



# **Multi-Family Recycling: Implementation Models**

## **An Opportunity for Solid Waste Reduction**

**An executive summary  
prepared for:**



**City of Phoenix  
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# Executive Summary

Phase-1 of the Multi-Family Recycling pilot program resulted in the development and implementation of a wide variety of recycling solutions across four properties. During Phase-1, these solutions were tested, compared and assessed for effectiveness. This process highlighted solutions viability and the common barriers present in the implementation process. In response, Phase-2 was developed to further study the viability of solutions over a longer time period. The objective was to assess the effectiveness of solutions for improving recycling diversion and contamination rates, and the time and monetary resources required for their implementation. Phase-2 solutions were applied to the Park Lee property, and the Marcos de Niza property served as a control. The solutions implemented at Park Lee included:

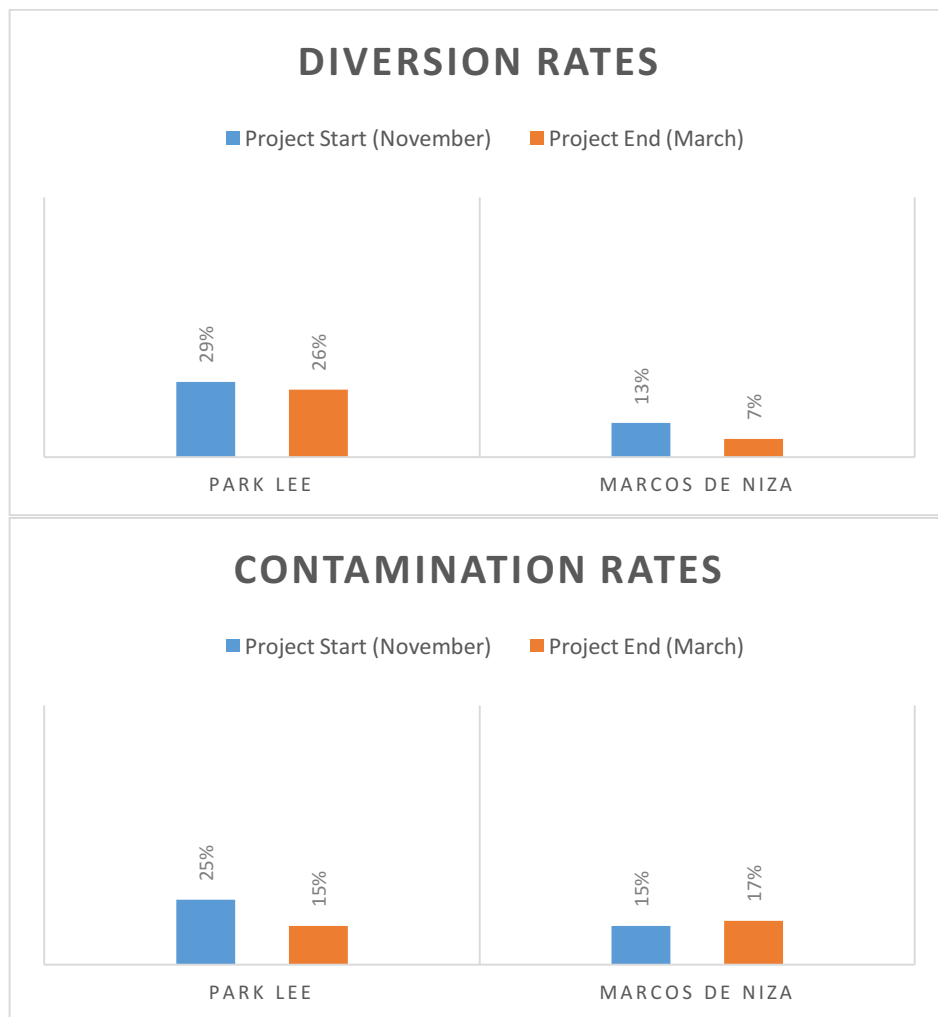
- *Drop-off container signage:* Stickers describing accepted recyclable materials were placed on the recycling containers through the property. In addition, stickers were placed on waste containers throughout the property indicating that recyclable material was not to be placed in those containers.
- *Approach Prompts:* A-frame signs were placed throughout the property with directions to the nearest drop-off recycling container.
- *Indoor storage:* Reusable tote bags to store recyclables in the house.
- *Posters in common areas:* Posters describing the recycling program and the accepted recyclable material were hung in common area laundry rooms.
- *Door to Door education:* A program composed of household visits to inform residents about the recycling program and common contaminants.
- *Community recycling education events:* A composed series of community meetings were held to inform residents about the recycling program.
- *Raffle program:* Residents are given raffle tickets for bringing recyclables to the leasing office. Raffle prizes included rebates on rent, carpet cleanings and gift cards.
- *Volunteer resident recycling team:* A group of resident volunteers were recruited to assist in the implementation of all solutions.

Phase 2 was kicked off in October 2015 with an initial project meeting with all stakeholders from the city of Phoenix and Dunlap & Magee, the property management group for both of the properties. In November 2015, a baseline assessment was conducted followed by solutions implementation beginning in December 2015 and a final evaluation in March 2016. Program performance was measured based on contamination and diversion rates. Contamination rates were measured by visual inspection using a contamination metric ([Appendix-II](#)) over the life of the project. Results indicated the solutions had a significant impact on contamination rates, which decreased approximately 10% over 5 months (Figure 1).

To determine diversion rates, waste and recycle truck were weighed after pickup from the properties. The recycling pickup schedule for both properties is weekly, using front load trucks (Park Lee) and tipper trucks (Marcos De Niza). Park Lee's overall diversion rate decreased by

3% (Figure 1) which correlates to the reduction in contamination rates over the project period. This finding results in a cleaner recycling stream although the diversion rate decreases.

The second property of Marcos De Niza was used as a control, where the diversion and contamination rates were measured for two week periods in November 2015 and April 2016. The contamination for Marcos De Niza between the two measurements rose from 15% in November 2015 to 17% in April 2016, which is not a significant increase. Also during this period, the diversion rates decreased by 6%, which might be due to the lack of any continued solutions implementation and/or continued recycling education.



**Figure 1. Contamination and Diversion rates of Park Lee and Marcos De Niza**

Based on the solutions implemented and their results, the following conclusions are provided for the project:

1. The signage stayed on the drop-off containers throughout the program and did not suffer from extreme wear and tear due to weather.
2. The approach prompts were often misplaced as they were portable. Although residents do not view approach prompts as a critical factor for recycling, they mentioned that it served as a reminder to recycle. A permanent signpost might be a better solution to withstand adverse weather conditions.
3. The indoor storage containers were distributed and a 6% decrease in contamination was observed in the subsequent weeks. There is a potential correlation between the use of indoor storage containers and decreasing contamination.
4. Posters placed in the laundry areas consistently needed to be replaced and it might be necessary to use a more permanent system such as a Plexiglas sign instead. It would also be beneficial to explore a simpler version which mentions only the top 10 recyclables.
5. The recycling team is an important aspect of the program as it helps in providing the community ownership over the program. It also helps in creating a community of recyclers who can help drive the program. A recycling coordinator is a critical component in a recycling team as it delegates responsibility to a staff member and provides a point of contact for recycling team volunteers.
6. Majority of residents who attended the community events tended to be already passionate about recycling. Hence, recycling should be incorporated into all community events in order to reach out to non-recyclers.
7. The program as a whole had a significant impact on the contamination rates which decreased by approximately 10% over the study period.
8. The diversion rate decreased by 3% which correlates to the reduction in contamination rates.

# Acknowledgements

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