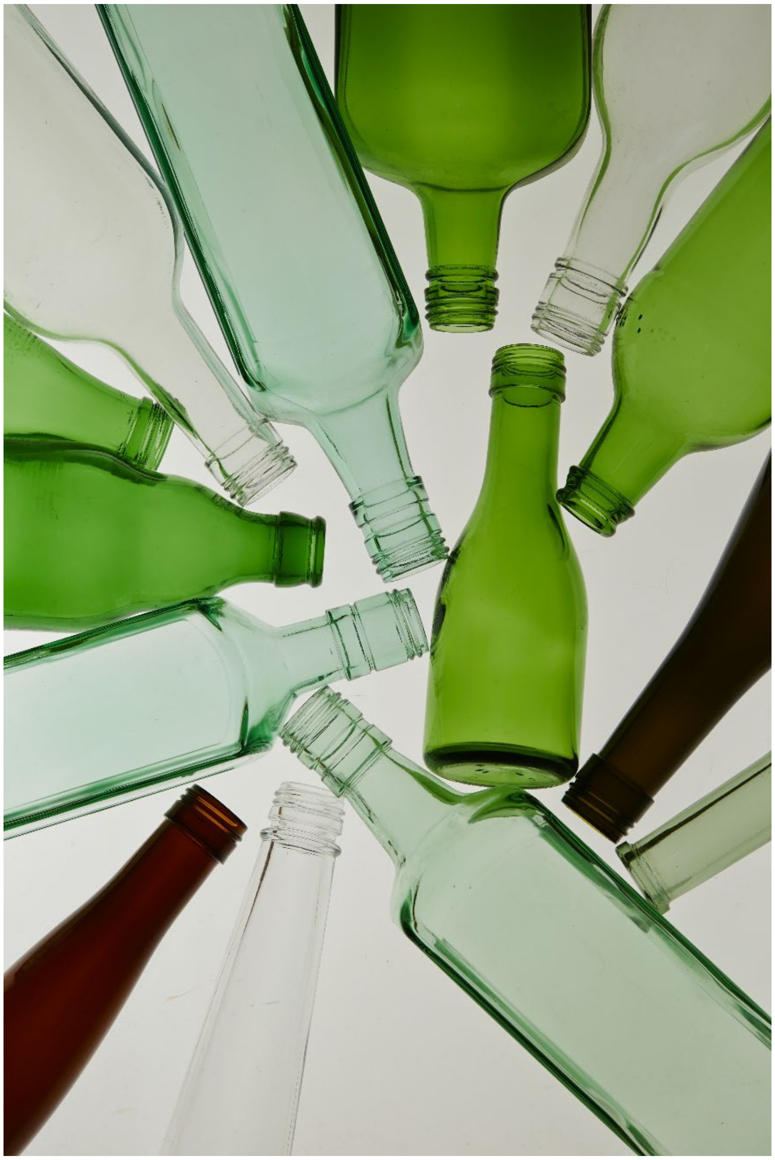


2023 Glass Recycling Survey

RESULTS

Glass Recycling Coalition | January 2024

Contents

Introduction

The Glass Recycling Coalition (GRC) is a mission-centric, impactful organization fostering collaboration across the glass recycling value chain. The GRC is dedicated to breaking down barriers to keep glass in the recycling stream, meet and grow end-market demand and build awareness of glass recycling benefits.

GRC conducts surveys to measure how different members of the glass recycling chain view the current state of glass recycling, with the goal of improving and targeting its services. The following groups were first surveyed in Spring 2017:

- public sector (recycling coordinators and solid waste staff from cities, counties, solid waste districts, and state environmental departments)
- materials recovery facilities (MRFs)
- end market representatives (brands, bottle manufacturers, fiberglass representatives, and processors)

GRC conducted the survey again in 2018, 2020, and now in 2023 to measure changes in attitude, track progress in improving glass recycling, report out on current conditions, and guide the direction of future GRC efforts.

This report presents the results of the 2023 Glass Recycling Survey with a comparison to prior years' results. These findings provide a real-time attitudinal snapshot of how glass is currently recycled, how it is collected and processed, and where it ends up. The findings also show current beliefs about glass recycling from numerous perspectives. Finally, the survey offers insight into the types and extent of glass recycling challenges, as well as interest in tools and financial resources to aid with these concerns.

While the survey focused principally on glass recycling, the recycling industry as a whole has faced many challenges in the past five years, including disruptions in recycling markets and the COVID-19 pandemic. This context is important to consider along with the key findings of the research. Additionally, this research represents just a portion of the industry. While the GRC would like to have been able to survey every community and recycling processor in the country, the results presented here represent a snapshot of the industry based on those who responded.

KEY FINDINGS

The attitudes and experiences about glass recycling found in the previous surveys largely held true in 2023, with some notable key findings.

- Almost 70 percent of public-sector respondents made changes to their recycling programs in the face of current market conditions. These changes primarily consisted of increasing education and changing the list of accepted recyclables (adding or dropping materials).
- Concern about glass recycling decreased slightly among public-sector respondents from 2020, down from 41 percent to 37 percent. These respondents identified that their biggest concern is financial; the MRF tipping fee and transportation costs to a glass processor was more expensive than landfilling glass.
- Expectations of consumers to be able to recycle glass increased slightly. Ninety-three percent of respondents from the public sector indicated that their residents expect to recycle glass compared to 90 percent in 2020.
- The top reasons to keep glass in recycling programs were largely consistent with responses from previous surveys; however, the percentage of respondents who chose each of the reasons shifted. A higher percentage of respondents identified resident satisfaction (62 percent versus 55 percent in 2020), while reducing contamination of recyclables rose to the highest in the history of the survey, at 50 percent.
- Nearly 87 percent of public sector respondents expressed interest in grants to help strengthen glass recycling, up from 60 percent in 2020. Similarly, the glass industry expressed more interest in grants and private-public partnerships, with 82 percent of respondents selecting these resources.
- All sectors of the respondents indicated that end markets and brands/retail outlets should be the primary parties responsible for the cost of collecting and processing recyclables.
- The top factor for MRF respondents when determining where their glass is sold to was prioritizing cost (transportation costs, highest price paid per ton, etc.).

ABOUT THE GLASS RECYCLING COALITION

The Glass Recycling Coalition (GRC) brings together a diverse membership of 35 companies and organizations representing glass container and fiberglass manufacturers, brands that use glass to showcase their products, haulers, processors, material recovery facility and end-markets. The GRC collaborates across the entire glass recycling value chain to break down barriers and build opportunities regionally for glass as a core recyclable, meeting and growing end-market demand and awareness of the benefits of glass recycling.

Established in April 2016, GRC is a non-competitive coalition of U.S. value chain members involved in glass recycling with a vision that all glass containers are recycled to the highest and best use, maximizing economic, environmental and social benefits in each market. The coalition encourages financially sustainable mechanisms that produce quality cullet and strengthen glass markets. For more information, contact info@glassrecycles.org

GRC Members:

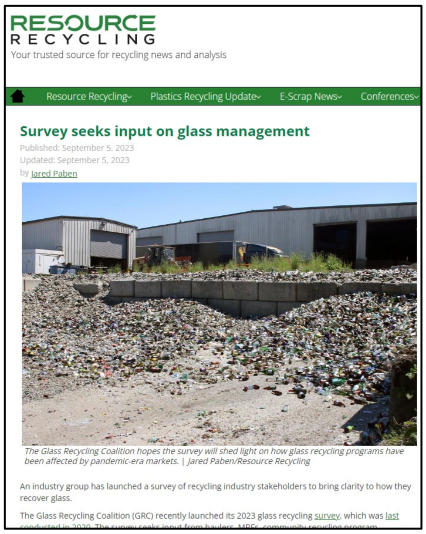
- Ardagh Group
- Balcones Resources
- Binder USA
- Coca-Cola
- Diageo
- CP Group
- Gallo Glass
- Glass Packaging Institute
- Heineken
- Knauf Insulation
- Machinex
- Northeast Recycling Council (NERC)
- New Belgium Brewing
- North American Insulation Manufacturers Association (NAIMA)
- O-I
- Owens Corning
- Rumpke Recycling
- Red Wave
- Pernod Ricard USA
- Pratt Industries
- Republic Services
- Rocky Mountain Bottle Company
- Sims Municipal Solutions
- Southeast Recycling Development Council (SERDC)
- Strategic Materials
- The Recycling Partnership
- Urban Mining NE
- Vitreous Glass CA
- Waste Management
- 2M Ressources

Government Advisory Council Members:

- Massachusetts Department of Environmental Protection
- State of Washington State Department of Ecology
- City of Fort Collins Waste Reduction & Recycling
- Rhode Island Resource Recovery Corporation
- City of Houston Solid Waste Management Department

Survey Results

The GRC offered the survey to public sector representatives, MRFs, and glass industry members nationwide for five weeks from mid-August through mid-September 2023. Approximately 4,000 municiapl officials, MRF contacts, and glass industry members received emails with an electronic link to the survey. The survey was also posted on the GRC website and social media pages. Additionally, the survey received press coverage with articles published in the trade publications Resource Recycling and Recycling Today, and the survey was sent to the state recycling organizations and other relevant groups, like the Glass Packaging Institute.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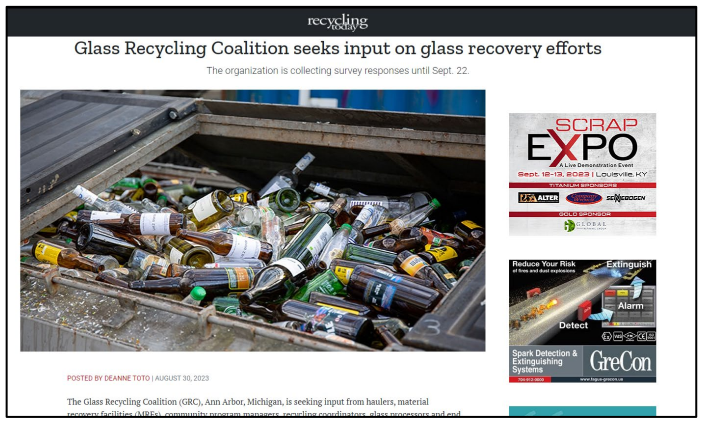
Survey seeks input on glass management

Published: September 5, 2023
Updated: September 5, 2023
by Jared Paben

The Glass Recycling Coalition hopes the survey will shed light on how glass recycling programs have been affected by pandemic-era markets. | Jared Paben/Resource Recycling

An industry group has launched a survey of recycling industry stakeholders to bring clarity to how they recover glass.

The Glass Recycling Coalition (GRC) recently launched its 2023 glass recycling survey, which was last


recycling today

Glass Recycling Coalition seeks input on glass recovery efforts

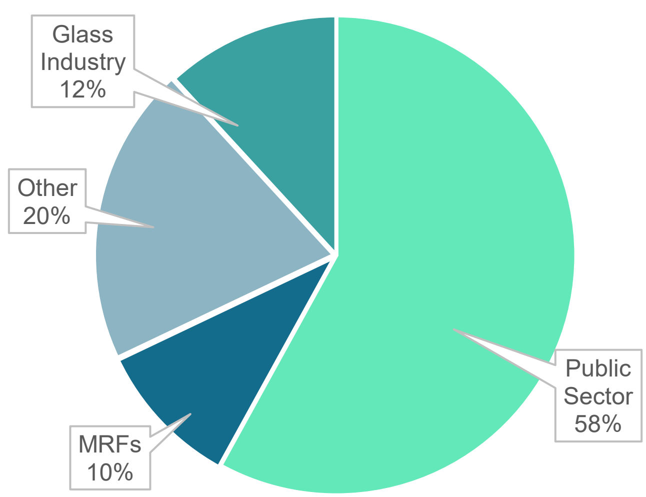
The organization is collecting survey responses until Sept. 22.

POSTED BY DEANNE TOTO | AUGUST 30, 2023

The Glass Recycling Coalition (GRC), Ann Arbor, Michigan, is seeking input from haulers, material

262 representatives throughout the glass recycling value chain provided their perspectives on the state of glass recycling in the survey. Figure 1 shows the breakdown of respondents amongst the public sector (152 respondents), MRFs (26 respondents), the glass industry (31 respondents) (note: some public-sector respondents also represent a MRF and are counted under both sectors), and other respondents not included in those categories (53 respondents). Public-sector respondents represented 58 percent of total survey respondents. The 2023 survey received approximately 50 more responses than the 2020 survey. However, the proportion of respondents in each sector remained similar, with the exception of a significant increase in glass industry respondents.

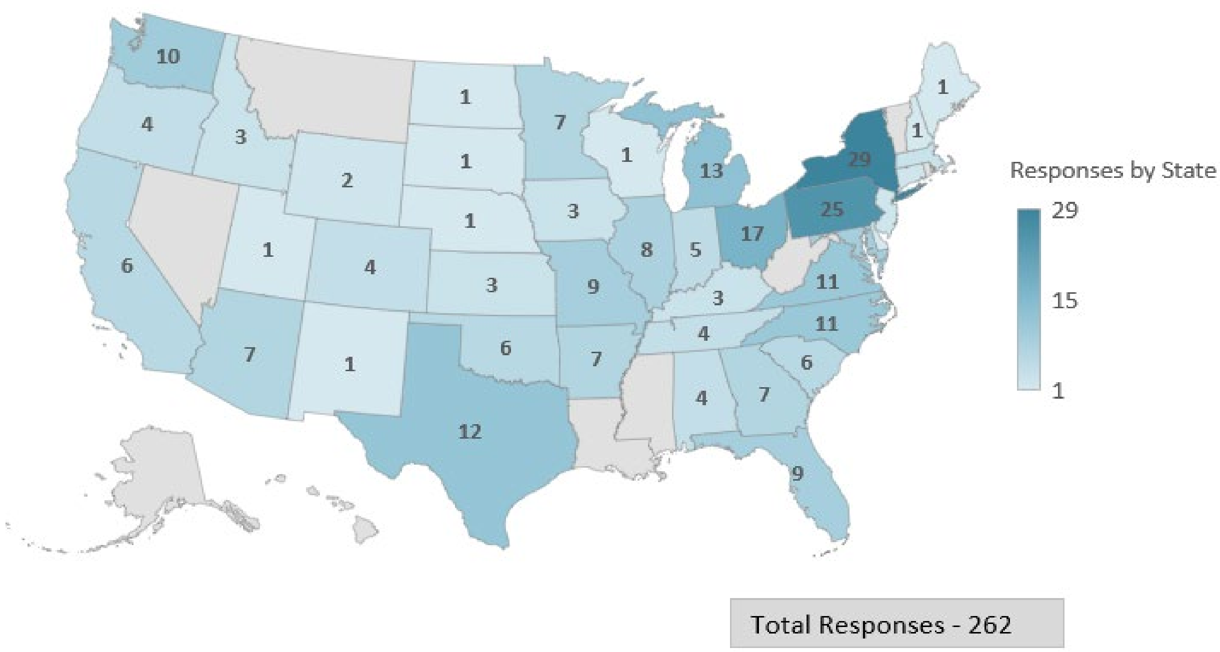
Figure 1: Breakdown of survey respondents by sector – 2023.



Respondents answered a set of questions that pertained to their sector; the survey results are presented in this report by these groups. While a number of questions only pertained to one sector, the survey included common questions across each category to provide comparative analysis. Given the smaller number of MRF and glass industry representatives that responded to the survey, comparisons can only be made for the survey respondents and may not represent the industry as a whole for those groups. Furthermore, changes in survey results between years are due in part to the variations in survey respondents, not purely changes in the U.S. recycling landscape.

Figure 2 illustrates where respondents are from in the U.S. Survey participation was highest in the Great Lakes Region, mainly the states of New York, Pennsylvania, and Ohio.

Figure 2: Geographic Representation of All Respondents - 2023.



Public Sector Responses

PUBLIC SECTOR

Public-sector representatives from municipalities, counties, solid waste districts, and states provided insight on community recycling programs and the glass recycling challenges they face. Many are the respective policymakers in their jurisdictions, but this characteristic was not measured. Public-sector responses decreased slightly from 158 in 2020 to 152 this year.

Community Recycling Programs

Table 1 and Table 2 show the prevalence of different collection systems used to collect glass in respondents' communities (note that percentages add to over 100 percent because communities may have more than one system for collecting glass). The breakdown of curbside collection systems for glass is similar to those in prior years; almost half of respondents collect glass through a single stream curbside program while other collection methods are each used by less than five percent of respondents. Fourty-three percent of respondents do not collect glass through curbside collection; however, over 60% of these respondents collect glass through a drop-off program while the remainder did not indicate having any type of glass recycling program.

In communities with drop off glass programs, glass is most commonly collected using a single-stream (comingled) system (29%) followed by collecting glass in a source separated drop off or a drop off only for glass (both 22%). Nearly three-quarters of respondents collect glass through a drop off program. In comparison, more than half of respondents in 2018 reported having glass collection available through a drop off program, though the 2017 and 2018 surveys did not capture the breakdown in drop-off collection methods. Glass may also be collected at curbside in some of these communities, while in others it may be the only collection method used for glass.

Table 1: Prevalence of different curbside systems to collect glass among public-sector respondents.

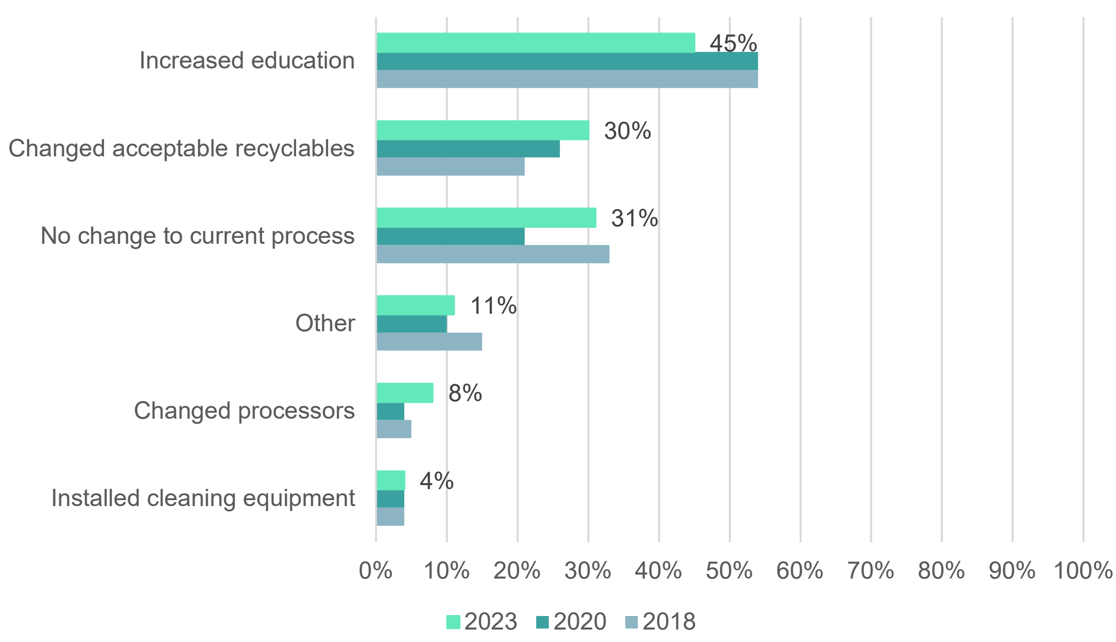
Collection System	Percent of Respondents That Use Collection System			
	2023	2020	2018	2017
Single stream curbside	47%	45%	55%	49%
Dual stream curbside	4%	5%	6%	9%
Glass collected separately at curbside	4%	7%	9%	13%
Source separated curbside collection	4%	4%	5%	8%
Varies by municipality and/or hauler	4%	n/a	n/a	n/a
None	43%	41%	n/a	n/a

Table 1: Prevalence of different drop off systems to collect glass among public-sector respondents.

Collection System	Percent of Respondents That Use Collection System 2023
Single-stream drop-off	29%
Drop-off for glass-only	24%
Source-separated drop-off collection	22%
Dual-stream drop-off	4%
Varies by municipality and/or hauler	2%
None	34%

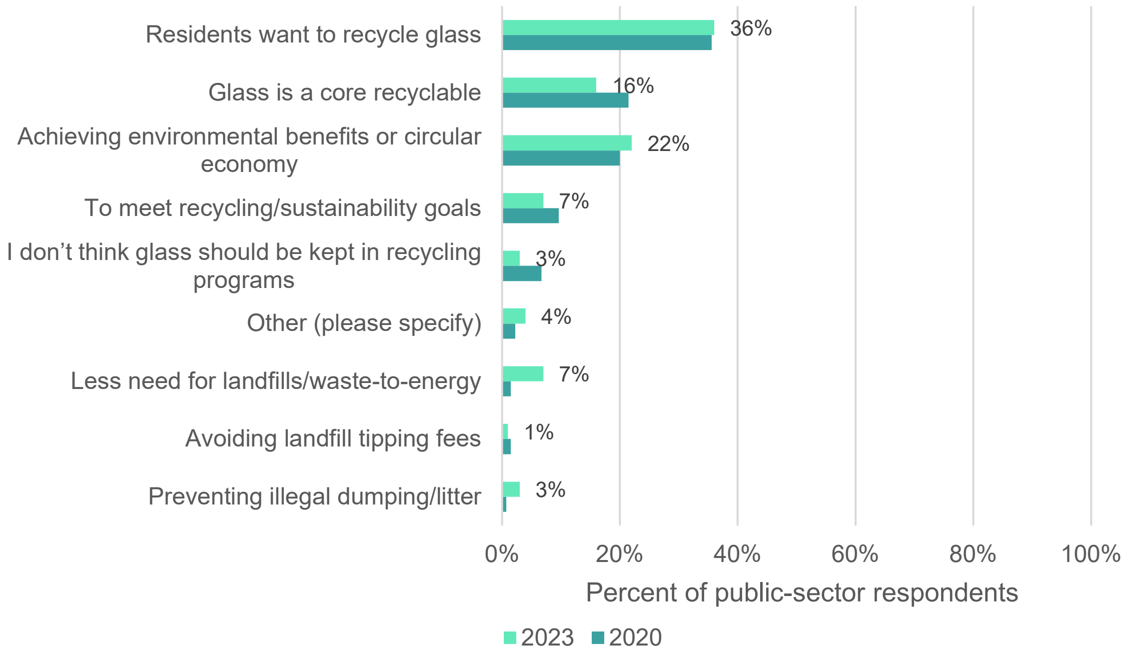
Almost 70 percent of public-sector respondents have made changes to their recycling programs in the face of current market conditions (Figure 3). Over half of public-sector respondents have increased recycling education while one-quarter of respondents have changed acceptable recyclables. Several respondents who selected “other” have changed collection processes (example, switching from single stream to dual stream), installed glass cleaning equipment, increased the cost of of programs, reduced how far material travels to a market, or have increased manual sorting to reduce contamination.

Figure 3: Changes made to public sector respondents’ recycling programs in response to current market conditions.



Residents overwhelmingly want to recycle glass: More than 93 percent of public-sector respondents indicated that residents in their community expect to recycle glass, up from 90 percent in 2020. The public sector’s responses illustrate the influence of their residents in their decisions around recycling. When asked for the top reason glass should be kept in recycling programs, "Residents want to recycle glass" (selected by 36 percent of respondents) most commonly selected. This was the top reason chosen in every prior survey as well. The influence of residents' concerns is not specific to glass recycling but to recycling programs on the whole.

Figure 4: Public-sector respondents' top reasons glass should be kept in recycling programs.



When asked for the top three program priorities for recycling in their community (Figure 5), respondents most commonly selected "resident satisfaction" (62 percent of respondents). The top reasons to keep glass in recycling and recycling program priorities were largely consistent with responses from 2017, 2018, and 2020; however, the percentage of respondents who chose each of these responses has shifted. A higher percentage of respondents identified resident satisfaction (62 percent verus 55 percent in 2020), while reducing contamination of recyclables rose to the highest in the history of the survey, at 50 percent. The third top program priority for the public sector was meeting the community's environmental/diversion/sustainability goals, at 47 percent, which was aligned with the 2020 public sector response.

Figure 5: Public-sector respondents' top priorities for community recycling programs.

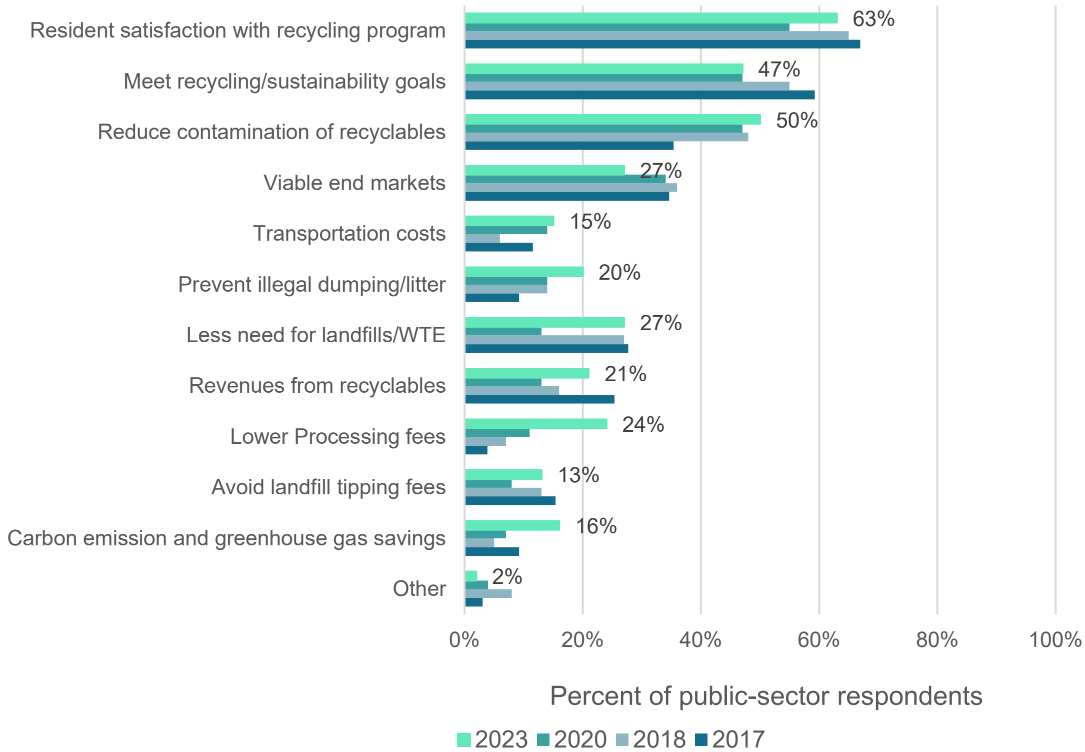


Table 3 illustrates which member(s) of the recycling value chain public-sector respondents suggested should cover the cost of collecting and processing recyclables. Respondents were asked to rank their answer in order of the primary responsible party from one (most responsible) to six. End markets were the highest-ranked party followed closely by brands and retail outlets, consistent with 2020's response.

Table 2: Public-sector respondents' ranked choices of which group should be the primary responsible party for covering the costs of recycling (the lower the number, the more the respondent thought that entity should shoulder the cost)[1].

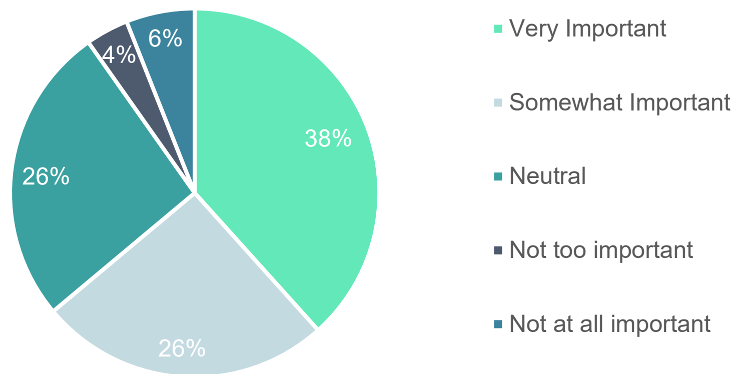
Responsible Party	Average Rank 2023
End Markets	4.8
Brands/retail outlets	4.4
MRFs	3.3
Cities/Counties	3.0
Residents	2.9
Haulers	2.7

[1] A higher rank is determined by more respondents selecting that option.

Final Destination of Glass

Sixty-four percent of public-sector respondents indicated that the final destination of their community's glass is "very important" or "somewhat important" to them (Figure 6), slightly down from 65 percent in 2020 and higher than 53 percent in 2018.

Figure 6: Importance of the final destination of glass recovered by community recycling programs to public-sector respondents.



Eighty-seven percent of public-sector respondents know the final destination of the glass recovered in their community.

Glass Recycling Concerns & Opportunities

Nearly 37 percent of public-sector respondents indicated that they have some concerns with glass recycling, down from 41 percent in 2020, 54 percent in 2018 and 63 percent of respondents in 2017. Table 4 details the challenges that these communities face. Nearly 33 percent of respondents said glass recycling is working great in their community. When asked to select their top challenge with glass recycling, the most prevalent challenge among these respondents is cost-effectiveness, with 26 percent of this group indicating they have a concern relating to cost-effectiveness (note that in past years, respondents were asked to select all challenges that apply, and in 2023, they were asked to select the top concern). Specifically, respondents selected that the "MRF tipping fee and transportation to the glass processor is more than the landfill tipping fee", making it economically challenging to recycle glass. The second most chosen option was that community "lack multiple options for glass acceptance and recycling". Additionally, many respondents left comments about how cost was the biggest barrier to recycling glass.

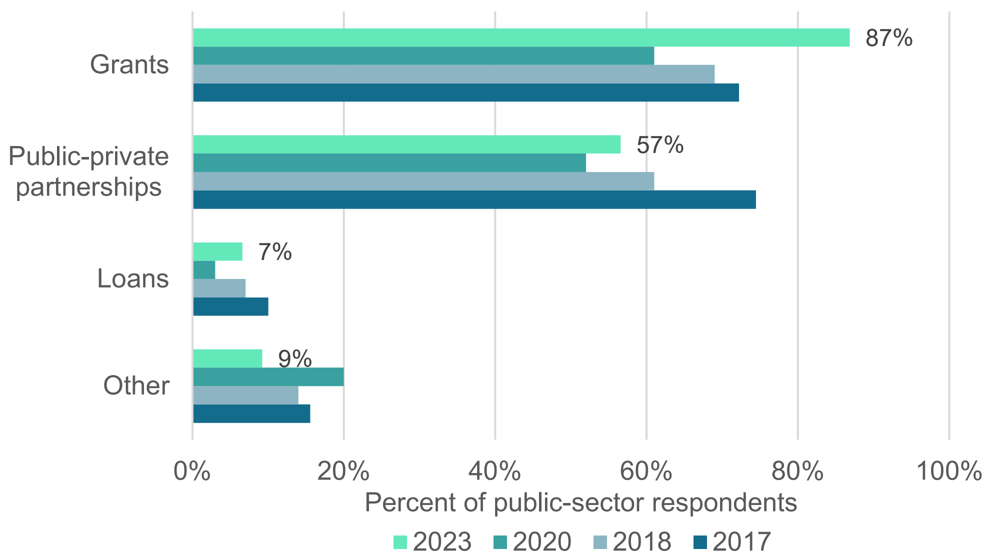
*Table 3: Percent of public-sector respondents facing specific glass recycling challenges in their community. Note that the 2020 survey asked respondents to identify their **top** glass challenge, while surveys in prior years asked respondents to identify **all** glass challenges that applied to their community. Results presented in Table 4 are just indicitave of 2023 responses.*

Glass Recycling Challenges	% Public-sector Respondents Identifying *Top* Glass Challenge 2023
MRF tipping fee and transportation to processor is more than landfill tipping fee	26%
Lack of multiple options for glass acceptance/recycling in our community	15%
Hauler/MRF stopped accepting glass	14%
Unable to find end market to accept the quality of glass	14%

Service provider wants to raise our price significantly to keep glass in the program	7%
Contamination Issues	7%
Collection cost and/or collection logistics issues	6%
MRF does not clean glass	4%
Low material volume and/or value	2%
Lack of program partcipitation	1%
Unable to specify top challenge	2%

Respondents who expressed concerns with glass recycling were asked about their interest in financial resources. Nearly 87 percent of respondents expressed interest in grants to help strengthen glass recycling, up from 60 percent in 2020. Respondents were also interested in public private partnerships as a means to strengthen glass recycling programs, and a few respondents who selected 'other' indicated a need for extended producer responsibility.

Figure 7: Interest in certain financial resources from public-sector respondents facing glass recycling challenges.



Respondents facing glass recycling challenges were also asked to select tools or information that would be useful to increase quality glass recycling in their community. The top response this year, which was different than the previous three surveys, was "Information on grant funding for glass recycling". The previous years' most popular answer was "information on the types of glass end markets", but this response came in second in 2023. Case studies and information on best practices were also tools ranked highly that would be helpful to public sector respondents. More than 71 percent of these respondents indicated that webinars and presentations are the best way to share these tools and information; this preference holds true from past years' responses (Table 6).

Public sector respondents were asked if they have explored opportunities for regional engagement to improve glass recycling in their community (Table 7). Forty-six percent have not pursued such opportunities. Forty-five percent have pursued regional engagement opportunities but have not yet had success, while another eight percent have benefited from regional engagement.

Table 4: Percent of public-sector respondents experiencing challenges with glass recycling that would find the following tools to be useful.

Tool/Information	2023	2020	2018	2017
Information on grant funding for glass recycling	49%	38%	44%	45%
Types of end markets that are available for glass	43%	44%	45%	54%
Best practices in glass recycling collection or processing	40%	34%	43%	50%
Case studies of local governments making glass recycling work	37%	32%	45%	40%
Breakthrough ideas in glass recycling and recovery	33%	22%	n/a	n/a
Information about glass recycling for legislators/decision makers	27%	22%	44%	29%
Options for preserving glass in recycling collection	17%	17%	24%	40%
A list of top considerations when making recycling program changes	17%	17%	19%	16%
Process of how glass is recycled into new containers	15%	10%	14%	20%
Other	16%	14%	12%	12%

Table 5: Preferred platforms for sharing tools and information among public-sector respondents experiencing challenges with glass recycling.

Platform	2023	2020	2018	2017
Webinars/presentations	71%	66%	72%	77%
Email alerts	61%	63%	68%	58%
Newsletters	51%	44%	45%	45%
Conferences / Workshops	39%	n/a	n/a	n/a
Social media	12%	15%	22%	13%

Table 6: Public sectors' experiences with regional engagement to improve glass recycling.

Response	2023
Yes, and it has been helpful	8%
Yes, but we have not had success yet	45%
No	46%

Glass Industry Responses

GLASS INDUSTRY

Representatives from the glass industry answered several of the same questions as the public-sector. Glass industry responses consisted of eight cullet processors, five glass container manufacturers, one insulation manufacturer, three other end use markets, one glass packaging user, and six "other" entities.

Who should pay for recycling?

Table 8 illustrates which member(s) of the recycling value chain glass industry respondents suggested should cover the cost of collecting and processing recyclables. Respondents were asked to rank their answer in order of the primary responsible party from one (most responsible) to six. Surprisingly, respondents communicated that brands/retail markets and end markets should shoulder the majority of the cost.

Table 7: Glass industry respondents' ranked choices of which group should be the primary responsible party for covering the costs of recycling (the higher the ranking, the more the respondent thought that entity should shoulder the cost)[2].

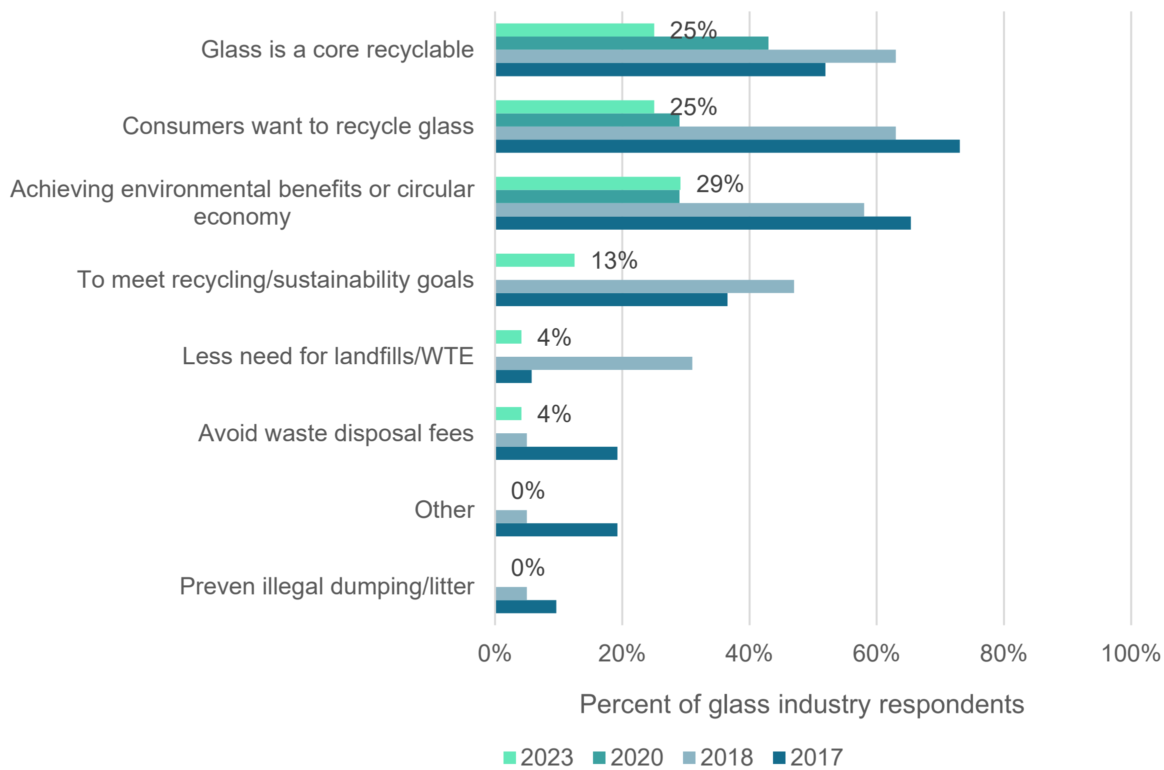
Responsible Party	Average Rank 2023
Brands/retail outlets	4.7
End Markets	4.1
Residents	3.7
Cities/Counties	3.5
MRFs	3.0
Haulers	2.0

[2] A higher rank is determined by more respondents selecting that option.

Why should glass be recycled?

When glass industry respondents were asked to select their top reason that glass should be kept in recycling programs, they most commonly selected answer was “achieving environmental benefits or circular economy” (Figure 8).

Figure 7: Glass industry respondents’ top reasons glass should be kept in recycling programs.



Final Destination of Glass

Glass industry respondents also revealed that they are concerned with the final destination of recovered glass; 96 percent of glass industry respondents rated the final destination of recovered glass as “very important” or “somewhat important” (Figure 9).

Glass industry respondents were also asked about their interest in financial resources to improve glass recycling. The glass industry, like the public-sector, expressed more interest in public-private partnerships and grants than other types of financial resources, with 82 percent of respondents selecting each of these resources. (Figure 10). Twenty-six percent of

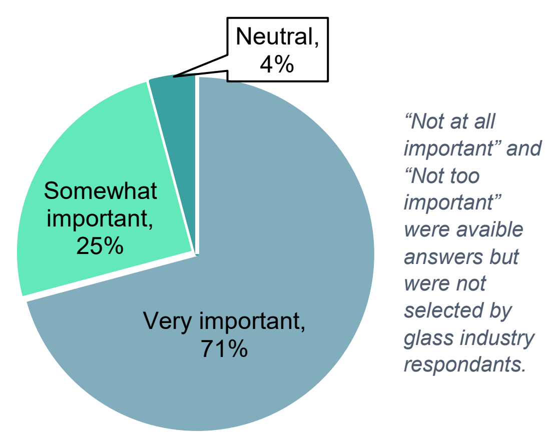


Figure 8: Importance of the final destination of glass recovered by community recycling programs to glass industry respondents.

respondents also said “equipment loans” would be helpful to strengthen glass recycling.

Glass industry respondents were asked if they have explored regional engagement opportunities to improve glass recycling in their community (Table 9). Nearly 48 percent have benefited from regional engagement efforts, while thirty percent have explored opportunities but not yet had success.

Figure 9: Interest in financial resources from glass industry respondents.

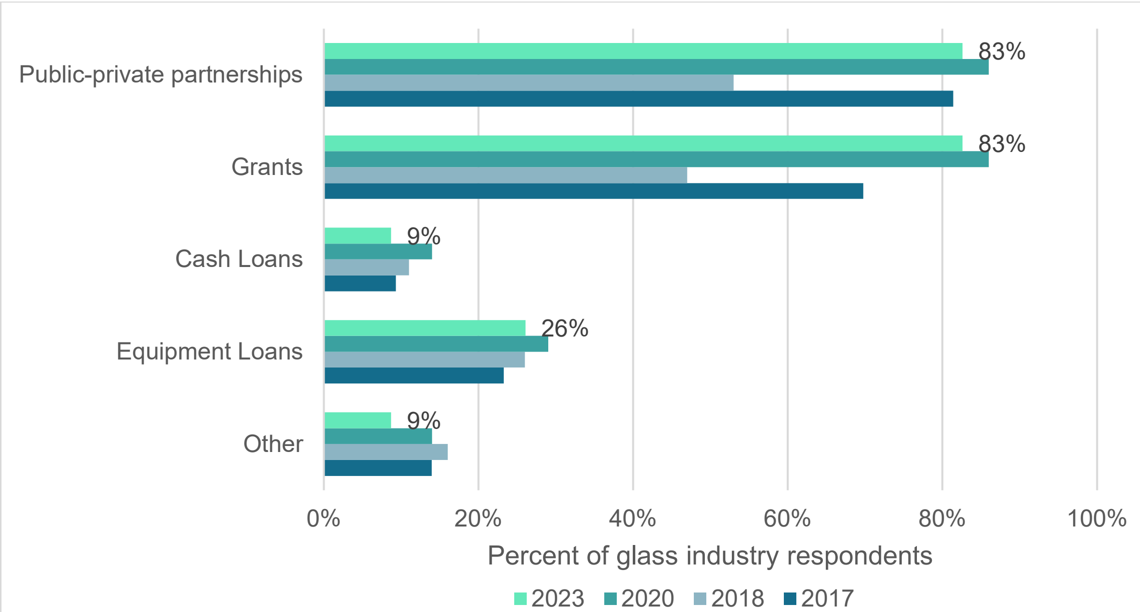
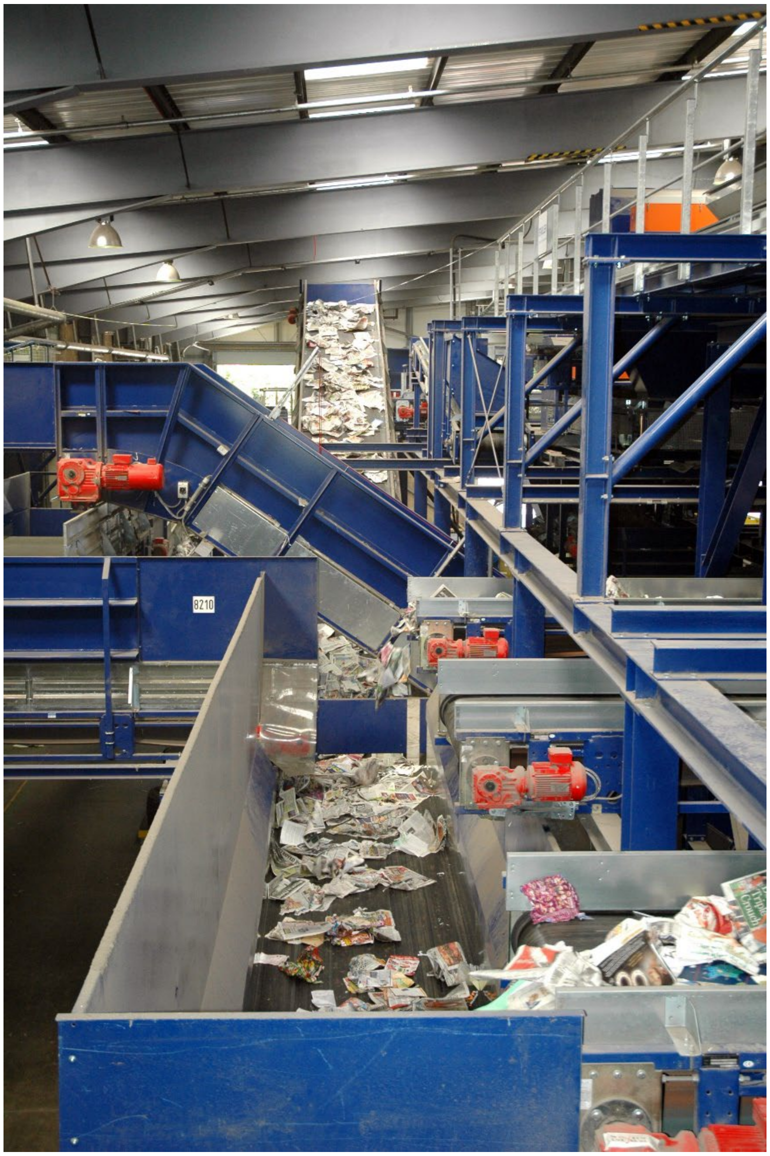


Table 8: Glass industry experiences with regional engagement to improve glass recycling.

Response	2023
Yes, and it has been helpful	48%
Yes, but we have not had success yet	30%
No	22%

Material Recovery Facility Responses



MRFS

Materials Recovery Facility respondents provided a glimpse into how recycled glass is currently processed and where it is sold. MRF responses decreased from 82 in 2018 to 44 in 2020 to 41 in 2023.

Glass Processing

MRF respondents were asked which type(s) of processing system they operate for glass (Figure 11). The most commonly used processing system by MRF respondents is single stream or mixed recyclables; 61 percent of MRF respondents responded that they use single-stream processing for glass (regardless of whether they use additional glass cleaning equipment), up from 50 percent in 2020.

Fourty one percent of MRF respondents have additional glass cleaning equipment, up from 36 percent in 2020. Figure 12 shows the types of glass cleaning equipment these respondents use; air separaters and glass breakers were the two most common types of equipment. Another five percent of MRF respondents indicated that they do not have additional glass cleaning equipment but would consider it.

Figure 11: Processing systems used by MRF respondents for glass.

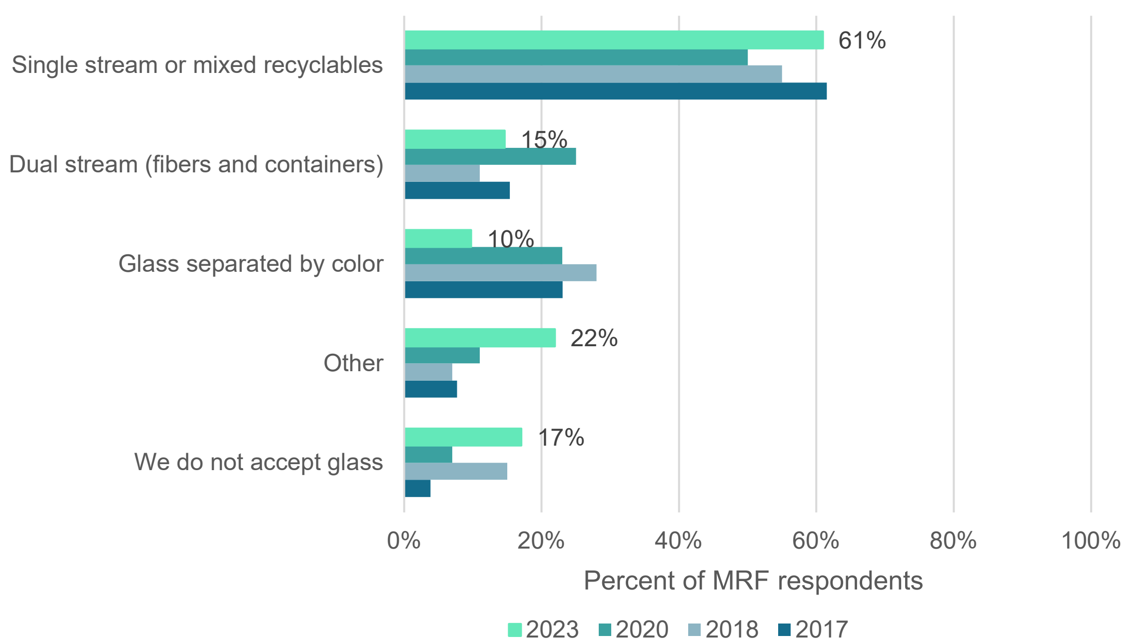
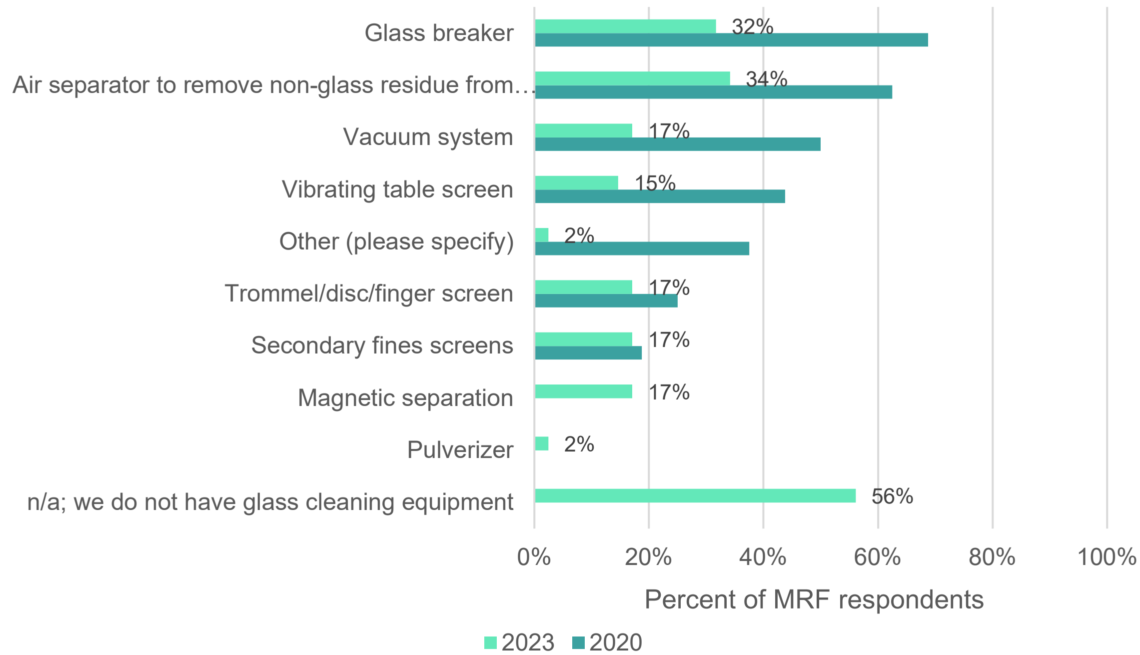
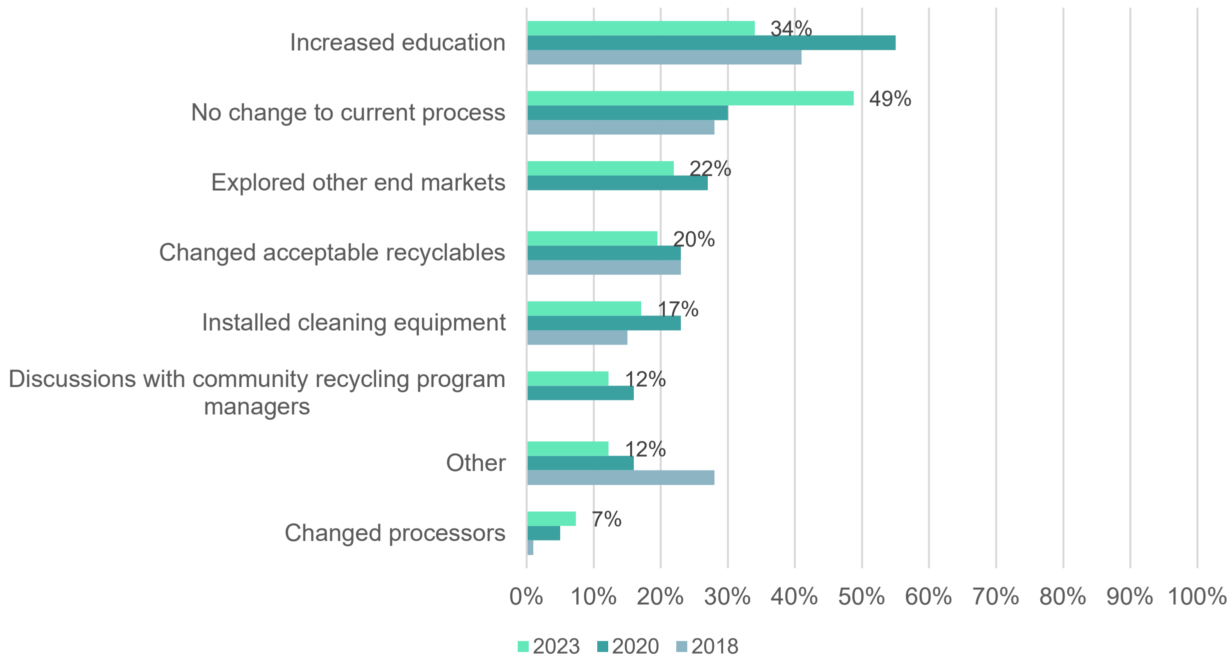


Figure 10: Additional glass clean up equipment used by MRF respondents.



When asked about changes made to recycling operations in the face of current market conditions (Figure 13), only 17 percent have installed cleaning equipment. Most commonly, MRFs have increased recycling education, with 34 percent of MRF respondents doing so. Fourty nine percent of MRF respondents have made no changes in response to market conditions.

Figure 11: Changes made to MRF respondents' recycling operations in response to current market conditions.



Destination of Collected Glass

MRF respondents were asked to provide the end use of the glass processed at their facility (Table 10). MRFs most commonly send their glass-to-glass processors (beneficiation facilities). For a longer-term view of glass uses, 56 percent of MRF respondents indicated they have had a consistent outlet for glass over the past five years, 10 percent have had an outlet for the past year, and the remaining respondents have been unable to find a consistent market or any market at all. The number of respondents indicating they have consistent outlets of glass dropped slightly from the 2020 responses.

Table 9: Final destinations of glass processed by MRF respondents.

Glass End Use	% MRF respondents 2023
Glass processor	60%
We don't accept glass in our recycling program - it goes to the landfill as garbage	15%
Alternative daily cover	10%
Roadbed aggregate	5%
Unknown	5%
Glass manufacturer	2%
Fiberglass plant	2%

MRF respondents provided their top factor determining where they sell their glass (Table 11). As in previous years, the top factor selected suggests that respondents prioritize cost (transportation costs, highest price paid per ton, etc.). While public-sector respondents reported that people's desire to recycle glass is a primary reason that glass should be recycled, MRF respondents did not reveal a similar pressure in decision-making to act on customer's desires. In fact, no MRF respondents indicated that customer expectations for recycled glass to be used in glass manufacturing is a top consideration in determining where they sell their glass (only 5 percent did so in 2018 and no MRF respondents did in 2020). MRF representatives who responded with "other" specified that they only have one outlet for their glass.

Table 10: Determining factors of where MRFs sell their glass.

Determining Factor of Where Glass is Sold	% MRF Respondents 2023
Financial factors (transportation cost, highest price paid per ton/lowest cost per ton, etc.)	29%
Processor will take all glass I bring	24%
N/A: We don't accept glass in our recycling program	12%
Other (please specify)	10%
Any option for recycling glass is acceptable, as long as it isn't landfilled with garbage	5%
Highest and best end use	5%
Landfilling is most convenient or cheapest option	5%
Landfill construction material substitution (ADC, road base, French drains) fulfills recycling obligation	5%
Contractual obligations	5%
Most glass yielded (recovered)	0%
Customer expectations for recycled glass to be used in glass manufacturing	0%

Who should cover costs?

Table 12 illustrates which member(s) of the recycling value chain MRF respondents suggested should cover the cost of collecting and processing recyclables. Respondents were asked to rank their answer in order of the primary responsible party from one (most responsible) to six. Like the public sector, MRF respondents ranked brands/retail outlets and end markets the highest.

Table 11: MRF respondents' ranked choices of which group should be the primary responsible party for covering the costs of recycling.

Responsible Party	Average Rank[3] 2023
End Markets	5.0
Brands/retail outlets	4.3
Cities/Counties	3.4
Residents	3.2
MRFs	2.9
Haulers	2.3

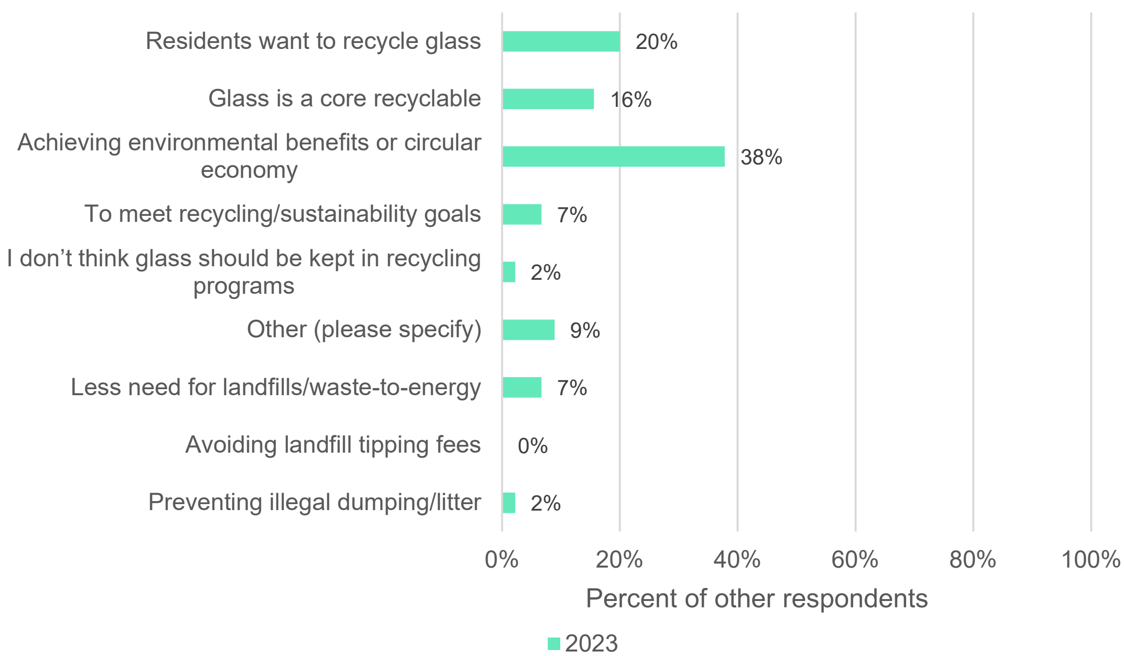
[3] A higher rank is determined by more respondents selecting that option.

Other Survey Responses

For the first time in 2023, survey respondents that did not identify as a local government, brand or end market, or MRF were asked for more information. Most of these respondents were either nonprofit organizations (state recycling organizations, Keep America Beautiful affiliates, etc.) or concerned citizens.

These respondents were asked why glass should be kept in recycling programs (Figure 14). This question was new in 2023 so there is no comparative data, but respondents overwhelmingly choose that glass is a part of achieving environmental benefits and a circular economy. The second most popular reason was that residents want to recycle their glass.

Figure 14: Other respondents' top reason on why glass should be kept in recycling programs.



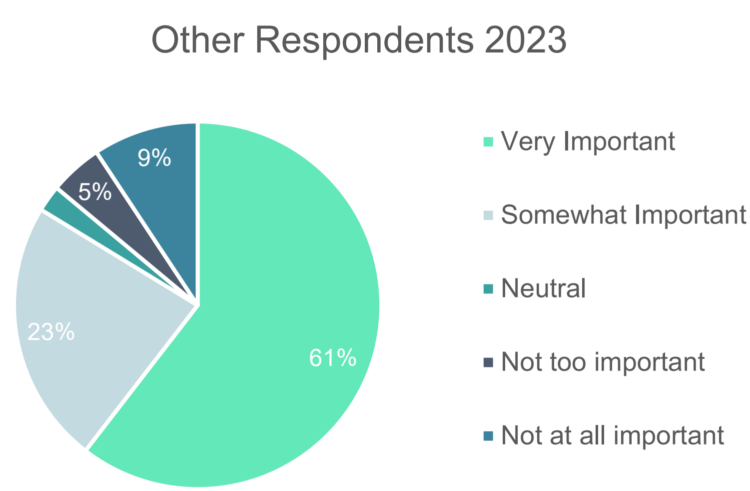
These respondents were also asked about tools and information that would be useful to improve glass recycling. Table 12 shows the respondents' top choices for these tools. Unsurprisingly, funding information (information on grants) for glass recycling was the top choice for these respondents. Information on best practices and case studies on successful programs also ranked high on the list of helpful tools.

Table 12: Tools and information that other respondents felt would be useful to improve glass recycling.

Tool/Information	2023
Information on grant funding for glass recycling	51%
Best practices in glass recycling collection or processing	36%
Case studies of local governments making glass recycling work	29%
Information about glass recycling for legislators/decision makers	27%
Types of end markets that are available for glass	26%
Process of how glass is recycled into new containers	16%
Breakthrough ideas in glass recycling and recovery	16%
Options for preserving glass in recycling collection	11%
A list of top considerations when making recycling program changes	4%
Other	27%

When asked about the importance of the final destination of glass recovered in community recycling programs, these respondents (primarily nonprofit organizations and concerned citizens) overwhelmingly said that the final destination of glass was very important (Figure 15).

Figure 15: Importance of the final destination of glass recovered by community recycling programs to other respondents.



Conclusion

While attitudes about glass recycling have held mainly true since the first survey in 2017, several shifts may be emerging. Public-sector respondents still face high expectations from their residents to recycle glass, and the portion of public-sector respondents expressing concerns with glass recycling has diminished in each survey (this year, only 37 percent of this group). Cost of glass recycling is the top challenge public sector respondents face, and is the top priority when MRF respondents choose an outlet for their glass. Transportation costs and the low cost to landfill material were noted as large financial challenges that decrease the ability to recycle glass. Lastly, the 2023 survey revealed that public-sector, private sector, and MRF respondents all believe brands and end markets should be the primary party to fund programs. All of the survey respondents expressed interest in grants and private-public partnerships as financial resources to help maintain or grow their programs. The GRC will continue to monitor changes in perceptions on end markets, provide educational resources for recycling program managers, and work regionally to overcome glass recycling barriers across the glass recycling value chain.

The Glass Recycling Coalition met in person on October 26th, 2023 in Austin, Texas for its fall membership meeting. More than 40 people representing the recycling industry attended the meeting, which featured educational panels from the different sectors involved in the glass recycling supply chain. Local glass recycling programs from Austin, Temple, and Waco were highlighted, and a panel spotlighting glass end markets covered topics like supply and demand, operation updates, and recycled content goals and strategies.

The meeting was also where the results of this survey were initially presented and discussed. One of the main trends pulled from the survey results that the group discussed was the increase in costs for glass collection and processing and how that is a growing challenge affecting all facets of the industry. The group communicated an increased need for education and resources to help combat myths around glass recycling that continue to influence residents' behaviors and local governments' response to industry challenges.

One of the main takeaways from the meeting that the GRC will use to guide its future programming is that communities need support and resources to help connect the dots from the glass being consumed and put in local recycling bins to the glass that makes its way to end markets and back into new products. Although there is no "one size fits all" solution to make glass recycling successful in each community, the GRC can play a leadership role in helping to develop resources and opportunities for collaboration to improve efficiencies in communities across the U.S.