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Summary Report

Documenting the Stakeholder Process & Key Elements for the
Availability of Film Drop-off Recycling Study Methodology

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Funded by the Sustainable Packaging Coalition





Introduction & Background

Residents and small businesses currently rely on drop-off collection of polyethylene bags and film as the principal means to recycle these items. In 2012, Stina Inc. (Stina, formerly Moore Recycling Associates) conducted the first and only study on the availability of bag and film recycling in the United States ([Plastic Film and Bag Recycling Collection: National Reach Study](#)), but due to being more than a decade old, this data set no longer serves as a current measure of availability of film recycling collection in the United States. Thus, in 2023, Stina facilitated a Stakeholder Group to review and define updates needed to the previous methodology.

Focus on Drop-off Collection

Given the current reliance on drop-off programs as the principal means for consumers to recycle polyethylene bags and film and the limited number of curbside programs in the United States collecting this material, the methodology update, and the forthcoming Availability of Film Drop-off Recycling Study (Study) is focused on drop-off collection. The methodology for assessing the availability of drop-off recycling collection could also be utilized in tandem with future studies analyzing curbside recycling program availability. For sample methodology related to the availability of curbside recycling programs see the [2020-2021 Centralized Study on Availability of Recycling](#).

Data Set for Availability of Film Drop-off Recycling Collection Study

In addition to conducting the [Annual Plastic Recycling Study](#), which reports on the amount of film collected for recycling and maintaining a [directory](#) of buyers and suppliers of scrap plastic including film recyclers, Stina has managed the national Film Drop-off Directory (Directory), currently housed on [BagandFilmRecycling.org](#), for more than 10 years. Stina offers insights and a historical perspective on the state of play for film recycling which enables Stina staff to engage with the film recycling value chain and observe changes in the marketplace that impact the film recycling ecosystem. Ultimately, Stina works to track plastic that's collected for recycling and made into [new products](#).

The Directory listings are updated, added, and removed throughout the year based on lists provided by retail chains and reclaimers, crowdsourced input and feedback, and listing spot check phone calls. The Directory provides a list of locations that accept polyethylene bags and film for recycling from consumers within its searchable database of drop-off locations across the United States. It is the logical dataset to use as the basis for the mapping analysis in a new Availability of Film Drop-off Recycling Study. In addition to ongoing updates, listings in this Directory will be vetted as noted below in the Methodology Elements section to create the most accurate and comprehensive data set possible to conduct a new Availability of Film Drop-off Recycling Study.

Purpose

The purpose of this summary is to document the stakeholder process to review and update key elements for a standard, best practice methodology for Availability of Recycling studies for materials collected via drop-off collection, including items like plastic bags and film or batteries. The Stakeholder Group reviewed the points from a perspective of being material agnostic so that a methodology can be



replicated for other materials using any drop-off collection network. The goal is to provide a methodology that can be used to calculate availability of recycling collection of specific materials via drop-off recycling programs for the U.S. population. Availability of recycling collection and its measure for drop-off programs laid out in this methodology summary constitute a single part of the equation needed to determine the full recyclability of a package or product. Other key components for recyclability include and consolidation for market, including sortability (if collected via a program that requires sorting) and compatibility and acceptance by end markets.

Acknowledgements

Stina would like to thank the Sustainable Packaging Coalition for funding the stakeholder process and update of the key elements of the methodology, and the Stakeholder Group for their time and effort to support this consensus process. This Stakeholder Group consisted of representatives from the following sectors and organizations:

- Government entities including- National Institute of Standards and Technology, New York State Department of Environmental Conservation, South Carolina Department of Health and Environmental Control, Seattle Public Utilities, and Solid Waste Agency of Lake County, Illinois;
- Converters and Reclaimers including- Charter Next Generation and Trex Company, Inc.;
- Trade/Industry Organizations including- The Recycling Partnership, and US Plastics Pact; and
- NGOs, including GreenBlue and three large retailers that provide bins for store drop-off collection.



Stakeholder Group – Perspectives from Around the Value Chain

Participation in the Stakeholder Group does not denote endorsement of the findings or results of the forthcoming Availability of Film Drop-off Recycling study.

Stakeholder Group Process

Stina convened a working group of 17 Stakeholders from across the film value chain and from various levels of government, as well as NGOs, to review and update critical decision points for a methodology for an upcoming Availability of Film Drop-off Recycling Study. The Stakeholder Group met four times between February and May 2023 to discuss and reach to consensus on the following two main topics:

1. Should the same radius from a drop-off location be used in all areas of the United States (as was used in the *2012 Plastic Film and Bag Recycling Collection: National Reach Study*) or should

population density (like those seen in city/town, suburban, and rural areas) affect the radii used to evaluate availability of drop-off recycling collection?

2. If the latter, what radii from each drop-off location should count as available film recycling programs for the surrounding population (e.g., 1-mile for city/town versus 5-mile for suburban)?

The Stakeholder Group also reviewed and provided input on the details on how to vet a list of drop-off locations used to analyze the availability of recycling collection.

Review and Update Process of Key Methodology Elements

The standard, best practice methodology elements for Availability of Recycling studies for materials collected via drop-off collection, including items like plastic bags and film as well as other items, agreed upon by the Stakeholder Group include the following:

Defining Availability of Drop-off Recycling Collection

For the purposes of Availability of Drop-off Recycling Studies, drop-off location types may include, but are not limited to retail stores, locations provided by local recycling programs, businesses, or organizations, and buy-back centers provided as part of a deposit return system. Retail stores provide drop-off recycling collection for numerous items like plastic bags and film, batteries, and toner cartridges. Thus, much of the availability of recycling for these items is provided by a location to which consumers may travel to purchase items in addition to recycling materials.

Because the U.S. population is spread across many types and sizes of communities, the Stakeholder Group agreed by consensus that population density should affect the appropriate radial distance¹ from drop-offs used to evaluate availability of drop-off recycling collection. The USDA Food Access Research Atlas², used to map where populations in census tracts have low access to supermarkets, provided an excellent mapping resource for the stakeholders to visualize how close (or not) residents in the United States live to supermarkets and food retailers. This atlas was especially useful in determining the radius from drop-offs to be used in rural areas. The Stakeholder Group also reviewed resources from the U.S. Census including Glossary³, details on urban areas⁴, and demographic map viewer⁵.

After reviewing the aforementioned resources and discussions during Stakeholder Meetings, the Group agreed the following measures should be used:

¹ Radial distances are measured with a simple circle of set radius whose center point is the drop-off location. The population within the circle is then measured. Note: Driving time or distances are not included in the calculation of population served with radii for the various population densities.

² <https://www.ers.usda.gov/data-products/food-access-research-atlas/>. Low access defined by the USDA as tracts in which at least 500 people or 33% of the population [of the tract] lives farther than a given distance from the nearest supermarket in urban or rural areas. The Stakeholder Group used maps showing 1-mile (urban) and either 10 or 20 miles (rural) as reference.

³ <https://www.census.gov/programs-surveys/geography/about/glossary.html>

⁴ https://www2.census.gov/geo/pdfs/reference/ua/Census_UA_2020FAQs_Feb2023.pdf

⁵ <https://mtgis-portal.geo.census.gov/arcgis/apps/MapSeries/index.html?appid=2566121a73de463995ed2b2fd7ff6eb7>



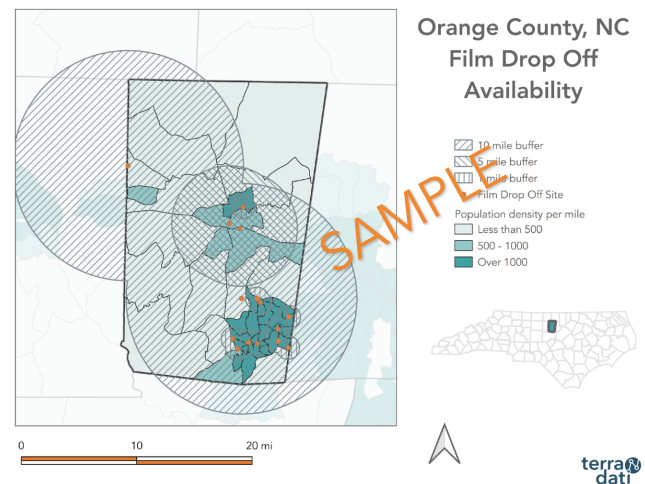
- **City/Town areas (population density ≥ 1000 people per square mile):** 1-mile radius centered on drop off location;
- **Suburban areas (population density $\geq 500-999$ people per square mile):** 5-mile radius centered on from drop off location; and
- **Rural areas (population density < 499 people per square mile):** 10-mile radius centered on from drop off location.

These radial measures can be considered reasonable estimates of how consumers interact with retailers and other drop-offs in their communities and should not be taken to define “convenient access.” Further, the group looked to provide “conservative” measures of availability of recycling and recognizes that these radial distances will exclude some number of residents in each of these areas that have to travel farther to reach a drop-off point. Lastly, the 1-mile and 10-mile distances align with existing USDA mapping of low access and the 10-mile radius for rural areas is consistent with the standard measure used in the 2012 study.

Measuring Availability of Drop-off Recycling

For this Methodology, an estimated percentage of the U.S. population found within the radial distances from drop-offs will be calculated by:

- Overlaying drop-off locations and radii from these drop-offs on census tracts as dictated by population density measures (see above for distances).
- Calculating and summing the population within the area covered by the circles centered on drop-off locations across the United States to calculate an estimated percentage.



The sample map above shows how drop-offs and radial distances are overlain on census tracts. Various maps were provided to the Stakeholder Group to provide examples of how the mapping analysis works. These maps were useful during meetings as the group worked to find consensus on radial distances.

Vetting Availability of Recycling Study Drop-off Datasets

The vetting process should be robust enough to create an accurate list without being overly onerous to those conducting the spot checks. The spot check recommendations below reflect the long-term experience of managing the national Film Drop-off Directory and seek to find the balance between verifying a representative sample of locations and being overly time-consuming or costly.

An accurate list of locations that is comprehensive and vetted is needed to ensure the availability of recycling analysis is also accurate and reflects the current conditions. To prepare the dataset for an Availability of Recycling Study that relies on drop-off collections, randomized samples of locations should be vetted and verified to confirm the accuracy of the locations.

The best practice vetting process of the dataset of locations depends in part on whether locations have been vetted previously or not, as laid out below, and whether locations are part of a network (retail chains, buy-back centers or convenience sites managed by a local program) or are individual locations unaffiliated with a larger entity.

For multiple locations managed by the same entity (e.g., retail chains or county recycling centers):

1. For “New” lists of locations from chains or programs that are being vetted for the first time, a vetting spot check should include calls (or other direct contact with the location) to randomized samples of:

- 50% of any drop-off location list, if fewer than 40 locations; OR
- 20 locations (20% - 50%) for lists of between 41 and 100 locations; OR
- 20% of all locations for lists with greater than 100 listings.

2. For “Existing” lists for which an updated list has not been received and vetted within the previous 12 months, follow spot check for “New” lists.

3. For “Existing” lists of drop-off locations from chains or programs that have been vetted within the previous 12 months (this could include locations listed and vetted in an active public resource), additional spot checks of 5% of drop-off locations for each chain or program are sufficient, as the more rigorous vetting process has already been completed within the last year.

The breakdown of locations to call for all lists will be randomized to reflect the distribution of locations in the areas served. Specifically for national retail chains, store lists will be divided into regions: West of Rockies, Midwest, Southeast and Northeast; for regional chains, the sample will reflect the distribution of stores. For example, if the majority of stores are in California, the majority of the sample stores would be in California as well. At least one store will be called in each state where the chain does business.

For other individual locations:

Any individual location not part of a larger entity as noted above should be or have been vetted with a phone call within the previous 12 months.

The goal of the spot checks is to confirm that locations either have bins in place or clear indication that consumers can recycle film and bags (e.g., signage indicating to take material to customer service). Locations found to no longer offer drop-off collection of the material being studied should be removed from the data set and not used in the mapping analysis. When 20% or more of the locations called during spot checks for a specific chain or program do not have bins in place or an indication for consumers to understand how to recycle bags and film at the location, the data set should only include those locations



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confirmed to have active collection. All other locations affiliated with the chain or program should be excluded from the data set.

The stakeholder group believes an overarching vetting of the locations to be used is a best practice and efforts should be made to replicate it for any studies that measure Availability of Recycling of drop-off locations. Additionally, researchers performing Availability of Recycling studies for materials collected via drop-offs should document the specific methods used for preparing and vetting the dataset of locations as part of the reporting process.