



## Survey of U.S. Glass Container Recycling Programs for Bars, Restaurants, and Hotels

**Executive Summary**  
**September 15, 2011**

This Executive Summary reports on results from a survey of bar, restaurant, and hotel glass container recycling programs conducted by the Glass Packaging Institute (GPI) during July and August, 2011. In addition to collecting data on containers and processes, economics, and logistics, the survey also identifies eight “best practices.”

The in-depth telephone survey included ten bar, restaurant, and hotel glass container recycling programs in eight states (CA, CO, IN, MO, NC, NV, OH, TX). Of the programs surveyed, four were initiated by a hauler/recycler or glass processor, another four by the city or county, and two were started by a bar/restaurant or hotel.

### **Background of Surveyed Programs**

The majority of programs began within the past six years, and several within the past two years. Of the ten programs surveyed, on average, they have been in operation just over four years (4.2 years). The longest is 19 years and the shortest has been in operation eight months. Taking out the program in existence for 19 years, the outlier, the average length of time in operation is 2.75 years.

Most programs were initiated to handle the volume of glass generated at bars, restaurants, and hotels, as well as the environmental impact of recycling glass versus including it with the trash. In some cases it was motivated by generating a higher quality and volume of recycled glass for a targeted end market.

### **Single Stream vs. Separate Glass Collection**

Glass containers are being collected separated from other recyclables in six of the 10 programs, and six also collect glass via a single stream collection system. Two programs collect glass both separated for larger generators and single stream for smaller businesses. Single stream means either all recyclables in one collection bin or commingled containers. Those that are collecting glass separated from other recyclables are generally bypassing the materials recovery facility (MRF) and taking glass directly to a glass recycling/cullet processor.

### **Program Participation**

The average number of bars, restaurants, and hotels participating in a program is 100. The smallest program has 10 participating businesses and the largest has 330. One program includes 10 large hotels. Of those reporting, on average, each business is generating about one ton/month of mixed glass containers. Of the 10 hotels participating in a program, on average they each generate 40 tons/month (between 20 – 70 tons/month per hotel).

The average amount of glass collected through a bar, restaurant, hotel recycling program is about 150 tons/month (158.5 tons), with one program not reporting. The smallest surveyed program collects just over eight tons/month of recycled mixed glass and the largest two city-wide programs generate 400 tons/month and 650 tons/month of mixed glass.

## **Economics**

Overall, in all programs surveyed, implementing glass recycling resulted in a cost neutral scenario for businesses or a small reduction/increase in costs. Surveyed programs report that most businesses are unwilling to pay an additional fee for glass recycling collection services. Of those programs initiated by a hauler/recycler, all either pick up at no charge or at a fee that allows for an overall cost neutral to participating businesses. Some haulers/recyclers also supply outside storage containers as part of the fee.

In most cases, separate glass collection requires an additional pick up, and while glass taken out of the trash often eliminates one trash pickup each week, this may not be reflected in overall economics. Terms of the existing hauling contract may not allow for a change in volume of trash to be reflected in lower costs, although that may occur over time as hauling/recycling contracts come up for renewal.

Of the surveyed programs initiated by a hauler/recycling collector, all report that the program was “economically feasible.” One respondent stated that it was “cost neutral,” but they were getting benefits for participating in a program that is a source of pride for the community as all program partners are part of the local economy—from brewery to recyclers and back to glass bottles again. In California, the state’s deposit program provides an incentive to recycle, and in North Carolina, container recycling is required by law for all ABC permit holders.

## **Collection Containers, Vehicles, and Routes**

Over half of those surveyed (6) used public (state or county) and/or private grants to provide indoor and/or outdoor collection containers to businesses at the start of the program. For inside collection, this means predominantly Slim Jims® and 96-gallon lidded containers with wheels for outside collection/storage.

Most collect recycled glass once/week. The cost per month for each business ranges from no charge, to \$25 for once/week collection of a 96-gallon tote to \$125 for more pickups/week and/or larger or more containers. On average, once/week collection is about \$40 - \$50 for each business. Prices vary based on size of collection container/s, number of containers, and frequency of pickup.

Six surveyed programs use 96-gallon containers for final collection. These are loaded on to a collection vehicle using an automated arm/tipper; two haulers surveyed use automated lift gates to load 96-gallon containers on to 24-foot box trucks. Another three programs (two single stream and one glass separated) use between 2-yard and 8-yard containers and front- or rear-loading collection vehicles. In the case of higher-generating customers, glass is collected and hauled in a roll-off container.

Typically a collection vehicle is used one day/week for a glass container collection route to businesses. There needs to be sufficient customers to fill the collection vehicle on a daily route to establish economic feasibility. One survey respondent stated that the minimum threshold for a once/week glass collection route is between 50 and 75 participating businesses within a designated area. This, however, varies for each program and the volume of glass containers generated at each business.

## **Recycled Glass End Markets**

In all programs surveyed, recycled glass is used in the manufacture of new glass bottles and jars or to make fiberglass. This is largely because glass is being collected separated from other recyclables (6 programs), bypassing the MRF and going directly to a cullet processor.

Recycled glass collected single stream is taken first to a MRF (6 programs) and then to the cullet processor. There is no data in this survey on recycled glass loss through this process, although a 2009 Container Recycling Institute study found that for single stream curbside collection 40% of glass gets recycled into new glass containers, on average, and another 40% ends up in landfills; the remaining 20% is presumably going to a secondary uses.

## Best Practices

1. **Build partnerships that utilize and advance the local economy.** When working in tandem, the food service businesses, hauler/recycler, and glass processor can most effectively ensure that the recycled glass is returned to a glass container manufacturer for closed-loop recycling. Cities and counties that initiate bar/restaurant glass recycling programs are adept at helping to create these connections and bring all the parties together. A program is more viable and the local economy benefits when a glass recycling/cullet processor and glass container manufacturer are located in the same, or nearby, state as the commercial glass recycling program.
2. **Ensure sufficient participants for economic feasibility.** Typically a collection vehicle is used one day/week (or more) for a glass container collection route to businesses. There need to be sufficient participants to fill the collection vehicle on a daily route to establish economic feasibility. This is a useful guide for determining the number of businesses that would be required to establish a viable program.
3. **Don't underestimate "set up" time and personnel requirements.** Surveyed programs indicated that there was an initial requirement of personnel time to work with each business and set up the program. This primarily involved assistance with containers, logistics, training, signage, contracts, etc. This should not be overlooked when initiating a bar, restaurant, or hotel glass recycling program.
4. **Consider separate glass collection for a closed-loop end market.** Separated glass collection is optimal to ensure recycled glass is used to make new glass containers. However, some single stream MRFs with appropriate handling and equipment can produce sufficient quality product to be taken to a cullet processor and eventually a closed-loop glass market, although this results in more glass loss than a separate collection system. A single stream collection also requires processing both at a MRF and a cullet processor, which adds costs.
5. **At a minimum ensure cost neutral economics.** In all cases, economics must allow for the collection of glass containers to be cost neutral, or lower, to the participating businesses. While bars and restaurants may want to recycle glass, for the most part, they don't want to do it at an additional cost. The hauler also will expect to net some profit or at minimum not incur additional costs.
6. **Work with a collection team committed to glass quality.** The hauler/recycling collector is a key partner. Work primarily with a hauler/recycler that is committed to glass quality and is working with a closed-loop end market for the recycled glass containers. The hauler/recycler is also critical to working through logistics, economics, and involvement from participating businesses.
7. **Match storage containers, collection vehicles, and participants.** Space constraints—inside or outside—were not cited as a predominant issue for most bars, restaurants, or hotels. Often it is a matter of adjusting existing containers. However, pay attention to outside storage space and collection vehicle accessibility. Glass recycling may add another container which can strain outside space. And, for front-end load collection vehicles, it may be difficult to get in and out of narrow streets and storage areas that are tight.
8. **Keep inside collection containers adaptable and clearly marked.** Nearly all bars and restaurants use Slim Jims® (no wheels and 23 gallon) or similar, like Brute® (wheeled and 50 gallon) for inside/behind bar collection, so typically the only change for employees is keeping everything out but the glass containers, or all containers if collecting commingled. Consider signage (English and Spanish) and color of containers to help with contamination.