

ENVIRONMENTAL FINANCE CENTER

State of Recycling in Kansas

RESULTS FROM A 2022 STATEWIDE SURVEY

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Executive Summary

A survey was distributed to recycling organizations across Kansas to better understand the recycling processes and markets in Kansas. The survey was sent to approximately 300 recyclers in the State. 23 people completed the survey, 31 began and completed at least 50% of the survey, and 7 began and completed less than 50% of the survey. The results of this survey are not statistically representative of recyclers in Kansas due to a small sample size; however, they provide an overview of the recycling industry in the state.

KEY TAKEAWAYS

Contaminants

Survey respondents indicated that contaminants are a challenge and often lead to entire recycling loads being sent to the landfill. Many report that community outreach and education could reduce the amount of contamination and increase the amount of recyclable materials.

Markets

Respondents report that they collect materials for which they do not have a market. These materials are either sent to the landfill or stored. Assistance with finding markets and increased end-uses for recyclable materials may help with market challenges.

Next Steps

Community, business, recycler, and governmental engagement and education can help with increasing proper recycling and enhancing existing markets for recyclable materials. Commitment from community members and local governments to enhance recycling can have positive environmental, social, and economic impacts across the State.

Survey results indicate that cardboard, paper, glass, metal, and plastic are the most commonly recycled materials among respondents. Many organizations collect a variety of materials, including materials that they are unable to sell due to a lack of markets. Some materials that recyclers experience challenges in finding markets include aluminum/tin cans, lithium-ion batteries, glass, plastics #3-#7. Several respondents indicated that their recycling business was impacted negatively when China stopped accepting US recyclables and some indicated that they are still experiencing challenges due to the embargo.

Contamination was identified as a challenge that recyclers face. Respondents indicated that 1%-10% of their loads are contaminated. Food/organic waste was identified as the most frequent contaminant, followed closely by plastic bags. Other contaminants include other plastics, foam, and paper. Community education was identified as the most useful way to decrease contamination in recycling. Potential outreach and education methods listed were flyers, photos, brochures, and media releases. Additionally, a robust outreach and education program was listed as a way to potentially reduce contamination as increase recycling.

Next steps for state, county, and city agencies, recyclers, and community organizations and members can include:

- Statewide and/or community-wide outreach campaigns about recycling in general.
- Engagement with businesses about recycling.
- Network development to enhance recycling markets.
- Local government commitment to research, evaluate, and implement recycling opportunities and programs.
- Further research, such as a gap analysis and enhancing end-use markets for existing recyclables.

Background

In Kansas, recycling programs are available for a wide variety of materials. From appliances to batteries to paper products to metals, municipal and private recycling and waste haulers are transporting reusable goods to various material recycling facilities (MRF) across the state. Residential and commercial recycling programs are available in almost every county in Kansas.

The [State of Kansas Solid and Hazardous Waste Statute](#) asserts that the safe and sanitary disposal of solid wastes is a priority to the health and welfare of its residents; therefore, the Kansas Department of Health and Environment (KDHE) maintains a database, in collaboration with the Kansas Organization of Recyclers, of the multiple haulers, recycling centers, and distribution centers across the state and makes the information available to the public through a searchable online tool. Anyone can search for a hauler by material to ensure that their reusable items are managed properly and responsibly at www.kansasrecycles.org.

State-level information helps the KDHE complete national solid waste and recycling reports. A statewide recycling survey has not been completed in a few years, and worldwide the business of recycling has changed dramatically. As Asian outlets for American recyclables are limited by China, and other countries' refuse to continue to receive the materials, there is a new landscape for the recyclability of many materials. Additional events, such as the COVID-19 pandemic and supply chain issues may further impact recycling markets within Kansas and across the country.

The Environmental Finance Center at Wichita State University (EFC) developed and distributed an updated and enhanced survey to recyclers across the state that sought to help understand the current state of recycling in Kansas. Survey responses will increase the State's ability to change, adapt, and develop new recycling opportunities that may be able to increase material reuse and recycling to reduce landfill pressure and improve economic development.

Methodology

The EFC used the Kansas Organization of Recycler's (KOR) database list as the starting point to develop a contact list for outreach and distribution of the Recycling Survey. This list was evaluated for accuracy by ensuring that the contact information was correct. The list was augmented with recycling organizations that were not included. In total, the contact list included accurate contact information for 303 recycling organizations.

A multi-flow survey that included questions (see sample questions in Appendix A) to gather both qualitative and quantitative data was developed to reach several types of recycling organizations in Kansas. Target audiences for distribution of the questionnaire were Materials Recovery Facilities (MRFs), municipal and privately operated waste haulers, drop-off recycling locations, and nonprofit organizations who participate in recycling activities.

Distribution of the survey took place through direct emails to recycling organizations in the recycling database, through word of mouth, and promoted on social media, professional contact lists, and presented at the annual Works Conference hosted by the Kansas Organization of Recyclers.

Survey Design

The survey was developed to gather information without being time-consuming. All respondents answered broad questions that included organizational details, such as operating budget, materials collected, and contamination issues. Other general topics included opportunities for comment about reducing contamination and community outreach and education. Additionally, organizations responded to questions that were relevant to their business practices. For example, nonprofit organizations did not respond to questions about exporting materials as it was unlikely that exporting internationally was something in which nonprofit organizations participate.

The multi-flow survey provided the opportunity for respondents to answer questions relevant to their type of organization. Respondents answered between 42-65 questions. The number of questions to which a respondent answered were based on how certain questions were answered.

The mixed methods survey resulted in both qualitative and quantitative data which can be used to evaluate multifaceted recycling topics. It provided an opportunity for respondents to articulate their comments, concerns, and ideas while providing quantitative data that can build the point-in-time profile of recycling in Kansas.

RESPONDENT CATEGORIES

Materials Recovery Facility (MRF)

A MRF is facility that receives, separated, processes, and prepares recyclable materials for end-users. For example, some MRFs will shred and bundle paper and send the bundles to a manufacturer who will make a new product.

Hauler

A recycling hauler is an entity, either publicly or privately operated that picks up recycling from businesses and/or residences.

Drop-off

A drop-off location is a site containing enclosures that are available for deposit of recyclable materials. The enclosures are most often single stream. These drop-off locations are often operated by either private entities, such as a waste management service, or a municipality.

Nonprofit

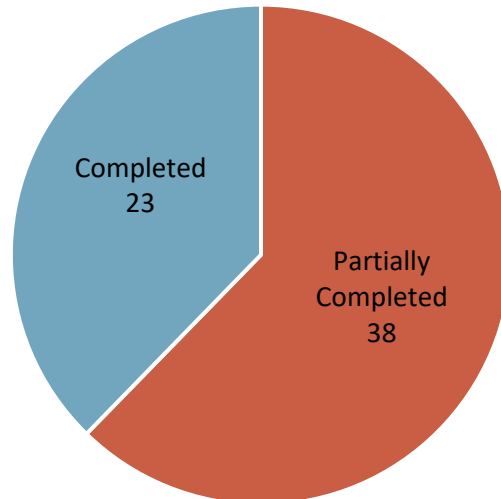
Nonprofit organizations collect in many ways including hosting specific drop-off events or by hosting their own enclosure for dropping off recyclable materials.

For the purposes of this study, drop-off locations are only privately or publicly operated locations. Nonprofit organizations that host drop-off locations are included in the nonprofit category.

Survey Results

In total, 23 (38%) people completed the survey, 31 (51%) began and completed at least 50% of the survey, and 7 (11%) began and completed less than 50% of the survey. Due to the various levels of completion, the results of survey responses will have different numbers of participants (n).

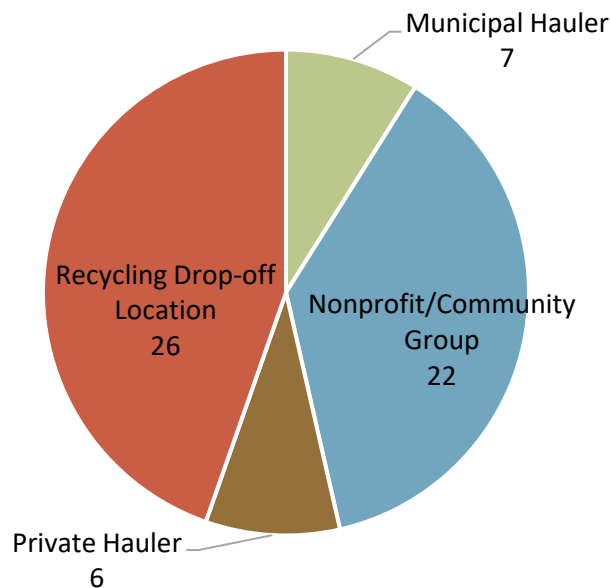
Completed the Survey



2: Completed and partially completed surveys.

Thirteen (13) representatives from haulers, both private (6) and municipal (7), twenty-two (22) representatives from nonprofit organizations, and twenty-six (26) representatives from drop-off locations completed at least part of the survey. Most respondents who completed the survey represented drop-off locations.

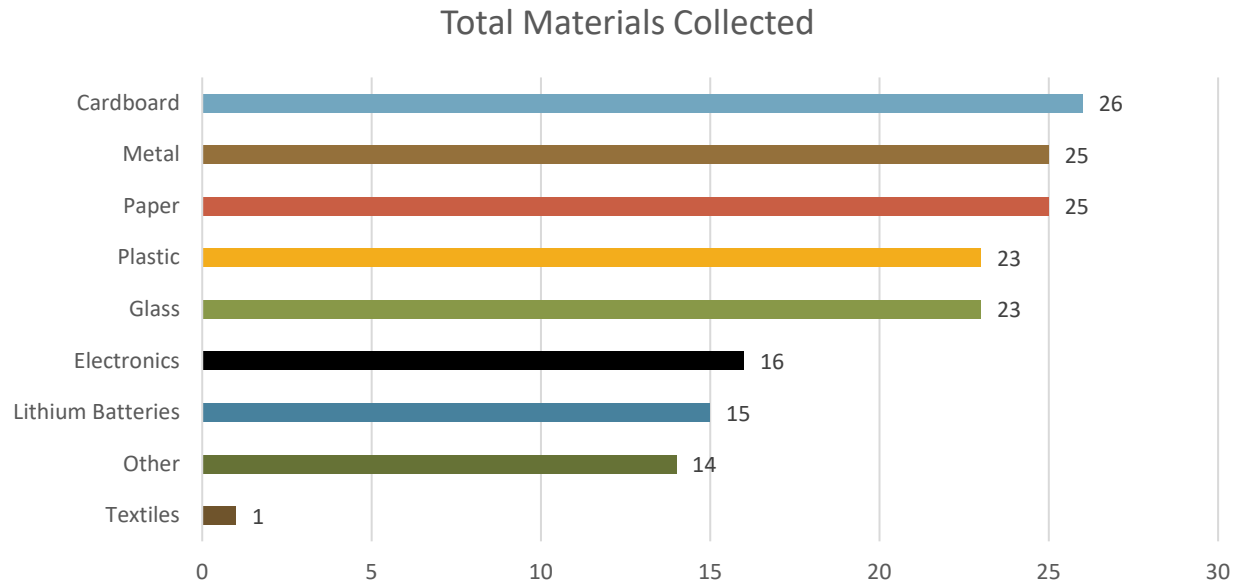
Total Organizations Responses



3: Total responses by organization type

Total Materials Collected

Respondents (n=51) indicated that their organization collects multiple types of materials. In total, almost half of respondents indicated that they collect cardboard, paper, glass, and/or plastic. Furthermore, many respondents indicated that they collect items not listed such as paperboard, lead, or acid batteries, used oil (cooking and motor), sharps, eyeglasses, ink/toner cartridges, X-ray films, food waste, or pallets.



4: Reported materials collected.

Drop-off locations

Survey responses indicate that drop-off locations (n=18) average collecting four distinct types of materials. Twenty-eight percent (28%) report collecting eight distinct types of materials. Paper, cardboard, and/or glass are most frequently collected. Other collected materials include printer cartridges, paperboard, toner, lead/acid batteries, used oil (cooking and motor), sharps, and/or eyeglasses.

Nonprofit Organizations

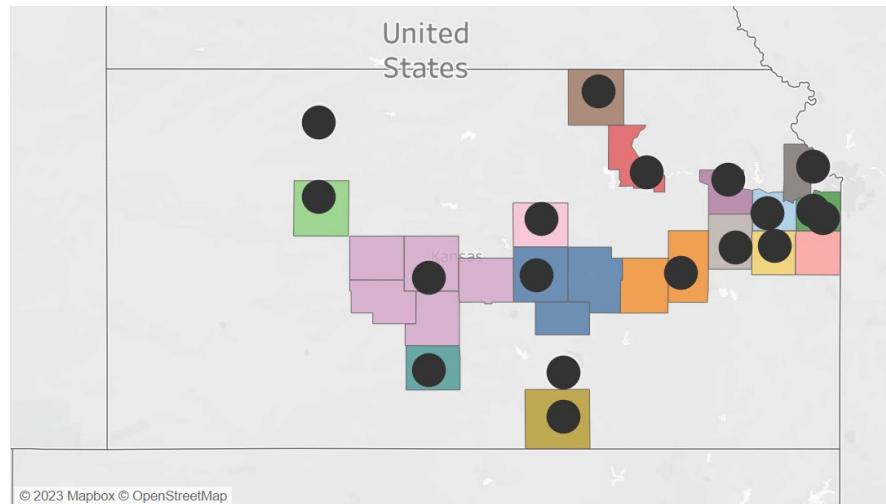
Representatives of nonprofit organizations (n=9) indicate that, on average, nonprofit organizations are collecting three types of materials. Metal, including aluminum cans, paper, and/or cardboard are most frequently collected. Other materials collected include ink/toner cartridges, x-ray film, and/or food waste for composting.

Haulers

Private and municipal haulers (n=5) report an average of six types of materials collected, with some haulers collecting 8 or 9 different types of materials. Other materials collected include lead batteries, motor oil, and/or pallets. Four haulers collect via curbside pick-up, and one collects via drop-off. Two haulers collect dual-stream waste, two haulers collect single-stream waste, and one hauler collects mixed-waste materials.

Service Areas

The zip code of the responding organization is indicated on the map. Seventeen (17) survey respondents provided zip code information. The counties surrounding a zip code indicate the service area from which an organization collects materials. For example, the responding organization in zip code 67530 collects materials from all the areas in light purple. The responding organization in zip code 67645 only collects materials from within the city limits containing that zip code.



5: Reported zip code and service areas.

The survey indicates that most collected recyclables are processed locally and sent to other facilities based on the type of material. For example, facilities in Hutchinson, Kansas accept paper, cardboard, glass, and plastic from survey respondents. Other facilities accept only one type of recyclable material. For example, scrap yards only accept metal from survey respondents. Most recyclable materials collected by survey respondents stay close to our region. The outliers include facilities that accept specialized materials such as textiles or x-ray film. Additionally, some respondents indicated that recyclable materials go to different facilities and/or mills.

Markets

A consistent challenge that recyclers face is where to send collected materials. Survey participants responded to a variety of questions to gauge the challenges of finding markets for recyclable materials. Eight (40%) respondents indicated that they collected materials that they cannot sell and eight (40%) indicated that they do not collect materials that they cannot sell. Four (20%) respondents indicated that they do not know.

Collected items without a market include:

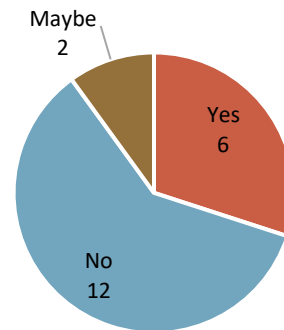
- Aluminum and tin cans
- Glass
- Lithium-ion batteries
- Small batteries
- Grain aeration tubes
- Plastics #3-#7

Although many respondents indicated that they collect materials that they cannot sell due to a lack of market, many (n=20) indicated little interest in assistance finding markets.

Of those who indicated that assistance with finding markets for collected materials is needed, the following types of assistance were identified.

- Periodic emails with a list of MRFs or other processors and what material(s) they accept and whether it is free or if they will pay for the product.
- A website with contacts
- A list/newsletter of vendors and prices
- Leads on polypropylene plastic, scrap, PIR, PCR, etc.

Do You Need Assistance Finding a Market for Your Recyclables?



6: Market assistance needed.

Only a few participants (n=6) responded to questions about how China's ban on recycling impacted their business. These respondents were only haulers. Of those respondents, four (67%) indicated that the ban impacted their recycling business, including access to markets in which to put their collected materials. The effects of the ban include negative financial impacts, such as less value for the materials, fewer markets for some plastics (#2 - #7), and MRFs shut down reducing the options for recyclable materials. Of the four respondents who indicated that their business was impacted, two (50%) respondents indicated that they are still experiencing impacts from China's ban on recyclables because the market has not recovered fully.

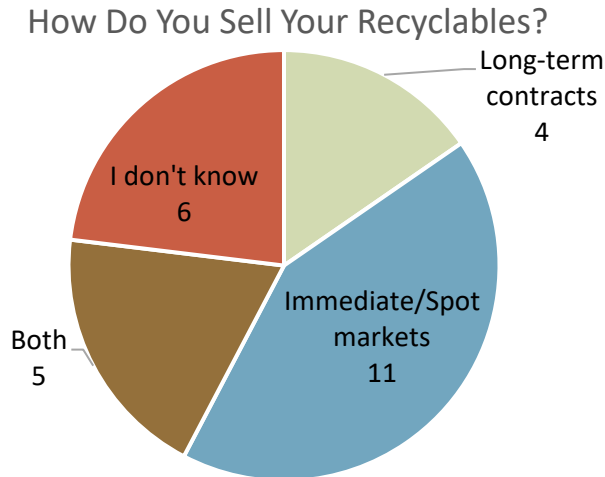
Was your recycling impacted when China stopped taking US recyclables in 2018?

6 Responses



7: Impact of recycling embargo

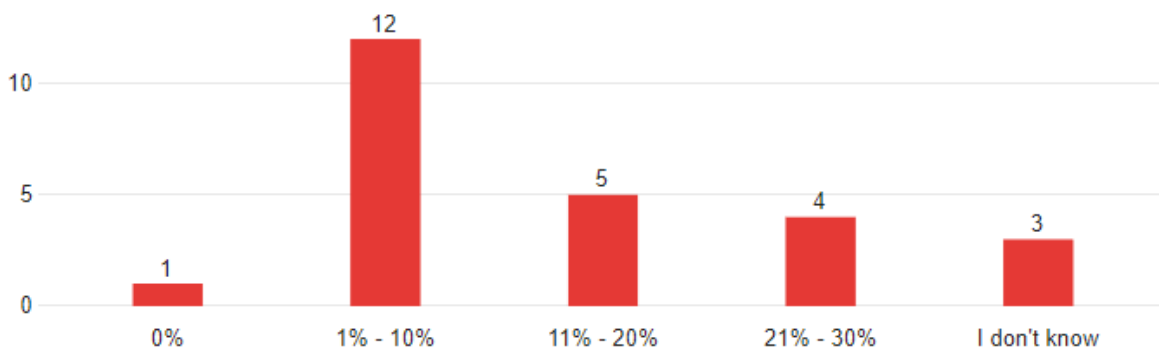
To continue to maximize recycling and financial sustainability, respondents (n=26) indicated that they rely on a mix of immediate markets and long-term contracts. Immediate markets provide the opportunity for recyclers to find a business that will take their items directly. This can be a single exchange or occur multiple times; however, there is usually not a long-term contract in place for frequent or consistent transfer of goods. Long-term contracts provide consistent markets over time. Participants indicated that most rely on immediate markets, while some rely on both immediate and long-term contracts.



8: Type of contracts for recyclables.

Contamination

Twenty-six (26) respondents, most of whom were drop-off collection facilities, report that annually, 1%-10% of their materials are lost to contamination. No respondents reported greater than 30% annual loss due to contamination.



9: Percent of loads contaminated.

Survey respondents (n =26) report that food and/or other organic waste is the most often observed contaminant in recycling loads. Other reported contaminants include plastic bags, incorrect and nonrecyclable plastics, foam, and paper.

Thirteen respondents (21%) of respondents indicate that they manage contaminated loads based on the type and severity of contaminant. For example, some respondents indicate that contaminated loads are manually sorted to recover as much as possible. Some reported sending contaminated loads back to whichever organization sent it for them to sort it and some indicated that sometimes the load goes entirely to the landfill.

Twelve (12) respondents further elaborated on how they manage contaminated loads.

Drop-off Locations

- Most of the contaminants are just pulled out and sent to the landfill.
- Contaminated loads get placed into the dumpster.
- We manually sort the materials, and the waste goes to the dump.
- Most is trash, which is thrown away. We process recycling twice a week and we can generate 2-3 large dumpsters of garbage per week.
- We sort all our materials in house, so a lot of stuff is sorted out that is not recycled and discarded in the trash.
- Occasionally, we will send the loads back to the supplier due to the contaminants.
- If it is contaminated too badly, it simply has to go in the trash dumpster.
- As recyclables are dropped off, they are inspected for contamination to ensure they meet standards. Unacceptable materials are not accepted and sent back with the person who sent them or sent to the landfill.
- Contaminated products are sent back with the customer along with education on how to reduce contamination.
- We remove larger contaminants by hand initially. Additional contaminants are removed by our sorting equipment during the recycling process.

Nonprofit/Community Group

- We only recycle aluminum cans. Our biggest problem is plain trash. Second is plastic and glass bottles.
- When contamination is seen in waste bins, an “oops” tag is issued to the household telling the resident what was wrong and a strategy to improve.
- Contaminated loads are thrown into trash.

Haulers

- Highly contaminated goes to the landfill.
- They are sent back to the supplier and resorted or charged for disposal.
- Deliver them and get downgraded.

Respondents provided various suggestions for ways to reduce contamination in recycling loads.

Education

- Photos and lists of recyclable materials.
- Understanding of impacts of contamination

Incorrect Plastics are plastics that may be recyclable but not within the capabilities or capacity of the responding organization. (e.g., plastic grocery bags)

Nonrecyclable Plastics are plastics that are not recyclable. (e.g., melamine containers, some plastic cutlery)

10: Plastics definitions

- Schools of all ages
- Social media
- Other media (e.g., newspapers, signage, etc.)

Process

- Containers need to be cleaned after emptying.
- Visual inspection of material before processing

Markets

- More options to recycle more materials.
- Better networking of plastic recyclers

Other

- More staff at drop-off
- Intentional design to make products more recyclable.

Marketing and Outreach

Communication with customers is essential to ensuring that recyclables are disposed of properly to avoid contamination. Currently, recycling organizations (n=23) use flyers, posters, brochures, websites, social media, newsletters, and media releases to inform, educate, and communicate with the public about proper recycling habits and other pertinent information. Many respondents indicated that they use social media (19) and their websites (16) to communicate with the public and with customers.

Supplemental and additional marketing materials that respondents (n=23) identified as potentially helpful include customizable flyers and posters, graphics for websites and social media, social media toolkits, television/video commercials, and connecting with an outreach expert. Additionally, some respondents indicated that marketing and outreach materials would be helpful but are unsure what kind(s) of materials would be helpful.

Next Steps

This survey and analyses serve as a snapshot of recycling processes and markets across Kansas. These following next steps that can provide further, in-depth information about recycling as well as engagement opportunities with recyclers and communities across the state. Everyone has a role to play in making recycling more efficient and sustainable. The following next steps offer opportunities for state, county, and city agencies, community groups, businesses, and organizations to be a part of the future of recycling in Kansas.

Community Engagement and Education

A common theme among responses included encouraging community outreach and education. From reducing contamination to recycling correctly, engaging with community members, both commercial and residential, can potentially help reduce contamination and increase proper recycling.

- Analyze how to engage with the community to reduce contamination of recycling.
 - Pilot an outreach and education campaign.
- Develop outreach tools and materials for organizations and agencies to use to help community members understand recycling best practices. This could include social media and other digital materials and printed materials, such as posters, flyers, and postcards.

Recycler Outreach

- Additional outreach to MRFs for in-depth conversations about the unique challenges that they face in the recycling process. Conversations could include investment in upgrades and enhancing networks for markets.
- Focus groups among recyclers, both public and private, to discuss regional opportunities for market development.
- Network development opportunities such as virtual or in-person workshops or meet-and-greets to enhance collaboration across the state.

City/County Engagement

- Dialogue between municipalities, community groups and organizations, and recyclers to enhance municipal and/or county support of recycling programs and infrastructure.
 - Encourage development of council/committee/board to discuss strategies to increase residential recycling and reduce recycling contamination.
 - Consider municipal curbside organic waste.

Further Research

- Gap analysis for expanding existing markets and developing markets for items reported that did not fit a specific category, such as toner/ink, oil (motor and cooking), food waste, etc.
- In-depth research into recyclable material end uses to assist with developing markets.

Appendix A: Sample Survey Questions

This is a sample of some of the survey questions. It is not a comprehensive list of questions.

Materials

Material	Yes	No
Paper	<input type="checkbox"/>	<input type="checkbox"/>
Cardboard	<input type="checkbox"/>	<input type="checkbox"/>
Textiles	<input type="checkbox"/>	<input type="checkbox"/>
Glass	<input type="checkbox"/>	<input type="checkbox"/>
Plastics	<input type="checkbox"/>	<input type="checkbox"/>
Metal	<input type="checkbox"/>	<input type="checkbox"/>
Electronics	<input type="checkbox"/>	<input type="checkbox"/>
Lithium Batteries	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>

Collection

- Choose your organization's collection method.
 - Curbside/Pick-up
 - Drop-off
- Which type of stream does your organization collect?
 - Mixed waste
 - Single stream
 - Dual stream
 - Source separated

Contamination

- Please rank the following contaminants in order of most often found to least often found. (Rank by dragging and dropping options into the preferred order.)

Food waste/organic matter
Plastic bags
Shredded paper
Brightly colored paper
Incorrect plastics
Nonrecyclable plastics
Hazardous waste
Coated paper
Electronics
Textiles
Paper napkins/towels/tissues
Polystyrene
Scrap metal
Construction debris
Yard waste

- Approximately, how much of your annual materials are lost due to contamination?
 - 0%
 - 1%-10%
 - 11%-20%
 - 21%-30%
 - 31%-40%
 - 41%-50%
 - Greater than 50%
 - I don't know
- Please describe how you handle contaminated loads.
- How do you think contamination in recycling can be reduced?

Markets

Questions about markets were limited to MRFs, Haulers, and drop-off locations.

- Do you collect materials that you cannot sell due to a lack of market?
 - Yes
 - No
 - I don't know
- Do you need assistance finding a market for your recyclables?
 - Yes
 - No
 - I don't know
- What type(s) of assistance might be beneficial for finding markets for your recyclable materials?
- How do you sell your recyclable materials?
 - Long-term contracts
 - Immediate/spot markets
 - Both
 - I don't know
- Was your recycling impacted when China stopped taking US recyclables in 2018?
 - Yes
 - No
 - I don't know
- If yes, please describe those impacts.
- Is your organization still experiencing challenges with those markets?
 - Yes
 - No
 - I don't know
- If yes, please describe those challenges.

Appendix B: Organizations and Materials Gathered

This map shows the service areas and types of materials collected by each respondent. The larger the circle, the larger the service area. The legend explains which materials are collected by each responding organization. For example, the circle southeast of Hays, Kansas shows an organization with a multi-community reach and collects electronics, cardboard, plastics, paper, metal, and other items. The organization west of Hays, Kansas reaches a few areas and collects paper, cardboard, metal, and other materials.

