

*Sample Report*

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# Waste Audit Report

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## Executive Summary

Foresight Management completed an onsite waste program audit for four (4) facilities under ABC Company' corporate umbrella. This report covers the current state of their waste program, where we see opportunities for improvement and recommendations for how those improvements could be made. Overall, ABC Company is in a great position to establish a holistic waste program that provides a consistent and high-level synergistic approach across their global footprint.

When looking at all four sites, Foresight was able to find over ten (10) opportunities for process improvement or implementation of new programs. For the [REDACTED] distribution facilities, alone, over half a million dollars in cost avoidance and savings was identified. While the [REDACTED] manufacturing facility did not generate as large of an amount of savings, the notion that they are running a relatively efficient waste program was easily confirmed. Still, there are a few process improvements that should be further investigated for potentially new opportunities.

By taking a closer look at the waste baselines established in this report we are certain ABC Company will be in a better position to strategically set goals around waste minimization and efficiencies. Altogether this report provides suggestions and opportunities to assist ABC Company with this process and become a leader in their industry around environmentally conscience business practices.

## Introduction

Foresight Management (Foresight) engaged with ABC Company' (ABC Company) global operations team to assist with developing strategies to create a more efficient, connected, and holistic waste management program. This strategy is designed to transcend borders and be a roadmap for all facilities to start establishing environmental waste goals.

ABC Company is a dynamic and innovative manufacturing and distribution company for aftermarket automotive products. Since 1918, ABC Company has been pioneering ways to give individuals and businesses more options and greater freedom to fix their cars and trucks in their own way. Previously, most components needed for all types of automotive maintenance could only be acquired from original equipment manufacturers (OEM). Thanks to ABC Company's customer-first mindset and the hard work of their engineers, they are always striving for new and exciting ways to provide value to those whose businesses depend on automotive maintenance.

## Methodology

Foresight established three main questions to be answered by the four (4) facilities included in this waste study:

1. What waste streams do we currently have?
2. What are the volumes managed and how much does it cost to manage them?
3. What strategies can be successfully established and executed to reach our corporate sustainability goals?

Before you can set a goal, you must know where you're starting. Foresight began this waste audit asking each facility to complete a 'soft data' survey. This survey provides a place for each facility to list out every waste stream generated at their location. Additional information on this survey includes container size, frequency of shipments, and disposal methods. Next, waste invoices, referred to as 'hard data,' were collected to consolidate volumes and prices for each facility in one central location. Foresight then used the soft data surveys as a 'check list' to ensure all waste streams were included in the consolidated hard invoice data. Lastly, the hard data is analyzed to create a standard baseline of ABC Company's waste portfolio for the four included facilities (Table 1).

A baseline is a tool used in the waste industry to help facilities understand and monitor their exact waste streams over the course of a calendar year. With this tool, an organization can evaluate waste types and quantities of material generated as well as how much it costs to properly manage and dispose of waste material. For this report, Foresight created a ABC Company baseline for a full year (12 months) from July 2021 through July 2022. By reviewing at least one full year, visibility into the ebbs and flows of seasonal production and waste volume generation can be observed. This in turn helps guide a best practices approach to waste reduction. A list of the facilities Foresight evaluated is included in Table 1 below.

Table 1 – ABC Company Facilities Evaluated.

Facility	Location	Type	Est. Facility Population
ABC Company	[REDACTED]	Distribution	800
ABC Company	[REDACTED]	Distribution	620
[REDACTED]	[REDACTED]	Manufacturing	140
[REDACTED]	[REDACTED]	Manufacturing	140

## Audit Results

For the four (4) ABC Company facilities evaluated, Foresight identified six (6) primary waste streams as depicted in Table 2 below. The waste streams evaluated accounted for more than 8,590 tons of waste material generated during the calendar year. The two largest streams are scrap metal at 2,772 tons, and scrap wood and pallets at 2,630 tons. Cardboard is the third largest stream with 2,352 tons. All together these three waste streams account for 91% of the total waste generated by volume (Figure 1) across all four facilities. Additionally, it should be noted total tonnage could be slightly higher as the actual tonnages for scrap wood and trash at the [REDACTED] facility and cardboard at the [REDACTED] facility could not be procured. Therefore, the scrap wood and trash were each estimated at three (3) tons per load or 36 tons annually. The [REDACTED] facility only recorded three (3) services and was estimated at 1.5 tons.

Table 2 – Total Volume of each Waste Stream Generated by each Facility.

Waste Stream	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Total	Unit
Cardboard	1,631	721	1.5	-	2,354	Tons
Scrap Wood & Pallets	2,422	-	208	36	2,666	Tons
Trash	224	233	36	36	529	Tons
Scrap Metal	-	172	1,186	1,413	2,772	Tons
Oily Material & Slag	-	-	117	155	272	Tons
Oily Water	-	-	5,668	4,950	10,618	Gallons

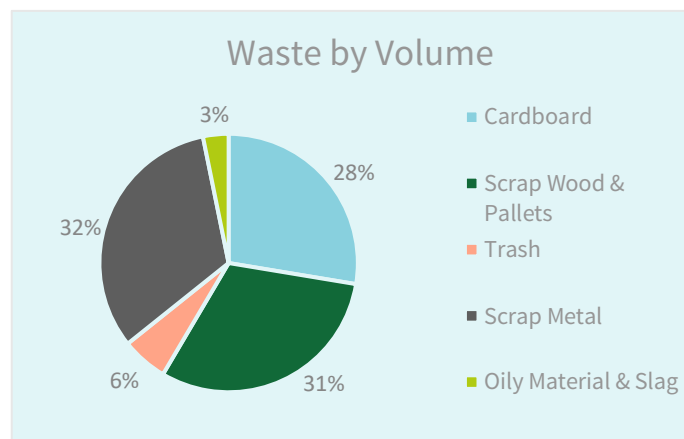


Figure 1 - Percentage Breakdown of Total Waste Streams by Volume

When reviewing these facilities, Foresight recommends sorting the data into two distinct groups: distribution and manufacturing. Due to the significant difference in function and activity between a manufacturing plant and a distribution facility, the waste streams to target vary. As illustrated in Figure 1, the percentage by volume for the four (4) facilities indicate three (3) waste streams to target. In contrast, Figure 2 indicates that distribution facility waste is 89% cardboard and pallets, whereas the manufacturing facility waste is 82% scrap metal. These distinctions are critical to not wasting time or resources on waste streams that may be a large issue at one facility but nonexistent at another.

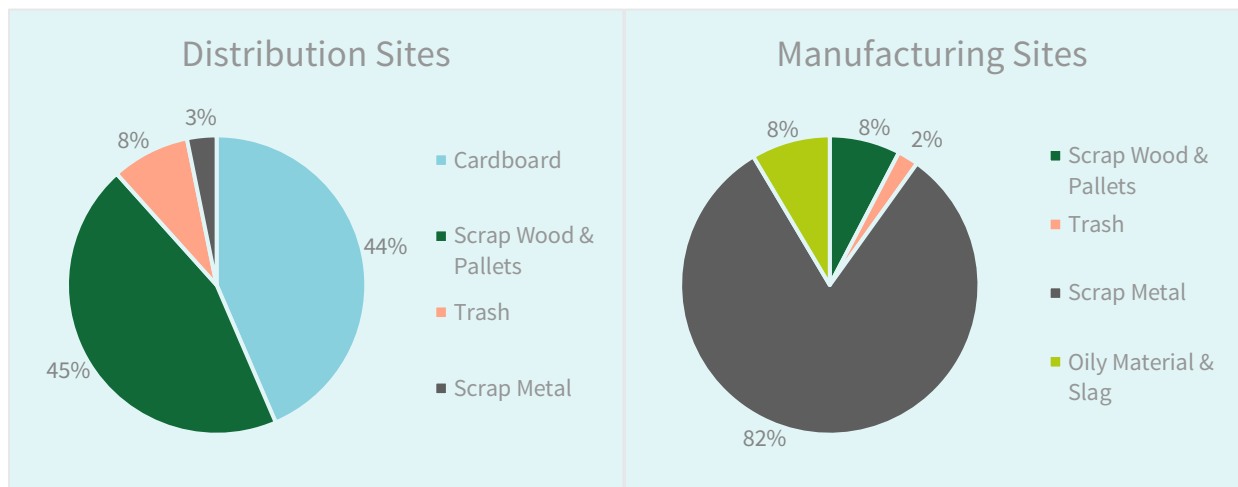


Figure 2- Percentage Breakdown of Waste Stream by Volume by Facility Type.

The estimated spend by all four ABC Company facilities was just over \$363,000. As observed in Table 3 below, the estimated total spend includes \$688,000 in rebates for scrap material being sold on the secondary market. At the [REDACTED] facilities, scrap metal made up 100% of their rebates, totaling almost \$670,000. Scrap metal is one of the largest and most profitable streams on the secondary market. The ease by which metal can be melted and remanufactured as well as the strain it puts on resources to procure virgin material all helps to bolster its secondary market value.

Table 3 - Total Waste Spending by Facility and Waste Stream (USD).

Facility	Cardboard	Scrap Wood & Pallets	Trash	Scrap Metal	Oily Material & Slag	Oily Water	Costs	Rebates Included
[REDACTED]	0	0	18,210	(316,791)	(1,799)	12,285	(288,095)	(318,589)
[REDACTED]	408	6,580	23,263	(353,583)	15,242	1,943	(306,147)	(353,583)
[REDACTED]	39,900	149,450	25,275	0	0	0	214,625	0
[REDACTED]	(13,918)	0	19,882	(4,468)	0	0	1,496	0
<b>Total</b>	<b>26,390</b>	<b>156,030</b>	<b>86,629</b>	<b>(674,842)</b>	<b>13,443</b>	<b>14,228</b>	<b>(378,121)</b>	<b>(672,173)</b>

██████, on the other hand, is receiving most of their rebates for cardboard and only a small portion from metal. While it may seem ██████'s monetary return is significantly less, the documented rebates are only coming from a portion of their material. ██████ has a semi-trailer and 42-yard compactor dedicated to cardboard but only the semitrailer is generating rebates. The compactor is serviced 2-3 times per week at no cost, which indicates that the rebates ABC Company would be receiving for this material is going towards the transportation cost. This is an efficient and common rebate structure in the waste industry but can be more difficult to show on a ledger.

Additionally, while cardboard, and scrap wood do have significant value on secondary markets, the prices for these commodities are much more volatile. This is due to the difficulties surrounding cardboard and wood recycling, most notably contamination within the streams. Again, the metal markets encourage recycling due to the finite volume of easily accessible material whereas trees are a renewable resource for cardboard and pallets. This is most notable at the ██████ facility where no documentation of rebates garnered from any of their recyclable materials was observed. Furthermore, they are spending more to handle their waste than the other three (3) facilities combined.

## Recommendations

ABC Company's waste programs are completely decentralized meaning each facility is managing their own waste program independently. Foresight recommends splitting baselines by facility function and/or geographic proximity. This will help ABC Company target similar waste streams at individual facilities together. By sharing best practices amongst intercompany facilities, ABC Company should not only yield more efficient and well-run programs but can have better leverage against shared vendors. Negotiating as one customer generally yields better prices as vendors are more willing to provide savings when they are guaranteed larger contracts.



During this audit, Foresight found little opportunity for cost savings surrounding waste for both the ████████████████████ facilities. Their largest waste stream by far is scrap metal, and both facilities are already recycling and receiving a high rebate for that material. Clearly scrap metal is a by-product of ABC Company's primary manufacturing process, and as such our only recommendation surrounding it would include investigating options to reduce scrap rates (or improve material efficiency), retool and reuse the material onsite, or work with your metal suppliers around a take-back program.

The ██████████ facility does have a significant amount of scrap equipment, old product, and containers onsite that could have value on the secondary market (Picture 1). Foresight recommends looking into circular economy marketplaces <sup>1</sup>as they will help the material find new life rather than simply sitting on your site taking up space. Many times, you can find someone willing to pay for the

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<sup>1</sup> Examples: <https://connexmarketplace.com/>, <https://www.usbcscd.org/materials>,

materials or simply take them off site at no cost. This would ultimately be a net positive as you would not need to pay to have the materials removed, managed, and disposed.



Picture 1 - Old machinery, containers, and product in storage onsite at the

Lastly, while attempting to maintain a cardboard program at the [REDACTED] facility is commendable, unless resources are dedicated to revamping its processes, it is not worth continuing. The current 6YD container was only serviced 3 times in a 6-month period with one service being deemed contaminated. This indicates even the viable material in that shipment was diverted to a landfill. Recycling facilities do not have the time or resources to separate very contaminated shipments and as such will not only send those shipments directly to a landfill but will also charge penalty fees for the diversion. If the [REDACTED] facility would like to continue this program, Refer to Appendix A which outlines a process for starting or revamping a recycling program. There is enough volume for the 6YD container to remain, but we recommend it be modified to an on-call service and processes should be defined to eliminate contamination.



With no current rebate structures and the highest waste management costs of the four facilities audited, Foresight believes [REDACTED] has the greatest opportunity for price improvement and/or cost savings. When touring the facility, it was observed how well the cardboard program is run. Observing almost no contamination in gaylord boxes throughout a facility of that size is not typical when compared to like manufacturing entities (Picture 2). To handle the minimal 5-10% contamination, Foresight recommends color coordinating the boxes and adding larger more distinct signage, so each employee knows which waste stream is associated with which box. As seen in Picture 3, most of the gaylord boxes are black or green. Designating one for Cardboard and one for wood would enhance the program, help reduce contamination and improve the value of each load.





Picture 2 - Inside a green gaylord box dedicated for cardboard only waste [REDACTED]



Picture 3 - Black and green gaylord boxes used for various waste streams on site in [REDACTED]

Currently, [REDACTED] is paying \$350 per pick up of their cardboard compactor. Cardboard is a high value commodity, as such, the facility should be **receiving** some sort of monetary benefit instead of paying for disposal/recycling. In 2021, [REDACTED] recycled 1,630 tons of cardboard which at today's average rebate of \$30 per ton would generate an estimated \$48,930 in revenue (refer to Table 4). This compactor was serviced a little over twice a week which equates to around \$39,900 in yearly costs. Foresight recommends connecting with vendors as the facility could be receiving free services and an estimated \$9,000 in rebates annually based on current market value of cardboard. Foresight recommends either finding a new cardboard recycling vendor or negotiating a new agreement that includes no services fees. Simply having the material taken offsite for no cost would produce a savings of almost \$40,000 annually.

Table 4 – Current Costs of Cardboard Recycling vs. Savings and Estimated Earnings with a Rebate Program.

	Tons Recycled	Annual Pick Ups	Rebate (\$/Ton)	Total Rebate	Transportation Cost (\$/service)	Total Transportation Cost	Total
Current	1631	114	\$0	\$0	\$350	\$39,900	\$39,900
W/ Trans & Rebate	1631	114	\$30	\$(48,930)	\$350	\$39,900	\$(9,030)

As a distribution facility, [REDACTED] largest waste stream is pallets and scrap wood. In the 12 months audited for this report, they recycled over 2,400 tons of wood. This not only includes pallets but crates and or boxes that are used to better contain and transport materials (refer to Pictures 4,5, & 6). While these boxes are useful, they pose a significant disruption to the recycling process that most pallet recyclers utilize. Pallets with a few broken slats will always be able to find a recycler willing to take them as they require minimal work to be refurbished and sold back into circulation. Those deemed broken-

beyond-repair will be sent to a chipper where their remnants are usually resold as mulch. Unfortunately, [REDACTED] crates have large pieces of metal bindings that are not easily removed and can break chipping machines making them very undesirable to any and all recyclers.



Picture 4,5, & 6 - Crates in use at the [REDACTED] Including the Metal Brackets.

Currently, [REDACTED] pallet vendor is providing around 30,000 Grade B pallets a year to the facility at \$11/pallet and removing wood scrap, broken pallets, and those crates for transportation costs only. While this initially sounds like a great deal, the vendor has claimed the free recycling service that includes chipping those crates are causing their pallet price to be higher. At the volume this distribution facility is purchasing and recycling pallets, Foresight recommends looking for another vendor as this price structure seems very expensive.

Foresight reached out to Vendor Pallets, a national pallet vendor and recycler across the US, regarding the [REDACTED] Facility pallets recycling and costs. Vendor Pallets provided pricing to take over the entire program assuming the current data is correct and remains relatively consistent. Table 5 depicts all pallets, wood waste and the crates Vendor Pallets will take off site for free. This would provide an annual savings of approximately \$150,000 from the transportation costs. Additionally, Vendor is offering the same Grade B pallets for \$9.50/pallet giving the purchasing department at Portland a savings of over \$500,000 annually.

Table 5 - Estimated Savings for Pallet Recycling and Purchase by Switching to Vendor Pallets from the Current Vendor.

	Tons Recycled	2021 Pickups	Transportation Price	Recycle Costs	Annual Pallets Purchased	Estimated Cost	Purchase Costs	Total Pallet Program Costs
Current	2,422	427	\$350	\$149,450	360,000	\$11	\$3,960,000	\$4,109,450
Vendor	2,422	427	\$0	\$0	360,000	\$9.5	\$3,420,000	\$3,420,000
Savings				\$149,450			\$540,000	\$689,450

Lastly, Vendor is offering a \$4.50 rebate for each pallet in relatively good condition that is sent back for recycling. This is not currently factored into the savings potential as we do not have a good estimate for the number of usable pallets sent back to the current vendor during the audited timeframe. However, Foresight anticipates a conservative estimate of \$50-100K could be possible due to the higher number of tons recycled. Additionally, it should be noted these metrics are all estimates based on their current knowledge of the program's needs. Final pricing will be dependent upon a Vendor representative visiting the facility.



As previously mentioned, the [redacted] facility is receiving a rebate for the loose cardboard they ship via a scrap trailer but not for material coming out of the compactor. In this case, Foresight would recommend a program similar to the one already recommended for [redacted] in which [redacted] rebates for the compacted material would go towards transportation costs. Foresight also recommends reevaluating the frequency by which pickups are occurring. As illustrated in Figure 3, over 75% of the pickups during this 12-month period were under 3 tons. When utilizing a compactor, the target tonnage is at least 3 tons (yellow line) with a goal of consistently reaching 5 tons (green line).

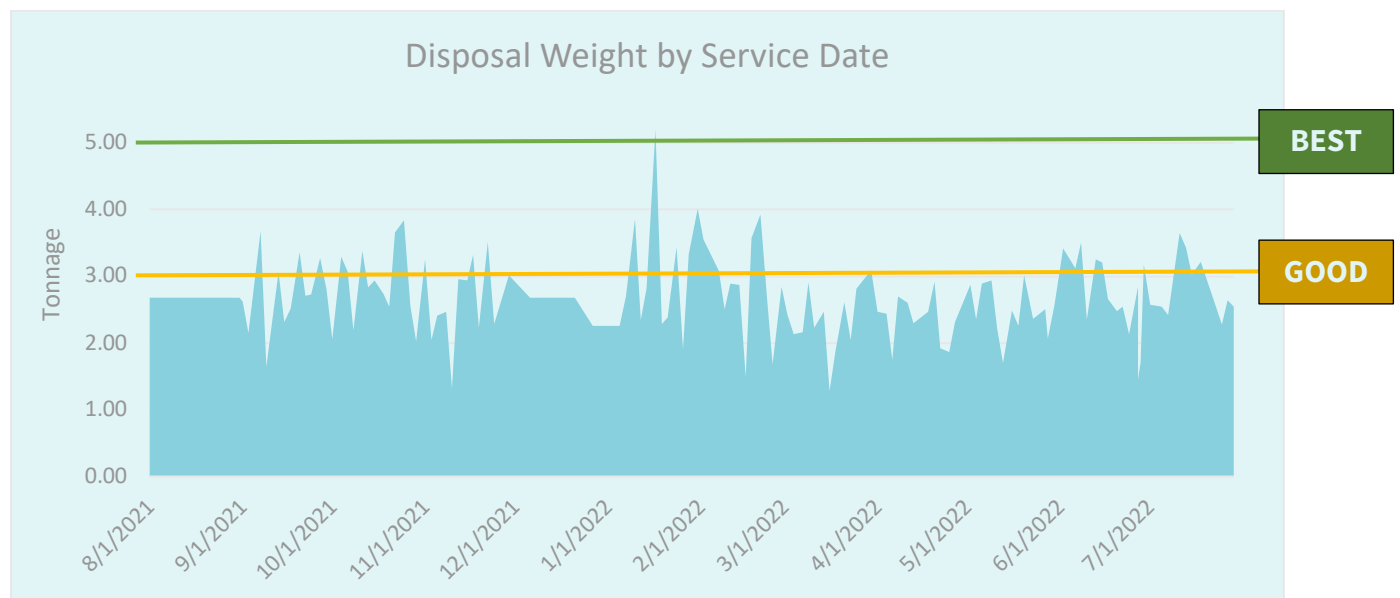


Figure 3 - Tons per pickup of [redacted] 42YD cardboard compactor from Aug. '21 - July '22.

Foresight recommends switching the frequency of pick-ups to twice a week as opposed to the current schedule of three times per week. As depicted in Table 6, by making this switch the [redacted] facility could save on transportation costs and create the opportunity to receive rebates if the market rebounds. Without an actual itemized transportation cost, Foresight used the trash compactor service fee at the [redacted] facility (\$335) as an estimate. This time last year, average cardboard rebates were

reaching up to \$141 per ton. This price has dropped significantly, and ABC Company should prepare for the possibility of the vendor to begin charging for this service in the near future. At your current rate of service, this price change would force Warsaw to start spending close to \$37,000 annually. By lowering your service frequency now, it could soften the potential price increase and help improve future rebate structures.

Table 6 - Historical, current, and future service schedule of [REDACTED] 42YD cardboard compactor and their estimated costs based on current rebate prices.

	Annual Tons	Annual Pick Ups	Tons per Pick up	Rebate (\$/Ton)	Total Rebate	Estimated Transportation Cost	Total
Historical	388	145	2.68	141	\$(54,708)	\$48,575	\$(6,133)
Future	388	145	2.68	30	\$(11,640)	\$48,575	\$36,935
2/week	388	104	3.73	30	\$(11,640)	\$34,840	\$23,200
1.5/week	388	72.5	5.35	30	\$(11,640)	\$24,288	\$12,648

## Cardboard (OCC)

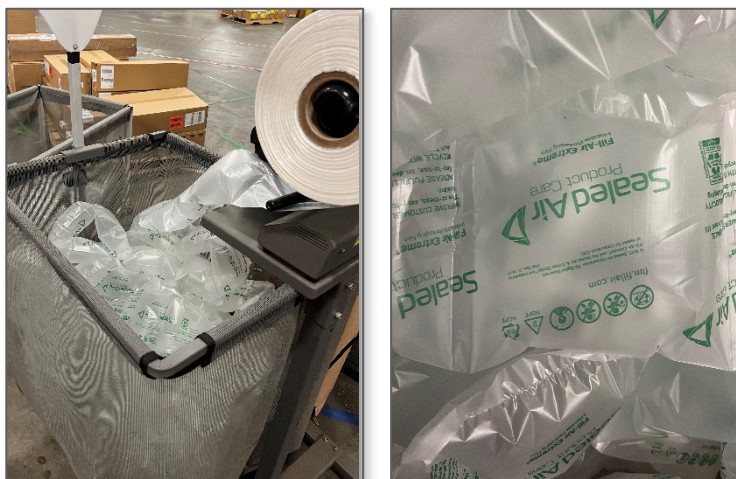
Cardboard is one of the easiest and most widely recycled products in the world. Made from 100% natural wood fibers, recycling firms and paper mills can recycle a single cardboard fiber roughly seven times before its integrity becomes an issue. Due to this recyclability, cardboard markets are a real opportunity to have waste handled for relatively low costs. Similar to ABC Company’s metal programs, there is an index for tracking the current prices of cardboard and Foresight recommends consistently monitoring those prices to ensure ABC Company is always getting optimum rebate structures for your material at [REDACTED].

While much of the site-specific recommendations relied on cost savings for management and disposal, there is another opportunity for reuse of your cardboard right on site. Cardboard perforators and shredders are gaining more popularity as the shipping and supply chain economies continue to grow. The unprecedented volume of cardboard use and the push for more circular economies is causing facilities to begin looking at other opportunities besides simply shipping the material to be recycled off site. Working much like a paper shredder, a cardboard shredder can make a variety of packing products that allow for an easy and completely circular recycling program right on site. These shredding machines can turn your used or waste cardboard into strips, netting, or chips (Figure 4). All three options are considered an eco-friendly choice to Styrofoam peanuts, plastic coverings, or even air pockets which are currently in use at both [REDACTED] facilities (Pictures 7 & 8).



*Figure 4 - The different product types of cardboard after it is put through a shredder or perforator.*

Re-using cardboard directly onsite can not only reduce waste but cut spending. Your distribution facilities will no longer need to purchase packing materials or pay to manage and transport cardboard off site. This domino effect is then continued by now eliminating the Greenhouse Gas (GHG) emissions associated with said transportation. While the differences between a shredder and perforator are miniscule, the purchase decision is dependent upon the desired end-product. A perforator converts cardboard into flexible, cushioning, and shock-absorbing netting while the shredder turns it into small strips or chips (Figure 4).



*Picture 7& 8 - Current plastic air pockets used as packaging material at both distribution facilities.*

### **Shredders come in three main sizes:**

- Light-Duty
  - The smallest option, usually designed for tabletops.
  - Best for ease of use, affordability, and space saving.
  - Operates at relatively low volumes but still provide a small business' shipping department the ability to create a substantial amount of packing material. Only one layer of cardboard can be fed through the machine at a time but is still rated to produce 10 cubic yards of packing material per hour.

- **Medium-Duty**
  - Free standing
  - Ideal for commercial and industrial use
  - Operates at a relatively medium volume and can handle 1-3 layers of cardboard per pass. Rated to produce up to 20 cubic yards of packing material per hour.
  
- **Heavy-Duty**
  - Free standing and specifically designed for intensive industrial settings
  - Largest and most powerful machines that operate at high volumes.
  - Can handle up to 3 layers of cardboard per pass and is rated to produce up to 32 cubic yards of packing material per hour.
  -

## Other Recycling Opportunities

A common misconception in the waste industry is that not every waste material can be managed in a sustainable way. While some waste streams are more difficult than others, most discarded materials have some form of recycling opportunity if you have one of two things; volume or willing ability to pay for it. Both requirements can help or hamper the ability but one company is trying to utilize a community mindset to address each aspect as one.

TerraCycle is a company founded on the principle of eliminating the concept of waste. Through collaboration and innovation, they've developed many of the world's first solutions in everything from recycling to reuse. Together with businesses, communities, and individuals TerraCycle programs allow consumers to recycle typically hard-to-recycle items, moving the world towards a more circular economy. By pooling everyone together they can achieve large volumes which allow for more efficient and cost effective recycling practices.

### ***TerraCycle Zero Waste Boxes***

- The Zero Waste Box (Picture 9) from TerraCycle is a simple and all-inclusive recycling box, ideal for both your home and workplace. With multiple sizes available, your purchase includes the storage, shipping, and recycling of many different types of waste streams, many of which are not accepted by local waste disposal companies. Once a box is filled, simply tape shut, check the attached postage, and return via the requested mail service.

- Common programs at manufacturing and distribution facilities include Cigarette butts and associated waste, Personal Protective Equipment (PPE), and Coffee Pods and associated waste.



*Picture 9 - Example of Zero Waste Boxes from Terracycle*

## Other Sustainability Program Opportunities


### **Life Cycle Assessments (LCA)**

- A framework to evaluate the environmental impact of a product. An LCA considers the effects of extraction, manufacturing, processing, distribution, use, and end of life of a product. An LCA on ABC Company's products can be a tool to assist the company make strategic and informed choices on various materials, elements, and supply chains based on their potential impact on the environment.
- Foresight focuses on making LCAs usable and actionable. We prioritize primary data over datasets and begin by understanding the exact materials of a product and manufacturing steps. Our team will assist in generating a process flow map to outline supply chains and components down to raw material extraction. From this information, we will create a bill of materials for the product. Once we understand each piece of the product's progression and stages, we collect data from every level. We will work through a hierarchy to gather as much reliable data as possible, from water consumption to energy usage to factory emissions. With this information, we can predict your product's overall environmental impact. Additionally, we can compile this information to seek an Environmental Product Declaration (EPD) which allows a company to celebrate those design decisions in an impact report or the marketplace.

### **Wildlife Habitat Council Certification**

- Bees, butterflies, and many other species of pollinator are vital to the health and economy of the world. It is estimated they contribute to at least 35% of the world's food production, as well as beverages, fibers, medicines, and spices, but across the globe, pollinators are in decline. Degradation and the fragmentation of their habitats and food sources are the leading causes of their decline but pollinator projects on corporate lands are quickly becoming one of the most accessible ways to create a valuable impact on biodiversity.
- From small-scale gardens to large pollinator-friendly remediation activities, any little bit helps. Foresight is prepared and able to assist ABC Company with planning and executing the build out of a pollinator garden and, after completion, are also able to assist with getting the program certified by the Wildlife Habitat Council (WHC).
- WHC provides the only standard designed for broad-based biodiversity enhancement and conservation education activities on corporate landholdings. With programs found in 47 U.S. states and 28 countries across the world, they illuminate how nature-based solutions cannot only improve your sustainability goals but will also yield a greater return on investment through improved employee morale, community involvement, and provide a great story to sell to all your various stakeholders.

### **Fill it Forward**

- Fill it Forward is a nonprofit that started its journey as a water bottle company utilizing the one-for-one model to give back to communities suffering from a lack of freshwater access. Every Fill it Forward product comes with a sticker that connects it to the Fill it Forward™ phone application. Every time a user refills their reusable container, they can scan their sticker, and each scan results in a donation to a water specific project.
- For large companies, there is an additional service that can be customized for your company and employees. The company will design an application specific for your organization to allow for the gamification of giving. For example, employees can be placed on specific teams  and compete for who can save and give the most cups of water. This program also allows for the company to choose a specific water initiative. Fill it Forward works with many non-profits around the world working to provide access to clean and fresh water and are able to help companies connect with those they want or prefer to work with.



## Recommendations Summary

The Foresight team has found several opportunities of various levels of complexity for additional discovery.

Area of Focus	Facility	Opportunity
Current Program Improvements	[REDACTED]	Revamp cardboard recycling program
	[REDACTED]	Investigate cardboard recycling rebates with current or new vendor
	[REDACTED]	Switch pallet vendors
	[REDACTED]	Decrease cardboard pick-up services
New Recycling Programs	[REDACTED]	Investigate reduced material use for metal or take back program with supplier.
	[REDACTED]	Utilize a materials marketplace to reduce old machinery and materials on site.
	[REDACTED]	Investigate investment into cardboard shredder and perforators
Sustainability	All Facilities	Biodiversity & Pollinator Gardens
	All Facilities	Fill it Forward Program
	All Facilities	Lifecycle Assessments

### Next Steps

Our hope is that this report will help you and ABC Company feel empowered to set and achieve greater material management goals by having a better understanding of your waste portfolio. Foresight Management is willing and able to assist with all the identified actions. Furthermore, we can reach out and educate employees, speak with vendors on your behalf to modify contracts as well as identify new vendors for new or improved waste streams. We look forward to helping you develop a new holistic waste management plan and continue to be a leader in environmentally conscience business practices.

## Appendix A: Recycling Program Outline

### 1. Consider your budget

- Consider how much money you or your company are willing to spend.
- Cardboard is a commodity that is subject to the market. Geographic locations and the condition of the cardboard being recycled can easily change rebates structures.
- New designated recycling collection bins can pose a significant upfront cost.

### 2. Consider your personnel

- Are they willing and able to recycle?
- Will they be enthusiastic about educating themselves on the proper material that can be collected and where it should go?

### 3. Speak to your waste & recycling vendors

- Discuss types of programs available, service schedule, and pricing with your MSW and/or recycling vendor.

### 4. Design signage & an education strategy

- Educating your audience is the best way to have a successful program.
- Container design and signage
  - If multiple facilities within the same company are implementing a recycling program, it is recommended to choose bins that are relatively similar or of identical design. Having matching bins across the company allows those traveling between sites to gain familiarity with the program and be able to confidently recycle no matter their location.
  - Signage should be large, bold and say exactly what you want the employee to do. Clearly marking which waste material belongs in which container is critical as one piece of incorrect waste can contaminate an entire load of recycle bound materials.

### 5. Recycling containers (optional)

- If considering the purchase of new recycling containers, think about the population of your facility and general traffic patterns. The ease in locating bins by employees is essential to the success of your program.
- Typical container locations:
  - Conference Rooms
  - Kitchen or Break Rooms
  - Office areas with 10 or more people in a given space
  - Exit/Entrances
  - Any other location with high foot traffic



Picture 10 - Clear examples of approved material for each container and waste stream.

## 6. Designate recycling champions

- Each facility that implements a recycling program will need one or more volunteers to own this program and monitor its progress. They will be responsible for training their fellow employees on the locations of bins, approved materials, and monitoring for contamination.
  - Frequently, loads taken to recycling centers are rejected at the gate because the percentage of unaccepted material is too high. This can result in penalty costs for further transport of the material and ultimately the material will be routed to a landfill.



Picture 11 - Examples of various containers that could be used through the facility and organization for streamlining waste and recycling programs (Source: Recycleaway.com)

## 7. Implementation plan

- Create a marketing roll out strategy.
  - Schedule meetings to explain the entire program
  - Schedule emails to reinforce the information
  - Have a predetermined strategy for dealing with contamination. There is always a learning curve when implementing a new program and having a prior plan in place for issues will aid in the continued success of the program.