



Comparative Case Study: Plastic Film Recycling at Two Simon Malls

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An "easy-win" guide to building successful
film recycling programs.



Prepared by Elemental Impact for the
Wrap Recycling Action Program (WRAP)

BACKGROUND

Plastic film usage skyrocketed at retail locations in recent years due to shifts in garment manufacturing packaging. Previously, clothing was shipped in bulk, where numerous items were packaged together for store display. Due to significant increases in internet sales, garment manufacturers switched to individually packaged clothing items.

Shopping malls faced a new dilemma and expense: a dramatic increase in plastic film generated from their tenants. At the same time, single-stream recycling—the collection of paper fibers, metals and other recyclable containers mixed together in the collection truck—became the prevalent commercial recycling option

DID YOU KNOW?

For malls, old corrugated cardboard (OCC) often remains separated due to its strong value as a clean, contaminant-free material. Now, plastic film should be treated the same way—separated, clean and handled as a valuable material.

offered by waste haulers. Single-stream recycling collections are delivered to material recover facilities where they are separated by specific material type using an integrated system of conveyer belts, optical sorting, blowers and hand-separation. Since plastic film can wrap around the MRF machinery causing expensive shutdowns, it is considered a contaminant; yet when, collected by the depositor clean and dry, plastic film is valuable material in the commodities market. In fact, historical plastic film rebates exceed rebates for old corrugated cardboard (OCC) by three to five times on a per pound basis!



eCommerce has demanded that retail stores individually wrap garments instead of shipping them bulk, leading to higher amounts of plastic film in retail environments than ever before.

BACKGROUND (cont.)

In Spring 2011 Simon Property Group, a global leader in retail real estate ownership, management and development, created successful plastic film recycling programs at two Charlotte, NC malls—Concord Mills (CM) and SouthPark Mall (SP). Though they are malls with different profiles, both malls shared the same characteristics needed to pilot the program.

Easy-Win Criteria for Successful Pilots

- o Seasoned management motivated to pioneer plastic film recycling with strong tenant/employee relationships.
- o Established, enclosed mall with high occupancy and tenants that generate significant plastic film volume.
- o Secure, clean and dry back-of-the-house (BOH) space to consolidate and store film for collection.
- o Local recycling company willing to collect the plastic film alone or with other recycling materials such as OCC.

Generally, shopping malls either contract for waste/recycling services and bill back the cost as a common area maintenance charge. Variations to this include, tenants carrying their own waste/recycling to designated stations, the use of porter

services, or handling their own waste/recycling contracts. Faced with higher waste hauling charges due to increased plastic film generated by tenants, shopping malls are motivated to capture film for recycling. Additionally, environmentally conscious tenants are vocal to landlords to craft plastic film recycling programs at the malls. With strong support from national non-profits/trade associations and all levels of government, mall management developed successful programs. CM launched their plastic film recycling program in August 2012 and SP followed with their first plastic film bales in the fall. This comparative case study uses plastic film recycling statistics for calendar year 2015.



Concord Mills team celebrates the success of their film recycling program.

Photo: Holly Elmore

Basic parameters for success



In plastic film recycling programs, tenants separate plastic film from other materials for collection at a designated recycling center, then the plastic film is baled and typically sold to a third-party recycling company. In general, shopping malls contract for waste/recycling services and bill back the cost as a common area maintenance charge. It is common for tenants to carry their waste/recycling to a designated station, but some high-end malls provide a porter service.

Though simple in concept, plastic film recycling at malls may be met with resistance as it requires implementing new tenant practices. With the vast number of mall types, ranging from open-air strip malls to multi-story enclosed malls, starting with “easy wins” may reveal the standard template.

Basic parameters for plastic film recycling program success include:

- o **Mall management buy-in:** on-site mall management must be supportive.
- o **Tenant engagement:** since they generate the plastic film, tenants are responsible for gathering clean, dry, contaminant-free material.
- o **Program education:** the mall must communicate what film may and may NOT be included in the material collection, and emphasize plastic film collection with minimal (to no!) contamination.

- o **Plastic film collection at a common area:** tenants may deliver bags of plastic film to the common area or the mall may use an in-house porter system.
- o **Baler:** though it is often baled separately, the film may be collected with OCC in a compactor or dumpster.
- o **Dry, secure common area:** plastic film must be stored in a dry area to retain value. The area must be large enough to accumulate a sufficient quantity of film to warrant a collection haul.
- o **Local recycler:** malls rarely have the space to store enough material to sell directly to a film reclaimer or an end market. Malls often generate small bales that must be re-baled into industry-standard sized bales.

In addition to the basic parameters, available forklifts or other machinery to move the bales are helpful. Without increasing labor hours, maintenance staff is generally available to bale the material within the lulls of their normal work time or compact the film with OCC.

DID YOU KNOW?

Plastic film recycling can leverage the existing resources, tools, and space that are already part of your mall’s assets.



Concord Mills Mall Program

Overview

Opened in 1999, CM is a 1.4 million square foot enclosed shopping mall with approximately 200 tenants. As of 2016, the mall is approximately 90% leased and undergoing a major renovation including the addition of free-standing restaurants in former parking lot space.

A single level mall, CM has a “race track” floor plan where a food court in the center divides the mall. The mall BOH consists of wide thoroughfares leading to the various outdoor waste/recycling compactor areas. Each storefront has a back entrance that is ample for forklift traffic.

The two mall sides are not connected in the BOH. Other than front-of-the-house collection, Simon policy requires BOH waste/recycling material transportation. Thus, a comprehensive plastic film recycling program at CM requires two collection/baling areas. CM General Manager Ray Soporowski uses a BOH storage area for the plastic film recycling collection/baling center. The tenant proximity restricts permitted noise from baling and other activities related to the program.

An Orwak mini-baler was a perfect choice given the CM parameters. Almost noiseless, the baler compresses plastic film into 150 – 175 pound bales that are easily palletized and shrink wrapped for forklift transport. Depending on the retail activity, 6 to 10 bales are generated weekly and transported to the maintenance shop for storage. Sonoco Recycling collects the bales on an on-call basis; volume generally requires a collection every five weeks.

The current program collects approximately 60% of the plastic film generated at the mall. Once a BOH space is available on the alternative side, Ray intends to establish a second collection/baling center to complete his program.



The “race track” mall design has ample BOH space with hallways wide enough for forklift transport.

Photo: Holly Elmore



Concord Mills Mall Program

ROI Calculation:

In general, tenants bring clear bags of plastic film to the recycling center. CM has five anchor tenants that recover film independently. Several others participate in the mall's plastic film recycling program. Ray believes all five would participate if CM used a porter system where maintenance staff collects the plastic film from tenants. For the initial rollout of the program, educating tenants was simple: Ray sent a memo describing the program and placed signage in the collection room. Overall, tenants follow the instructions and contamination is not an issue.



CM General Manager Ray Soporowski with his new baler. At the end of the 3-year lease term in September 2015, CM owned the baler for a \$1 payment!

Photo: Holly Elmore

CM plastic film includes the following film types: clear garment packaging, shrink wrap, colored film and trash bags. Sonoco Recycling allows colored film mixed with the predominantly clear film. The CM plastic film recycling program generates 60,000 - 70,000 pounds of film annually, with 90% coming from the tenants.

The only new monthly expense associated with the program was the Orwak baler lease at \$232 per month. At the end of the 3-year lease term in September 2015, CM owned the baler for a \$1 payment. Other out-of-pocket costs associated with the plastic film recycling program are minimal and amount to less than \$100 annually. Mall maintenance staff bales the plastic film during off-peak hours, mainly at night when the mall is closed. There was no increase in labor cost associated with the program.

Additionally, the reduced landfill hauling & tipping charges are included in the ROI as program cost-savings. Ray estimated the program saved 8 compactor pulls at \$125 per pull for \$1,000 in savings. Compactor pulls average 3 to 3.5 tons per pull; thus, the estimated 8 compactor pulls is conservative. Related landfill tipping charges at \$52 per ton resulted in another approximately \$1,703 in savings, for a total of approximately \$2,703 in landfill-related savings.

In 2015 the CM plastic film recycling program improved the mall bottom line by roughly \$3,790.

KEY TAKE AWAYS

In 2015, CM sold 65,500 pounds of baled plastic film in ten Sonoco Recycling collections at an average of \$.05 per pound market value resulting in \$3,275 in rebates.

Overall, Concord Mills generated \$3,790 in profit from its program!



SouthPark Mall Program

Overview

Since 1971, SouthPark has evolved into a 1.5 million square foot mall via a series of renovations. With approximately 160 tenants, SP is 99% leased with four anchor tenants.

SP is a multi-level mall with open-air parking lots along with a covered loading dock in the one parking deck. The loading dock was the perfect location to stage the plastic film recycling center. SP Operations Director Ron Rentschler used in-house materials, along with maintenance staff labor, to build a secure, fenced area for the center. Since the center is located in the loading dock, there are no noises or other activity concerns with respect to tenants and customers.



The loading dock recycling center has ample space to store approximately two months of accumulated bales. As with CM, Ron calls Sonoco Recycling for a collection when nearing storage capacity.



SouthPark's Operation Director, Ron Rentschler, estimates 85% of the film generated at the mall is recycled!

In 2014, Ron tested a 60-inch downstroke baler that makes industry-standard sized bales weighing 800 – 950 pounds. Ron was pleased with the larger baler's efficiency and ease of operation. For the 2015 case study period, the standard size baler was used for the entire year, and the cost of a 60-inch downstroke baler five-year lease was used in the SP ROI computation at the end of this document.

The four SP anchor tenants recycle plastic film generated at their stores via internal programs. For the remaining stores that generate significant plastic film, 100% participated in the mall recycling program.

SP plastic film includes the following film types: clear garment packaging, shrink wrap, packaging pillows, colored film and trash bags. Sonoco Recycling allows colored film mixed with the clear. The SP plastic film recycling program generates 70,000 to 75,000 pounds of film annually.

A porter service operated by the mall maintenance department collects plastic film generated by SP tenants. Mall maintenance staff collects and bales the plastic film within the flexibility of normal operations. There was no increase in labor cost associated with the program.

For the SP program, tenants are provided printed clear bags and stanchions to store film until collection. Each tenant receives personalized training upon entering the program and those that generate the greatest amount of film receive stanchions. For the first month or so, new participants are "hand held" until they understand the system. Contamination is rare and easily corrected within the porter system.



SouthPark Mall Program

ROI Calculation

Upon program launch in 2012, SP purchased 50 stanchions at \$150 each. As of this case study, the original 50 stanchions continue their useful life within the program. Since the stanchion purchase was integrated within the program launch cost, no expense allocation was included in the case study ROI.



SP stanchion & bag system designed for easy collection by maintenance staff.

KEY TAKE AWAYS

In 2015, the SP plastic film recycling program sold around 72,500 pounds of baled plastic film.

For tenants with minimal to moderate film usage, only the bags are used for collection. SP purchases approximately 2,000 clear bags annually for \$1,600, or \$.80 each. Ron determined the premium bags functioned much better in the stanchions than thinner, less expensive bags.

In 2015, SP sold approximately 72,500 pounds of baled plastic film in 7 Sonoco Recycling collections for an average of \$.05 per pound resulting in \$3,625 in rebates. The reduced landfill hauling & tipping charges are included in the ROI as program cost-savings. Ron estimated the program saved 3 compactor pulls at \$105 per pull for \$315 of savings. Compactor pulls average 13 tons per pull. Related landfill tipping charges at \$40 per ton resulted in another \$1,450 of savings, for a total \$1,765 in landfill-related savings.

An estimated \$3,660 in 60-inch downstroke baler payments on a five-year lease is included as a program cost in the ROI computation. In addition, \$1,600 for the collection plastic bags and \$50 for strapping are allocated costs.



SUMMARY

Baling plastic film separately requires BOH space for a baler along with a dry storage area. In addition, mall maintenance staff typically bales the film, and if a porter system is used, the staff collects the film from tenants. In addition, labor related to the plastic film recycling program flows within the lulls of the maintenance staff regular shifts, resulting in no additional labor costs for either mall.



Photo: Holly Elmore

For malls without available dry, secure space and/or maintenance staff to administer a baling program, an option is to collect old corrugated cardboard and plastic film together in a compactor or dumpster. The hauler must agree to separate and bale the material at their facility. With combined material collection, the rebates paid may be lower than for separated, baled plastic film. In addition, the hauler may also pay lower cardboard rebates to cover the extra labor at their facility.

The Concord Mills and SouthPark Mall programs make good business sense from the bottom line perspective as well as tenant relations. Many tenants are focused on marketing their business as eco-friendly and many consumers are focused on supporting environmentally-conscious businesses. Offering this recycling service produces modest capital gains but large marketing and customer confidence gains at little or no cost to the management company.

There are an estimated 47,000 shopping centers in the United States, with approximately 1,100 classified as enclosed malls. Two Charlotte malls divert 65 - 70 tons (130,00 - 140,000 pounds) of plastic film annually from local landfills, which provides a reduction in greenhouse gas emissions of 59 - 63 metric tons of CO₂ annually—equivalent to taking 12 - 13 cars off the road for a year¹. The potential environmental and community cumulative impact via plastic film recycling programs at shopping centers is staggering, especially as more management companies become engaged.

Mall plastic film recycling provides a potential solution to extend local landfill life and support community public works programs.

Plastic film recycling is a potential vehicle to edge malls closer to zero waste and strengthen materials management programs. For malls aligning with the “Easy Win” criteria detailed, the stage is set to emulate programs similar to the Concord Mills and SouthPark systems.

¹ Greenhouse gas reduction calculation based on U.S. EPA WARM Model data, September 2016.

Comparative Data

Supplement

Unique Characteristics	Concord Mills	SouthPark
Landfill Avoidance in 2015	32.75 tons	36.25 tons
Plastic film recycling centers	Requires two separate centers dues to the "racetrack" mall design.	The covered loading dock center serves the entire mall.
Balers	Orwak baler is perfect due to noise constraints; Ray prefers smaller bales due to recycling center size.	Newer 60 inch downstroke baler is a PRT baler.
Bales - size	150 - 175# bales	800 - 950# bales.
Bales - transport	Palletized & transported from the recycling center to maintenance shop where stored for collection	Bales are only moved from baler mere yards for storage within the recycling center.
Bales - collection	On average every 5 weeks	On average every 2 months
Tenant participation (tenants who generate significant plastic film)	60% - the pending second center will service remaining 40%	100%
Plastic film collection	Tenants deliver bags of plastic film to the recycling center; tenants use bags from garment deliveries to collect the film.	The maintenance department operates a porter service & collects bags of film from the tenants; high quality bags are provided to the tenants for collection.
Anchor tenant participation	A couple deliver film to recycling center; others might participate if mall used a porter system.	None participate - all anchor tenants have their own internal plastic film recycling programs.

Plastic Film Recycling Program

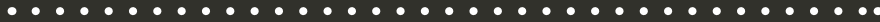
Supplement

2015 ROI Analysis

	Concord Mills	SouthPark
Revenue & Cost Savings		
Plastic Film Rebates	\$3,275	\$3,625
Landfill Cost-Savings **	\$2,703	\$1,756
Total Revenue & Cost Savings	\$5,978	\$5,390
Program Expenses:		
Baler Lease Program	\$2,088	\$3,360
Other Expenses	\$100	\$1,650
Total Program Expenses	\$2,188	\$5,010
2015 Program Net Profit	\$3,790	\$380

** External factors, like tipping fees, impact cost savings related to landfill diversion.

ADDITIONAL RESOURCES



Plastic Film Recycling: How A Mall Is Turning Waste Into Revenue (Video)
<https://vimeo.com/181931328>

Mall & Retail Center Tip Sheet
<http://www.plasticfilmrecycling.org/pdf/tip-sheets/malls-and-retail-centers-tipsheet.pdf>

WRAP Collection Poster
<http://www.plasticfilmrecycling.org/images/MallRecyclingPoster.jpg>

CREDITS



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