

A GUIDE TO IMPLEMENTING A CART-BASED RECYCLING PROGRAM





Dear Reader,

Since 2003, The Recycling Partnership has been working to get more, better material into the recycling supply chain. Today we do that work by focusing on two key areas: access to recycling (both point of access and volume of container) and quality (low contamination is a must). We have four mechanisms to help: technical assistance when it comes to operations, education and outreach tools to drive community engagement, grants, and working with elected officials to help them understand the impact of their community programs. This robust model is working nationwide and we're very proud of its measurable results.

Local governments offer recycling programs because their citizens look for effective community services and because demand for recycled cans, bottles, and paper is higher than ever before. Our charter is to help communities offer stronger, more cost effective recycling programs and this workbook is one such tool designed to do that very thing. When communities transition to cart-based recycling, they see many positive outcomes including:

- **Cost savings:** Local governments are able to save money in collection costs through the automation that comes along with the use of recycling roll carts. When Orange County, North Carolina converted to single stream cart-based collection, their collection costs were reduced from roughly \$4/Household/month to closer to \$3.35/household/month, equaling almost \$200,000 in savings annually.
- **Improved employee safety:** Communities that replace manual collection with a more automated cart-based collection dramatically preserve their most important asset: their staff members. Minneapolis, Minnesota reduced workers' compensation claims by \$250,000 within the first year of transitioning to carts.
- **Ease of use improves participation rates:** Without ease of use, participation is limited. It is projected that Recycling Partnership community Columbia, SC will experience a 500% increase in their recycling rates due in large part to the increased size of the recycling receptacle. That increased participation rate also affords more operational efficiencies for the City.
- **Less in the landfill means more savings:** Increasing recycling decreases garbage, thus local governments realize more savings in garbage collection and landfill tip fees. While collection costs vary from one community to the next, the collection cost for either trash or recycling often exceeds \$100/ton. For example, in 2014, Cary, NC reported a cost \$137/ton for the collection and transport of solid waste, \$122/ton for the collection and transport of recyclables. And places like Scarborough, Maine recently reported the town has saved \$1.5 million in reduced garbage disposal fees since transitioning to cart-based recycling collection nine years ago.
- **Increased recycling is a net positive for our environment:** Recycling Partnership community Richmond, VA recently made program improvements that will result in 10-year savings of more than 300,000,000 gallons of water and 143,000 metric tons of CO₂. That's equivalent to taking 30,000 cars off the road.

I'd like to offer a sincere thank you to The Recycling Partnership's Technical Council, a group of national recycling leaders who donate their time to help us develop tools like this, and more. We're grateful for your ongoing help.


Sincerely,

Keefe Harrison, CEO

CONTENTS

Introduction: Why The Fuss About Carts?	4
Education and Outreach	9
Elected officials / Front line staff / Citizens	
Budgeting	17
Trucks & Equipment / Drivers & Collection Crews / RFID Data Collection / Carts / MRF Processing / Contract Hauler / Education	
Collection	25
Collection Techniques / Routing / Hauling and Transportation	
Muti-Family	29
Key Considerations / Informing the Residents / Funding	
Processing	33
RFP & Contract Development / Quality Control	
Trucks	39
Truck Configurations / Key Questions Answered / How to Purchase	
Cart Procurement, Delivery and Guidelines	47
Key Considerations / How to Purchase / Cart Assembly and Distribution / Common Pitfall: My Cart is Too Big!!!	
Grow and Maintain	57
Ongoing Communication / Measure / Improve	
Incentive Based Recycling	61
How Incentive Programs Work / Key Points / Incentive Programs Available to Your Community	
Appendix	64

This Carts Guide is a collected version of our online Single Stream Roll Carts module.
A digital pdf with hyperlinks (underlined in the printed version) is available at
tools.recyclingpartnership.org/archives, click on Digital Carts Guide.

 Printed on Neenah Environment. FSC 100% Post-Consumer

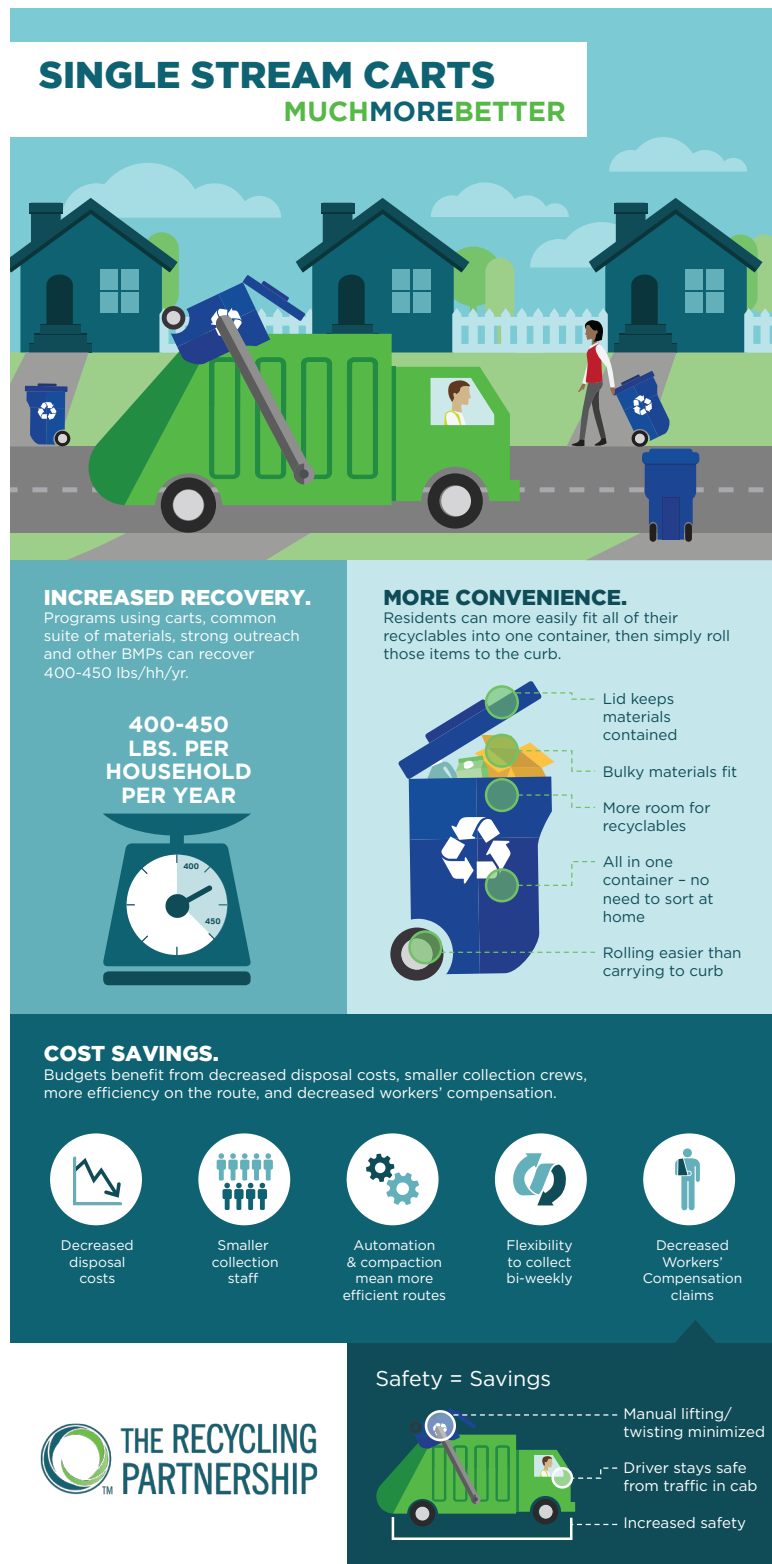
COPYRIGHT © 2015 THE RECYCLING PARTNERSHIP

A Guide to Implementing a Cart-based Recycling Program

CARTs (Cart Access = Recycling Tonnage)

Whether you're creating an entirely new recycling program or upgrading from another system, this implementation guide will help make the transition to single stream curbside cart collection of recyclables easier.

Need help explaining the benefits? [See the appendix for a copy of this infographic.](#)



Cost Savings

Efficiency
Reduced Disposal
Overhead

Cost Savings

Cart-based service results in lower worker's compensation claims and insurance premiums and better route efficiencies, which translates to less fuel, maintenance and overhead. Plus, with more recovery comes less disposal and decreased disposal costs.

Better Service

Roll to Curb
Ease of Use
Contained Items

Better Service

Residents can more easily fit all of their recyclables into one container, then simply roll those items to the curb.

Worker Safety

Off the Streets
Less Lifting

Worker Safety

Switching to carts eliminates the need for your employees to bend down and pick up heavy bins and if you transition to fully automated collection with an arm, you remove your employees from the streets.

Increased Recovery

Off the Streets
Less Lifting

Increased Recovery

Programs using carts can recover 450 pounds per household per year.

HOW TO USE THIS GUIDE:

This Guide is Modular

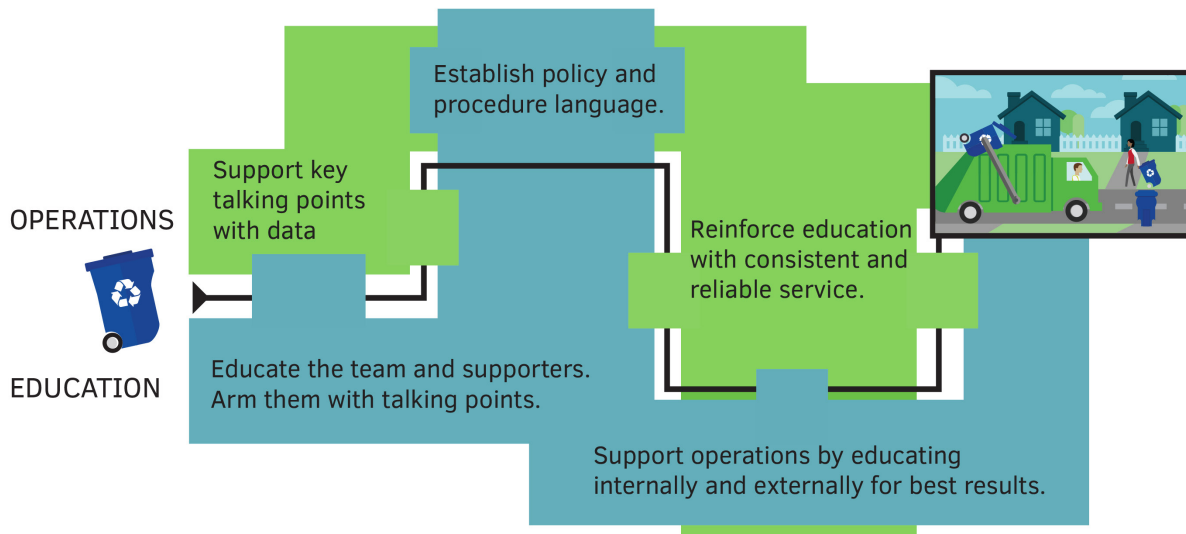
Each section stands on its own. For example, if you have a firm grasp on everything except for cart procurement, you can simply use the section on carts.

There Are Practical Tips (Pro Tips), Real World Examples, and Savings Alerts

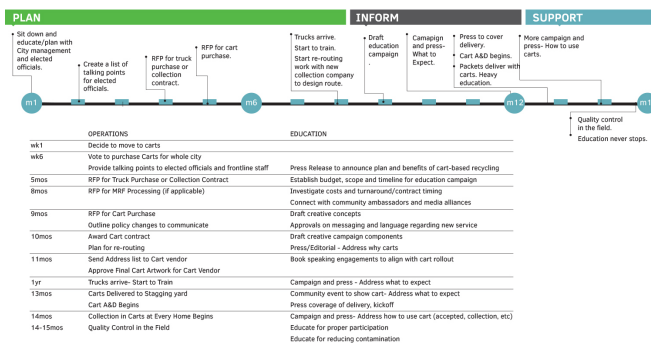
Exploring the idea of switching to carts? or looking to elevate a program with “strong bones”?

If you operate a local government recycling program, this guide was written for you. It draws from real world experiences and covers what you really need to know to help you plan and budget your transition to curbside recycling in carts. It's chock-full of reminders to help you be successful, and it points out potential pitfalls and how to avoid them. You'll find concrete examples and rules of thumb to take much of the guesswork out of switching to carts, along with timelines to keep you on track.

OPERATIONS and EDUCATION: FULLY INTEGRATED FOR SUCCESS



IMPLEMENTING CART-BASED SERVICE: 15-MONTH TIMELINE



Ready to get started? This timeline is an overview of a 15-month rollout. See the [appendix](#).

A Note About Variables

Every local government is unique. Community characteristics, populations, housing density, budgets, procedures, available resources, geographic realities – these set your local government apart from the rest. They are the reasons that one size does not fit all when it comes to local government programs.

Every local government has commonalities, too. They all have residents who create waste, some of which can be recycled. They all want to provide good service to those residents, and they all strive for efficient, cost effective operations. In the modern recycling world, they could all benefit from upgrading to the best management practice of single stream curbside cart recycling.

This guide focuses on contract and in-house collection approaches and assumes that every household will get a cart. This allows for more complete coverage of integral topics from the local government perspective. Regardless of your approach, you will find useful information to make your transition as smooth and seamless as possible. Best of luck!



Our first three 2014-2015 Recycling Partnership cities were selected for grant support partly because their projected increases from adopting carts are so high.

Florence, AL

Richmond, VA

Columbia, SC

90%

projected increase in lbs per household: Florence, AL

123%

projected increase in lbs per household: Richmond, VA

500%

projected increase in lbs per household: Columbia, SC

EDUCATION AND OUTREACH



Education and Outreach

ROLL CARTS

Education Section

Elected officials
Front line staff
Citizens

Marketing Rule #1: Know your audience. When you're rolling out curbside cart recycling, your audience that includes all of your citizens, plus the elected officials and other decision makers who need to approve the new program, not to mention your front line staff who have to be ready to handle the wide array of questions they're sure to get. Providing adequate education is important but can be overwhelming. This guide will help you prioritize by identifying different messages needed for each of your key audiences.

Intimidated? Don't be. Use these audience-specific tips, which will help you avoid some common pitfalls and take advantage of what other program managers learned the hard way.

Education Timeline

See the [appendix](#).



THE REAL WORLD

Every local government is different. Large cities like Columbus, Ohio with over 200,000 households in their program, have hired a private marketing firm to assist with education and outreach, while small cities like Smithfield, Rhode Island have a half-time employee working 20 hours a week working with residents of the community to improve recycling through education and outreach. The size, budget and technique are not important. The important part is that you consistently inform your residents so recycling carts are filled with good quality recyclables.

► Elected Officials

Department decision makers and elected officials have a lot on their plate. Suggesting the expansion of any public service in a time where budgets are tight isn't always an easy sell. Your community leaders always want to make the right decision for their citizens so help them understand the whole picture.

Schedule a special recycling meeting. Brief your decision makers in advance of public meetings. Be fully prepared with the budget, game plan and rationale. One key strategy is to point to other local/regional examples that have made the transition successfully and share metrics from those examples. If resistance is anticipated in any part of the decision-making group, consider one-on-one meetings with key decision makers to build understanding, support and momentum. This is good for the health of the community, environmental as a whole, and your bottom line.

Be quick and to the point. Keep in mind elected officials have a wide array of issues they must understand and make decisions about. Bulleted lists, graphs and pictures are all powerful ways to get a point across efficiently.

Show the whole fiscal picture. It's important to profile beyond just the recycling budget by including:

- Truck and cart capital. More recycling trucks means fewer garbage trucks.
- Increase in recycling tonnage potential with carts.
- Decrease in workers' compensation insurance.
- Decrease in garbage tonnage and avoided tip fees.
 - Truck maintenance cost, fuel, employee time and landfill tip fees.
 - Possible decrease in garbage collection costs if one or more routes can be eliminated through route consolidation because of a decrease in the amount of garbage that must be collected. Recyclables have a lot of volume frequently more space than weight, so garbage trucks won't fill up as fast.
- If using automated collection, show potential for increased worker safety and decrease in workers' compensation claims. Increased worker safety is a big deal. Automated cart collection means fewer accidents which saves lives and money.
 - If using automated collection, show the potential for fewer employees involved in collection – just one per truck covering a large number of households.
 - Show route efficiency with more automated collection and compaction.
 - Calculate reductions in recycling collection costs if more efficient one-person compacting trucks (and possibly automated trucks) replace rear packers that require two or three workers. Total cost of garbage collection including: If your community is transitioning from recycling bins to carts:



THE REAL WORLD

After Transitioning from bins to carts using semi-automated collection, the City of Minneapolis realized a savings of over \$250,000 in workers' compensation claims within the first year.

Financing approach and cost to citizens.

- Show how the program will be paid for, including the impact on citizens.
- Be sure to highlight when capital purchases will be paid off and the improved financial sustainability for solid waste management. This is a better long-term solution!

Proactively address the size and shape of the cart. Concerns over the new cart being too big and hard to manage always come up. Stay in front of this common but short-lived concern:

- Use the resources in this guide ([see the appendix](#)) to show the differences in the size and similarities of the footprints.
- Explain that the larger cart allows for bulky items like cardboard and five-gallon buckets to be recycled easily.
- Explain how the cart keeps the recyclables contained and dry and eliminates blowing litter.
- Describe how the larger carts provide extra capacity for future recycling growth. As the suite of acceptable items grows, you'll be ready.
- If you are planning for the larger cart – 96 gallons – be sure to explain that the extra capacity allows for program maximization and opens the door to an every other week collection schedule.



THE REAL WORLD

As for large carts being hard to manage, consider the following true story:

During a public meeting in a small coastal town in North Carolina, the City Manager's 70-year-old mother entered the room rolling a large recycling cart. She parked it in front of City Council. After a brief pause, the City Manager himself popped out of the cart and exclaimed: "If my dear mother can pull my 200 pound body down this aisle, I'm sure most of our citizens can handle pushing a cart down their driveway!"

(Note that some citizens will actually not be able to handle the cart, or a bin, or a garbage container. Be sure to provide for them in your collection plans.)

► Front Line Staff

It's time to get personal. Your front line staff, from the driver that collects the carts to the customer service staff who answers phone calls and emails, is interacting one-on-one with your citizens on a daily basis. They are the public face of your program, and they will be the ones answering the majority of the questions. It is mission critical to educate them on cart recycling details early and update them immediately with any changes. **Here are some key points to remember:**

Prep the phones. Once the community (or possibly "elected board") has approved the move to carts, provide talking points, answers to frequently asked questions, and other details to all staff who answer the phones. As soon as citizens start to see information in the news about recycling changes, they will begin to call. Your staff must be ready.

Arm the trucks. Whether you're collecting in-house or through a private hauler, ensure that each truck has a stack of up-to-date educational handouts. Keep it simple by focusing on materials accepted and how to use the cart. Instruct each driver to provide handouts to anyone asking questions.

Meet the need. Have a hands-on meeting with all front line staff. Showcase and pass around samples of the recyclable material that is accepted and not accepted. Review the expected common questions and the best answers. Consider role-playing exercises as part of the meeting. Stress the importance of being helpful, supportive and positive. Follow up with informal check-ins to learn what common questions are arising; you can then work to address those more broadly.



PRO TIP

Take your front line staff on a field trip to your local MRF. Seeing the process first hand will build their understanding and improve their ability to educate citizens.

► Citizens

This is the big campaign. Your audience is vast and varied, and their participation in the carts program is critical. Let them know the program is coming, carts are being delivered, and how they should use them. It's much easier to get it right from the beginning than to try to change behavior later. Spend the effort up front! Make it pertinent to them, and employ some of the following tips and tactics to bolster success.

Create a home base. Provide one consistent phone number and website for assistance and additional resources. Make sure those resources are stocked with current information that's branded to represent your recycling program and you're ready for business.

Kick it off. An event can be an easy way to generate news coverage and buzz. Involve community leaders to attract more attention, and be sure to prep those leaders with talking points.

Hit the road. Community groups are an efficient avenue to various segments of your community. Schedule some visits and talk with these engaged citizens. At the very least you can educate them, and you may be able to turn them into ambassadors for your program. Many organizations support online chat groups or LISTSERVs that you might be able to plug into. You know your community, so choose the most diverse and far reaching groups in your area.

Deliver carts with information. When you deliver carts, be sure to include an informational packet. Remember that cart recycling is new to your citizens, and the cart is the daily embodiment of the program for them. Connect it to the right information and you'll be off on the right foot.



Include the critical details:

- A graphically rich postcard displaying accepted materials.
- A calendar card with the exact days that home has collection.
- A diagram of how to set the cart at the curb. For example, show the cart at the curb, three feet from the mailbox and other carts, free from overhanging trees, handle facing the house, and out by 7 a.m.
- A magnet and sticker displaying accepted materials.
- A letter from the mayor or another community leader briefly outlining WHY and HOW, and thanking each citizen for participating.

Affix the packet securely in a waterproof baggie or envelope. – place image of baggie here from cart rollout in Florence

- Many communities choose to tie the packet to the cart handle.
- Cart manufacturer IPL stuffs material in an envelope with a peel-and-stick backing.
- What not to do: communities have tried simply pinching a brochure under the cart lid, only to have those materials ruined by rain, whipped around town by wind, or slipping to the bottom of the carts for citizens to fish after.

It's never one and done. For a person to truly absorb a message, it typically takes three to seven “touches.” A letter or press release only counts as one. Consider other options like cart packets, banners, municipal bill inserts, yard signs, stickers on newspapers, videos, radio commercials, local media and social media.



THE REAL WORLD

The City of Tampa, Florida found success through speaking at different community group meetings to discuss the new carts that were going to be delivered. Staff from the City of Tampa's Solid Waste office scheduled meetings with various neighborhood Home Owners Associations (HOA)s and civic groups. This allowed citizens from different sectors of the community to ask questions to learn about the carts, give feedback to the city, and spread the word throughout the community.



PRO TIP

Fewer words, more pictures. What materials do you accept? How should citizens position their carts at the curb? Show to tell.

Keep it simple. Perhaps more than ever, people are busy. Show that cart recycling makes their lives easier. This is more than a program improvement, it's a life improvement. Simplifying people's lives is universally accepted as a good thing.

Keep a positive tone. Don't guilt your residents into recycling. Your residents will respond better to positive reinforcement and will want to continue improving the recycling system.

Don't bury the lead. When you talk about rolling out carts, avoid the temptation to inform your audience of EVERYTHING happening with your program. Some communities bundle cart information with details on upcoming special events, public safety, and employee of the month... the list goes on. That approach can overload the audience and the cart messages get lost in the mix.



PRO TIP

Media relations. Engage local media early and often for free or earned media. Invite them to events and get them access to key players. Send them pictures and stories with great quotes. Develop letters to the editor from various solid waste reps.

💰 SAVINGS ALERT

Don't go it alone. The Recycling Partnership has created full campaigns with a host of professionally designed materials for launching carts programs. Check them out and use them!

Visit tools.recyclingpartnership.org for resources.



BUDGETING

BUDGETING

BUDGETING ROLL CARTS

You're probably well practiced at budgeting for your normal operations and taking into account equipment, personnel, fuel, maintenance, contractors, education, and (hopefully) recycling revenue streams. Budgeting for a carts program has a few nuances that must be considered, but it's not so different from what you've been doing for years. Here's what you need to know:

Budgeting Section

Trucks & Equipment
Drivers & Collection Crews
RFID Data Collection
Carts
MRF Processing
Contract Hauler
Education

Tonnage Calculator: [See the appendix.](#)

SS-CG(15) (Single Stream - Curbside Cart residential) **Community Tonnage Calculator** 15 (to use enter)

Part 1

Section A:

1. Pounds of Residential Recyclables Currently Recovered Annually
2. Total Number of Households Served: If subscription-based service, enter total households in community.
3. Divide Line 1 by Line 2 and enter the product here. (This is your current pounds per household recovered annually.)
4. Enter 304 here. (This is an average baseline number of annual pounds per household for carts.)
5. If your cart program will accept glass, enter "87" here. If not, enter "0".
6. Add Lines 4 and 5.
7. If your new cart program would have a strong outreach and education component that includes a multi-faceted outreach campaign - direct mail or other outreach announcing the program, literature delivered with cart, annual collection calendar, clear images on website - and continued promotion through media local citizens regularly use, multiply Line 6 by 1.15. If not, re-enter the amount from Line 6 here. (This is your estimated annual pounds per household recovered if you switch to carts.)
8. Subtract Line 3 from Line 7. (This is your estimated additional annual pounds per household recovered if you switch to carts.)

► Trucks and Equipment

Just like the rest of your fleet, or your personal vehicle for that matter, you've got to purchase, maintain, and eventually replace your cart-specific trucks and equipment. Variables in body and chassis types, order sizes, and added features will dictate actual costs, but here are some general figures you can use in your calculations:

Cab, Chassis and Body Configuration Truck	Estimated Capital	Estimated Annual Maintenance	Replacement Schedule	# of Employees/
Fully Automated Side Loaders	\$210,000 to \$280,000	\$20,000 to \$30,000	7 – 10 years	1
Semi-Automated Side Loaders	\$180,000 to \$250,000	\$15,000 to \$25,000	7 – 10 years	1 to 2 depending on route config.
Rear Loaders	\$110,000 to \$180,000	\$10,000 to \$18,000	7 – 10 years	2 to 3 depending on route config.
Narrow Rear Loader for Alley Collection	\$150,000	\$10,000 to \$15,000	7 – 10 years	2 to 3 depending on route config.
Front End Loader	\$260,000	\$25,000 to \$30,000	7 – 10 years	1
Bucket Attachment for Front End Loader	\$80,000	\$3,000 to \$5,000	7 – 10 years	1
Split Body	\$210,000 to \$280,000	\$20,000 to \$30,000	7 – 10 years	1 to 2 people depending on side vs. rear loading

Of course, that's only half of the equation. You need to know how many trucks you'll be purchasing to complete the formula. The key figure you'll need is the total number of homes that will receive service, but there are other variables that can come into play: the number of hours your drivers work each day, the density of your community, total route miles, the distance to unload, and possibly even the level of traffic. For simplicity's sake, let's look at what it takes if you assume 10-hour work days, single-family units (no more than four to six units), and a recycling facility relatively nearby: Weekly service: $((\text{Total number of homes}/5 \text{ days})/1,000 \text{ homes per day}) * 1.25 \text{ back-up vehicles} = \text{number of recycling collection trucks needed including back-ups}$. Every other week collection: $((\text{Total number of homes}/10)/1,000 \text{ homes per day}) * 1.25 = \text{number of recycling collection trucks needed including back-ups}$.

For example, let's look at a city that wants to collect every other week and has 100,000 households.

100,000 Households =

12.5

Trucks for every other week collection



Keep in mind, 25% back-up capacity is not a perfect science. You can also make older trucks in your fleet work, and we always recommend cost effective techniques like this. These formulas are for a basic understanding of how many trucks you may need. Each community is different. Very small communities that only have five trucks can possibly retrofit older trucks to make do or they may have the ability to organize routes in a way that will leave trucks available for back up.



THE REAL WORLD

Once you roll out your cart program, you will see a notable difference in the garbage tonnage your local government collects and disposes. Make sure this is understood in your garbage collection and disposal budget. Kent Seyfried, Solid Waste Manager for the City of Olathe, Kansas, was shocked to see residential garbage tonnage decrease by nearly 8,000 tons after a year of collecting recycling in carts.



SAVINGS ALERT

Many communities share trucks between garbage and recycling routes to save resources and reduce the need for back-up vehicles. This is not always recommended, but in a pinch just make sure the garbage residue does not affect the recycling stream.

► Drivers and Collection Crew

We've made this one easy for you. In the last section we walked you through how to figure out the number of trucks you need in service, along with the number of employees you need on each truck type. Just do the math. Your HR department will be able to provide pay ranges and the cost of benefits for drivers and laborers, completing the equation.



SAVINGS ALERT

Sometimes the decrease in workers' compensation claims and insurance premiums are a city's biggest savings. Don't forget to include this savings when looking at the full employee cost.

► RFID Collection and Reporting

As a reminder, Radio Frequency Identification tags, or RFID tags, transmit data through electromagnetic induction or radio waves. You can use them to capture a multitude of data to assist with your overall program – participation rates, low performing areas (good targets for education), service verification, truck location and routing. This data provides powerful knowledge for maximizing your program. Do yourself a favor and take advantage of the option.

You'll need some basic equipment and services:

Equipment

- **RFID tags.** You need one of these little data tags on every cart. \$0.70-\$1.00 per cart.
- **Truck readers.** These allow your collection vehicles to capture data from tags on carts. \$8,000-\$15,000 per truck.
- **Handheld readers.** You'll use these for asset management and ongoing tracking. \$3,000-\$7,000 per unit. Get one for asset management at your facility, plus one for every crew that will be delivering and maintaining carts in the field.

Services

- **Cellular data plan.** This allows your trucks to transmit captured data. \$15-\$50 per truck per month.
- **Web-based data plan.** You'll use this to access your data and related analysis in real time. Plans vary widely from very basic to deluxe, depending on the type and level of information you want to capture. \$160-\$2,000 per month, though typical costs are closer to \$300-\$600 per month.



SAVINGS ALERT

You may be able to combine your cellular RFID plan into your existing local government cell phone plan.

► Carts

The average cart should last 15 to 20 years. Think about that. What did your recycling program look like two decades ago? These carts you're about to order will weather a number of changes, while serving as a daily touchstone to your program for citizens. Be thoughtful in this purchase! Carts are made of plastic, and as such fluctuations in resin markets, or oil markets for that matter, can have a huge impact on what you pay. Other variables include freight, order size, and special features. That said, here are some general figures you can use in your calculations:

35-gallon cart	\$32-\$45
64-gallon cart	\$40-\$50
96-gallon cart	\$48-\$55
Assembly and Distribution	\$3.50-\$7.00 per cart
Optional Features:	
	RFID Tag: \$0.70-\$1.00
	In Mold Label: \$0.75-\$1.50
	Rubber Wheel: \$3-\$6 per cart
	Larger plastic wheel (generally 12"): \$1-\$2 per cart



PRO TIP

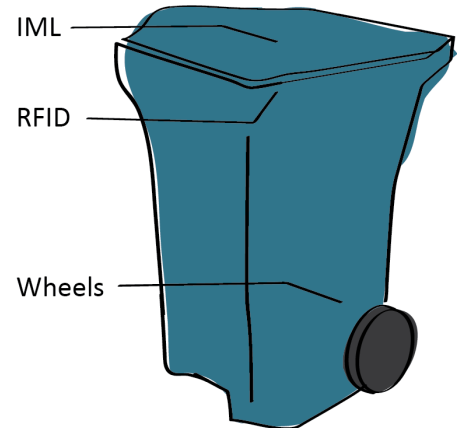
Protect yourself from resin market variability by including resin escalators/de-escalators in your cart contract. These clauses will allow cart vendors to be more aggressive in pricing as they take advantage of market shifts.

IML (In Mold Labels) are one place to communicate generic information about how to recycle, just keep in mind that carts can last 15 to 20 years and instructions may very well change in that time.

RFID (Radio Frequency Identification) Data collected from these tags is crucial to evaluate and plan your program. Even if your program is small, or if you don't have the capacity to utilize the data, it is more economical to deliver carts with these tags versus retrofitting them.

Wheels can be a maintenance issue. Talk to your cart vendor to decide what make is the best for your community.

OPTIONAL FEATURES



As with trucks, the unit price is only half of the equation. How many carts should you get? How about spare parts? Here are some guidelines:

- Make sure your house count is up to date and accurate, and add on 1-5% more to be safe.
- Pile on another 1-3% to replace lost, stolen or broken carts.
- Experiencing high growth in your community? Add up to 5%. Your planning department can help refine this figure.
- Order enough extra wheels, lids and catch bars to repair 1% of carts in service. You'll need them as drivers get used to the automated arms during the first few months after rollout.

Funding Options for Carts

If you've done your math correctly, you're looking at a sizeable capital outlay to purchase carts for your program. Consider some of the following options for financing this investment:

- Many local governments tap into their reserve funds and pay it back over time.
- Some local governments lease the carts back from their haulers who purchase the carts. Keep in mind it is most likely cheaper for the local government to purchase the carts themselves.
- Some cart companies can facilitate leasing programs through third party lenders.
- Creative private sector financing may be available. For example: Closed Loop Fund www.closedloopfund.com



SAVINGS ALERT

Grants, grants, grants! Look to your state recycling office and beyond. Ask The Recycling Partnership about cart grant opportunities. A sample of the 2015 Cart Grant RFP is [here](#). Join our mailing list to hear when new grant opportunities are released.



PRO TIP

Don't forget that the purchase of recycling carts is linked to the overall system cost adjustment. Though it can be expensive up front, your collection costs will go down. The carts' extra capacity can also allow for every other week collection wherein local governments find additional savings when transitioning from weekly service.

► MRF Processing – Single Stream Revenue

How do you feel about risk?

While there are infinite possibilities for customized recycling processing deals, there are two primary options when negotiating single stream revenue with your MRF: market-based/variable rate pricing or flat rate. As the names imply, one offers greater rewards when markets for recyclables are up, but fewer rewards when things go south; the other provides stability but may not maximize long-term revenues. It's rather like rolling the dice versus playing it safe, though you can hedge your bets and protect both your program and the MRF by negotiating floors and ceilings.



PRO TIP

Get creative with your MRF. You can work out a variety of deals tailored to suit your needs. For example, communities that are not close to a MRF and don't want to deal with day-to-day hauling expenses may negotiate a condition that MRFs pay for hauling from a centralized transfer location in or close to their community, covering the cost through material revenue. You want your MRF to be successful! Work with them closely to make it a win-win relationship.

Each MRF uses a slightly different formula to calculate its pricing. You will need to work closely with your MRF representative(s) to understand their structure so you are able to make informed decisions and budget for revenue. Here are the basics:

Market-based pricing

Typically, prices are adjusted monthly based on a pre-arranged formula like this:

$(\text{Average commodity rates} - \text{MRF processing costs}) \times \text{Negotiated \% split}^*$

*50/50, 70/30, 85/15 or some other breakdown.

For example, let's say the average commodity price is \$95 per ton, the processing cost is \$60 per ton, and the local government has negotiated a 70/30 split of profits. Here's how much the local government would receive per ton:

$(\$95 \text{ average commodity rate} - \$60 \text{ processing cost}) \times 70\% = \$24.50/\text{ton}$

This formula can easily include floors and ceilings. For example, you and the MRF could negotiate terms for floor pricing so you never have to pay if the revenue drops below \$0.

Flat Rate

This is a constant, standard price for your recyclables, typically negotiated for a set amount of time. To arrive at a figure, the MRF will need to have a basic understanding of the composition of your material. Prices could be anywhere from \$0 per ton to \$40 per ton depending on current market values and where you are in the country. You will miss out on any market booms, but sometimes in local government, steady and dependable budgeting is worth it.



PRO TIP

It is important to note that revenue should not be expected. Every MRF relationship is different and recycling markets fluctuate. The most important take away is the saving.



SAVINGS ALERT

Many communities share trucks between garbage and recycling routes to save resources and reduce the need for back-up vehicles.

► Contract Hauler

Rather than providing local government-operated collection, you may choose to contract out for your hauling. In that case, you'll likely negotiate a price per household per month. Prices can vary dramatically across the country, and are affected by local structures including franchise agreements, subscription service, single-hauler arrangements, and bundled services – some combination of recycling, garbage, bulk waste and yard waste collection. For the purposes of this guide, let's keep things simple and assume that you're working with a private hauler as a sole contractor for curbside cart collection of recyclables. In that scenario you should expect the following price ranges:

- Every week collection: \$2-\$5 per household per month
- Every other week collection: \$1.50-\$4 per household per month

► Education

Single stream cart recycling is a BIG change for your program. It's time to make a BIG splash and fill those carts with lots of high quality material. A good rule of thumb is to spend \$1 per household per year to maintain strong participation in an ongoing program.

For a *programmatic change* (like switching to single stream carts), add another **\$2 to \$3 per household to cover the campaign while it is underway**. Sound like a lot? Consider that a single stamp costs nearly \$0.50. Not to mention the cost of what you're affixing that stamp to. (Okay, bulk mail rates can help you out, but you get the point – these things require a bit of capital.) Not convinced? Look at it this way:

A strong campaign will decrease resident confusion, contamination and disposal expenses, increase quality and quantity of recovered materials and maximize use of recycling system capacity.

Good news: Campaign material development is typically a substantial expense, but The Recycling Partnership has you covered there. Take advantage of our production ready pieces and **drop your per household campaign cost to \$2 or less**.



THE REAL WORLD

Albuquerque, New Mexico created a YouTube channel and produced a series of short videos about their new cart recycling program. For the cost of staff time plus \$80 in promotions, they attracted almost 20,000 views throughout the city.

COLLECTION



It's all about efficiency. How can you collect carts from across your community as smoothly and as seamlessly as possible? What's your approach? Which routing options suit your needs? Can you haul straight to your MRF, or do you need to consolidate and transfer materials?

Collection Section

Collection Techniques

Routing

Hauling and Transportation

► Collection Techniques

In general there are four approaches to providing collection services: municipality provided, contract, franchise and subscription. Note: for the purposes of this guide, we have focused on contract and municipality provided collection so that we could cover more integral topics from the local government perspective.

Municipality Provided Collection. The local government manages, owns and operates all aspects of the curbside collection program.

Contract Collection. The local government finances curbside service (e.g., through taxes or fees that a citizen pays to the local government) and pays a private hauler to provide the service under a contractual arrangement.

Franchise Collection. The local government awards or approves specific haulers to handle collection under parameters set out in a franchise agreement. Franchises can be exclusive to one provider or awarded to multiple providers, and may apply to specified geographic areas. Franchised haulers charge citizens directly to finance the service. The local government is not involved in financing or charging citizens for the service.

Subscription Collection. The approach is a free market system, where haulers provide service to customers upon request, financing the service through direct charges to the customers. There is typically no involvement from the local government with this service, however some local governments do have close relationships with the haulers for educational and customer service purposes. Subscription haulers can be subject though to local regulations that mandate provision of recycling service and possibly specific kinds of service – cart based, at least every other week collection, etc)



PRO TIP

Every household currently getting curbside service should automatically get a cart. If the conversion to carts allows the addition of other households to the program (e.g. condos), they should also get a cart. This maximizes access to convenient recycling for your residents, creates the strongest program, and is a current best management practice. Subscription programs are not as effective unless there is a mandatory recycling service ordinance that residents must adhere to. Opt-in or voluntary participation (meaning a home can purchase a cart only if they want to be involved with the program) is not recommended and not considered a best management practice.

► Routing

For communities with municipality provided collection, routing trucks through your community is a crucial part of efficient collection. You have expensive pieces of equipment out on the streets with full-time employees operating them. You need to use their time wisely and collect as many houses as possible in the safest way possible.

Efficient routing saves time and money. Take the time to perfect your collection route. Click [here](#) for a great article in Waste360 that covers the importance of routing. (Waste360, The Load Less Traveled by Sean Kilcarr)

The right way. Right-hand turns throughout the route conserve fuel and time, so make sure each collection vehicle is making as many right-hand turns as possible throughout the route to avoid crossing over traffic. This also helps drivers when they are learning the route so they don't miss any sections. It's easy to get turned around out there!

Start to finish. Factor in where collection vehicles are offloading.

If they are tipping their loads of recyclables at a different location than where they park at the end of the day, start collection in the neighborhood closest to where the truck is parked in the morning and end at the neighborhood closest to where the truck will dump at the end of the day.

If they tip their load at the same place they park at the end of the day, start collection at the farthest point away and end close to the facility where the truck will dump and park.



SAVINGS ALERT

Fill-Er-Up. You do not want to haul air space to the MRF or transfer station. It's important to optimize the total number of routes so that each route is operating at high capacity. There will certainly be slow times in the yearly cycle of recycling when routes are less full, and busy times when route time will be longer, but on average the route should be at high capacity – packed out at the end of the day.

Teach the route. Drivers have to know their routes. Here are two techniques for helping them:

- Provide them with printed maps that highlight the route and include arrows to follow.
- Use advanced routing technologies to provide drivers with turn-by-turn directions through an interface in the cab of each collection vehicle.

Plan for backup. Each collection driver should be trained on all the routes so they can back up one another.



PRO TIP

Drivers will be the first to notice major issues with routes. Have a driver test each new route a few times and provide feedback. Tweak along the way.

Technological edge. There are several route optimization software packages that you can purchase to assist with routing, including: Routeware, RouteSmart and Fleetroute. While this software is an added expense, it can save you money over time through fuel savings and employee time. Many local governments and private haulers have success simply using ArcGIS to develop routes. Either way, you should make sure your routing software can integrate with your local government's GIS system. This will allow you to post maps and regions for collection days on your website for citizens to see their collection day. This will also allow you to continuously update street and address information over the course of time as new building permits are issued and other changes occur.



THE REAL WORLD

There are sure to be portions of your community that will be challenging to collect with a conventional collection vehicle. Cities like Minneapolis, Minnesota and Richmond, Virginia have a notable amount of alley collection, necessitating the need for narrow collection vehicles. However, in communities with fewer narrow roads, steep drives, or tight corners, there's a more limited need for such special collection. Places like Orange County, North Carolina are able to handle their special collection on a dedicated route serviced by a pick-up truck. In fact, you can even purchase cart tipper attachments for pick-up trucks, which may be considerably less expensive and more practical than buying a specialized collection vehicle. The lesson: Customize the right solution for your program.

► Hauling and Transportation

Many communities can drive their route trucks directly to the MRF and it is important to coordinate those material deliveries with the MRF. However, not every community has a MRF in their backyard. Thus, delivering material to the MRF in curbside collection vehicles may not be efficient. In this case consider building a central consolidation point for efficient emptying of collection vehicles, loading of trailers, and transportation of materials.

This does not need to be an elaborate transfer station. It can be as simple as a concrete pad and canopy to keep material dry (as long as you have a way to load a trailer off a concrete pad). Some MRFs may assist by providing the trailers and possibly the hauling. This approach, sometimes referred to as a “hub and spoke” arrangement, is an effective way to feed a central MRF (the hub) from a number of more distant sites (the spokes). Many communities across the country take advantage of this technique. Generally speaking, it is financially feasible so long as you're not hauling more than 60 to 90 miles one way (or 1 hour to 1.5 hours of drive time).



PRO TIP

If you're hauling single stream recyclables in a 52-foot walking floor trailer, 10 tons of loose material per load is a good budget figure. With light compaction, communities have achieved 12 to 18 ton loads. However, compacting to higher densities is not always recommended as it makes processing the material at the MRF much more difficult.

MULTI-FAMILY

MULTI-FAMILY ROLL CARTS

Multi-family Section

Key Considerations

Informing the Residents

Funding

Did you know that as the percentage of all total homes constructed, multi-family home construction is increasing while the percentage of single-family home construction has dropped? Did you also know that multi-family properties can yield more tons of recycling per stop than single-family households?

As you make plans for your cart recycling program, be sure to factor in these treasure troves of material. They may require different collection, education and billing techniques, but the citizens deserve the service and your recovery numbers will get a great boost!

What is Multi-Family?

Picture apartments, townhomes, condos or high rise residential structures. Your local government likely has a working definition, such as “a property with more than four units.”



PRO TIP

Your cart vendor will need clear direction on how to deliver carts to these properties. Make sure you have developed a specific plan before ordering and tasking your vendor to deliver.

► Key Considerations

Multi-family that acts like single-family

Some structures, including many condos or townhomes, have individual units with doors facing the street, lending themselves to collection on a regular curbside route. Identify those properties early and include them with your normal curbside rollout.

Carts versus Front-End Load Containers

For multi-family units that act like multi-family, you either need a cluster of carts or one or more front-end load (FEL) containers. If you know the number of multi-family units on a property, the math is simple:

1, 96-gallon cart = 5 units

1 FEL container = 12 units

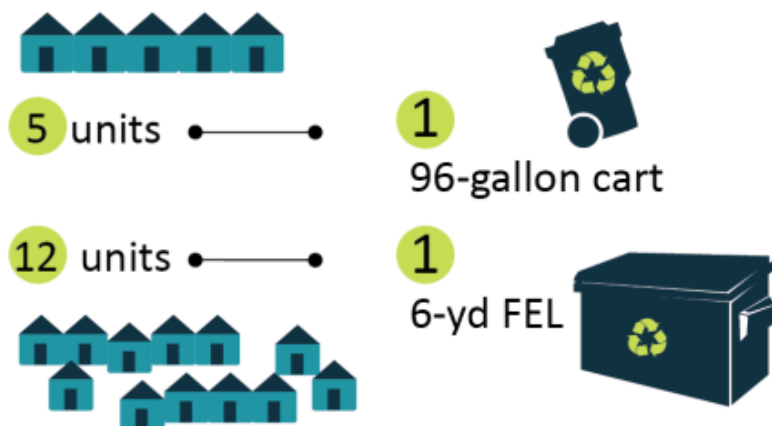
So, for every 60 units, you can go with 1 FEL or 12 carts.

How do you choose?

Take stock of your current assets and use what you’ve got. Fleet of front-end loaders? Go with FEL containers wherever feasible. Extra side loaders? Carts are the call.

How Many Carts?

weekly collection



PRO TIP

FEL (front end load) containers on any property may require that an extra cement pad is poured in front of the container to bear the weight of the front end loader and your community may require screening for that pad as well. Some properties that have grouped two trash FEL containers together have had good success switching out one of the trash FEL containers for the new recycling FEL container.

Still can't decide? Here are a few more things to chew on:

- FEL containers take up less space than clusters of carts, but require thicker pavement or a concrete pad. Plus, contamination is more challenging to deal with.
- Carts provide more flexibility and are easier to maintain, but they take up more real estate.

Top truck type for collecting cart clusters Semi-automated side loading truck bodies with cart tippers on both sides are the best option for multi-family properties. They maximize the driver's flexibility in approaching and servicing cart clusters without needing to get out of the truck.

It is not impossible to use fully automated trucks, but the driver will need to get out and roll the carts over to the arm to dump them.

► Informing the Residents

In terms of communications, multi-family is a different animal than single-family. Residents don't tend to stay at the same address as long as single-family properties and keeping people up to date is more of a challenge. These time-tested techniques should hit the mark for program rollout and maintenance:

Get buy-in from property managers. It's the multi-family version of train the trainer: Educate the property management office, and they will help their residents understand what to do.

Provide move-in packets. New tenants are typically provided an informational packet with their lease and key. Be sure that easy-to-follow recycling details are a visible part of the mix.

Use clear signs and labels at recycling locations. Make sure the labeling is visible and straightforward. Focus on items you do accept, and go with pictures over words wherever possible.

Go door to door. This is a nice personal touch when rolling out the program. Consider revisiting the approach if participation or quality takes a dip – remember that tenants do turn over.

Homeowner meetings. Attend complex community meetings with sample carts and brochures and be prepared to stay as long as necessary to answer questions.

Consider the demographics of these complexes. Some may be senior citizens, others families, and other younger singles. Container size and type and the communication method will vary by each.

Multi-family recycling requires creativity and flexibility. Be prepared to listen and adapt to each community's needs.



PRO TIP

Recycling requires convenience. Make sure your recycling station is located next to the garbage/compactor area, or many of those items you'd like to recover will unfortunately go to the landfill.

► How can we afford to service these properties?

The people that live on multi-family properties are residents of your community too, just like people in single-family homes. So why not ensure that these residents have adequate access to recycling? Though these properties can be defined as “commercial” in your tax department, these properties are certainly residential. Your single-family homes must pay for garbage and recycling collection service so your multi-family properties should do the same. Some or all of these properties can be collected within the curbside program, but many communities with large multi-family populations create distinct collection and routing for these properties.

Be prepared! Create specific guidelines for multi-family dwellings.

- Work with your planning department to define multi-family dwellings, then determine how many carts they get, where to site them, and whether to service them on regular routes or through a dedicated route.
- Consider setting the right expectations by creating a local ordinance and making multi-family recycling mandatory. Some local programs do, not to mention the entire state of California!



THE REAL WORLD

Some municipalities, including Minneapolis, Minnesota and Albuquerque, New Mexico, require multi-family properties to volunteer for the service before the city will put them on route. Minneapolis considers multi-family properties to be four or more units (all units less than four are serviced by curbside collection automatically). Albuquerque provides one cart for every 10 units for properties with more than 25 units.

PROCESSING



Processing Section

RFP & Contract Development
Quality Control

If you remember just one thing about processing, it should be this: your MRF is your partner. When a community switches to carts, it is adopting a strategy that will require the use of a Material Processing Facility (MRF) to “uncommingle” the collected materials. That is why it is so important to have a solid plan of MRF interaction as a core element of switching to carts, especially when choosing the range of materials you will collect.

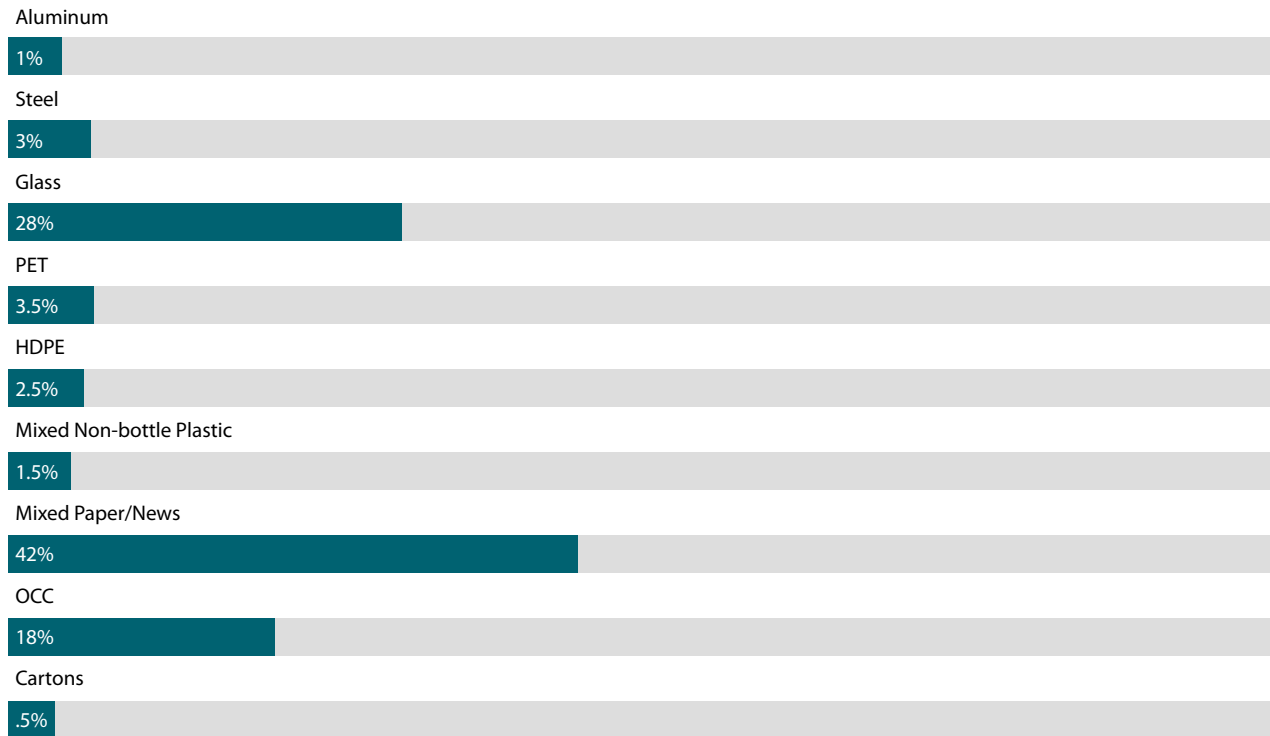
MRFs need large volumes of good quality material and local governments need to provide quality service to their citizens. Both parties benefit from the success of the other. So, whether you’re sole sourcing to the only single stream MRF in your area or putting out a competitive RFP for several facilities, the MRF you select becomes your other half. Set your partnership up for success by being specific in your RFP and contract, and by working to deliver a quality mix of recyclables every day. In short, treat each other well and communicate early and often!



THE REAL WORLD

Some larger local governments like Milwaukee and Waukesha County, Wisconsin were able to work together and develop their recycling processing solution through a public-private partnership. Here’s how this might work: the local government provides a site, constructs a building, and makes a long-term commitment of their recycling tonnage, while the private partner designs, builds, operates and even finances the recycling facility.

What is the typical commodity breakdown of single stream material?



Note: The composition of a single stream cart is slightly different city to city and continues to evolve. This is a general breakdown as of today, however, printed paper continues to decline while plastic packaging is on the rise. The lightweighting of material also continues to happen as companies continue to try and use less material to make their products. An aluminum can is not the same weight today as it was 10 years ago.

► RFP and Contract Development

Single stream processing agreements require different RFPs, contracts and revenue arrangements than source separation or dual stream.

Key Considerations for drafting your processing RFP and entering a contract:

Material Mix. Be clear about the material you need processed. THE RECYCLING PARTNERSHIP encourages a common suite of materials be used in recycling programs – especially across a region. That makes recycling processing more efficient and makes education, outreach and consumer engagement much more effective, leading to more material! Here is a comprehensive list of materials to request. Note, not all MRFs can handle all of this material at this time and so you will have to make sure to get clear signals from MRFs about what they can and cannot take in their RFP responses. .

- Newspaper, magazines, catalogs
- Box/gray board including cereal, snack and tissue boxes, egg cartons, beverage carriers, paper roll cores
- Office paper
- Junk mail
- Corrugated cardboard
- Phone books and paperback books
- Glass bottles and jars
- All rigid plastic containers for food, beverages and household cleaners
- Aluminum food and beverage containers and foil
- Steel food and beverage containers
- Aseptic and gable-top cartons
- Bulky rigid plastics
- Metal pots and pans
- Bagged plastic bags

Allow for evolution. Build flexibility into your contracts so your program can evolve. As new markets become viable, you'll want the ability to add additional materials to your mix. Ask the MRF to outline how this process will work: such as, regular audits of inbound material and adjustments based on the changing materials collected.

Show and tell. Give clear information about your current program. Make sure the MRF knows where the material will be coming from, what you currently accept and how much tonnage you expect annually.

Revenue sharing. While there are infinite possibilities for customized processing deals, there are two primary options when negotiating single stream revenue with your MRF: market-based pricing or flat fee. Select the right one for your needs. See the [Budgeting Section](#) for details. And remember that markets are international, thus fluctuate season-to-season, year-to-year. Work out an agreement that benefits both parties and can handle these fluctuations.

Apples to apples. Be clear how you would like to be paid so you can easily compare the formulas and cost structure between proposals. Do you want a flat price or a variable pricing structure that adjusts with the market? The [Budgeting Section](#) of this module illustrates each structure.

Additional items to ask for within your RFP:

- Incorporate floors into the pricing to protect yourself when markets are low.
- Understand MRF operating hours to ensure your trucks can dump during the hours you operate and during holidays you may still collect on.
- Understand how the MRF checks for quality, the frequency in which they check, penalties that may be issued, and at what threshold they are issued.



Single Stream Processing RFP (or go to tools.recyclingpartnership.com/processing)

[Minneapolis – Processing RFP](#)

[Tampa – Processing and Marketing Recyclable Materials](#)

[Tampa - Addendum](#)



SWANA and NWRA's Key Points to Processing Contracts



PRO TIP

Do not enter into processing contracts for a term of more than five years unless it is part of a public/private partnership where both parties have some control over the processing services, materials included, etc. Both your community and the recycling industry are in constant flux, and you need to be able to adjust your contract to fit with the times. Re-evaluate carefully at every renewal.

450
POUNDS

Single stream programs with strong educational support can recover an average of 450 pounds per household per year and higher. Not taking glass? Drop that to 350 pounds. Either way, these figures will come in handy when negotiating MRF deals.

► Quality Control

Providing good quality material – the right materials prepared the right way – to MRFs is an ongoing challenge. You need to work with your MRF and your residents to come out on top. You want your MRF to be successful. Their success leads to your programs success. Collaborate with your MRF partners to help ensure this success.

Load rejection clauses. Many MRFs include load rejection clauses in contracts. This shouldn't be scary. Work with your MRF to understand and negotiate the terms of load rejections. This will get you both to focus on collecting and processing good quality material that may equate to higher revenue and greater success for everyone.

Know the issues. Work closely with your MRF to understand the biggest contamination issues. Invite your rep to drive routes with you. Visit the MRF to see your materials firsthand. Build that partnership.

Consistency counts. Educate and inform residents on a regular basis. Keep the tone positive and encouraging. Check out helpful tips in the Education Section.

Target issues. Incorporate specific, short-term campaigns to correct any problems. For example, if you are getting too many stringy items – hose, wire or rope – that are causing your MRF operational problems, run a campaign about that problematic material. Don't succumb to the temptation to simply create a long list of NO items.



THE REAL WORLD

The City of Philadelphia found that their contamination rates were increasing to a level that was negatively impacting the City's MRF revenue rate. (They were seeing contamination rates averaging 12.7%.) So the City entered into an agreement with their MRF that included regular incoming composition studies, and allowed the MRF to reject truckloads that were 15% or more contaminated. Upon rejection a photo is taken and the City is immediately sent the photo and description. The City then has the option to remove the contamination or the MRF can dispose of the load and back-charge the expense. To avoid these events the City has increased their educational efforts and incorporated additional internal measures, including random load inspections on recycling trucks, crew training with supervisors, crew discipline, and posters at their local yard.

TRUCKS

TRUCKS ROLL CARTS

Trucks Section

Truck Configurations

Key Questions Answered

How to Purchase

Lots of alleys? Parking on the street? Significant multi-family? Small staff? Preference for similar models for efficient maintenance? Sharing between garbage and recycling routes? Considering these types of questions will funnel you to the ideal mix of vehicles that meets specific local needs. Don't take this part lightly. Trucks are a BIG purchase. Dig into the specs and give them due consideration.

Fully Automated

PROS

- Only 1 employee needed on each truck
- Joystick in cab allows driver to service carts from within the truck
- Minimal entry & exit of cab for driver
- Reduced workers' compensation claims and premiums
- Best when there is limited to no parking on street

CONS

- More expensive than other truck configurations
- Not suitable for alley collection
- Cannot accommodate bin collection
- Consider overhead wires and trees
- Sometimes these arms don't work well in areas with a log of low hanging wires and limbs
- Loose material outside of cart must be placed into cart and serviced after initial dump
- Does not easily allow inspection of cart contents before or during servicing

Side Loading Semi-Automated

PROS

- Can be collected with 1, 2 or 3 person crews
- Suitable for areas with dense on-street parking
- Good for areas that do not have curb and gutter
- Accommodates bin and loose material collection
- Allows crew to easily check for contamination before servicing

CONS

- Employees must enter and exit vehicle for collection

Rear Loader Semi-Automated

PROS

- Well-suited for alley collection
- Accommodates bin and loose material collection
- Allows crew to easily check for contamination before servicing

CONS

- 2 to 3 person crews needed for efficient collection
- Possible increased safety risk – crews may ride on back of body for efficiency
- Possibly less efficient – if crews do not ride on back, they must walk to back of vehicle at each stop

Hybrid Configurations

Some options don't fit cleanly into semi- or fully automated categories, but can meet specific collection needs.

<p>Drop Frame</p> <p>PROS</p> <ul style="list-style-type: none"> Accommodates mechanical arm and cart tipper (one on each side) Accommodates bin and loose material collection 	<p>Front End Loader Bucket</p> <p>PROS</p> <ul style="list-style-type: none"> Accommodates cart tipper or arm attached to the bucket Allows use of existing front end loader fleet for curbside service Allows crew to easily check for contamination before servicing 	<p>Split Body</p> <p>PROS</p> <ul style="list-style-type: none"> Can be side semi-automated or rear loading configurations, thus one or two people per truck Body is typically split 60/40 – 60% garbage, 40% recycling (This means you could haul as much as 18 cubic yards for garbage and 12 cubic yards for recycling) <p>CONS</p> <ul style="list-style-type: none"> Capacity is smaller (This is best for long rural applications where you might drive 200 miles in a day and only collect 300 to 400 houses. This is not applicable in settings where you are driving closer to 90 miles and collecting 800 houses) Application can be suited for very small, dense areas as well as long rural routes with relatively few homes/collection points
--	---	---



THE REAL WORLD

The majority of cart collection in Minneapolis, Minnesota occurs in alleys, so the city uses narrowed body rear loaders. In Tampa, Florida where there are wider roads with curbs and gutters, the fleet consists of fully automated bodies.

► Key Questions Answered

How many households can a truck service?

During a 10-hour shift, a single stream, compacting truck can typically service 800 to 1,100 homes.

What's the capacity of a truck?

Compacting bodies for each configuration range from 20 to 31 cubic yards.

How much material fits in a truck?

Average compaction for recycling bodies ranges from 2.5 to 3.5 tons per cubic yard. Thus, you can expect to pack a 31 cubic yard truck out at 10 tons of recyclables.

How about data?

RFID can easily be retrofitted onto any collection truck configuration.

Design for ergonomics?

If you expect to be in and out of the truck often with semi-automated trucks, we recommend getting low entry dual side drive cab and chassis.

What's the best arm length?

Side loading mechanical arms generally have a reach from 6 to 12 feet. The most popular length to purchase is 7 to 8 feet.

Heavy duty option?

Dumping loose recyclables may wear on trucks faster than bagged garbage. Consider thicker steel for the floor of the bodies to extend the life of your truck bodies.

Design for environment?

Compressed natural gas trucks are growing in popularity as well as hybrid collection vehicles. Consider whether they might work for you. There may even be tax incentives for private haulers to take advantage of if purchasing this type of vehicle. Want to learn more? Here is a case study from the U.S. Department of Energy on [compressed natural gas trucks](https://afdc.energy.gov/publications/compressed-natural-gas-refuse-fleets). (afdc.energy.gov, Publications, Compressed Natural Gas Refuse Fleets)

Design for cross-over?

If you collect a variety of route types – residential, multi-family and commercial recycling, and/or yard waste or garbage, and container types are similar, make sure your trucks can cross over between routes and programs to allow for efficient and effective use of capital and to back-up when trucks break down.

Wait times?

Trucks can take 160 to 210 days to build and ship. Be sure to factor that in!

When to say goodbye?

Even if you are buying all of your trucks at once, you shouldn't replace them all at once. Get trucks on different replacement schedules to ensure reliability and even out maintenance needs. For example, replace some trucks after seven years, others after eight, still others after nine. Be flexible – replace trucks that are causing the most maintenance issues sooner.

7

TONS

**calculation includes glass in payload.*

You can expect to pack 7 tons of recyclables into a 31 cubic yard truck.

Average compaction for recycling bodies ranges from 400 to 450 lbs per cubic yard.



PRO TIP

Recyclables act differently than garbage. Generally speaking, recyclables are lighter, meaning you won't pack out as quickly and typically don't need to worry about being overweight.

► How To Purchase

How can I afford these trucks? Trucks are expensive. Assuming you don't have enough capital on hand, how do you finance them? The justification for automated compacting trucks is strong, but remember to take a full cost accounting approach by looking at not just the cost of the new truck but also the cost savings from more efficient collection, lower workers' compensation insurance and claims, and collection savings on garbage routes due to decreased garbage. Be sure to amortize the capital cost to buy trucks over the expected life of the truck (use seven years in your calculations). With these simple "full cost accounting" steps many programs can pay the trucks off with savings in the collection costs.

Following are some examples of ways that many communities have been able to cover the cost of adding trucks to their program:

- Local governments have been able to use conventional loans or municipal bonds to purchase trucks, justified by the expected cost savings.
- Some local governments have been able to use internal borrowing approaches, utilizing solid waste enterprise reserve funds along with a plan to pay back from the savings. (Replacement schedules to replace existing vehicles is a best management practice.)
- Each truck vendor can also assist local governments with financing and lease-to-own options.



SAVINGS ALERT

There are opportunities to leverage state and private grants. Also, you may be able to take advantage of low interest loans. Be ready to articulate the details and benefits of your new automated truck to bolster your chances of success.



CONTRACT PIGGYBACKING

(pigē,bakiNG): local government process of purchasing the same equipment from a vendor that a previous local government has purchased through a public bid process without going out to bid yourself.

As an efficient alternative to the RFP process, consider piggybacking when purchasing trucks. You may already know which body and chassis configurations work for your program. If so, look into geographic and time limitations of your local piggybacking process, check with your purchasing agent for special guidelines, and talk to your preferred vendor about opportunities.

For example, depending on your vendor, you may be able to take advantage of national contracts like the Houston Galveston Contract (H-GAC).

Body Vendors

Here is a list of vendors active in the U.S. today. Use this guide to understand the basics, but reach out to the individual companies before you write the RFP to learn more about what might be best for your community.

E-Z Pack

www.ezpacktrucks.com
Toll Free: 800.331.0136
P: 859.234.1100

G-S Products

www.g-sproducts.com
Email: info@g-sproducts.com
P: 814.445.5866

Heil

www.heil.com
Email: corp@doveresg.com
P: 866.367.4345

Labrie

www.labriegrup.com/en/
Email: partscenter@labriegrup.com
P: 1.920.233.2770

New Way

refusetrucks.scrantonmfg.com
Toll Free: 800.831.1858
P: 712.652.3396

Wayne

www.waynetrucks.com
Email: mwatje@wayneusa.com
P: 602.268.9200

Western Systems

www.westernsystem.com/services.htm
Toll Free: 800.456.7886
P: 509.922.1300

McNeilus

www.mcneiluscompanies.com
Toll Free: 888.686.7278
P: 507.374.6321



THE REAL WORLD

In 2014 Orange County, North Carolina needed to replace their old collection truck that had been in commission for over 8 years. They had a specific budget and understood that they needed semi-automated collection for carts to service the Multi-family properties around UNC-Chapel Hill and surrounding area.

In lieu of going out to bid, which would typically be a two month process, Orange County found the body and chassis needed for the job through H-GAC, called up the body manufacturer to talk through specs and details. The body manufacturer walked them through the process, outlined the specific specs Orange County needed including color, signage, etc, and a contract was signed in less than a month.

Cab and Chassis Vendors

Autocar

www.autocartruck.com

Mack

www.macktrucks.com

Freight Liner

www.freightlinertrucks.com/Trucks

International

www.internationaltrucks.com/trucks

Crane Carrier

www.cranecarrier.com

Volvo

www.volvotrucks.com

Kenworth

www.kenworth.com



PRO TIP

Don't leap before you look. Ask body and chassis vendors for a demo. They will likely be more than happy to bring a truck to test on a route.

CART PROCUREMENT, DELIVERY AND GUIDELINES

Cart Procurement, Delivery and Guidelines

ADOPTING CARTS

Quantity, cart size, wheel size, in mold labels, RFID tags, recycled content, warranties, and timing all factor in, not to mention financing the purchase. (And, yes, you should absolutely consider the color!)

Once you have those shiny new carts, you still need to assemble them to get them to your residents. Think ahead to avoid some common problems. Here's how it's done...

Carts Section

Key Considerations

How to Purchase

Cart Assembly and Distribution

Common Pitfall: My Cart is Too Big!!!



► Key Considerations

Quantity

Consider this: The majority of local governments come back to cart vendors and order more because more houses were on the routes than expected—up to 5% more in some cases. Make sure your house count is up to date and accurate, and add a little fudge factor to be certain. Then order some extras.

Here are some rules of thumb for the number of extra carts you should order:

- 1% to 3% to replace lost, stolen or broken carts.
- Up to 5% for communities experiencing high growth – talk to your planning department to get a handle on this.
- Enough extra wheels, lids and catch bars to repair 1% of carts in service. You'll need them as drivers get used to the automated arms during the first few months after rollout.

Choosing the Right Cart

Cart Size

Fact: Every cart company offers a few standard sizes: 35, 64 and 96 gallons.

Fact: 96-gallon carts are the best value for curbside recycling.

96-gallon carts maximize recovery potential due to the larger capacity. It gives you the option to go to every other week collection, decreasing collection costs and increasing efficiencies. And for those concerned that a 96-gallon cart will be too large to store, its footprint is similar to that of a standard 18-gallon recycling bin and nearly identical to 64-gallon cart configurations, [see the appendix](#).

Other important points:

1. Offering one size simplifies cart delivery, avoiding costly inefficiencies and the potential headaches of multi-option rollouts.
2. If you start with 96-gallon carts for all residents, you can allow for downgrade to a smaller size a few months later if they still have an issue. It's relatively common for residents who opt for a smaller cart initially to exchange for larger carts after a few months of use.
3. Every rule has an exception: Multi-family dwellings that receive curbside collection and disabled citizens may warrant a 64-gallon cart due to space and weight concerns.

Wheel Size

Most programs order standard 10-inch wheels, but for an extra cost 12-inch wheels are sometimes available, as are rubber wheels. Larger wheels handle rough surfaces better, and rubber wheels have been found to tackle winter weather conditions (just ask Minneapolis).

In Mold Labels

Commonly referred to as IMLs, In Mold Labels are infused on the lid of the cart under the plastic and can display any images you would like. IMLs are akin to a permanent sticker, complete with UV protection, at an additional cost of roughly \$1 per cart. Many programs use IMLs to display images of acceptable materials. This can be an effective reminder to residents, but you should keep in mind that carts can last up to 15 to 20 years and recycling is constantly evolving. You might consider going with the community seal and simply say, "Recycling Only," and a message like "Rinse and Recycle." A broad message will allow your program to evolve without worrying about what your cart says.

Recycled Content

Obviously you want to get recyclables inside the cart, but you can close the loop by dictating how much post-consumer plastic goes into the cart itself. Each cart manufacturer is different, but The Recycling Partnership recommends that you should request at least 30% post-consumer plastic. The darker the cart the more recycled content that can be used – 50% or more is not unheard of. Make sure you ask the cart manufacturer to verify percentages and types of plastic. Recycled content does not cost any more than virgin plastic and will not affect the integrity of the cart. Cart companies will support their standard 10 to 12 year warranties with recycled plastic content up to at least 30%.



THE REAL WORLD

Everyone's timeline for cart distribution is slightly different. Albuquerque, New Mexico timed their distribution over a nine-month period during the middle of the year to avoid the windy season.





PRO TIP

If you decide to start collecting data using RFID then USE the data. Take advantage of this powerful system. Continue to monitor, measure, and improve.

RFID Tags

Radio Frequency Identification (RFID) tags in a recycling cart can help capture a multitude of data to assist with your overall program:

- Participation rates can be tracked for routes, neighborhoods and even specific blocks.
- Low performing areas can be identified, helping to target education and outreach efforts.
- Time of service can be verified to assist with customer service responses.
- Truck location can be tracked.
- Truck routing can be optimized.
- Asset Management is crucial when making such a large investment. Matching the cart to each address during delivery is made easier with an RFID tag in the recycling cart and a handheld reader that will allow the address and cart RFID to be “paired” with a quick scan – just like a phone and Bluetooth headset are paired.

RFID tags transmit data through electromagnetic induction or radio waves and are used in many industries, including clothing, food packaging, livestock, logistics and trucking. When used at the curb, all data is automatically collected as the cart is tipped into the truck. The information you get from the RFID data collection system can be easy to read and easily exported to spreadsheets to calculate things like participation, set-out, stops per hour, etc. Real time live, web-based data can show you exactly where the truck is and what it has collected. This will allow you to easily answer a citizen’s concern that they may have been missed.

There are costs associated with collecting the data (e.g. readers installed on collection vehicles and communication charges for the data), so it’s important to decide what you need for your program, but these tracking and data tools do provide powerful knowledge for maximizing your program’s effectiveness.

Do your program a favor. Purchase carts with RFID tags installed as part of the cart manufacturing process. This is easily the cheapest approach (retroactive installation of RFID tags is time intensive and expensive). Then capture and use the data to get the highest performance out of your program. Installation costs vary from no charge to roughly \$1 per cart.

Before bidding carts, trucks or collection vendors, consider bidding out RFID data collection and reporting separately. Consult your IT department. This will allow you to determine the specific readers you’ll need in your collection trucks.

Key components include:

- Hardware: Readers for each truck and handhelds for delivery maintenance.
- Cellular data: Monthly charge for data collection on route.
- Software: Real time web-based hosting and reporting.

Here's a list of RFID data collection and reporting companies you might want to check out:

- AMCS
- Lateral Innovations – Innovatrac
- Rehrig Pacific – Container Asset Recovery Tracking System (CARTS)
- SmartWay III – Through Routeware
- Sonria
- WISTAR

Color

Each cart company has a variety of colors to choose from. You can even get the same color as your garbage cart, but with just a different color lid. Make sure your garbage, yard waste, and recycling carts complement one another; you'd be surprised how many residents will have an opinion on this! The most important thing to remember is to make sure citizens can quickly and easily tell the difference between each cart.

Warranty

Every cart company offers a 10-year warranty on their carts, each with slight variations. Wheels, lids, and lift bars can be damaged during collection and sometimes the body of the cart can fail. Be sure to **READ THE FINE PRINT**, and remember that carts are known to last 15 to 20 years.

► How to Purchase

Once you've determined the specs that are right for your program, it's time to place your order. This likely means creating a cart procurement RFP, evaluating proposals, then negotiating and finalizing contracts. Fortunately, many programs have taken this road before you, so you can pull from their hard work.

Check out the following links to sample cart procurement RFPs.
(or go to tools.recyclingpartnership.com/carts)

Columbus, OH

[Columbus – 64 Gallon bid](#)

[Columbus Working Pages](#)

Olathe, KS

[Olathe – Garbage Cart RFP \(Re-Bid\)](#)

[Olathe – 2006 – Sideloaders-Addendum 1](#)

Minneapolis, MN

[Minneapolis – OP7686](#)

[MinneapolisOP7686_Add1](#)

[Minneapolis OP7686_Add2](#)

Tampa, FL

[Tampa – Universal Cart Bid](#)

[Tampa – Assembly Dist and Maintenance of Refuse and Recycling Carts](#)



'pigē,bakiNG: local government process of purchasing the same equipment from a vendor that a previous local government has purchased through a public bid process without going out to bid themselves. As an efficient alternative to the RFP process, consider piggybacking when purchasing carts. You will need to know geographic and time limitations of your local process, consider freight differences and resin escalators, and the exact cart that you want. Check with your purchasing agent for special guidelines, and with your preferred cart manufacturer for opportunities. You can also reach out to communities directly whom you know has made the recent switch. Your state's recycling office may be able to help find these contacts.

► How can I afford these carts?

The justification for recycling carts is strong, but remember to take a full cost accounting approach by examining not just the cost of the new cart but also the cost savings due to lower workers' compensation insurance, more efficient collection, more recycled materials being diverted, lower tipping fees at the disposal site and other factors (see our section on the benefits of recycling carts for more details). Be sure to amortize the capital cost to buy carts over the expected life of the cart (use 10 years in your calculations). Using these simple "full cost accounting" steps, many programs can pay the carts off with savings in the collection costs. Following are some examples of ways that many communities have been able to cover the cost of adding recycling carts to their program:

- Local governments have been able to use conventional loans or municipal bonds to purchase carts, justified by the expected cost savings. For more information regarding banks lending to the public sector, check out this article in the Wall Street Journal – Banks Go Straight to Public Borrowers
- Some local governments have been able to use internal borrowing approaches, utilizing solid waste enterprise reserve funds along with a plan to pay back from the savings.
- Each cart vendor can also assist local governments with financing and lease-to-own options.
- Local governments that allow their households to pick their own hauler have had good success including the provision of a recycling cart as part of the requirements that are often included in the hauler licensing ordinance that authorizes the individual "subscription" approach.

In all cases we recommend that the recycling cart stay with the residential unit that it was distributed to, even when that unit is sold, or when the service provider changes. This is the best way to make sure the investment in carts is sustained over the long term for maximum benefit.



SAVINGS ALERT

Be sure to check with your state recycling office for grant opportunities.



SAVINGS ALERT

If the local government contracts with a private hauler then that hauler can offer recycling carts and bundle the cost of the cart within the monthly household fee, typically as part of a longer term contract. Local governments have had great success in requiring the addition of recycling carts as part of the original hauler procurement process and as part of negotiated contract extensions.

► Cart Assembly and Distribution

As your new carts arrive, they'll need to be assembled, then distributed around the community. Fortunately cart companies are equipped to handle this, but you'll definitely need to lead the charge. Turn on the left side of your brain and embrace your inner logistician for this step.

For assembly, make sure you have the proper staging yard – preferably a central location, paved and secure. This is where the cart company's distribution team will assemble the carts and load them onto smaller trailers for delivery.

For delivery, keep in mind these key points:

1. When you deliver carts, **make sure that residential collection will begin within two to three weeks.** This means that you need to make sure your trucks are in place before the first cart is distributed to a resident. Otherwise people will forget the guidelines or become frustrated with having a bin and not being able to use it.
2. **Make sure your address list is correct.** Your address list should be completed and scrubbed by the delivery company far in advance of carts being delivered. Your planning, tax or water department may be able to help. It's quite common for these lists to be incorrect for 10% to 25% of households, resulting in not enough carts or inefficiencies in delivery. Do whatever you can to avoid this when ordering and again when delivering!
3. Cart companies are capable of **delivering up to 20,000 or more carts per week**, and you'll find that they are fairly flexible in meeting your schedule. Given a tight timeframe, cart companies will simply deploy more crews at one time to handle deliveries.
4. **Don't forget about multi-family, mobile home parks and public housing.** Give the distribution team clear direction on how to handle each of these: for more than four units do this, for a mobile home park do that; townhomes get x, apartments get y.



PRO TIP

To avoid delays in cart distribution, finalize hot stamp and/or IML artwork six weeks in advance of the first cart being delivered.



THE REAL WORLD

Sometimes a city needs to deliver carts wherein the next collection still needs to be in the bin. Waste Management in Seattle actually delivered the carts and taped the lid shut with brightly colored tape that says, "DO NOT SET-OUT AT CURB UNTIL XXX DATE." And they used that same tape to affix the educational materials for the resident.



PRO TIP

Everyone's timeline for cart distribution is slightly different. Consider holiday weekends, school schedules and even weather. Albuquerque, New Mexico timed their distribution over a nine month period during the middle of the year to avoid the windy season.



THE REAL WORLD

When they rolled out cart recycling in Ann Arbor, Michigan, staff feared that there might be some confusion over which cart went to which house in alleys and cul-de-sacs. To safeguard against this, they wrote address numbers on the lid of each cart destined for these areas with a Sharpie. Their trick worked, and in retrospect they would have followed suit for every cart delivered across the community to further minimize misunderstandings. One more tip they learned: consider checking off each delivery on a physical list of households to give you a paper trail of where the carts were actually delivered.

► My Cart is Too Big!

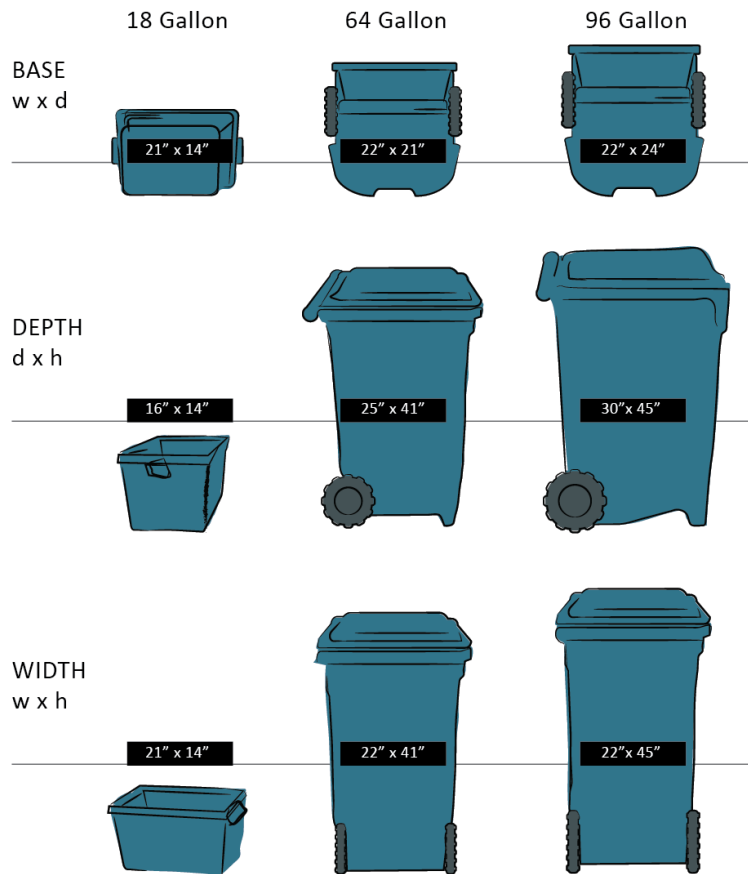
The most common complaint from residents when announcing roll carts for recycling and upon delivery is that the new cart is too big. Here are a few hints to help with efficient delivery and happy residents:

Be confident. Pick a cart that is best for your community and be ready to explain why it is the best choice. If you have sound reasoning for your decision, it will be easy to explain to residents and the elected officials. People don't like change, but they love value; most will come around quickly.

Get decision maker buy-in. Early on in the process – before the first press release – make sure the elected officials understand why you are picking that size cart and give them simple talking points (e.g. we need the capacity – 64 gallons is not big enough for every other week; 96 gallons allows our community to plan for more materials being accepted in the future; automation keeps our collection costs low; bins are more expensive for the taxpayer). Showing the dimensions of your selection relative to other sizes, particularly the footprints, may be helpful to explain ([see diagram](#) on the next page illustrating relative size and footprint of the general bin and cart). After the elected official/officials have bought into the importance of the size, having them talk with the public about their experience and excitement can also be very helpful.

Have a customer service strategy. When a citizen sees their cart at the end of the driveway, their gut reaction may be “It’s HUGE,” prompting them to call you to say they don’t want it. Suggest to the citizen to hold onto the cart for at least one month, test it out, and if they still need to exchange it, call back and you will replace it. If they insist that you get the thing off their property, well.... you probably should.

Notice the bin, and two carts' footprints.



THE REAL WORLD

Orange County, North Carolina, Minneapolis, Minnesota and Tampa, Florida all used the same strategy when citizens who had just received their new, large carts immediately called and requested a smaller one: they asked those concerned citizens to hold onto the large cart for a month and test it out. Each local government had similar experiences. At the end of the "trial period," the majority of these citizens realized the capacity of the larger cart was useful and decided not to exchange it for a smaller cart.

Guideline Tips:

Be prepared! Create guidelines for these often overlooked best practices and stay ahead of the curve.

Provide for medical needs / disabled/ handicapped services, which may include a back door collection option. Spell out requirements for getting on the special collection list; your planning department may be able to help. If you already have procedures in place through your garbage or curbside recycling bin program, make sure they match up well for cart recycling.

The Real World: Columbus, Ohio, like many local governments, requires citizens to fill out a form that is signed by their doctor before getting special collection at their door.

Create specific policies for multi-family dwellings. Work with your planning department to define them, then determine how many carts they get, where to site them, and whether to service them on regular routes or through a dedicated route.

Spell out opt-out options for the cart recycling service. The best option? No opt outs. However, you may have special considerations. Be explicit.

Specify how carts should be placed at the curb. After all, the efficiency is in keeping the driver in the truck. Specify that the handle should face the house, the cart should be three feet from other objects on all sides, do not place the cart underneath short trees or overhangs.

Create a rejection policy for carts filled with non-recyclables. Just because the cart has loads of room and a lid doesn't mean you can ignore quality! Recyclability and the success of your program demand it.

► Talk to the experts

Here is a list of the cart companies active in the U.S. today. Use this guide to understand the basics, but reach out to the individual cart companies before you write the RFP to learn more detail.

Cascade

www.cascadecartsolutions.com
800.968.2278

IPL

www.ipl-plastics.com
800.463.0270

Schaefer

www.ssi-schaefer.us
704.944.4500

Rehrig Pacific

www.rehrigpacific.com
800.421.6244

Toter

www.toter.com
1.800.424.0422

Otto

www.otto-usa.com
800.795.6886

GROW AND
MAINTAIN

Grow and Maintain ROLL CARTS

After the last cart is delivered, you don't simply flip the switch and walk away. You've just created a huge new pipeline for recyclables, and you've got to fill it. How? Communicate with your residents, solving any issues and ensuring understanding of the program. Measure quantities and quality of recyclables, and put that data to good use. Proactively seek out opportunities for improvements throughout the system, and strategically implement changes to keep your pipeline full.

Grow & Maintain Section

Ongoing Communication

Measure

Improve

► Ongoing Communication

Maintain the flow. For communication to be effective, it has to be regular and consistent. Remind residents which materials are acceptable. Celebrate successes. Thank them. Keep it positive. If there's a problem with the program – say, too many stringy materials gumming up the works – address them specifically in a short-term campaign. Even then, keep it positive. Tactics include quarterly newsletters, website updates, social media posts, cart hangers, direct mail, bill inserts, and booths at community events.

Leverage the electronic age. Give citizens the ability to sign up for email or text reminders for their recycling collection day. This is especially helpful for local governments that have every other week recycling.

Arm the trucks. Whether you're collecting in-house or through a private hauler, ensure that each truck has a stack of up-to-date educational handouts. Keep it simple by focusing on materials accepted, how to use the cart, or specific campaign pieces you've produced to address recurring issues. Instruct each driver to provide handouts to anyone asking questions. If drivers make special trips for cart repairs or missed collections, have them leave materials behind.

► Measure

Use your data. If you collect data with RFID tags, use the data! Whether you have RFID or not, be sure to look at data from your MRF. Either way, data is powerful.

- Compare tonnage month to month and year to year. Try to pinpoint trends and reason out causes. Act accordingly.
- Use RFID or set-out information to isolate where you have low to average performing areas, then run a targeted campaign – direct mailer, cart hanger, or go door to door – for that area.

Study your garbage. Whenever possible, complete a waste characterization study. Find out what's being thrown away. Does it include items accepted in your recycling program? Run a targeted campaign. Does it include items that could potentially be recyclable in your program? Find a market and add them to your mix!

Track quality. Keep your finger on the pulse of quality in the carts. Every month, make sure program managers ride routes and look in carts; invite a rep from your MRF to come along. Between those trips, occasionally have drivers check every twentieth cart. Leave “Oops!” cards or other reminders where you see problems. Consider “Good Job” cards for those doing it right.



THE REAL WORLD

Cities that continue to keep an eye on participation tend to see the most success. Mooresville, North Carolina actually leaves notes on garbage carts at addresses that have not placed a recycling cart at the curb yet. Notes are left on the garbage cart saying, “Did you know you can get a recycling cart from the city?” with all the pertinent recycling information for the resident.



THE REAL WORLD

Cities like Columbus, Ohio continue to invest in outreach to support their cart recycling program. They have created a network of recycling ambassadors who they send to community events and meetings to talk about recycling with other city residents. They have also invested in the collection reminder system – Recollect – to help citizens remember their recycling day, thus making recycling easier, and maintaining and growing participation.

► Improve

Fill your brain. Keep up with latest trends, potential improvements and upgrades. Learn from the successes and setbacks of your peers, and be sure to share your own stories. If someone has a great outreach piece or contract clause, ask to use it yourself. State Recycling Organizations (SRO) and SWANA conferences are helpful for this, as are trade journals/e-newsletters.

Work with your supply chain. Have regular meetings with your MRF and hauler to see how things are going. Ask about quality. Discuss new materials. Explore ideas for improvement. It really is a system – success for your MRFs and markets will directly add to your success.

Partner up. Smaller communities may struggle with low tonnage. If that’s you, consider a regional solution. Partner with other local communities to provide materials to a MRF as a package deal. Or look toward your local college, university or other institution.

Evolve. Recycling markets and best practices are constantly evolving, and to maximize your pipeline, you need to change with them. Build flexibility into your system. Don’t enter into processing or collection contracts for more than a five-year term. Before renewing, review your contracts thoroughly.

INCENTIVE-BASED RECYCLING

Incentive-Based Recycling

ROLL CARTS

Incentive Section

How Incentive Programs Work

Key Points

Incentive Programs Available to Your Community

Beyond traditional outreach, one effective way to build recycling participation is to invest in an incentive program that encourages good recycling behavior by rewarding residents for recycling. In exchange for putting recyclable materials in their curbside carts, residents earn points for discounts, products, or even cash. While incentive programs are customizable to each community, they all are working under the same premise: the more residents recycle the more rewards they get.

If you prefer the carrot over the stick, read on.

► How Incentive Programs Work

Incentive programs are typically operated by a third-party vendor, though some local governments have created their own systems. Most programs use a cart RFID tag system: collection trucks scan the RFID tag on each cart to track participation and recycling tonnage, and that data is translated into reward amounts that are distributed to households.



SAVINGS ALERT

Alternatively, programs that don't use RFID tags may employ a less targeted approach, encouraging recyclers to sign up for rewards, which are doled out based on overall community tonnage.



PRO TIP

Talk to incentive program vendors to find out what might work best for your community in light of your budget, demographics, your current recycling program performance and your targeted goals for recycling performance.

► Key Points

Price tag. Cost per household typically ranges from \$0.40-\$0.70 per household per month.

Effect. On average, incentives can increase recycling rates by 10-15%. Big jumps typically coincide with the rollout of a new program (like single stream carts) or for programs that have stagnated.

Resident rewards. Very active households can earn as much as \$25-\$150 annually in cash, discounts and freebies. Most earn considerably less, but any reward serves as positive reinforcement throughout the year.

Ripple effect. In addition to increasing recycling rates and educating residents, incentive programs can spark other environmentally-preferred actions, such as reducing household energy use.

THE REAL WORLD

Grand Rapids, Michigan set a goal to increase recycling while also supporting the local economy. City staff chose to partner with a community based non-profit to create their own unique incentive program. With a cost similar to that of other incentive programs, Grand Rapids' approach focuses on community involvement and local rewards. Residents earn points by recycling and through volunteering their time in their community. Points are redeemable as discounts at local businesses or can be donated to local parks. As a result, Grand Rapids has seen a large increase in recycling rates and consistent decrease in disposal. Learn more at www.mygrcitypoints.com.

On average, incentives can increase recycling rates by 10-15%. Big jumps typically coincide with the rollout of a new program (like single stream carts) or for programs that have stagnated.

► **Incentive Programs Available to Your Community**

Here is a list of incentive programs active in the U.S. today. Use this guide to understand the basics, but reach out to the individual companies for details particular to your community.

[Cans4Cash](http://www.cans4cash.com)

www.cans4cash.com

[Coke Rewards](http://www.mycokerewards.com)

www.mycokerewards.com

[RecycleBank](http://www.recyclebank.com)

www.recyclebank.com

[Recycling Perks](http://www.recyclingperks.com)

www.recyclingperks.com

[Rewards for Recycling](http://www.rewardsforrecycling.com)

www.rewardsforrecycling.com

APPENDIX

PRO TIPS, SAVINGS ALERTS and THE REAL WORLD grouped by section

EDUCATION AND OUTREACH



THE REAL WORLD

Every local government is different. Large cities like **Columbus, Ohio** with over 200,000 households in their program, have hired a private marketing firm to assist with education and outreach, while small cities like **Smithfield, Rhode Island** have a half-time employee working 20 hours a week working with residents of the community to improve recycling through education and outreach. The size, budget and technique are not important. The important part is that you consistently inform your residents so recycling carts are filled with good quality recyclables.



THE REAL WORLD

After Transitioning from bins to carts using semi-automated collection, the **City of Minneapolis** realized a savings of over \$250,000 in workers' compensation claims within the first year.



THE REAL WORLD

As for large carts being hard to manage, consider the following true story:

During a public meeting in a small coastal town in **North Carolina**, the City Manager's 70-year-old mother entered the room rolling a large recycling cart. She parked it in front of City Council. After a brief pause, the City Manager himself popped out of the cart and exclaimed: "If my dear mother can pull my 200 pound body down this aisle, I'm sure most of our citizens can handle pushing a cart down their driveway!"

(Note that some citizens will actually not be able to handle the cart, or a bin, or a garbage container. Be sure to provide for them in your collection plans.)



THE REAL WORLD

The **City of Tampa, Florida** found success through speaking at different community group meetings to discuss the new carts that were going to be delivered. Staff from the City of Tampa's Solid Waste office scheduled meetings with various neighborhood Home Owners Associations (HOA)s and civic groups. This allowed citizens from different sectors of the community to ask questions to learn about the carts, give feedback to the city, and spread the word throughout the community.



PRO TIP

Take your front line staff on a field trip to your local MRF. Seeing the process first hand will build their understanding and improve their ability to educate citizens.



PRO TIP

Fewer words, more pictures. What materials do you accept? How should citizens position their carts at the curb? Show to tell.

Keep it simple. Perhaps more than ever, people are busy. Show that cart recycling makes their lives easier. This is more than a program improvement, it's a life improvement. Simplifying people's lives is universally accepted as a good thing.

Keep a positive tone. Don't guilt your residents into recycling. Your residents will respond better to positive reinforcement and will want to continue improving the recycling system.

Don't bury the lead. When you talk about rolling out carts, avoid the temptation to inform your audience of EVERYTHING happening with your program. Some communities bundle cart information with details on upcoming special events, public safety, and employee of the month... the list goes on. That approach can overload the audience and the cart messages get lost in the mix.



PRO TIP

Media relations. Engage local media early and often for free or earned media. Invite them to events and get them access to key players. Send them pictures and stories with great quotes. Develop letters to the editor from various solid waste reps.



SAVINGS ALERT

Don't go it alone. The Recycling Partnership has created full campaigns with a host of professionally designed materials for launching carts programs. Check them out and use them!

BUDGETING



THE REAL WORLD

Once you roll out your cart program, you will see a notable difference in the garbage tonnage your local government collects and disposes. Make sure this is understood in your garbage collection and disposal budget. Kent Seyfried, Solid Waste Manager for the **City of Olathe, Kansas**, was shocked to see residential garbage tonnage decrease by nearly 8,000 tons after a year of collecting recycling in carts.



SAVINGS ALERT

Many communities share trucks between garbage and recycling routes to save resources and reduce the need for back-up vehicles. This is not always recommended, but in a pinch just make sure the garbage residue does not affect the recycling stream.



SAVINGS ALERT

Sometimes the decrease in workers' compensation claims and insurance premiums are a city's biggest savings. Don't forget to include this savings when looking at the full employee cost.



SAVINGS ALERT

You may be able to combine your cellular RFID plan into your existing local government cell phone plan.



SAVINGS ALERT

Grants, grants, grants! Look to your state recycling office and beyond.

Ask The Recycling Partnership about cart grant opportunities. A sample of the 2015 Cart Grant RFP is [here](#). If you didn't get a chance to apply for this grant cycle, it will be coming around again in 2016!



SAVINGS ALERT

Many communities share trucks between garbage and recycling routes to save resources and reduce the need for back-up vehicles.



PRO TIP

Protect yourself from resin market variability by including resin escalators/de-escalators in your cart contract. These clauses will allow cart vendors to be more aggressive in pricing as they take advantage of market shifts.



PRO TIP

Don't forget that the purchase of recycling carts is linked to the overall system cost adjustment. Though it can be expensive up front, your collection costs will go down. The carts' extra capacity can also allow for every other week collection wherein local governments find additional savings when transitioning from weekly service.



PRO TIP

Get creative with your MRF. You can work out a variety of deals tailored to suit your needs. For example, communities that are not close to a MRF and don't want to deal with day-to-day hauling expenses may negotiate a condition that MRFs pay for hauling from a centralized transfer location in or close to their community, covering the cost through material revenue. You want your MRF to be successful! Work with them closely to make it a win-win relationship.



PRO TIP

It is important to note that revenue should not be expected. Every MRF relationship is different and recycling markets fluctuate. The most important take away is the saving.



THE REAL WORLD

Albuquerque, New Mexico created a YouTube channel and produced a series of short videos about their new cart recycling program. For the cost of staff time plus \$80 in promotions, they attracted almost 20,000 views throughout the city.

COLLECTION



PRO TIP

Every household currently getting curbside service should automatically get a cart. If the conversion to carts allows the addition of other households to the program (e.g. condos), they should also get a cart. This maximizes access to convenient recycling for your residents, creates the strongest program, and is a current best management practice. Subscription programs are not as effective unless there is a mandatory recycling service ordinance that residents must adhere to. Opt-in or voluntary participation (meaning a home can purchase a cart only if they want to be involved with the program) is not recommended and not considered a best management practice.



PRO TIP

Drivers will be the first to notice major issues with routes. Have a driver test each new route a few times and provide feedback. Tweak along the way.



PRO TIP

If you're hauling single stream recyclables in a 52-foot walking floor trailer, 10 tons of loose material per load is a good budget figure. With light compaction, communities have achieved 12 to 18 ton loads. However, compacting to higher densities is not always recommended as it makes processing the material at the MRF much more difficult.



SAVINGS ALERT

Fill-Er-Up. You do not want to haul air space to the MRF or transfer station. It's important to optimize the total number of routes so that each route is operating at high capacity. There will certainly be slow times in the yearly cycle of recycling when routes are less full, and busy times when route time will be longer, but on average the route should be at high capacity – packed out at the end of the day.



THE REAL WORLD

There are sure to be portions of your community that will be challenging to collect with a conventional collection vehicle. Cities like **Minneapolis, Minnesota** and **Richmond, Virginia** have a notable amount of alley collection, necessitating the need for narrow collection vehicles. However, in communities with fewer narrow roads, steep drives, or tight corners, there's a more limited need for such special collection. Places like **Orange County, North Carolina** are able to handle their special collection on a dedicated route serviced by a pick-up truck. In fact, you can even purchase cart tipper attachments for pick-up trucks, which may be considerably less expensive and more practical than buying a specialized collection vehicle. The lesson: Customize the right solution for your program.

MULTI-FAMILY



PRO TIP

Your cart vendor will need clear direction on how to deliver carts to these properties. Make sure you have developed a specific plan before ordering and tasking your vendor to deliver.



PRO TIP

FEL (front end load) containers on any property may require that an extra cement pad is poured in front of the container to bear the weight of the front end loader and your community may require screening for that pad as well. Some properties that have grouped two trash FEL containers together have had good success switching out one of the trash FEL containers for the new recycling FEL container.



PRO TIP

Recycling requires convenience. Make sure your recycling station is located next to the garbage/compactor area, or many of those items you'd like to recover will unfortunately go to the landfill.



THE REAL WORLD

Some municipalities, including **Minneapolis, Minnesota** and **Albuquerque, New Mexico**, require multi-family properties to volunteer for the service before the city will put them on route. Minneapolis considers multi-family properties to be four or more units (all units less than four are serviced by curbside collection automatically). **Albuquerque** provides one cart for every 10 units for properties with more than 25 units.

PROCESSING



THE REAL WORLD

Some larger local governments like **Milwaukee** and **Waukesha County, Wisconsin** were able to work together and develop their recycling processing solution through a public-private partnership. Here's how this might work: the local government provides a site, constructs a building, and makes a long-term commitment of their recycling tonnage, while the private partner designs, builds, operates and even finances the recycling facility.



PRO TIP

Do not enter into processing contracts for a term of more than five years unless it is part of a public/private partnership where both parties have some control over the processing services, materials included, etc. Both your community and the recycling industry are in constant flux, and you need to be able to adjust your contract to fit with the times. Re-evaluate carefully at every renewal.



THE REAL WORLD

The **City of Philadelphia** found that their contamination rates were increasing to a level that was negatively impacting the City's MRF revenue rate. (They were seeing contamination rates averaging 12.7%.) So the City entered into an agreement with their MRF that included regular incoming composition studies, and allowed the MRF to reject truckloads that were 15% or more contaminated. Upon rejection a photo is taken and the City is immediately sent the photo and description. The City then has the option to remove the contamination or the MRF can dispose of the load and back-charge the expense. To avoid these events the City has increased their educational efforts and incorporated additional internal measures, including random load inspections on recycling trucks, crew training with supervisors, crew discipline, and posters at their local yard.

TRUCKS



THE REAL WORLD

The majority of cart collection in **Minneapolis, Minnesota** occurs in alleys, so the city uses narrowed body rear loaders. In Tampa, Florida where there are wider roads with curbs and gutters, the fleet consists of fully automated bodies.



PRO TIP

Recyclables act differently than garbage. Generally speaking, recyclables are lighter, meaning you won't pack out as quickly and typically don't need to worry about being overweight.



SAVINGS ALERT

There are opportunities to leverage state and private grants. Also, you may be able to take advantage of low interest loans. Be ready to articulate the details and benefits of your new automated truck to bolster your chances of success.



CONTRACT PIGGYBACKING

(pigē,bakīNG): local government process of purchasing the same equipment from a vendor that a previous local government has purchased through a public bid process without going out to bid yourself.

As an efficient alternative to the RFP process, consider piggybacking when purchasing trucks. You may already know which body and chassis configurations work for your program. If so, look into geographic and time limitations of your local piggybacking process, check with your purchasing agent for special guidelines, and talk to your preferred vendor about opportunities.

For example, depending on your vendor, you may be able to take advantage of national contracts like the Houston Galveston Contract (H-GAC).



THE REAL WORLD

In 2014 Orange County, North Carolina needed to replace their old collection truck that had been in commission for over 8 years. They had a specific budget and understood that they needed semi-automated collection for carts to service the Multi-family properties around UNC-Chapel Hill and surrounding area.

In lieu of going out to bid, which would typically be a two month process, Orange County found the body and chassis needed for the job through H-GAC, called up the body manufacturer to talk through specs and details. The body manufacturer walked them through the process, outlined the specific specs Orange County needed including color, signage, etc, and a contract was signed in less than a month.



PRO TIP

Don't leap before you look. Ask body and chassis vendors for a demo. They will likely be more than happy to bring a truck to test on a route.

CART PROCUREMENT, DELIVERY AND GUIDELINES



THE REAL WORLD

Everyone's timeline for cart distribution is slightly different. Albuquerque, New Mexico timed their distribution over a nine-month period during the middle of the year to avoid the windy season.



PRO TIP

If you decide to start collecting data using RFID then USE the data. Take advantage of this powerful system. Continue to monitor, measure, and improve.



PRO TIP

To avoid delays in cart distribution, finalize hot stamp and/or IML artwork six weeks in advance of the first cart being delivered.



SAVINGS ALERT

Be sure to check with your state recycling office for grant opportunities.



SAVINGS ALERT

If the local government contracts with a private hauler then that hauler can offer recycling carts and bundle the cost of the cart within the monthly household fee, typically as part of a longer term contract. Local governments have had great success in requiring the addition of recycling carts as part of the original hauler procurement process and as part of negotiated contract extensions.



THE REAL WORLD

Sometimes a city needs to deliver carts wherein the next collection still needs to be in the bin. **Waste Management in Seattle** actually delivered the carts and taped the lid shut with brightly colored tape that says, “DO NOT SET-OUT AT CURB UNTIL XXX DATE.” And they used that same tape to affix the educational materials for the resident.



THE REAL WORLD

When they rolled out cart recycling in **Ann Arbor, Michigan**, staff feared that there might be some confusion over which cart went to which house in alleys and cul-de-sacs. To safeguard against this, they wrote address numbers on the lid of each cart destined for these areas with a Sharpie. Their trick worked, and in retrospect they would have followed suit for every cart delivered across the community to further minimize misunderstandings. One more tip they learned: consider checking off each delivery on a physical list of households to give you a paper trail of where the carts were actually delivered.



THE REAL WORLD

Orange County, North Carolina, Minneapolis, Minnesota and **Tampa, Florida** all used the same strategy when citizens who had just received their new, large carts immediately called and requested a smaller one: they asked those concerned citizens to hold onto the large cart for a month and test it out. Each local government had similar experiences. At the end of the “trial period,” the majority of these citizens realized the capacity of the larger cart was useful and decided not to exchange it for a smaller cart.



PRO TIP

Everyone’s timeline for cart distribution is slightly different. Consider holiday weekends, school schedules and even weather. **Albuquerque, New Mexico** timed their distribution over a nine month period during the middle of the year to avoid the windy season.

GROW AND MAINTAIN



THE REAL WORLD

Cities that continue to keep an eye on participation tend to see the most success. **Mooreville, North Carolina** actually leaves notes on garbage carts at addresses that have not placed a recycling cart at the curb yet. Notes are left on the garbage cart saying, “Did you know you can get a recycling cart from the city?” with all the pertinent recycling information for the resident.



THE REAL WORLD

Cities like **Columbus, Ohio** continue to invest in outreach to support their cart recycling program. They have created a network of recycling ambassadors who they send to community events and meetings to talk about recycling with other city residents. They have also invested in the collection reminder system – Recollect – to help citizens remember their recycling day, thus making recycling easier, and maintaining and growing participation.

INCENTIVE-BASED RECYCLING



SAVINGS ALERT

Alternatively, programs that don't use RFID tags may employ a less targeted approach, encouraging recyclers to sign up for rewards, which are doled out based on overall community tonnage.



PRO TIP

Talk to incentive program vendors to find out what might work best for your community in light of your budget, demographics, your current recycling program performance and your targeted goals for recycling performance.



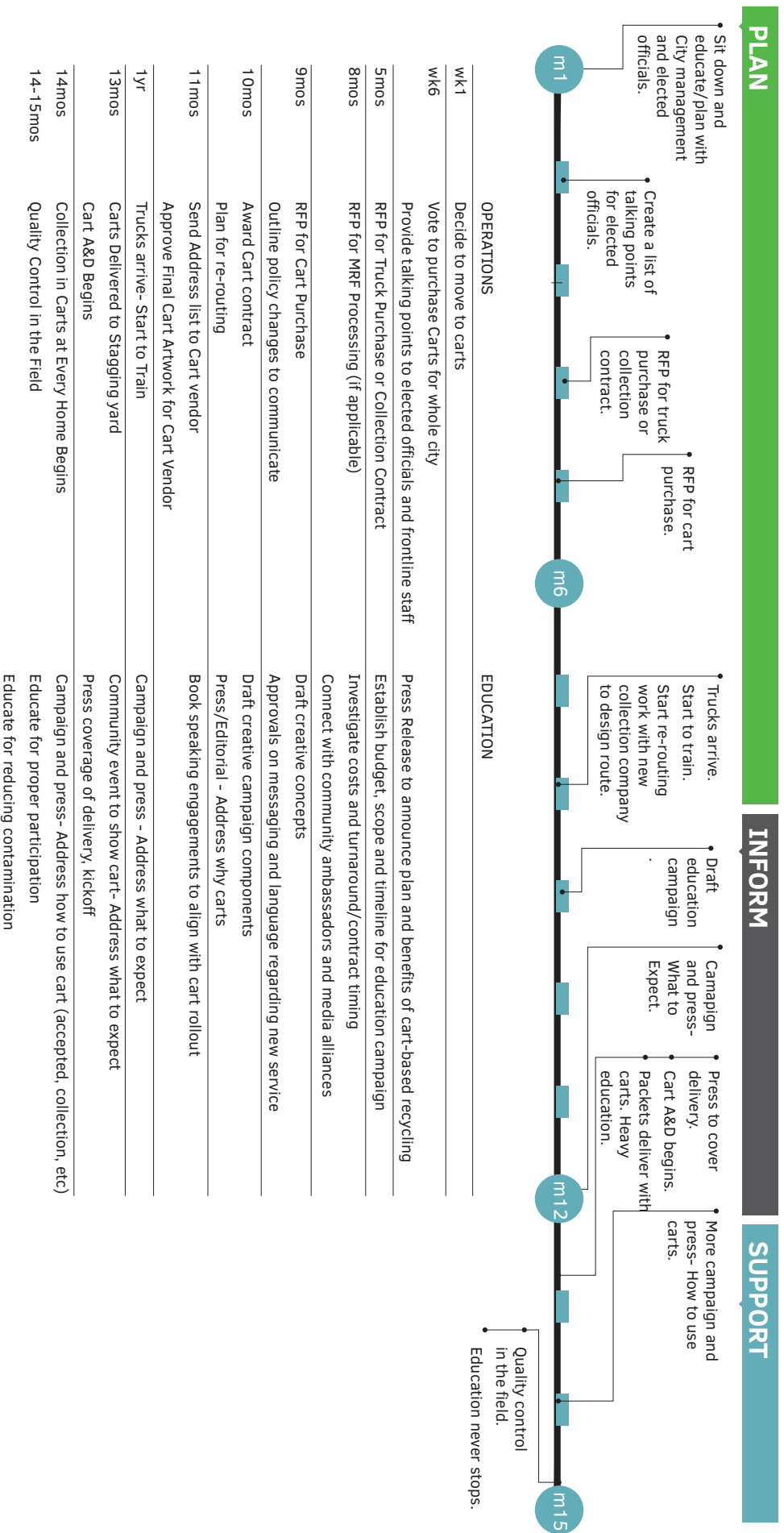
THE REAL WORLD

Grand Rapids, Michigan set a goal to increase recycling while also supporting the local economy. City staff chose to partner with a community based non-profit to create their own unique incentive program. With a cost similar to that of other incentive programs, Grand Rapids' approach focuses on community involvement and local rewards. Residents earn points by recycling and through volunteering their time in their community. Points are redeemable as discounts at local businesses or can be donated to local parks. As a result, Grand Rapids has seen a large increase in recycling rates and consistent decrease in disposal. Learn more at www.mygrcitypoints.com.

THANK YOU TO OUR FUNDING PARTNERS

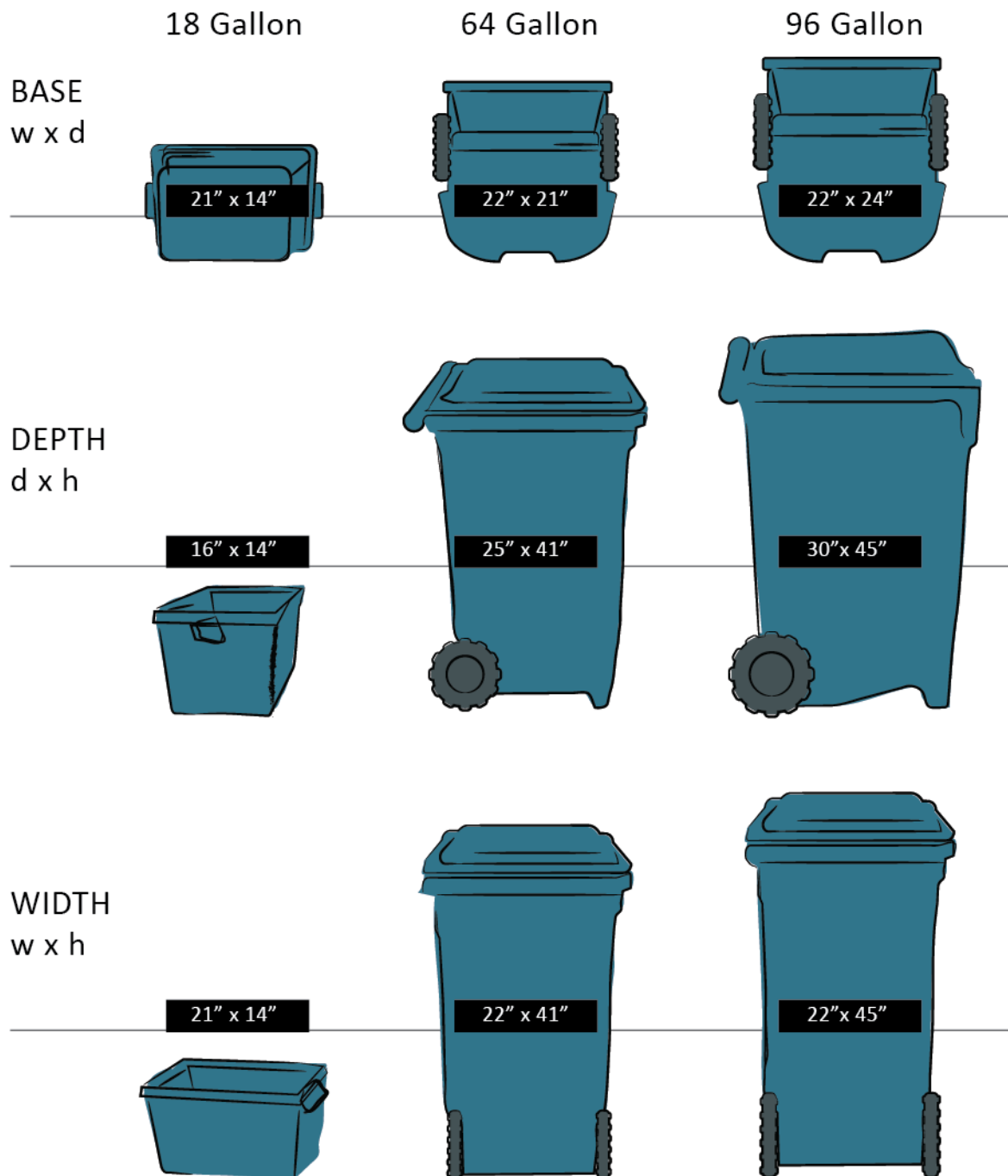


IMPLEMENTING CART-BASED SERVICE: 15-MONTH TIMELINE



This document is from The Recycling Partnership's *Implementation Guide for Single Stream Curbside Cart Recycling*, part of a living library of resources. Visit tools.recyclingpartnership.org

5.19.15



Part 1**Section A.**

1. Pounds of Residential Recyclables Currently Recovered Annually.	1	
2. Total Number of Households Serviced. If subscription-based service, enter total households in community.	2	
3. Divide Line 1 by Line 2 and enter the product here. (This is your current pounds per household recovered annually.)	3	
4. Enter 304 here.** (This is an average baseline number of annual pounds per household for carts.)	4	
5. If your cart program will accept glass, enter " 87 " here.** If not, enter "0".	5	
6. Add Lines 4 and 5.	6	
7. If your new cart program would have a strong outreach and education component that includes a multi-faceted launch campaign – direct mail or other outreach announcing the program, literature delivered with cart, annual collection calendar, clear images on website – and continued promotion through media local citizens regularly use, multiply Line 6 by 1.15 .** If not, re-enter the amount from Line 6 here. (This is your estimated annual pounds per household recovered if you switch to carts.)	7	
8. Subtract Line 3 from Line 7. (This is your estimated additional annual pounds per household recovered if you switch to carts.)	8	

*Single Stream - Curbside Cart (residential)

These figures are rough estimates. Results of the baseline program, glass component and outreach component will vary, but **as a rule of thumb an average single stream curbside carts program with a strong outreach and education component can expect 300 to 350 pounds per household per year without glass, 400 to 450 pounds with glass.

TM



SINGLE STREAM CARTS

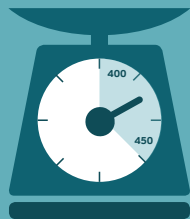
MUCH MORE BETTER



INCREASED RECOVERY.

Programs using carts, common suite of materials, strong outreach and other BMPs can recover 400-450 lbs/hh/yr.

400-450
LBS. PER
HOUSEHOLD
PER YEAR



MORE CONVENIENCE.

Residents can more easily fit all of their recyclables into one container, then simply roll those items to the curb.



COST SAVINGS.

Budgets benefit from decreased disposal costs, smaller collection crews, more efficiency on the route, and decreased workers' compensation.



Decreased
disposal
costs



Smaller
collection
staff



Automation
& compaction
mean more
efficient routes



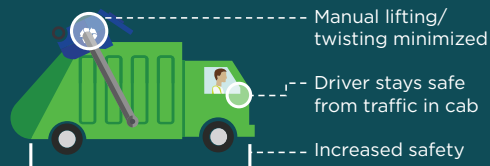
Flexibility
to collect
bi-weekly



Decreased
Workers'
Compensation
claims



Safety = Savings



The Recycling Partnership
125 Rowell Ct.
Falls Church, VA 22046 · USA