

City of Scottsdale Solid Waste Plan

Policy Brief
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Introduction

The project began with Dan Worth, an employee of the City of Scottsdale, enlisting Arizona State University to find ways to increase the diversion rates of solid waste in multi-family residential housing in his community. He presented what he called a “direction,” a wide view of the problem that he wanted our team to solve. He also provided us with what he has found Scottsdale’s community values to be, “Conserve and Preserve the Environment” (Worth, 2017). In order to suggest the best possible strategies research was conducted that analyzed demographic data, financial information, environmental effects, and other case studies. Diverting waste is becoming a priority around the United States for multiple reasons. Cris Coopla, from *Azcentral*, writes that, “data collected from the largest Valley cities from the past five years show all have struggled to increase landfill diversion rates” (2015). In order to find ways for the City of Scottsdale to obtain their own goals of reaching a 30% diversion waste in multi-family housing units by the year 2030, the following paper will analyze key policies and strategies that other cities have used to achieve their own waste goals.

Case Studies

In order to find potential strategies to increase the City of Scottsdale’s waste diversion rate multiple case studies were analyzed. In the first city of Boulder the city in 2013 has reached an overall 33% diversion rate (“Zero Waste Strategic Plan,” 2015), which is close to the goal the City of Scottsdale wants to achieve, which is one of the main reasons Boulder has been studied in this paper. In Boulder an outreach program was completed by Eco-Cycle, which was used as a pilot program to test ways to increase diversion rates in five different multi-family units. Before designing any possible solutions the organization first identified the barriers the city was facing. One issue Boulder found is infrastructure. The multi-family units (MFU) did not have enough

bins, or enough pickup so the bins were being used to excess (Fridland & Moorman, 2015). Furthermore, the recycle and compost bins were located in inconvenient or hidden locations. The City of Scottsdale has also faced similar issues. In the case of Boulder, their tactics included adding more bins, increasing pickup, moved the bins inside of the building, gave recycle bags, and posted new signs (Fridland & Moorman, 2015). By addressing the barriers of infrastructure Boulder was able to increase diversion rates. The City of Scottsdale could potentially enact some of the same strategies Boulder used to increase diversion rates.

One other barrier found in Boulder was related to culture. Recycling and composting were not a part of the community culture before the outreach program took place. In order to successfully integrate composting, and recycling they facilitated diverting waste at community events such as meetings, cookouts, and parties. Additionally to combat a lack of incentives to compost or recycle they used pledge cards, and randomly selected pledge card signers to receive gift cards (Fridland & Moorman, 2015). By providing initiatives for composting, and recycling the project found an increase in diversion rates. Within the five multi-family units that Boulder addressed the barriers in they found that the communities “improved their overall diversion rate by two to 17 percentage points (a 3 to 43 percent increase)” (Fridland & Moorman, 2015). When looking at the strategies that Boulder took in order to combat the barriers identified, the City of Scottsdale can implement some of the same practices in order to increase their own diversion rates. In the end Boulder partnered with multiple stakeholders to find strategies to increase their diversion rates.

Los Angeles, as another case study, saw to alleviate the financial burden of increasing diversion in MFU, by outsourcing the pick up and sorting of recyclables and allowing it to be a competitive market. The waste management companies pay the city a flat rate for the ability to

pick up and the city allows the companies to sell diverted waste. In the model study “Recycling in Multifamily Dwellings” (Abrams, 2001), it was noted that the estimated 60,000 dollars in savings from diverting waste from the landfill could fund the education platform and the monies gained from the sale of pick up service paid for workers to inspect and fine residents for non compliance. This also allowed the city to reduce its overhead and burden in the waste management sector, proving that waste diversion can be profitable. Los Angeles also ensured that there were bins conveniently located to increase ease of use for residence.

Furthermore, incentive programs have been used across the country as well. “Pay-as-you-throw” and a “ Rewards for Recycling” Incentive programs (Northeast Michigan, 2016) similar to those that Michigan implemented made waste management cheaper for residents by recycling versus sending to the landfill. The variable diversion solutions made recycling affordable and attainable for families in multifamily housing. A resident could get a special bag or bin that was bar coded and when picked up gave a discount to their other utilities. The multifamily complexes that were not diverting received a bill that highlighted the savings on average they are missing by not diverting. Both LA and Michigan studies found that high diversion, over 50%, is only possible through mandated recycling through policy. In these cities, the cost of recycling is often passed through the lease to the tenant. Both Los Angeles and Northwest Michigan mandated that recycling bins be placed and accessible to residents for all multifamily units. To address the high turnover issues for MFU both areas concentrated on educating the MFU management and creating standardized signage and markings to increase participation in diversion programs.

Recommendations

Based off of the research above if the City of Scottsdale’s goal is to achieve the most diversion for the lowest cost, then community outreach and education are the best solutions.

Education will always remain a key element when figuring out ways to create real substantial change. In the Boulder case study we learned that many people were unaware of how to properly recycle and compost. However, if Scottsdale could implement similar strategies as Boulder they may also be able to increase diversion rates. Some of these included community trainings, literature distribution, door-to-door education, and community trainings that were held in English and Spanish (Fridland & Moorman, 2015). In order to enhance the knowledge of composting and recycling in housing environments with such high resident turnover, Boulder implemented strategies that developed a welcome letter that explained the service, and they recruited community experts to explain the program and answer questions. The solutions listed above have low costs, and the City of Scottsdale could dedicate a proportion of their budget to education, which would increase waste diversion rates.

As a way of addressing problems of limited bins, or excess use the City of Scottsdale could began slowly add more bins to the multi-family units. The cost of adding more bins is more than the price of education, and community outreach. However, when looking at the return on investment from the added infrastructure the payoff is more than the cost. This strategy would only be successful if the city could directly work the owners of the multi family units. The City of Scottsdale needs the cooperation of multiple stakeholders in order to achieve a higher waste diversion rate. The city saves \$24.65 per ton when diverting waste from the landfills from multi family units. In 2017 the cost of a pickup of waste is \$22,900, and a diesel front load truck is \$302,500. It would take 929 tons of waste to pay for one pick up, and over 12,000 tons of waste to pay for a new diesel truck. However, while the number of tons needed to pay for the trucks seem high there is potential to profit from diverting waste if enough tons are gathered.

Additionally, there are possible tax incentives from the federal government that the City of Scottsdale could potentially utilize. Act Section 305 is titled “Manufacturers' Energy Efficient Appliance Credit”, meaning a deductible can be claimed from any process that aids in these endeavors. Recycling is an energy efficient process and renovation to make recycling available while receiving tax credits or deductibles could be a way to incentivize multi house landowners to participate. The IRS states that to qualify as a deductible a business expense must be both ordinary and necessary. Providing recycling for the constituents in these multi home families qualifies as a deductible that the landowner can benefit from. This process makes the process of multi family homes installing areas for bins for collection an economically viable option. They can also claim deductions through depreciation as the years go by. These financial benefits allow for incentive programs to be put together for residents. Multi Family Units could reduce the utility bills of residents who recycle the most solid waste, or give small gifts to the family that provided sustainable services. Thinking along these lines would benefit the owners of the MFU’s by increasing resident satisfaction. The more the resident recycles, the more money the MFU saves.

Call to Action

Increasing the diversion rate is important to reduce the growth of landfills. A common knowledge exists that poor management of waste is bad and people need to cut down but why exactly is it? Why are landfills such a problem? “Landfills are estimated to account for about 35% of anthropogenic CH₄ (methane) emissions in the United States and 5–10% of global CH₄ emissions to the atmosphere,” (Kaufmann and Stern, 1996). “Landfills are one of the largest anthropogenic sources of atmospheric methane in the U.S.” (U.S. Environmental Protection Agency, 2014). Emissions are dependent on the size of landfills, the type of waste in landfills

and other factors. By recycling, a community can reduce the number and growth of landfills. If we can reduce the growth of landfills we can reduce the amount of methane emissions into the atmosphere. Waste disposal in landfills doesn't only affect the atmosphere. Waste disposal leads to transfer of substances from the waste to air, water and soil. This leads to contamination to the environment. Examples of contamination include groundwater pollution at landfills, air quality affected by air emissions and metals in soil and after compost use (Christensen, 2011). It's pretty clear that waste in landfills is a problem but waste itself isn't the problem. The problem is the management of waste. The City of Scottsdale has been managing waste with recycling in single-family home, but struggles to do so on the same scale in multi-family homes. We hope to increase the diversion rate in Scottsdale by achieving the same success in multi-family residential homes.

Waste can have positive impacts on the environment if recycled and managed correctly. For example, the paper recycling industry alone saves 17 trees for every ton of paper it keeps out of the landfill. If all morning newspapers read around the country were recycled, 41,000 trees would be saved daily and 6 million tons of waste would never end up in landfills (Martin, 2003). This paints a vivid image of how beneficial recycling can be. There are multiple benefits from diverting waste from landfills. Environmental benefits include conserving natural resources, preventing pollution by reducing the need to collect raw materials, reduce greenhouse gas emissions that contribute to climate change and sustaining the environment for future generations (U.S. Environmental Protection Agency, 2016). Natural resources are conserved because recycling provides the materials needed to create new products. There is no need to use energy in extraction of raw materials when the materials already exist and are ready to use after recycling. If waste gets recycled that means there is less waste going into landfills that result in less

greenhouse gas emissions. By reducing greenhouse emissions, landfills may lower their contribution to climate change and all the negative impacts associated with climate change. The largest environmental benefits happen when recycled nonrenewable material can replace virgin resources (Christensen, 2011). By increasing the diversion rate, we would increase the amount of recyclable nonrenewable materials available to manufacturers and have the largest environmental benefits.

Conclusion

While there are a variety of strategies that the City of Scottsdale could use varying from outreach programs, working with nonprofits to test pilot projects, increase bins and pickups, or apply for federal tax credit one barrier needs to be knocked down in order to successfully increase diversion rates. City mandates have been one thing that have enabled other cities around the country to achieve high diversion rates. However, as the City of Scottsdale is not currently permitted to set regulations this is a challenge. In order for the city to potentially begin enacting mandates the current political structure would need to change. The research shows that mandates are required to achieve higher than 30% diversion rates, however, in the case of Boulder they did not place any mandates on the multi family units and were able to achieve an overall 33% diversion rate.

Scottsdale has shown that it values sustainability; they have set goals and built structures in a way that shows that they care about their surrounding environment. As the Director of Sanitation for the City of Scottsdale, Dan Worth visualized the reality of increasing the percent of solid waste diversion rates in multi family housing. To help solve this problem, he enlisted our team to research and develop a solution that would increase diversion rates in MFU to 30% by 2030. Our team researched demographic data, financial information, environmental effects, and

case studies to institute a strategy that was well informed. We found that the optimal way to approach this issue would be to ensure access to recycling bins, educate the residents, and incentivize them to recycle more. We believe that if the City of Scottsdale implements our solutions they will see the increase in solid waste diversion that they are looking for.

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