
Curbside Recycling...

Out with the Bins, In with the Carts.

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Introduction

Curbside recycling is now the norm in most suburban communities. Every week, residents carry their recycling bins to the curb where the recycling truck picks up the cleaned and sorted recyclables. Residents feel good because they are helping reduce our reliance on landfills. But current recycling programs have flaws that prevent recycling rates from being higher.

Bins can be too heavy for some to take them to the curb. Sorting requirements can be confusing. Wind and animals scatter and create litter out of the recyclables. Rain soaks paper, turning it into a heavy mush that now must be disposed of. Overflowing bins compound the problems and make our communities unsightly on collection day. Given these problems, it is not difficult to see why recycling participation and collection rates have started to decline. The recycling bin itself can be implicated as a factor in causing each of the problems listed above.

To test this theory, the Solid Waste Agency of Northern Cook County conducted a year-long pilot program to determine if a larger recycling cart would have a positive impact on recycling rates. As we'll see below, a recycling cart can solve the problems plaguing our recyclable collection programs.

History

The Solid Waste Agency of Northern Cook County (SWANCC) is a group of 23 communities located in the northern Chicago suburbs. The Agency is responsible for managing its members' municipal solid waste. Part of this responsibility is helping member communities initiate and sustain curbside recycling programs. Since 1991, all of the SWANCC communities have offered curbside recycling to their residents.

The typical recycling program consists of an 18-gallon recycling bin that is collected once a week. Some communities require residents to put paper in a paper grocery bag and place it next to the recycling bin. Most communities will provide additional bins to residents if requested. Given the structure of these programs, the recycling rate for the SWANCC region has reached an equilibrium.

Recycling Rates

Recycling rates in the SWANCC region peaked in 1996 at 41.2%. The State of Illinois' mandated recycling goal is 25%. Illinois includes landscape waste composting as recycling in its mandate. Since 1996, overall recycling rates have slipped gradually to 38.6% in 2000. Looking only at the curbside recycling portion (excluding landscape

waste), SWANCC residents recycled 794 pounds per household in 1996 compared to 750 pounds per household in 2000. This is a 5.5% overall reduction or a 1.4% reduction per year.

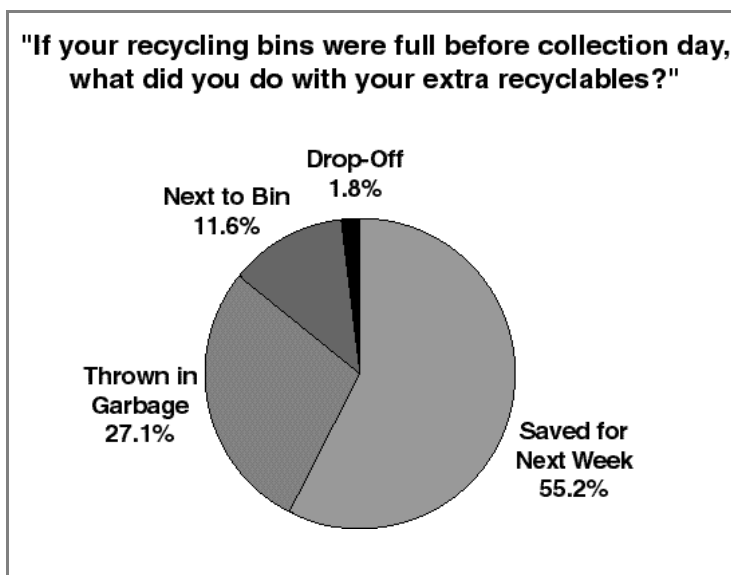
SWANCC speculated that the reduction in recycling rates was being caused by decreased participation and the finite space available in recycling bins. The finite volume of the bins creates an upper limit on the total volume of recyclables collected. This limit was reached in 1996 in the SWANCC region. If recycling could be made easier and a larger container provided, the downward trend in recycling rates could be reversed. SWANCC decided to devise a pilot program that would give residents a replacement for their current recycling bin(s). The pilot would run for at least a year and include a survey of residents regarding various aspects of the pilot.

Bins

The standard recycling container issued to residents in the SWANCC region is an 18-gallon recycling bin. Some residents use two bins to handle larger volumes of recyclables. In the pilot area, 22.0% of households used two bins. Other programs in the SWANCC region encourage residents to place paper in paper bags that are placed next to the bins on recycling day. During the development of the pilot project, a number of flaws with bin-based collections were identified. They include:

- Overflowing materials contribute to litter.
- Lack of a lid exposes recyclables to weather conditions reducing their value.
- A loaded bin may be difficult for some residents to carry to the curb.
- Excess recyclables may be thrown away in the garbage.

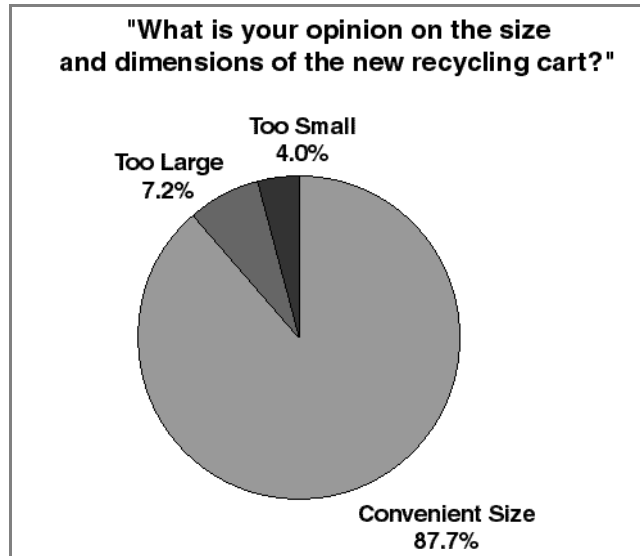
During the pilot program, residents were surveyed and asked what they did with excess recyclables when using their recycling bins. While a majority of the residents placed them adjacent to the recycling bin or saved them for the next week's collection, 27.1% of the respondents indicated they placed the excess recyclables in their garbage. The chart above shows how residents handled excess recyclables.



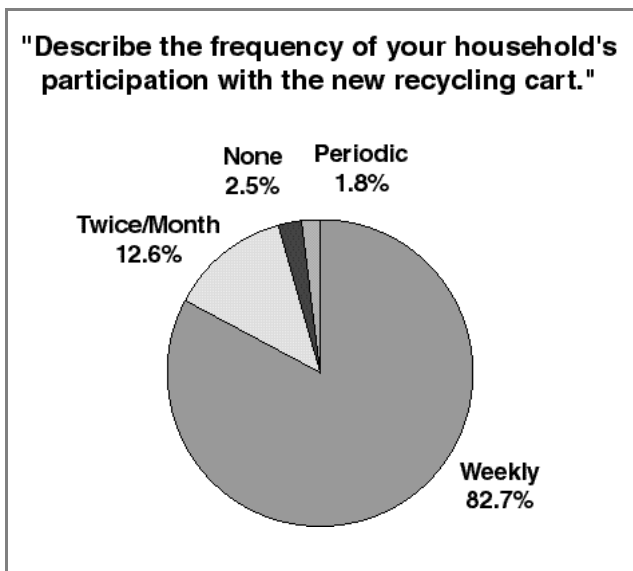
It appeared to SWANCC staff that the current recycling bins created a “bottleneck” that inhibited the flow of recyclables from the resident to the processor. The other flaws with the bin programs hurt participation and resident satisfaction with recycling programs.

Carts

To overcome the problems identified with the recycling bins used in all of the region’s recycling programs, SWANCC decided to use 65-gallon carts for the pilot program. The advantages of these carts were the increased capacity, a lid to prevent exposure to the elements and reduce blowing litter, and wheels to facilitate setting the cart at the curb. The chart to the right shows how residents reacted to the size of the cart. 87.7% of the survey respondents indicated that the cart is a convenient size.



Carts were issued to 450 residents in the Village of Skokie that have curbside recycling service. Residents were educated about the details and goals of the program. They were instructed to put their cart out at the curb only when the cart was at least half full. The thinking was that the total number of set outs would be reduced, thus increasing the efficiency of the collection and possibly allowing every-other-week collection. In the end, 82.7% of the respondents still set out the cart on a weekly basis. It was clear early on that weekly collections would still be required.



Initially, the pilot program required a split cart to accommodate the two-sort collection system that is used in the region. Each cart had a divider that separated rigid containers from fiber-based materials. Residents were instructed how to separate their materials so the recycling truck could tip the cart and the materials would end up in the correct bin on the truck.

Unfortunately, the divider caused material to become jammed in the cart requiring the driver to manually pull the material out of the cart. The end result was significant increases in the collection time.

Single-Sort

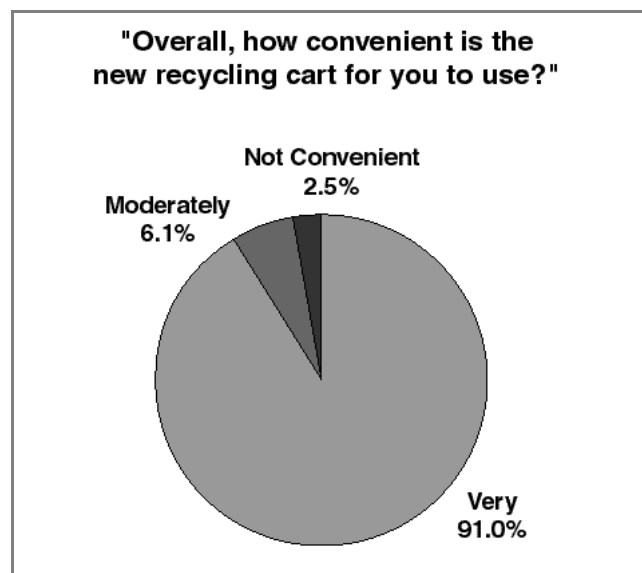
The solution to the increased collection times was to remove the cart's divider and convert the collection to a single-sort system. With this system, residents are able to commingle all of their recyclables in an undivided cart. We were fortunate that the recycling company involved in the pilot, Groot Recycling and Waste Services, had been in the process of developing the systems needed to provide single-sort collection service.

Single-sort has two main benefits. The first is increased efficiency. Once the single-sort collection was implemented, the collection times were reduced to times comparable with bin collections. The collection company is also freed from having to use expensive multi-compartment recycling trucks. Standard rear-load or front-load refuse trucks can be used for recyclables. This provides the hauler with great flexibility and utilization of the truck fleet.

Not only does it drastically reduce collection time over the split cart, it also makes recycling easier for the residents. Residents no longer have to sort their recyclables and place them in the bins in prescribed configuration (i.e. paper on bottom, containers on top). All recyclables are commingled in the cart. While a few residents expressed concern about the lack of sorting, most residents welcomed the ease and convenience of the single-sort system.

Resident Reaction

At the conclusion of the pilot project, SWANCC surveyed the 450 households participating in the project. Of the 450 surveys mailed out, 277 responses (61.6% response rate) were received. In general, the residents' reaction to the program was overwhelmingly positive. When asked how convenient the recycling cart was to use, 91.0% said it was very convenient.



Comments included on the survey emphasized the satisfaction with the program.

"I love this way of recycling – Everything fits in the cart. It's easy to roll to the street and I do not have to sort things. I hope you expand this program."

"I really, really hope that we'll be allowed to continue using the cart."

"Please continue and expand the recycling program. I have seen how much less garbage we have and how much more we have been recycling each week. Some weeks we have more recycling than garbage."

Increased Recycling

Prior to starting the pilot project, recycling volumes were carefully tracked in the pilot area. This provided a baseline to compare the effect the cart has on recycling rates. Before the pilot, residents recycled 15.47 pounds of paper per household per week and 3.87 pounds of containers per household per week. During the pilot, residents recycled 16.43 pounds of paper (up 6.2%) and 4.46 pounds of containers (up 15.2%).

Overall, the pilot has resulted in an increase of 8.0% of the curbside collected recyclables. Since curbside recycling accounts for approximately 50% of the overall recycling rate (landscape waste accounts for the other 50%), the use of a cart has resulted in an approximate increase of 4% in the overall recycling rate.

Financial Impact

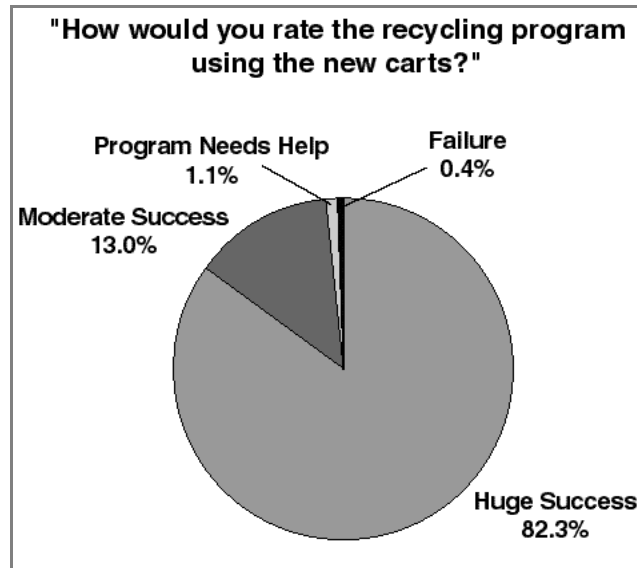
Unfortunately, increased recycling does not come without a cost. A sixty-five gallon cart can cost anywhere between \$40 and \$50 per cart. Prices may be slightly lower if significant quantities are involved. Eighteen-gallon recycling bins cost approximately \$6 per bin. A resident with two bins will have \$12 invested in the collection container. Over the life of a 5-year municipal recycling contract, bins cost \$0.20 per household per month. A 65-gallon recycling cart will cost between \$0.67 and \$0.83 per household per month.

The price differential may be decreased as the cost to pick-up litter in the community is decreased. Reduced landfill tipping fees due to higher recycling rates will also lessen the impact of purchasing recycling carts. Given the pilot programs popularity with residents, the additional costs may be justified to provide better recycling programs in our communities.

Conclusion

When asked how they would rate the pilot project using recycling carts, 82.3% of the respondents rated the program a “huge success”. An additional 13.0% rated it a “moderate success”. Overall, that’s a 95.3% approval rating for the program.

Given the overwhelming approval from the residents and the successful increase in recycling, SWANCC is recommending to its member communities that they consider moving to a cart based recycling program as they renew their municipal recycling contracts.



Acknowledgements

SWANCC would like to thank the following groups and companies for their participation in the pilot project:

- Village of Skokie
- Groot Recycling and Waste Services
- Plastic Omnium Zarn
- D&B Fabricators
- Perkins Manufacturing
- Standard Equipment Company
- Kann Manufacturing Corp.

Appendix

Frequently Asked Questions

As part of the pilot project, residents were asked to provide feedback regarding the project. Many residents had questions and comments that warrant a response. The following questions and comments are from responses to the final survey of the pilot project. Some questions have been edited for clarity and to combine similar inquiries into a single topic.

"Drivers often spill material from the bins on the ground without picking it up."

"The driver occasionally does not empty the entire recycling cart."

"Carts are left in the street or in the middle of driveways blocking cars and traffic."

Complaints regarding the performance of drivers should be directed to the Public Works department. The department will investigate the complaint and remedy the situation with the hauling company.

"The recycling cart is too large for the amount of recyclables we generate."

"I don't have enough room for the recycling cart."

"The cart is too big for me to handle. Do I have to use the recycling cart?"

The Village is not forcing you to use the recycling cart. If you would prefer to use your old recycling bins, call the Public Works Department and they will arrange to pick up your recycling cart. Be sure to place your recyclables in the orange bins so that none of the materials can blow out of the bin or be picked at by birds or squirrels.

"My cart has been damaged by the collection truck. What should I do?"

Contact the Public Works Department. They will arrange for your cart to be repaired.

"What should we do with the orange bins now that we are not using them?"

You may keep the orange bins for whatever use you like. If you would rather not have them, contact the Public Works Department and arrange to have them picked up.

"Why were the dividers removed from the recycling carts?"

The dividers were removed to make the collection process more efficient. In the past, recyclables had to be separated because the recycling plant was not able to perform this separation. The recycling plant is now able to separate the paper/cardboard recyclables from the containers automatically. Dumping a single cart is faster than emptying multiple bins. The divider was slowing down collection because of recyclables jamming in the cart. Another benefit to removing the divider is that a specialized recycling truck is no longer needed. A less expensive refuse truck can be used to collect recyclables. Finally, placing all recyclables in one cart makes recycling easier for residents. Easier recycling promotes greater participation.

"How are the materials recycled?"

At the recycling center, a series of screening equipment separates the paper/cardboard fraction from the rigid container (cans, bottles, milk jugs, etc.) fraction. Cardboard is then mechanically separated and baled for transport to cardboard manufacturers. The remaining paper is sorted by hand into newsprint, office ledger, and mixed-residential grades. These paper grades are baled and shipped to their appropriate paper mills.

Steel cans in the container fraction are separated using magnets, aluminum cans are separated using an eddy current machine, and the plastics are separated by hand according to the type of plastic in the container. All of these materials are baled separately and shipped to appropriate processors and manufacturers.

A small fraction of rejected material is left over (less than 5%) which is disposed of.