Curbside Collection Information and Requirements

1.0 Background

SK Recycles is a not-for-profit organization responsible for household packaging and paper recycling (PPP) throughout Saskatchewan with a potential to serve approximately 450 000 households through curbside, multi-family and/or depot services.

We ensure packaging and paper is collected from households and recycling depots, sorted and responsibly managed and recycled, so that all PPP can become new materials. SK Recycles provides recycling services either directly to communities or by working in partnership with local governments, First Nations, and Metis communities, private companies and other organizations.

Our program is funded by businesses, like retailers, manufacturers and restaurants that supply packaging and paper products to SK residents, shifting costs away from homeowners.

2.0 Purpose

This document is intended to inform existing curbside collectors of best practices to assist in operating a successful curbside collection program in partnership with SK Recycles.

3.0 Curbside Collection Overview

There are two collection types for the delivery of curbside programs with SK Recycles: Program Led collection and Community Led. In Program Led communities, curbside collection is carried out directly by SK Recycles with contracted haulers. In this collection type, local governments, First Nations, Metis or RWA's are not involved in providing curbside recycling services. In Community Led programs, local Governments, First Nation and Métis communities in partnership with SK Recycles administer the curbside collection programs on behalf of SK Recycles under a contractual Statement of Work (SOW). These collection programs are located province wide, from larger urban communities of SK (Regina, Saskatoon) to very rural and remote communities. Once curbside material is delivered to a dedicated receiving facility, material transportation, processing and marketing is managed by the SK Recycles Post Collection service providers.

Collection Model

Single stream collection is the consolidated collection of in-scope, accepted materials in one collection container, combining mixed paper and cardboard with mixed containers.

Multi-stream programs would collect glass packaging and/or flexible plastic packaging separate from the the other single stream materials listed above.

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Any changes to the collection model must be approved by SK Recycles prior to commencing a program change.

Collection Style

Automated collection style is the primary method implemented by collectors throughout the province. Automated collection uses specific collection containers, usually carts, that can be grabbed by a mechanical arm and tipped into the collection vehicle without the driver needing to exit the vehicle. A semi-automated collection style is a driver assisted method, where the collection container is manually attached to an arm on the vehicle that then tips the contents of the container into the correct compartment on the vehicle. In multi-stream programs, individual material categories are collected segregated from each other. There may be a mix of collection styles used, depending on the collection containers allocated for each material stream.

Container Type

The typical collection container approved for use throughout the province are lidded, wheeled blue carts. However, the type of collection container is dependent on the collection vehicle style, and number of material streams collected. Any changes to the collection containers once a program is launched must be approved by SK Recycles.

Collection containers are discussed in depth below in the Collection Container Considerations Appendix A.

The list of accepted materials is the same among all curbside collectors in the SK Recycles network. Mixed paper and cardboard, and mixed containers are the two material types accepted in curbside programs, collected in either single-stream or multi-stream.

4.0 Curbside SOW Requirements

All curbside partners in the SK Recycles network agree to the same Master Services Agreement (MSA) and Statement of Work (SOW), forming the contractual relationship with SK Recycles. Program-Led collectors also sign the MSA and have a SOW unique to their collection program.

The MSA is a standard document that outlines the legal requirements upon entering into an agreement with SK Recycles. The requirements in the SOW are for services, performance standards and operational requirements, which are the same for all curbside collectors and include, but are not limited to:

1. **Delivery of material to a dedicated receiving facility:** all curbside collectors are assigned to a receiving facility, and all curbside loads must be delivered to this facility unless prior written approval is obtained from SK Recycles. The receiving facility will weigh the load, enter the material type, origin, and weight into the collection data software, and prepare the material for shipment to the material recovery facility for processing, and then onto end markets to be turned into new products.

2. **Delivery of approved collection containers to eligible households:** residents must be able to access the curbside collection program and are only able to do so if they have the collection containers. Container types are approved by SK Recycles during program implementation, and any changes to the containers must be approved in advance by SK Recycles.

3. **Providing accurate household counts:** curbside collectors are paid on a per household basis, and accurate, up-to-date counts ensure collectors are being correctly compensated for their collection program.

4. **Maintaining a collection schedule:** residents rely on an accurate and up-to-date collection schedule. To ensure continued program participation and limit resident frustrations, collection schedules are a must and should be adhered to.

5. **Providing collection from each curbside household no more frequently than weekly and no less frequently than bi-weekly:** a weekly or bi-weekly schedule ensures collection is frequent enough to not pose a barrier to resident participation while balancing route efficiencies and reducing greenhouse gas emissions.

6. **Maintaining a customer service call centre:** residents may need support to request new collection containers, ask specific material questions, or report a missed pick-up. Collectors must be available to respond to such inquiries in a timely manner.

7. **Rejecting out-of-scope material:** The curbside SOW has a contamination threshold of 6% or less of Not Accepted Materials, determined by random material composition audits taken from selected curbside loads. Out-of-scope material can include items not part of the SK Recycles program (such as non-packaging), industrial, commercial, or institutional (ICI) material, hazardous items (such as batteries), material sealed in bags, or materials with residue (food still inside).

4.1 Accepted Materials

SK Recycles is responsible for managing in-scope PPP materials from residential sources only.

Curbside collection programs must accept mixed paper and cardboard and mixed containers. Other materials accepted by SK Recycles are not permitted in curbside collection programs and must be taken to a depot for recycling. Foam, flexible plastics, and glass are designated for drop-off at participating depots (such as a SARCAN depot).

The material list detailing acceptable and not accepted items for each category is located on the SK Recycles website.

5.0 Curbside Collection Best Practices

The following sections provide guidance on how to manage a curbside collection program effectively, within the requirements of the signed SOW.

5.1 Staff Expectations

The program understanding by staff (collection crews, customer service, communications team, etc.) are critical to ensuring the collection program is operating efficiently and effectively, within the parameters set out in the SOW. Managers should appreciate the role the staff plays and ensure they have the appropriate tools and knowledge base to perform the collection program duties well.

Residents often have questions about the SK Recycles program, as not many understand the role of Extended Producer Responsibility (EPR) programs or how they operate. By providing staff with background information about EPR and SK Recycles, questions can be answered correctly and with confidence. Residents do not feel assured that their PPP is being managed responsibly if the call centre staff are unable to answer questions about what happens to the material, who pays for the program, why certain items are excluded, etc. The other scenario that may arise if staff aren't knowledgeable about the program is that residents may hear two different responses to their question from different staff members. This type of misinformation creates doubt that their recycling is being managed responsibly.

The SK Recycles website has information that will be helpful for staff training.

5.2 Public Education

Resident education is key to a successful curbside collection program. Regular reminders of what is accepted in curbside programs can help reduce contamination and help residents "get it right". Most recyclers want to do the right thing, so providing easy access to sorting information can reduce resident frustration and sorting errors. The most effective way to reach as many residents as possible is to use a variety of tools for education, rather than just relying on one method.

SK Recycles provides resident education for Program Led communities, which includes social media messages, creating a collection calendar and guide for each Program Led area, and providing rejection tags or Oops tags for contaminated collection containers.

Local government collectors are responsible for creating and distributing their own education materials, and receive an education top up payment per household to fund education initiatives. Some of the strategies successfully used include:

• Cart or bin decals • Collection brochures • Oops tags for bin checks	• Social media messages • Radio and newspaper ads • Posters for bus shelters	• Wraps for transit vehicles • Displays at community events • Flyers for mail outs

SK Recycles maintains online educational resources for collectors to use within the Collector Resources section of the website. Collector's must register to access the resources.

5.3 Material Management

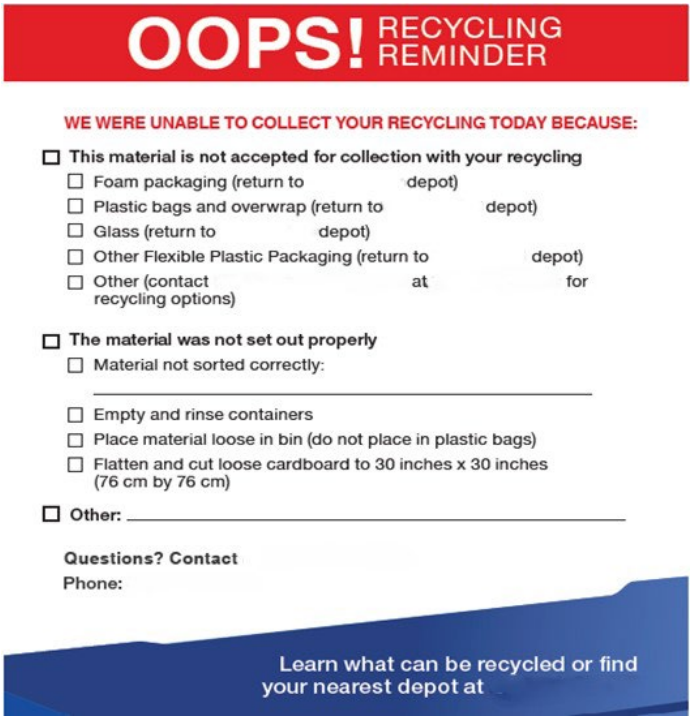
Acceptance criteria of PPP is very important; therefore customer service and collection staff should receive continual training about accepted PPP. Brochures and the SK Recycles website material list should be used regularly to assist staff with accepted PPP information.

Collection staff are the front line of curbside collection programs. Ensuring collection staff are aware of the accepted material criteria is the first step. For an effective curbside program, contamination should be addressed consistently and continually. Any potential action taken when not accepted items are noted depends on the collection style.

Manual and Semi Automated Collection

Manual collection programs have a distinct advantage over automated carts due to the ability of the collection staff to see the material contained in collection containers before being placed in the collection vehicle. In fact, automated collection contamination averages are more than double the program average contamination rate for manual collection. Prior to emptying the container contents, collection staff should scan the contents of the container to look for not accepted material. If the materials not accepted are noted in the containers, there are strategies collection staff can use to avoid collecting not accepted material.

If there is not a lot of contaminated material, not accepted material can be removed and left in the container once the accepted items have been emptied into the collection vehicle. The remaining materials should be left with a note or Oops tag identifying the reason they were left behind. Other education materials can also be left, such as brochures with the material list, or contact information and directions for residents to contact the call centre to obtain more information.


OOPS! RECYCLING REMINDER

WE WERE UNABLE TO COLLECT YOUR RECYCLING TODAY BECAUSE:

☐ This material is not accepted for collection with your recycling
- ☐ Foam packaging (return to depot)
- ☐ Plastic bags and overwrap (return to depot)
- ☐ Glass (return to depot)
- ☐ Other Flexible Plastic Packaging (return to depot)
- ☐ Other (contact at for recycling options)

☐ The material was not set out properly
- ☐ Material not sorted correctly: _____
- ☐ Empty and rinse containers
- ☐ Place material loose in bin (do not place in plastic bags)
- ☐ Flatten and cut loose cardboard to 30 inches x 30 inches (76 cm by 76 cm)

☐ Other: _____

Questions? Contact
Phone:

Learn what can be recycled or find your nearest depot at

If there is significant contamination in a collection container, the collection staff could opt to leave the entire container behind. It is important to always leave notification as to why material was not collected. Residents will be confused and frustrated if the PPP they took to the curbside is left behind with no explanation.

Ideally, the addresses that received Oops tags are recorded and entered into a database at the end of each day. Recording addresses can assist with identifying addresses with repeat contamination that could be targeted for follow up or progressive enforcement actions. Collection staff can use a notepad in their vehicle to copy down address information, or they can use a handheld device (such as an iPad or tablet) to digitally enter address information. Some collectors prefer a call-in system, where the collection staff calls or radios the customer service representative at the main office to get them to record the address information into a database. Templates for Oops tags can be found on the Collector Resources Portal of the SK Recycles website, or collectors can opt to use their own design.

Automated Cart Collection

Automated carts are more challenging when it comes to mitigating contamination. Collection drivers are not required to exit the collection vehicle; therefore, contents of carts are not examined before being tipped into the truck. One option for automated cart collection is to have a designated “swamper” checking carts in front of the collection vehicle to scan for contamination. If not accepted items are noted, similar strategies used for manual bins can be utilized. Small amounts of not accepted material can be removed and placed beside the cart or can be tied into a plastic bag and tied to the cart handle. This method reduces the potential for litter, while still allowing the cart to be tipped without the contaminated material entering the collection vehicle. If there is significant contamination, the entire cart can be rejected. The swamper can either turn the cart around to indicate to the collection driver that the cart is not to be emptied into the collection vehicle, or the cart can be moved away from the curbside to prevent it from being tipped into the collection vehicle. In both cases, “Oops” tags or other education material should be left with the cart to inform residents of the reason it was left behind and who to contact for more information. A list of addresses with not accepted materials or rejected carts should also be maintained.

Not all collection programs have the ability to check carts in front of the collection vehicle, so the only way to identify contamination is as its being tipped from the cart into the collection vehicle. On-board cameras are an effective tool to review cart material as they are tipped. If not accepted items are noted, the collection staff can note the address to be added to a tracking spreadsheet. Ideally an “Oops” tag will be left with the cart indicating the not accepted materials that were identified. A more efficient way of using on-board cameras to manage not accepted material tipped into the collection vehicle is the use of GPS technology on trucks or the use of Radio Frequency Identification (RFID) technology. RFID utilizes unique barcode stickers on carts that are linked to a specific residential address. When the collection staff see not accepted material on the screen, a button is pushed that records an image of the material being tipped, scans the barcode to identify the specific address, and transmits the data to the main office. Both GPS and RFID technology eliminates the need to manually track information, creating efficiency and reducing the potential for error (such as writing down the wrong address).

More recently, on-board technology has evolved to the use of Artificial Intelligence (AI) to assist with contamination reduction. The AI software is scanning the contents of tipped carts for not accepted material, rather than this being the task of the collection driver. If a contaminant is identified, the same actions that occur when pushing a button in the RFID application are triggered automatically using AI, with the additional ability to automatically generate postcards with pre-determined messages to be directly mailed to residents with the images of the contaminated items included. The use of AI is still relatively new and an evolving technology but shows great potential for being an effective contamination reduction tool.

Best Practices:

Having a way to keep Oops stickers attached to the collection container is helpful, both to ensure the information gets to the resident, and to reduce the potential for litter from Oops tags that have blown away. An adhesive strip on the back can help secure Oops tags in place. For containers that have a handle like automated carts, the Oops tag can be shaped like a door hanger to hang on the container handle. Some collectors put a hole in the top of the Oops tag and zip-tie to the container handle.

5.4 Hazardous Materials

Collection staff should be especially vigilant about monitoring hazardous items, which can endanger the safety of drivers as well as staff at receiving facilities. Hazardous material can also be extremely damaging to facilities by either damaging equipment or causing dangerous and destructive fires. Hazardous items may include:

- Sharps (needles)
- Knives
- Razor blades
- Butane or propane cannisters
- Batteries (including products which contain batteries)
- Bear spray cannisters

- Pesticide, fungicide, and herbicide containers
- Fossil fuel = flammable containers (gas, diesel, oil, others where flammable material residue may exist)
- Propane canisters
- Helium tanks

- Cell phones and laptops
- Ammunition
- Flares
- Electronics
- Paint
- Lighters and matches

Diligence is needed to ensure frequent and consistent messaging to residents about the importance of keeping hazardous materials out of curbside collection containers.

Best Practices:

Curbside collectors should utilize the Collectors Portal for easy to share messages about the dangers of hazardous items and the risks they pose to all aspects of the collection network.

6.0 Collection Considerations

The following summarizes actions that should be taken by curbside collection partners to help support a successful collection program that provides excellent service to residents while adhering to SOW requirements.

Routes	• Use routing software to maximize efficiency when providing collection services. Route optimization helps ensure timely collection and provides some flexibility when service disruptions occur. For example, finishing routes earlier in the day leaves time to recover materials that may have been missed due to unforeseen circumstances such as weather-related delays.
Collection staff	• Provide consistent training for staff on what is accepted material and what to do when not accepted PPP is identified in collection containers. • Give collection drivers the tools required to track issues encountered during collection (such as contaminated bins and accessibility concerns) • If there is a concurrent collection of other materials in the same split truck (such as organics) or collection is to be multi-stream provide frequent reminders to collection drivers about the importance of emptying the containers into the correct compartment of the truck.
Monitoring	• Consistent monitoring of resident containers provides opportunities to leave education materials behind to correct bad behavior such as contamination or mis-sorted multi-stream material. • Monitoring can also provide direction on items that should be targeted for education. For example, if flexible plastics are commonly identified in single stream collection programs, this could be a material targeted for education campaigns.
Tracking	• Maintaining an effective system for tracking information, such as missed collections, rejected containers, number of Oops tags deployed, and replacement bin requests helps in the development of strategies to improve collections. • Repeat offenders receiving Oops tags can be provided with targeted education material and repeat missed collections can be examined to find possible solutions as examples.
Enforcement	• Enforcement for residents when adding not accepted items to bins or carts can aid in behavior change. In addition to residents, enforcing program requirements with staff helps ensure the integrity of the program.
Education	• Consistent messaging using a variety of formats (newspapers, social media, attendance at events etc.) can help drive home messaging surrounding program requirements. Establishing an education plan at the beginning of every year is good practice to keep current with seasonal campaigns and also help with annual education budgeting. • Keeping staff up to date is important to maintain accurate messaging for residents and to keep collection drivers aware of program requirements and any additions or changes to the program.

Appendix A-Collection Container Considerations

1 – Background

This document is intended to inform a reusable collection container procurement plan for implementing a residential curbside and/or multi-family recycling collection program, as required by Section 2.1.4 of the SK Recycles Curbside and Multi-Family Statements of Work (SOW).

2 – Objective

Curbside and multi-family collectors that wish to collect Packaging and Paper Products (PPP) under the SK Recycles program are required to provide residents with reusable containers with sufficient volume to accommodate in-scope PPP generated by customers between collections so that container capacity is not a barrier to use of the residential curbside or multi-family collection service. Containers must be delivered to residents at least ten (10) business days prior to the service commencement date as per Section 2.1.4 (c) of the SOW.

3 – Container Considerations

When determining what collection model or container type will be most compatible with individual community needs, please consider the following:

3.a Collection Model

Will the curbside collection model be an automated cart-based program, manual collection using open bins, or multi-stream collection? Will multi-stream collection use open bins, or a combination of bins and reusable bags? Will multi-family collection be included in the program? If yes, will each unit be provided with a collection container, and what type, or will each building be supplied with containers to be placed in a common area to be shared by all the residents? If the multi-family collection is using shared containers, will these be automated carts, manual collection open bins, or overhead bins? Will residents be directed to recycle glass containers at a SK Recycles depot, or will glass be collected as a segregated stream curbside?

- **Single-stream Recycling (model primarily used in Saskatchewan):** In single-stream recycling, paper, cardboard, metal containers, plastic containers and paper cartons are mixed in the same recycling collection box, cart, or reusable bag. Where non-deposit glass containers and jars are collected as part of the SK Recycles program, the containers are collected in a separate box or bin to avoid having broken pieces of glass mixed with other recyclables.

- **Multi-stream Recycling:** In multi-stream recycling, residents sort materials into multiple categories, most frequently *Containers* and *Paper and Cardboard* (or *Fibers*). Where non-deposit glass containers and jars are collected as part of the SK Recycles program, the glass is collected in a separate box or bin as a third stream to avoid having broken pieces of glass mixed with other recyclables.

3b. Collection Vehicle Compatibility

Will the current collection vehicle be appropriate for the type of collection container and collection model that is proposed? If multi stream collection is preferred, does the collection vehicle have two compartments, or will collection alternate between paper and container collection days? If garbage and/or organics will be collected on the same day, will the collection vehicle be adequate to keep both streams separate to avoid contamination? If glass is to be collected curbside, what vehicle will be used for the segregated glass collection? If automated carts are chosen, does the collection vehicle have a lift assist?

- **Onboard Monitoring Technology**: Implementation of Radio Frequency Identification Device (RFID) systems add value to residential cart-based programs. RFID tags are incorporated into each cart and on-truck RFID cart readers connect addresses and users in order to assist with curbside enforcement and education (e.g. through driver interaction and office follow-up support). RFID can be used as a critical element of quality control procedures to identify and manage contamination.

  RFID systems can be used to:

  - Assign a cart and its data to a specific collection location/resident.
  - Reduce missed collections.
  - Provide a detailed history of ownership, location, and repair to monitor the cart asset over its entire useful life (including exchanges and removals).
  - Generate data on participation rates.
  - Determine community diversion tonnages.
  - Target P&E in areas experiencing poor set out or contamination issues; and
  - Measure route efficiency.

There are also recycling trucks that scan the chips installed in each bin when emptying carts and utilize cameras to monitor the materials being dumped. This allows detailed collection history to be transmitted back to the collector to determine if the right materials are coming out of each container. This information is used for P&E and enforcement purposes.

Cameras installed in recycling trucks have helped reduce the levels of incorrect items being recycled in some of the municipalities across North America over the years. However, a combination of the cameras being used and collection staff regularly checking/auditing bins on the streets will assist in transitioning to a well performing program.

SK Recycles does not hold direct relationships with onboard technology service providers, and as such will not recommend specific organizations. Below is a list of onboard technology service providers which other collectors around the province have utilized for their individual programs:

- https://www.prairierobotics.com/
- https://www.amcsgroup.com/solutions/vehicle-technology/
- http://www.ashbeeswm.com/smart-waste-truck.php
- https://www.focusoptimization.com/

4 - Collection Container Selection Considerations

Below is information outlining some of the options for reusable containers, along with details of the advantages/disadvantages and compatibility to collection style of each:

Container Type	Aspects to Consider	Compatibility
Box and Reusable Bag 	Blue boxes can be used for single stream recycling, or a box and bag combination can be used for multi- stream. Typically, the blue box would be for containers, and a thick, reusable bag for paper/cardboard. This allows material segregation, increasing collection staff's ability to identify out of scope materials and reduce contamination. Empty bags must be secured once collected and empty to prevent them from blowing away, for example under an emptied and upturned blue box.	Either single stream or multi-stream, with collection vehicles that will accommodate manual collection.
'Rubbermaid Can' (lidded) 	Large capacity for single stream programs, while not too large for collection staff safety concerns. Lid mitigates animal and weather impacts. Easy to tag for contamination concerns. Can be difficult to distinguish between garbage cans unless specifically marked. Can hide out of scope materials, posing contamination challenges.	Single stream programs, with collection vehicles that will accommodate manual collection.
Cart 	**This is the primary container type currently used in Saskatchewan for curbside collection.** Large size permits large volume of material. Increased route efficiency and automated collection methods can reduce collection staff injuries. Cart based programs tend to have significantly higher levels of contamination, lack ability for effective oversight and enforcement and are associated with significantly more difficult and expensive contamination remediation options.	Cart based programs require an automated or semi-automated collection vehicle to effectively deploy.

Container Type	Aspects to Consider	Compatibility
Split Carts 	Reduced contamination with the efficiency of automated collection. Large size permits large volume of material to be collected. Able to utilize automated or semi-automated collection vehicles while collecting multi-stream. Requires a split body truck or retrofit of existing automated or semi-automated collection vehicle.	Multi-stream collection model using automated or semi-automated collection vehicle.
Front End Bins (for Multi-Family) 	Residents in multi-family dwellings can recycle in-scope PPP in a central storage area accessed by all residents. Large shared container reduces storage concerns in multi-family units, and may increase collection efficiency Communal bin collection poses significant contamination challenges, by allowing large bulky item disposal, and having no ability to identify which residential unit is depositing non-PPP material in the bin.	Front loader collection truck is required.

4a. Container Suppliers

SK Recycles does not have direct relationships with reusable collection container suppliers, and as such will not recommend specific suppliers or manufacturers for container procurement. Below is a list of suppliers which collectors in other jurisdictions have utilized for their container provision:

Blue Boxes:

1) Nova Products: https://www.novaproducts.ca/
2) Ecotainer: https://www.ecotainer.ca/recycling-bins/
3) Thunderbird Plastics: http://www.thunderbirdplastics.com/

Reusable Bag Suppliers:

1) Unitrend Plastics Ltd.: http://www.unitrendplastics.com/
2) Enterprise Paper: https://www.enterprisepaper.com/
3) Bulldog Bags: http://www.bulldogbag.com/

Carts:

1) Toter: https://www.toter.com/
2) Schafer: https://schaeferwaste.com/
3) IPL Plastics: http://www.ipl-plastics.com/en/environment/products/file/mastercart-series/1

4b. Container Procurement:

1) Consider factors such as price, size, colour, recycled content, delivery timelines, shipment packaging, maintenance expectations, expected lifespan, reviews, and delivery cost.
2) Quotes can be obtained by contacting companies directly. Gather quotes from multiple suppliers, including large retailers in addition to wholesale suppliers/manufacturers. Smaller companies and retailers may be contacted directly to ensure they are aware of the RFQ/RFP opportunity.
3) If the containers are being provided by a retailer, containers may be packaged individually. It is important to ask the retailer to see if they can work with the manufacturer to instead provide the containers stacked and shrink-wrapped, rather that individually packaged.

Containers can take longer to be supplied than anticipated. Plan to receive containers well in advance of when they are required.