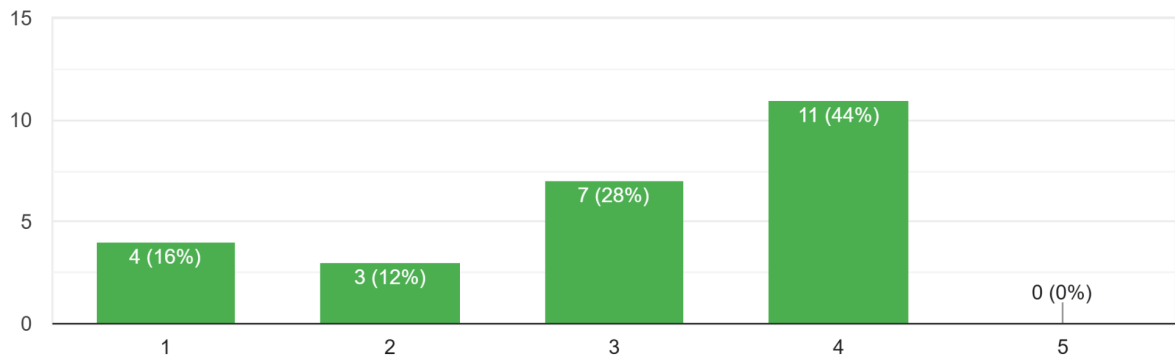
Have you ever searched up how to dispose of certain items?

25 responses



76% of participants in the survey said that they have, signifying a general trend of engagement with recycling rules and a desire to sort waste accurately.

How confident are you that you sort your waste correctly (very confident - 1, not confident at all - 5)
25 responses



The data shows a general trend of moderate non-confidence in sorting waste correctly, which can impact and reflect people's views on how important recycling is.

Recommendations and Conclusion

Through the results and research, the connection between following recycling rules and saving the environment is strong, but should be strengthened, perhaps through flyers and education in schools about the negative effects of contamination. Additionally, people are confident in the recycling programs of Livermore, but they are not confident in how well they themselves sort their waste. This can be mitigated through promotion of existing resources.

The visibility and use of Re:Source, the website, should be promoted more, which can increase confidence in waste sorting and subsequently increase accurate waste sorting. So, instead of creating new tools or resources, existing ones should be publicized more and integrated into everyday life. Re:Source is a good resource to simplify a complicated process, but the only problem is that it is not well known by people.

Ultimately, it is clear that Livermore has a solid recycling program that the residents support and identify with. However, waste-sorting is complicated in nature and the residents have limited confidence in their ability to actually sort, which can be reduced by integrating existing resources into their routine.

There are severe implications of contamination, but they can be readily mitigated by improving waste-sorting accuracy through the method outlined above.

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