Incentivizing Community-Led Recycling in Partnership with a Corporate Retailer

El Paso PET Thermoform Recycling Pilot
March 2023

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For Clean Water
Executive Summary

Purpose
Texas is ranked number 42 of 50, with a 13% recycling rate for rigid plastics packaging, glass bottles and jars, and steel and aluminum cans\(^1\). Litter, like polyethylene terephthalate (PET), a common plastic, poses threats to waterways, wildlife, city infrastructure, health of communities, and diverts funding that could be spent elsewhere.

Incentive-based recycling programs help to address these problems by increasing the amount of waste recycled in communities. Keep America Beautiful’s 2020 National Litter Study estimated that in states with programs that provide financial incentives for recycling, there is 50% less litter on roadways and 30% less litter in waterways. As Texas’s population continues to grow, recycling programs, industry involvement, and community education and participation are critical to the future of Texas.

On July 6, 2022 Texans for Clean Water and Texan by Nature launched a first of its kind, 6-month #1 PET thermoform recycling pilot project in partnership with Sam’s Club at their four El Paso, Texas locations. The key differentiator for this pilot compared to others, is that it paid consumers 10 cents per item recycled. The purpose of this pilot was to:

- Understand the impact of incentives, education, and marketing on consumer recycling
- Create a circularity model that supports the positive business case for PET thermoform recycling
- Identify existing gaps to develop best practices and recommendations for replication

Pilot Project Design
The pilot was fully funded by Texans for Clean Water, BlueTriton Brands, and D6 Inc. Texan by Nature ideated, facilitated, and managed the pilot project. MeCycle provided app development and support. BlueTriton Brands joining the pilot allowed for the acceptance of #1 PET bottles in September 2022.
Key Results
Organizations were convened across the supply chain to create a successful circularity model for recycling #1 PET thermoforms and bottles. During the six month pilot there was steady month over month growth of materials collected (88% average) and active users (52% average). With the acceptance of bottles, larger receptacles, and paid marketing beginning in September, the pilot saw a 236% growth in number of active users per month and 388% growth in materials collected on January 9, 2023 as compared to the end of September.

This upward trend is continuing, with 100,000 items collected by over 350 users as of mid February 2023. As a result, Sam’s Club and D6 are continuing a modified version of the pilot in El Paso, along with expanding to other locations.

“We are grateful for the opportunity to partner on the El Paso PET Recycling Pilot. As part of our company’s commitment to regeneration, expanding recycling is a very important priority for us. Over the past few years, we have partnered with various stakeholders to test different programs and material streams, with the El Paso pilot being the first of its kind dedicated to PET thermoform recycling. We are pleased to see the collections being in line with some of our other programs, and expect this to serve as a significant milestone in our journey as we continue to look for additional opportunities to expand and accelerate our recycling efforts and reduce waste in our supply chain.”

Maggie Chiang – Director of Initiatives and Implementation, Sam’s Club

Lessons Learned:
- Consumers play a key role in recycling — recycling programs must be built for individual consumer behavior and monetary incentives are proven to drive participation and proper recycling. Paid targeted marketing was critical for reaching consumers.
- Along with the financial incentives - clear, concise, and bilingual messaging across all marketing materials and app integration resulted in the collection of clean materials (1.08% contamination) that is expected to be categorized as the highest commodity PET bale specification.
- When taking into account financial, social, equity, and environmental impacts, this pilot supports a positive business case for #1 PET thermoform and bottle recycling for both corporate supply chains and municipal waste management.
- Co-mingling #1 PET thermoforms with common materials that consumers have likely recycled before, like #1 PET bottles, drove participation and volume of material received.
- Supply chain gaps identified through this pilot included lack of materials collection, infrastructure, supply chain connectivity, and ready-made app integration.
- Market immaturity and limited options for vendors in the recycling space can lead to inefficiencies in cost, support, and consistency for recycling programs.
- Corporate partnership in marketing and communication efforts increase consumer awareness and participation.
- Governing bodies may be needed for public private partnerships to ensure oversight and accountability of data, incentive payments, and material flow.
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1. Project Overview & Background

1.1 Purpose

As Texas's population continues to grow, recycling programs, industry involvement, and community education and participation are critical to the future of Texas.

On July 6, 2022 Texans for Clean Water and Texan by Nature launched a first of its kind 6-month #1 PET thermoform recycling pilot project in partnership with Sam’s Club at their four El Paso, Texas locations. This pilot was unique in that it paid consumers 10 cents per item recycled.

The purpose of the pilot was to:

- Understand the impact of incentives, education, and marketing on consumer recycling
- Prove a circularity model, helping to build the business case for PET thermoform recycling
- Identify existing gaps to develop best practices and recommendations for replication

Texas’s recycling rate for PET bottles is 11% and 2% for other rigid PET containers (thermoforms and trays). The state is ranked number 42 out of 50, with a 13% recycling rate without the contribution of cardboard and boxboard, for rigid plastics packaging, glass bottles and jars, and steel and aluminum cans.

Litter, like polyethylene terephthalate (PET), a common plastic, poses threats to waterways, wildlife, city infrastructure, health of communities, and funding that could be spent elsewhere. 400,000 tons of trash and litter are produced annually in Texas, and 10 Texas cities spend more than $75M per year on litter and illegal dumping, including $6M per year in costs to the City of El Paso. Additionally, Texas’s four largest population centers will start to run out of landfill space in 2030.

According to the Texas Commission on Environmental Quality (TCEQ), in 2021, 43.8% of total materials disposed of in Texas landfills were recyclable — these materials had an estimated value of $2 billion as manufacturing materials.

To provide more context on litter in Texas, from February 2022 to December 2022, over 2.8 million pounds of litter was collected and reported to the Texas Litter Database. Keep Texas Beautiful reported that this data consists of close to 83,000 identifiable pieces of litter, with 66% of those pieces being made of plastic. Plastic also made up 74% of the total unidentifiable fragments reported. Notably, plastic bottles and loose plastic bottle caps made up an average of 26% of plastics collected and 17% of all litter collected.
A study co-authored by researchers at The Pew Charitable Trusts and published in Science has found that the flow of plastics into the environment can be reduced by nearly 80% in the next 20 years using existing waste management and recycling technology. To achieve this reduction, significant changes are needed in how countries manage plastic waste—both upstream (production and design) and downstream (use and disposal). The changes include reducing plastic use, substituting plastic where possible, improving recycling strategies, expanding waste collection, and building better disposal facilities.\(^5\),\(^6\).

**Why #1 PET thermoforms?** – Although recycling and reclamation of PET thermoforms has increased over the last decade, it lags significantly behind PET bottle recycling. There is a lack of available data around how to incentivize recycling of these materials, paired with a fairly new and fragmented supply chain. The National Association for PET Container Resources (NAPCOR) details additional technical and design recyclability issues in the “2020 PET Thermoform Recycling: A Progress Report”.

PET is completely recyclable, and is the most recycled plastic in the U.S and worldwide. PET can be commercially recycled by thorough washing and remelting, or by chemically breaking it down to its component materials to make new PET resin. Almost every municipal recycling program in North America and Europe accepts PET containers. Although PET’s raw materials are derived from crude oil and natural gas, it has a very favorable sustainability profile in comparison to glass, aluminum, other container materials, and other types of plastic due to lower energy required for manufacturing and because it is lightweight, and requires less fuel to transport. Its sustainability jumps even higher when recycling is introduced.\(^7\).

PET thermoforms like berry boxes, cherry tomato containers, lettuce boxes, egg cartons, deli clamshells, and more are found across grocery store shelves. They are made of a PET sheet that has been thermally molded into three-dimensional packaging. This type of packaging’s presence in the market has grown as a result of the clarity, product protection, and stackability it provides. Plastic thermoforms are also perceived to have an advantage over some competing packaging formats with regard to recyclability and the potential for use of recycled content.

NAPCOR reported a 180% increase in total collection of PET thermoforms for recovery from about 45 million pounds in 2011 (the first year of published data) to 126 million pounds in 2019. Through annual postconsumer PET bales audits, NAPCOR also reported a 380% increase from an average of less than 2 percent thermoform content in curbside PET bales in 2009 to an average of 9.6 percent in 2019.\(^8\)

For many material recovery facilities (MRF) without optical sorting capabilities, PET thermoforms are typically allowed to flow into a mixed plastics bale, from which they may be recovered or sorted into residue, taking up landfill space and funding used to landfill otherwise recyclable materials.\(^9\).
1.2 Pilot Design

The pilot project was fully funded by Texans for Clean Water, BlueTriton Brands, and D6 Inc. Texan by Nature ideated, facilitated, and managed the pilot project. The key differentiator for this pilot compared to others, is that it paid consumers 10 cents per item recycled. In September 2022, BlueTriton Brands joined the pilot as a funding partner, which allowed for the acceptance and co-mingling of #1 PET bottles. See all participating organization’s bios in the appendix section.

“Today, recycling systems in the U.S. face many challenges and opportunities, and what we learn today will shape the future of recycling. The El Paso PET Recycling Pilot was a great opportunity to test a people-centric approach to recycling. By providing new material collection points and recycling incentives for the community, the program successfully demonstrated how expanded access and recycling refunds can boost recycling and foster a take back culture. BlueTriton is proud and grateful to be a partner in the El Paso PET Recycling Pilot.” Edward Ferguson, Chief Sustainability Officer - BlueTriton

The cost to implement this pilot from April 1, 2022 to March 1, 2023 is approximately $173,000 as detailed in the budget below.

<table>
<thead>
<tr>
<th>El Paso PET Pilot Budget Summary - April 1, 2022 - March 1, 2023</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Project management, translation services, reporting, etc.</td>
</tr>
<tr>
<td>Media</td>
</tr>
<tr>
<td><em>includes PR support and outreach, paid marketing, etc.</em></td>
</tr>
<tr>
<td>Receptacles</td>
</tr>
<tr>
<td><em>four original receptacles were replaced with new receptacles that were paid for by D6 Inc.</em></td>
</tr>
<tr>
<td>Technology</td>
</tr>
<tr>
<td><em>includes app set-up, license, data, and transaction fees</em></td>
</tr>
<tr>
<td>Incentives</td>
</tr>
<tr>
<td><em>includes incentives paid per item and survey/video contest/interview giftcards</em></td>
</tr>
<tr>
<td>Materials Pick-Up, Counting, and Baling</td>
</tr>
<tr>
<td><em>weekly cadence from 7/19/22-2/27/23</em></td>
</tr>
</tbody>
</table>

Before starting the pilot, all partners executed an MOU and Texan by Nature executed a parking lot license agreement with Sam’s Club and a license and service agreement with MeCycle.

MeCycle provided app development and support. For this pilot project, consumers used the MeCycle App to drop off their PET thermoforms and bottles at El Paso Sam’s Clubs to receive 10 cents per item deposited, that could be claimed through Venmo or donated an El Paso charity - see “2.1 Deposits & Incentives Breakdown” for more information.
The following best practices were used for the recycling receptacles to drive consumer visibility and engagement while also reducing illegal dumping:

- Placement near a light source in parking lot;
- Clear communication in English and Spanish;
- Utilization of local artwork from artist, Patrick Gabaldon, to draw attention to the receptacles and engage the local community

L & P Scientific Consulting, a contractor based in El Paso, Texas maintained the recycling receptacles, collected and counted materials for verification on a 7 business day basis, and baled materials in preparation for transportation to Green Impact Plastic’s and Indorama’s recycling facilities.

After the verification of deposited items, consumers received 10 cents per item deposited, that could be claimed through Venmo or donated to an El Paso charity.

PET thermoforms were transported to Green Impact Plastics, located across the Texas-Mexico border from El Paso in Juarez, Mexico to recycle PET bottles were transported to Indorama located in Dallas, Texas, with flake from both facilities going to D6 Inc. in Sulphur Springs, Texas for packaging manufacturing.
1.3 Why El Paso

This pilot was chosen to take place in El Paso due to Texan by Nature’s existing relationship with community organizations, close proximity to a #1 PET thermoform recycler (Green Impact Plastics), and the ability to launch the pilot at all Sam’s Club locations in the city.

Community & Natural Resources

The City of El Paso is located in the extreme reaches of West Texas in the Chihuahuan Desert, bordering the Rio Grande River and Juárez to the South, with the Franklin Mountains silhouetting views to the North. With over 2.7 million people, El Paso - Juárez, is the 2nd largest conurbation on the United States–Mexico border. This bi-national region is the largest bilingual, binational work force in the Western Hemisphere\(^1\). Based on population estimates from July 2021, El Paso County boasts 867,947 people\(^11\), with an estimated 90,000 United States Army and family members calling Fort Bliss and El Paso home\(^12\).
This binational, diverse, and vibrant community is responsible for stewarding the beautiful and important waterways, wildlife, and landscapes of the region. Many Texan by Nature friends and partners in the El Paso region provided insights about the El Paso community, including appropriate communication mediums, helping inform the pilot’s messaging and marketing.

**Recycling Infrastructure**

Both L & P Scientific Consulting and Green Impact Plastics are located in and near El Paso respectively, making for a desirable location to pilot #1 PET thermoform recycling program.

It’s worth noting that The City of El Paso Curbside Recycling Program for households accepts paper, plastic, cardboard, and aluminum. Multifamily housing, like apartment complexes, do not have curbside recycling services due to their commercial classification. The City of El Paso also has four Citizen Collection Stations for El Paso residents (no commercial business / contractors) to take trash, household hazardous waste, and bulky items. These stations also function as additional drop-off sites for recyclables, to complement the City’s Curbside Recycling Program.

Unfortunately, the City’s Curbside Recycling Program has created some distrust with the community over the last few years due to high contamination rates, temporary closure of the recycling program, and citizens’ observation of their curbside recycling bin contents being dumped into trash trucks. El Paso’s contamination rate, meaning dirty or non-recyclable items, remains above the national average which is estimated between 17% and 25%, with El Paso sitting at 29.9% contamination in 2022, 34% in 2021, 32% in 2020, and 26% rate in 2018. In 2021, the Managing Director for El Paso's Environmental Services Department was quoted in the Paso Times, “The past five years, the city spent more than $1.1 million to landfill material that didn’t belong in the blue bins because approximately one in three items tossed in the blue were not materials accepted in our Curbside Recycling Program. In 2022, it was reported that just under 30% of all items placed in blue bins belong in landfills instead.”

This pilot acted as another avenue to educate the citizens of El Paso about recycling and pay them for participating. The recycling receptacles also included information about recycling through The City of El Paso, linking to their online resources.

**Sam’s Club Locations**

*El Paso Sam’s Clubs* are spread across the perimeter of the city, making the pilot accessible to a variety of communities. Having the pilot at ALL El Paso Sam’s Club made for a very clear call to action for consumers.

- 7970 N Mesa St, El Paso, TX 79932
- 7001 Gateway Blvd W, El Paso, TX 79925
- 9498 Gateway N Blvd, El Paso, TX 79924
- 11360 Pellicano Dr, El Paso, TX 79936
Recycle and Earn $$$ Back / Gane $$ Reciclando

Bring your clear plastic PET 1 thermoforms and get paid 10 cents per container outside of El Paso Sam’s Club locations! / ¡Traiga sus termoformas de plástico transparente PET 1 y reciba 10 centavos afuera de las ubicaciones de El Paso Sam's Club!

2. Incentivizing Recycling

Recycling is not something that everyone inherently does and the burden for the lack of recycling is often placed on consumers, when this action is not their priority and is compounded by participation barriers such as access, education, language, etc.

One of the primary purposes for this pilot was to understand the impact of incentives, education, and marketing on consumer recycling, in addition to identifying gaps, in order to develop best practices and recommendations for replicating recycling models that offer incentives for participation.

Incentive-based recycling programs have been shown to be a successful way to increase the amount of waste recycled in communities. In 10 U.S. states that have deposit and/or return policies that provide 5-10 cents for containers returned for recycling, studies have shown 50% less litter on roadways and 30% less litter in waterways. For example, Rochester Hills, Michigan’s coupon-based recycling program tripled the annual number of pounds recycled, and about 70% of the community participates in the program. Additionally, 8 out of the 10 highest recyclers in the United States all have a Deposit Return System (DRS) for beverage containers, commonly known as a “bottle bill”.

Consumers play a key role in recycling - pilots and recycling programs must be built for individual consumer behavior and monetary incentives are proven to drive participation.

When taking into account financial, social, equity, and environmental impacts, this pilot supports a positive business case for #1 PET thermoform and bottle recycling for both corporate supply chains and municipal waste management.

“I really love what you guys are doing and really hope this program gets to stay in El Paso. It can help keep the community clean and provide people with a change to make extra money. It’s a great incentive for the people that recycle and the companies that produce plastic waste.” - Erick., El Paso PET Pilot Participant

2.1 Deposits & Incentives Breakdown

For this pilot, recycling was incentivized in the El Paso community through targeted marketing campaigns involving a mixture of paid and earned media paired with community outreach that educated consumers on why, what, and how to recycle #1 PET thermoforms at El Paso Sam’s Club (see section 4, Building Community & Industry Engagement Through Marketing for more information on this strategy). Consumers used the MeCycle App to drop off their PET thermoforms and bottles at El Paso Sam’s Clubs to receive 10 cents per item deposited, that could be claimed through Venmo or donated the following El Paso charities:
60,341 total items (an estimated 3,400 pounds) were deposited by 251 active users from July 6, 2022 to January 9, 2023.

Through January 7, 2023, total incentives provided was $4,740.10, with $2,793.80 in incentives being distributed through Venmo, $24.80 in incentives was allocated by users as a donation to a charity of choice, and $1,921.50 remained in users' MeCycle accounts.

During the six month pilot there was steady month over month growth of materials collected (88% average) and active users (52% average). With the acceptance of bottles, larger receptacles (see “Receptacles” section in the appendix), and paid marketing beginning in September, the pilot saw a 236% growth in active users per month and 388% growth in materials collected on January 9, 2023 as compared to the end of September.

A notable trend throughout the pilot was that there was a discrepancy between the number of items actually collected and the number of items users claimed they deposited. Users dropped off 7% more than they claimed (107% honesty rate).

60,341 total items were collected, compared to the 52,420 items claimed by users, with 44,134 items being counted and attributed to specific users for distribution of incentive payments. In some cases deposits could not be attributed to specific users. Sources of diversion that contribute to this inconsistency include:

- Loose Items – items placed in receptacles without bags or stickers to identify the user
- Missing Stickers – stickers either not applied to bags or have fallen off
- Duplicate Stickers – Admin error within MeCycle that can explain some of the discrepancy
- User Error – Depositing bags without stickers, applying stickers to items instead, entering wrong numbers into the app, not understanding instructions, etc.

The paid incentive total of $4,740.10 higher than the 10 cent incentive value for the 44,134 items that were counted and attributed to specific users. This is due to paying incentives for items that had not yet been counted to speed up the timeline between a user depositing items and receiving incentives. In some cases, this resulted in paying users for items that were not accepted (i.e. contamination) in some cases.
The volume of deposits for the first three months of the pilot (July-September) was fairly slow, with a total of 6,877 items counted. This can likely be attributed to no pre-marketing efforts and a marketing hold taking place from July 13 to September 14 due to a severe weather event that impacted one of the receptacles. Four new receptacles were put into place on September 14, 2022.

In September, with new, larger receptacles in place, marketing efforts on ABC 7 and social media began along with the acceptance of #1 PET bottles, which likely led to the 130% increase in items deposited from September to October, with 9,056 items counted in October alone. From October to November, there was a 32% increase in the number of items counted and from November to December (through January 9, 2023), there was a 23% increase. Over the course of six months the pilot showed an upward trend in deposits. This upward trend is continuing based on data coming in post January 9, 2023, with over 100,000 items collected as of mid February 2023.
2.2 Thermoform vs Bottle Deposits

From July through the end of August, #1 PET thermoforms were the only material that was being messaged for acceptance and incentives. In September 2022, BlueTriton Brands joined the pilot as a funding partner, which allowed for the acceptance of #1 PET Bottles. Bottles had been deposited before they were accepted, with one user depositing over 4,000 bottles in July. Users that deposited bottles previously were retroactively paid for their deposits.

Bottles made up 89% of all materials deposited with thermoforms making up 11%, with a 1.08% contamination rate. There was a 45% increase in thermoforms donated in September vs August. It appears that the acceptance of bottles was driving thermoform donations. This also coincided with larger receptacles being put into place, updated graphics on the receptacles, and emails to MeCycle users, which may have all contributed to the increase in thermoforms deposits during August as well.

The amount of thermoforms deposited continued to fluctuate, but increased overtime, with a notable increase of 375% in November, which was primarily due to a large deposit of 2,000 thermoforms by one user.
2.3 Recycling Volume by Location

Receptacles were placed in the parking lot at all El Paso Sam’s Clubs (four locations):

- 7970 N Mesa St, El Paso, TX 79932
- 7001 Gateway Blvd W, El Paso, TX 79925
- 9498 Gateway N Blvd, El Paso, TX 79924
- 11360 Pellicano Dr, El Paso, TX 79936

All locations, aside from one, received a fairly similar percentage of total deposited materials over the course of the pilot, with Pellicano making up 16.65%, Gateway making up 16.68%, and N Mesa making up 17.17%. The Gateway N location was an outlier, making up 49.49% of total deposited items which is likely due to 5 "super donors", who each donated at least 1400 items themselves. These users make up 45% of total donations at this location.

Additional differences in deposits by location could be due to:

- Location of recycling location in relationship to audience targeted through paid marketing efforts
- Location and visibility of receptacle in parking lot
2.4 User Trends

For this pilot, users recorded the amount of items they deposited for recycling using the MeCycle app. Those materials were verified by L.P. Scientific. At the end of the pilot on January 9, 2023, there were 730 registered MeCycle app users in El Paso, with 251 being active recyclers.

The number of unique users increased by 83% in October and continued to increase over the course of the pilot, with some locations gaining more unique users than others. Comparing unique users at the end of July vs on January 9, 2023, there were 155 more active users participating on a per month basis.
Deposits by active users also leveled out over the course of the pilot, creating a more normal distribution. Starting in September, the top 5 users (representing 6,617 items donated) went from accounting for 90% of donations to 77% of donations. In September, one time users also became the minority, accounting for 47% of drops versus 53% for return users:

- 1 Visit: 41 users
- 2+ visits: 46 users
- 3+ visits: 26 users
- 4+ visits: 21 users

This trend continued through October, with the top 5 users accounting for 44% of total deposits, down from 77% in September. In October, the repeat users remained the dominant user base:

- 1 Visit: 58 users
- 2+ visits: 90 users
- 3+ visits: 58 users
- 4+ visits: 45 users

Similarly, in November, the trend continued with the top 5 users accounting for 32.6% of total deposits, as compared to 44% in October. In November, the repeat users remained the dominant user base:

- 1 Visit: 64 users
- 2+ visits: 128 users
- 3+ visits: 94 users
- 4+ visits: 71 users

At the end of the pilot in December, the trend continued with the top 5 users accounting for 24.7%, down from 32.6% the previous month, and down 90% when the pilot started in July. In December, repeat users remained the dominant user base, emphasizing users interest in participating in the pilot:

- 1 Visit: 60 users
- 2+ visits: 191 users
- 3+ visits: 146 users
- 4+ visits: 116 users

A survey was sent out to two MeCycle users groups (active and non-active recyclers) at the end of October to gain insights into recycling habits and to collect feedback and demographic information. 46 users responded and the following results were captured:
2.5 Deposit & Incentive Lessons Learned

Consumers play a key role in recycling — recycling programs must be built for individual consumer behavior and monetary incentives are proven to drive participation and proper recycling. Paid targeted marketing was critical for reaching consumers. Throughout the pilot, the following deposit and incentive lessons learned were captured:

**General:**

- Monetary incentives drove participation.
- Recycling of single-types of materials, like PET thermoforms, may be difficult due to lack of awareness and education, depending on the community. Co-mingling #1 PET thermoforms with common materials that consumers have likely recycled before, like #1 PET bottles, drove participation and thermoform deposits received. This strategy drove participation and volume of material received throughout the course of the pilot. Consumers that may have not been aware of PET thermoforms before were getting exposed to educational information not only through paid media, but on the receptacle itself.
- Utilizing best practices like having a large/brightly colored receptacle, placing the receptacle near a light source in parking lot; having the receptacle feature clear communication in English and Spanish; and utilizing local artwork from artist, drew attention to the receptacles, drove participation, and
Reduced illegal dumping and contamination. Marketing, messaging, instructions, and any app integrations must be clear, concise, and in appropriate language to make participation easy for consumers and to reduce consumer confusion.

**Recycling App Integration:**
- It was beneficial to have a recycling app integration with a digital payment option via Venmo allowing users to claim their cash incentives from their mobile devices.
- A service level agreement around response time for support emails and payment of incentives should be in place with any app provider or 3rd party.
  - A dedicated support email, regardless of app integration or not, allows consumers to easily ask questions, send feedback, etc.
  - Timely responses to support emails is critical to maintaining consumer satisfaction and a positive reputation.
  - Support functionality allows the team to quickly address issues, like running out of stickers and bin doors not working, pending quick review and communication.
- A service level agreement around functionality should be in place to allow for:
  - Adjusting drop off data to account for user error
  - Automated process for paying out incentives to users vs processing Venmo payments manually to reduce the amount of time it takes for users to receive incentives

2.6 Deposit & Incentive Issues and Recommendations

**Access to Receptacles:**
- Issue: The location of receptacles may limit access for certain communities due to distance, lack of transportation, etc.
- Recommendation: Consider working with community organizations and schools across your target geography to have smaller localized recycling collection containers.

**Associating Users with Their Deposits:**
- Issue: Stickers often fell off the bags, making it difficult to identify which materials went with what user. Duplicate stickers also made it difficult to associate users with their deposits.
- Recommendation: If using a verification method for future programs, options such as providing numbered bags or not using bags and using a model where each item is scanned and deposited may reduce verification and user error issues. If using a sticker method, ensure an adequate number of digits and enough sticker series to avoid duplicate sticker issues.

**Verifying Deposits and Paying Out Incentives:**
- Issue: Waiting to pay incentives for deposited items until after deposits are verified can reduce user satisfaction due to the length of time between depositing materials, collecting/counting materials, verifying materials, and paying incentives.
- Recommendation: If providing monetary incentives, an automated payment is recommended at the point of user deposit with audit level verification to account for any outliers or potential dishonesty to deliver better, more timely incentives to improve user experience and reduce support emails regarding payment delay.
Types of Incentives:

- Recommendation: It may be beneficial to test types of incentives to see what is most popular with the community your program is in. Different incentive structures could be used to maximize returns to retail and analyze that behavior in conjunction with future store purchases to see if consumers made more trips or bought more per trip after they recycled.

3. Circularity - PET Thermoform Recycling Supply Chain

3.1 Supply Chain Overview

One of the primary purposes of this pilot was to create a successful circularity model that supports the positive business case for PET thermoform recycling. For this pilot, key partners were identified across the supply chain for each project phase as outlined below:

<table>
<thead>
<tr>
<th>Process Steps</th>
<th>Owner(s)</th>
<th>Consumer buys product at retailer that is in PET thermoform containers and takes product home</th>
<th>Consumer brings back PET container to PET thermoform recycling drop-off location</th>
<th>Consumer deposits PET thermoforms at recycling drop-off using MeCycle app</th>
<th>Incentives are distributed through App - Venmo or Donation</th>
<th>PET thermoforms are recycled into RPET</th>
<th>RPET integrating into retailer packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer</td>
<td>Consumer</td>
<td>Consumer buys product at retailer that is in PET thermoform containers and takes product home</td>
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<td>Consumer deposits PET thermoforms at recycling drop-off using MeCycle app</td>
<td>Incentives are distributed through App - Venmo or Donation</td>
<td>PET thermoforms are recycled into RPET</td>
<td>RPET integrating into retailer packaging</td>
</tr>
</tbody>
</table>

“**We are proud to have participated in such an inspirational pilot. As part of the community we had the opportunity to shop around not only at Sam’s Club but other chains and heard consumers at several checkout points talk about how awesome it was that Sam’s Club had this recycling project that allowed them not only to participate but to further learn and understand how recycling worked. We have always supported programs that capture materials outside of the blue bin. Not only is material always cleaner and easier to recycle back into food grade usable flake but we see consumers and brands connect with each other. The paradigm of recycling in North America is being changed by programs like this and soon we would love to see users across the US asking for an opportunity to have them in their own cities. We are committed to Sams and their great initiatives. Lets get every thermoform back.**” - Octavio Victal, CEO, Green Impact Plastics

Detailed below, the supply chain gaps identified through this pilot included lack of materials collection, infrastructure, supply chain connectivity, and ready-made app integration

Collection and Counting of Materials:

- There was not a contractor in El Paso that specialized in this. The contractor used had to train staff on how to identify and sort materials.
- No existing partner in the supply chain paid for this and articulated that the costs were too high. As a result, funding from the pilot was used to cover these expenses.
Infrastructure:
- There was not a ready-made receptacle, receptacles for the pilot had to be custom built.
- With limited recyclers in Texas, the logistics for transporting the materials, especially a limited volume of materials is cost prohibitive at this time.
- Depending on the volume of materials, tracking the material flow through the supply chain to the end disposition (i.e. rPET packing) may be difficult due to necessary volume thresholds for recycling.

App Integration:
- There was not a ready-made app, an existing app, MeCycle, had to be modified to meet the needs of the pilot and desired user experience.

*See the “Supply Chain Flow Chart”, “Receptacles”, and “MeCycle App Flow” section in the appendix for more information.*

### 3.3 Results

Along with the financial incentives - clear, concise, and bilingual messaging across all marketing materials and app integration resulted in the collection of clean materials (1.08% contamination) that is expected to be categorized as the highest commodity PET bale specification.

There was not sufficient volume collected to do a production of rPET packaging. A percent yield may be available at a later date with the continuation of the program and once sufficient volume is collected.

### 3.4 Supply Chain Lessons Learned

As detailed in the overview and background section, the PET thermoform supply chain is fairly new and fragmented, with a lack of recycling infrastructure and funding for operations across the supply chain. Throughout the pilot, the following supply chain lessons learned were captured:

**General:**
- Competing priorities and motivations of partners across the supply chain presents difficulties in program management for pilot programs.
- Lack of consistency and follow through in project parameters, communicated support, and partner performance could be due to lack of compliance mandates and limited pool of industry / supply chain participants.
- Market immaturity and limited options for vendors in the recycling space can lead to inefficiencies in cost, support, and consistency for recycling programs.
- Governing bodies may be needed for public private partnerships to ensure oversight and accountability of data, incentive payments, and material flow.

**Deposits, Receptacle & Contamination:**
- Along with the financial incentives - clear, concise, and bilingual messaging across all marketing materials and app integration resulted in the collection of clean materials (1.08% contamination) that is expected to be categorized as the highest commodity PET bale specification.
• Providing more guidance on not only what types of materials, but what condition those materials should be in would be beneficial for future programs. For example, this pilot received multiple emails asking if water bottles can be deposited if they are smashed and if participants need to remove labels and lids.

Verifying Deposited Materials
• The cost for paying a contractor to collect (mileage included), count/report deposited items, store the materials, and bale the materials is not yet covered by anyone in the supply chain. The pilot budget was used to pay for these costs. Sentiments from supply chain partners reported that costs for this phase of the supply chain are above industry standards, but no alternatives were presented. There is some level of fixed costs for collection, verification of materials, and storing/baling materials no matter the volume until economies of scale and/or the breakeven point for costs vs volume is reached.
• Individuals that are processing materials should be well trained on how to identify and count materials for efficient counting and sorting.
• Delayed pick-up, processing, and verification of materials creates confusion in the program for both consumers and supply chain members.
• A standardized data reporting methodology/template/process is needed for the materials processor and an app integration to efficiently and effectively interpret, verify, and report pilot data.

3.4 Supply Chain Issues and Recommendations

Down-Cycling:
• Issue: Due to the volume of materials received, this pilot will recycle bottles into thermoforms. With current technology, thermoforms can not be recycled back into bottles, resulting in the downcycling of bottles.
• Recommendation: There needs to be a process in place for recycling bottles into bottles and thermoforms into thermoforms to avoid downcycling no matter the volume. Research and innovation in new technology is needed for recycling PET thermoforms into bottles and vice-versa.

Contamination:
• Issue: An unmanned receptacle, paired with the recycling education gap could result in illegal dumping and contamination.
• Recommendation: Utilize best practices to drive consumer visibility and engagement while also reducing illegal dumping: Placement near a light source in parking lot; Clear communication in English and Spanish; Utilization of local artwork to draw attention to the receptacles and engage the local community. Also, if using an app integration, provide pictures of items not eligible for recycling within the app. For future programs, having a trash can next to the receptacle may allow people to throw their trash items away after reading the information on the kiosk about what is not accepted and before depositing their bags.

Condition of Materials:
• Issue: Not providing enough information to participants on the condition of materials could result in recyclability issues farther down the supply chain.
• Recommendation: For the purpose of this pilot, bottles could be smashed and retain lids and labels. Although, depending on the supply chain, the following should be taken into consideration:
  ○ For both deposit and material recovery facility (MRF) systems it is a good practice to empty the bottle, leave the label and cap on, place in the recycling stream whole.
  ○ For deposit states – the label is needed for recognition of brand, sku, and deposit/redemption value. Unlabeled bottles are rejected by RVMs and not credited by redemption centers (still recycled just not at the deposit value).
  ○ For MRFs – the equipment that is on the front of the systems use the 3D shape of bottles to segregate them in the screening process. Crushed bottles could create hardships with missing the screens or dropping in the smalls/not recycled.
  ○ In both cases if the lid and label stay attached, they will be recycled at the PET processor (as cap/label polyolefins). If the cap/label are sent to a recycling center by themselves (separated from the bottles) then they are generally not recycled.

4. Building Community & Industry Engagement Through Marketing

4.1 Marketing and Outreach Strategy

For this pilot a targeted marketing campaign involving a mixture of paid and earned media, paired with community outreach and contests, educated consumers on why, what, and how to recycle #1 PET thermoforms at El Paso Sam’s Club.

Earned media strategies implemented included:
  • Press Releases, social media toolkits, videos, and blogs
    ○ Pilot Launch Press Release
    ○ BlueTriton Brands Press Release
    ○ Partner Marketing Toolkit
    ○ Recycling Instructions Webpage (features videos)
    ○ Get Paid to Recycle in El Pasol Blog
    ○ PET Recycling in Texas Blog
  • Invitation to media to join for project launch gathering
  • Monthly media and community outreach
  • Regular cadence of posting on social media channels
  • Outreach to social media influencers
  • Posting Craigslist ads

Earned strategies resulted in 875,885 impressions from published press and the following impressions from social media.
Paid media strategies implemented included:

- Targeted ads on Instagram and Facebook
  - 181,476 paid social media impressions from targeted audiences in El Paso over 3 months.
  - Targeted ads linked directly to the website with directions to download the MeCycle app and locations for recycling.
  - Top performing posts
    - Instagram reels and video based content were the highest performing posts throughout the pilot and received the highest amount of shares.
    - Video posts featured text headlines that were incentive focused “Get paid to recycle” with captions that were ethos focused and described the purpose of the pilot with key words like: circularity, litter, recycling.

- Targeted video ads for CTV, banner and hover ads for ABC 7 El Paso website.
  - 30 second CTV advertisements featuring a hispanic female describing how to participate in the pilot averaged 98% VCR (views to completion rate).

Incentivized contests and surveys were also utilized to reach, educate, and collect feedback from the El Paso community.

A video contest was launched with El Paso schools that ran from August 5 to September 27, 2022. The Better Business Bureau of El Paso provided Texan by Nature with best practices, recommendations, and a contact list that were from contests the Better Business Bureau has hosted in the past. This is an example of why partnerships with community organizations are beneficial for not “reinventing the wheel” and important for understanding target audiences and how to best engage with them.

19 videos were submitted to the contest involving 36 students. Texan by Nature staff scored the videos based on various criteria and four videos were chosen as winners. In total, winning videos involved 10 students, where each student was awarded a $150 e-gift card, totaling $1,500. All winning videos were featured on the Texan by Nature website and on social media to drive pilot participation.
Top recyclers were contacted to participate in interviews with D6, Inc. while they were in El Paso. 3 interviews took place, where video footage was recorded for marketing purposes. Each participant was awarded a $50 gift card, totaling $200. Notable quotes from the interviews include:

- “I work as a dishwasher, and that’s where my ideas for recycling came. I take all the waste and I make compost. I have different buckets set up at my job and I started noticing a lot of plastic and other waste come through and I wanted to find a solution. I did some research and came across this amazing program. Having your mind and your heart in the right place, you are actually making a difference. You don’t see it right away, but you do notice how it starts getting cleaner with just a little bit of recycling.” - Erick

- “This program is interesting to me because I have recycled the last 20+ years, other materials, as well as plastic. The trash at home builds up quite a bit, so to be able to take it somewhere else and add it to our weekly trash take out, it’s great!” - Jorge

- “It’s real important that we recycle for the younger generations to come, and we help save our planet and it benefits you to also because you’re getting paid for it.” - Sally and Jason

Contact information from the MeCycle App for users located in El Paso was used to distribute a survey by email to collect information on how they heard about the pilot, why they are participating in the pilot, receive feedback, and collect demographic information. 46 users completed the survey, which yielded the following results:

| How did you hear about the PET Recycling Pilot at El Paso Sam’s Clubs? |
|---------------------------------|----------------|----------------|----------------|----------------|
| Saw the green receptacle        | Social media  | From a friend  | SC Newsletter  | SC Mx Member Survey |
| 24                              | 13            | 6             | 2             | 1               |

<table>
<thead>
<tr>
<th>Have you told other people about the PET Recycling Pilot?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, my family</td>
</tr>
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<td>27</td>
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</table>

<table>
<thead>
<tr>
<th>Why did you choose to participate in recycling PET?</th>
</tr>
</thead>
<tbody>
<tr>
<td>To protect the environment</td>
</tr>
<tr>
<td>39</td>
</tr>
</tbody>
</table>

4.2 Corporate Marketing

Sam’s Club marketing efforts consisted of a blog post, social media posts, video creation, member email with pilot banner, member surveys, and education of store associates.

Sam’s Club created a video about the pilot that was shared on the Sam’s Club Facebook page. This video received 241,000 views, 391 reactions, and 48 comments. This post performed much better than posts on Sam’s Club Facebook pages for El Paso locations.

The member email with the pilot banner was distributed to 107,000 El Paso Sam’s Club members. The banner was included in 7 emails and the banner received a total of 1,284 clicks from 8/16 to 12/21.
See example below:

Sam’s Club marketing didn’t have the resources to support any additional requests outside of the above and no in store marketing took place.

4.3 Marketing & Engagement Lessons Learned

There is a certain amount of ramp up time and outreach necessary to make a program like this successful. For example, doing pre-launch marketing and outreach efforts would build awareness and excitement so consumers are ready to recycle when you start vs having this ramp up time during the pilot time, where you really start to see results ~3 months in due to the delay in awareness and action.

This was seen in this pilot first hand, with targeted paid media strategies not starting until September, which correlated with increases in items deposited - see section 2.1 Deposits & Incentives Breakdown.

In the beginning of the pilot, Texan by Nature accounts were the primary accounts posting on all social media channels, with a following not unique to El Paso. Additionally, the most social media impressions were coming from LinkedIn, resulting from project partners and industry players sharing posts. This was good for industry visibility, although it was not meeting the goal of reaching everyday consumers in El Paso that would participate in recycling.

Launching targeted paid ads on Instagram and Facebook and a digital campaign with ABC 7 allowed pilot messaging to reach the target audience. Paid media analytics allowed for testing and refinement of creative, which is detailed in the Appendix. Notable mentions include:
Presenting the pilot with creative of a photo that appears as a news article preview instead of a video for social campaigns received 81% higher engagement when comparing social media campaign 1 to campaign 2.

By social media campaign 3, we saw increased community awareness of the pilot that was not seen in previous ads. Users engaging with the post were answering each other’s questions and comments and demonstrating their engagement by sharing the latest updates on the pilot.

Throughout the pilot, the following marketing lessons learned were captured:

**General**

- It is important to understand your target audience and provide clear and concise messaging in appropriate languages, in the case of this pilot, English and Spanish. Utilize tools like surveys to understand how users learned about the pilot, why they are participating, and what their demographics are - this will help inform your marketing strategy.
- Clear and concise messaging with engaging and educational creative for all materials, including receptacles, websites, social media, etc. is critical for successful participation
- Strong partnerships with community organizations allowed for round-tables to better understand the community and how to best engage them before the pilot, along with these organizations’ cross-posting pilot information on social media, thereby reaching the local community through their networks.
- Corporate partnership in marketing and communication efforts increase consumer awareness and participation. It is beneficial to engage the local store associates and inform them how the receptacle works, so they are able to address questions and drive higher engagement in the local community.
- Attending local education events is important for pilot visibility and recommended for future pilots to develop a trusted community relationship and positive presence.
- Engaging local schools is a great way to expand the reach of the pilot through teacher and student engagement that may drive broader education of families. Student created pieces, such as videos perform well on social media. It is important to align school engagement campaigns with the yearly school schedule to ensure a high-level of participation.
Green Impact Plastics had an educational table about the pilot at El Paso Community College

**Earned Media**

- Unpaid social media posts depicting videos of people using the receptacles earned higher engagement than posts with photos and graphics. It is important to capture video and B roll to use for content creation throughout the pilot.
- Engaging with posts that utilized hashtags relevant to the city of the pilot (#ElPaso) shortly after pilot content was posted resulted in local community engagements with the post.
- On month 4 of the pilot, local “micro-influencers” (Instagram users with 1,000-6,000 followers) with sustainability and environmental niche content began interacting with reels related to the pilot and following the posting account. These interactions happened through the use of the geo-location feature on Instagram. All posts must have the location set to the city of the pilot for these organic interactions to happen.

**Paid Media**

- It would be beneficial for paid social media campaigns surrounding the project to begin 1-2 months prior to the project launch to generate buzz and community engagement before the launch date. This would create a good opportunity for in-person demonstrations of how to use the receptacle and meet community advocates that can explain how to use the receptacle to others. A-B testing of ad creative and copy could be used to see what performs best with your target audience.
- Monitoring comments and interactions with paid social media ads daily is crucial to demonstrate responsiveness to user questions, concerns and sentiments toward the pilot.
- If paid advertising via a local media channel is used, CTV (Internet Connected Television) ads are highly recommended. If CTV ads are used, a QR code linked to the pilot website should be included in the ad.
4.4 Marketing Issues and Recommendations

Lack of In-Store Corporate Marketing:
- Issue: Inability to reach local consumers with an informational table or flyers in-store resulted in missed opportunity to engage with and educate community about the receptacle during the project launch.
- Recommendation: It would be beneficial for the corporate partner to receive approval for an informational table, flyers and other assets to capitalize on consumer awareness of the project. In-store marketing may also be beneficial to the corporate partner by creating positive sentiments about the company through ethos focused messaging.

Contamination:
- Issue: Before bottles were accepted through the pilot, many bottles were deposited.
- Recommendation: Include photos and clear descriptions of what is accepted and what is not accepted to reduce confusion and contamination. Additional online resources may be needed to show examples of types of materials and to set the expectation for what clean materials looks like (i.e. no food waste, moisture absorbers, cardboard, etc.)

Language-based Education Barriers:
- Issue: Social media users expressed some confusion and desire for further explanation in how to use the receptacle. These comments were from Spanish-speaking users which point to the possibility that Spanish instructions are not prominent enough on the receptacle, website, and app.
- Recommendation: It may be beneficial to have one side of the receptacle in all Spanish pointing directly to a Spanish-only website if the receptacle is placed in a market with a high volume of Spanish-speaking audience. Future receptacles may require a step by step tutorial video detailing how to use the receptacle from downloading the app to closing the door after deposit.

Negative Comments:
- Issue: Negative comments were received regarding lack and/or delay of payment from MeCycle.
- Recommendation: It may be beneficial to create social media accounts for the pilot if running paid marketing campaigns because:
  - This separates one specific brand from being the “face” of the pilot.
  - Organizations involved in the recycling project likely have a broader mission than just the project and a full social calendar. Having specific accounts would allow for more frequent posting that would not bog down one specific organization’s account with content that isn’t relevant to their entire audience.
  - Negative comments regarding an issue of a project partner would not tarnish another organization’s overall brand.

Lack of Social Media Influencer Engagement:
- Issue: Earned media outreach to influencers was unsuccessful, this was possibly due to a lack of paid or sponsored post opportunities.
Recommendation: Local social media influencers in your target market are a great way to reach your target audience. Explore ways to get influencers engaged with your project through events and paid posts.

Lack of Volunteer Engagement:
- Issue: At the start of a pilot program with an unmanned, locked receptacle, consumers may be confused about what the receptacle is for and how to use it. Despite outreach to potential volunteers to have an educational booth by the receptacle for limited hours during the week, no volunteer signed up, which was likely due to the launch date being in the middle of summer in El Paso (very hot weather). Sam’s Club did not have any in store marketing (i.e. flyers, etc.) or allow for there to be volunteer tables at the front of the store vs in the parking lot as an option to mitigate for heat.
- Recommendation: For future programs with un-maned receptacles, it would be beneficial to have volunteers staff receptacle locations or store fronts, paired with in-store marketing to build community education, awareness, and relationships with the organizations leading the recycling program. Employee volunteer days could be a good option to fill this need.

5. Summary

5.1 Final Results

This pilot proved successful in executing the intent and purpose of launching it, which was to:
- Understand the impact of incentives, education, and marketing on consumer recycling
- Create a circularity model that supports the positive business case for PET thermoform recycling
- Identify existing gaps to develop best practices and recommendations for replication

The pilot was fully funded by Texans for Clean Water, BlueTriton Brands, and D6 Inc. Texan by Nature ideated, facilitated, and managed the pilot project. BlueTriton Brands joining the pilot allowed for the acceptance of #1 PET bottles. The pilot costs approximately $173,000 to implement (see the budget section in the appendix for more detail).

From July 6, 2022 to January 9, 2023 251 active users deposited 60,341 items, weighing an estimated 3,400 pounds, which was composed of 89% bottles and 11% thermoforms. Total incentives provided at a 10 cent per item rate during this time period was $4,740.10

During the six month pilot there was steady month over month growth of materials collected (88% average) and active users (52% average). With the acceptance of bottles, larger receptacles, and paid marketing beginning in September, the pilot saw a 236% growth in number of active users per month and 388% growth in materials collected on January 9, 2023 as compared to the end of September.

This upward trend is continuing, with 100,000 items collected by over 350 users as of mid February 2023. As a result, Sam’s Club and D6 are continuing a modified version of the pilot in El Paso, along with expanding to other locations.
For this pilot a targeted marketing campaign involving a mixture of paid and earned media, paired with community outreach and contests, educated consumers on why, what, and how to recycle #1 PET thermoforms at El Paso Sam’s Club. This resulted in 219 earned social media posts that reached 7,182,186 accounts and earned press pick-up that resulted in 875,885. Additionally, paid social media resulted in 181,476 impressions from targeted audiences in El Paso over 3 months.

Over the course of the pilot, gaps were identified, lessons were learned, and recommendations were formed based on what worked well and what didn’t. Our hope is that this pilot serves as a model for others to learn from and follow suit to ensure a prosperous future for Texas’s natural resources, communities, and economy.

5.2 Lessons Learned & Recommendations

Aligning with the purpose of the pilot, key lessons learned include:

Understand the impact of incentives, education, and marketing on consumer recycling

- Consumers play a key role in recycling — recycling programs must be built for individual consumer behavior and monetary incentives are proven to drive participation and proper recycling. Paid targeted marketing was critical for reaching consumers.
- If providing monetary incentives, an automated payment is recommended at the point of user deposit with audit level verification to account for any outliers or potential dishonesty to deliver better, more timely incentives to improve user experience and reduce support emails regarding payment delay.
- It is important to understand your target audience and provide clear and concise messaging in appropriate languages, in the case of this pilot, English and Spanish. Utilize tools like surveys to understand how users learned about the pilot, why they are participating, and what their demographics are - this will help inform your marketing strategy.
- There is a certain amount of ramp up time and outreach necessary to make a program like this successful. For example, doing pre-launch marketing and outreach efforts would build awareness and excitement so consumers are ready to recycle when you start vs having this ramp up time during the pilot time, where you really start to see results ~3 months in, due to the delay in awareness and action.
- Corporate partnership in marketing and communication efforts increase consumer awareness and participation.

Prove a circularity model supports and helps build the business case for PET thermoform recycling

- When taking into account financial, social, equity, and environmental impacts, this pilot supports a positive business case for #1 PET thermoform and bottle recycling for both corporate supply chains and municipal waste management.
- Along with the financial incentives - clear, concise, and bilingual messaging across all marketing materials and app integration resulted in the collection of clean materials (1.08% contamination) that is expected to be categorized as the highest commodity PET bale specification.
- Ensure there’s a process in place for recycling bottles into bottles and thermoforms into thermoforms to avoid downcycling. Research and innovation in new technology is needed for recycling PET thermoforms into bottles and vice-versa.
Identify existing gaps to develop best practices and recommendations for replication

- Supply chain gaps identified through this pilot included lack of materials collection, infrastructure, supply chain connectivity, and ready-made app integration.
- Co-mingling #1 PET thermoforms with common materials that consumers have likely recycled before, like #1 PET bottles, drove participation and volume of material received.
- Market immaturity and limited options for vendors in the recycling space can lead to inefficiencies in cost, support, and consistency for recycling programs.
- Governing bodies may be needed for public private partnerships to ensure oversight and accountability of data, incentive payments, and material flow.
Appendix

Participating Organization Bios

About Texan by Nature

Texan by Nature (TxN) unites conservation and business leaders who believe Texas’ prosperity is dependent on the conservation of its natural resources. TxN, founded by former First Lady Laura Bush, acts as an accelerator for conservation groups and a strategic partner for business. TxN supports 110+ conservation organizations and has accelerated projects and programs that have impacted 7 million-plus people, 20 million acres, and all of Texas’ 254 counties. Get involved and learn more at www.texanbynature.org and follow on Facebook, Twitter, Instagram, and LinkedIn @TexanbyNature for the latest.

About Texans for Clean Water

Texans for Clean Water (TFCW) is a 501c4 non-profit, advocacy organization dedicated to win-win solutions that reduce waterway trash and floatable litter, for the benefit of the Texas environment and economy. TFCW was formally organized in 2013 when Mike Garver of Houston and Trammell Crow of Dallas joined forces to bring the problem of floatable debris in our waterways to state and local officials. Restoring the viability of our waterways improves neighborhoods, brings recreational opportunities to our communities, and encourages economic growth.

About Walmart, Inc.

Walmart Inc. (NYSE: WMT) helps people around the world save money and live better—anytime and anywhere—in retail stores, online, and through their mobile devices. Each week, approximately 230 million customers and members visit approximately 10,500 stores and clubs under 46 banners in 24 countries and eCommerce websites. With fiscal year 2022 revenue of $573 billion, Walmart employs 2.3 million associates worldwide. Walmart continues to be a leader in sustainability, corporate philanthropy and employment opportunity. Additional information about Walmart can be found by visiting https://corporate.walmart.com, on Facebook at https://facebook.com/walmart and on Twitter at https://twitter.com/walmart.

About Green Impact Plastics

Green Impact Plastics is the only PET reclaimer in North America, solely dedicated to recycling thermoforms. The company was founded by Octavio and Juan Pablo Victal, with 16 years of background career in designing and operating recycling facilities. Members of the NAPCOR, APR, US Plastics Pact and NSAC where the main goal is to promote circularity in these packaging that is finding its way to landfills at a rate of 1.6 billion pounds per year.

About D6

D6 is the fastest design-to-shelf packaging manufacturer, unique in its vertical integration and ability to use 100% post consumer recycled content (“PCR”) by taking in waste products, wash cleaning and upcycling/manufacturing food grade packaging products. D6 Inc is on track to become the world’s first Carbon Negative packaging company by 2025 – 2030. In under 8 years our company has processed over 1.2 billion lbs. of waste and this number continues to grow as we do.
About MeCycle
MeCycle builds digital recycling technology that engages consumers, improves packaged goods circularity & gathers valuable consumption insights. MeCycle’s mission is to drastically reduce the 100s of billions of plastic and aluminum items that end up in landfills and oceans each year. MeCycle gives consumers a mobile app that lets them scan items to see whether to return or recycle them, claim return incentives or deposits and opt to donate those funds to local charities.

About BlueTriton Brands, Inc.:
BlueTriton Brands offers an extensive portfolio of highly recognizable, and responsibly sourced regional spring water and national purified water brands including Poland Spring® Brand 100% Natural Spring Water, Deer Park® Brand 100% Natural Spring Water, Ozarka® Brand 100% Natural Spring Water, Ice Mountain® Brand 100% Natural Spring Water, Zephyrhills® Brand 100% Natural Spring Water, Arrowhead® Brand 100% Mountain Spring Water, Pure Life® and Splash. The Company also owns and operates ReadyRefresh®, a customizable water and beverage delivery service and a certified Carbon Neutral® business. Based in Stamford, Connecticut with approximately 7,000 associates in the United States and approximately 230 in its Canada affiliate, BlueTriton Brands manages natural resources for long-term sustainability, and conserves more than 20,000 acres of natural watershed area. The Company has 28 production facilities across North America, 13 of which are currently Alliance for Water Stewardship (“AWS”) certified across 12 sites, with eight of the certified facilities being AWS Platinum, the highest-level certification. BlueTriton Brands is also committed to creating shared value and being a good neighbor in the more than 120 communities where it operates in the United States and Canada.

Budget

<table>
<thead>
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<th>El Paso PET Pilot Budget Summary - April 1, 2022 - March 1, 2023</th>
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<tbody>
<tr>
<td><strong>Total</strong></td>
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<tr>
<td>Project management, translation services, reporting, etc.</td>
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<tr>
<td>Media</td>
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<tr>
<td>includes PR support and outreach, paid marketing, etc.</td>
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<td>Receptacles</td>
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<td>four original receptacles were replaced with new receptacles that were paid for by D6 Inc.</td>
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<td>Technology</td>
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<td>includes app set-up, license, data, and transaction fees</td>
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<td>Incentives</td>
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<td>includes incentives paid per item and survey/video contest/interview giftcards</td>
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<td>Materials Pick-Up, Counting, and Baling</td>
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<td>weekly cadence from 7/19/22-2/27/23</td>
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# Supply Chain Flowchart

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<tr>
<th>Process Steps</th>
<th>Consumer buys product at retailer that is in PET thermoform containers and takes product home</th>
<th>Consumer brings back PET thermoform container to PET thermoform recycling drop-off location</th>
<th>Consumer deposits PET thermoforms at recycling drop-off using MeCycle app</th>
<th>Incentives are distributed through App - Venmo or Donation</th>
<th>PET thermoforms are recycled into RPET</th>
<th>RPET integrating into retailer packaging</th>
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</thead>
<tbody>
<tr>
<td>Owner(s)</td>
<td>Consumer</td>
<td>Consumer</td>
<td>MeCycle, TxN, Consumer</td>
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<td>D6, Sam's Club</td>
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<td>Deliverable(s)</td>
<td>Used thermoforms and bottles</td>
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<td>Payment in MeCycle App Donation to Charities</td>
<td>Recycled thermoforms</td>
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<td>Collection Costs, Processing costs</td>
<td>Transportation, Final packaging cost</td>
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<td>Texans for Clean Water</td>
<td>Texans for Clean Water, Green Impact Plastics, Indorama</td>
<td>D6, Sam's Club</td>
</tr>
</tbody>
</table>
MeCycle App Flow

Overview:

Sign Up

Collect Items & Register & Drop Bag

Collect or Donate Funds

Detailed App Flow for Texas:

Hello, Susan!

Most clamshell containers now have an incentive in El Paso, Texas. You will earn points for emptying out each receptacle. Place one sticker on each bag. For guidance, please visit our site.

Count and put empty clear, #1 PET plastic packages in grocery or small garbage bags. Next package to maintain space. For guidance, please visit our site.

Drop off your full bags at a participating Sam's Club.

Your bag contents will be verified and counted. Acceptable containers are made of #1 PET plastic.

Enter this code to open the drop off door

Your incentives will appear in the MeCycle wallet at an estimated 7-10 days after drop off.

You can choose to donate the funds to a local charity or claim the funds through Venmo.
Receptacles

A severe weather event impacted one of the original receptacles. Four new receptacles were put into place on September 14, 2022. The larger receptacles that were placed in September and paid for by D6 Inc. cost $9,431.81 each.
## Earned Digital Analytics

### Published Media

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Outlet</th>
<th>Headline - hyperlinked to publication</th>
<th>Impressions</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/1/22</td>
<td>Online Article</td>
<td>KTSM (NBC El Paso)</td>
<td>Community plastic recycling program will be piloted at Sam’s Club</td>
<td>419,666</td>
</tr>
<tr>
<td>7/19/22</td>
<td>Online Article</td>
<td>Resource Recycling, Inc</td>
<td>Driscoll’s (and its suppliers) propel thermoform recycling</td>
<td>44,840</td>
</tr>
<tr>
<td>7/19/22</td>
<td>Online Article</td>
<td>Recycling Today</td>
<td>PET thermoformed container recycling program launches in Texas city</td>
<td>73,200</td>
</tr>
<tr>
<td>7/25/22</td>
<td>Press Release</td>
<td>Sam’s Club</td>
<td>Community Recycling Program Launches at El Paso Sam’s Club Locations</td>
<td></td>
</tr>
<tr>
<td>7/27/22</td>
<td>Online Article</td>
<td>Texan by Nature</td>
<td>PET Recycling in Texas</td>
<td>420</td>
</tr>
<tr>
<td>7/28/22</td>
<td>Online Article</td>
<td>Plastic News</td>
<td>Texas pilot project pays shoppers to recycle PET thermoformed packaging</td>
<td>54,300</td>
</tr>
<tr>
<td>8/2/22</td>
<td>Online Article</td>
<td>Recycling Today</td>
<td>PET thermoformed container recycling program rewards citizens in Texas city</td>
<td>73,200</td>
</tr>
<tr>
<td>8/17/22</td>
<td>Online Article</td>
<td>Progressive Grocer</td>
<td>Turning Toward Guilt-Free Plastic Packaging</td>
<td>29,654</td>
</tr>
<tr>
<td>8/24/22</td>
<td>Online Article</td>
<td>Plastics Technology</td>
<td>For Texans, It Pays to Recycle</td>
<td>75,134</td>
</tr>
<tr>
<td>8/29/22</td>
<td>Online Article</td>
<td>Resource Recycling, Inc</td>
<td>News from Crown, Machinex and more</td>
<td>44,840</td>
</tr>
<tr>
<td>8/30/22</td>
<td>Online Article</td>
<td>Resource Recycling, Inc</td>
<td>News from Avery Dennison, Cortec Corporation and more</td>
<td>44,840</td>
</tr>
<tr>
<td>10/6/22</td>
<td>Radio</td>
<td>KVIV 1340</td>
<td>Spanish PSA (no link)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Impressions**: 875,885

*Impressions are the number of unique visitors online, readers for print, and people watching/listening for broadcast.*
Social Media

Paid Digital Analytics

<table>
<thead>
<tr>
<th>Month</th>
<th>Ad Set</th>
<th>Impressions</th>
<th>Engagements</th>
<th>Link Clicks</th>
<th>Shares</th>
<th>Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 26 - Oct 26</td>
<td>Ad 1</td>
<td>49,017</td>
<td>972</td>
<td>887</td>
<td>9</td>
<td>$299.99</td>
</tr>
<tr>
<td>Nov 1 - Nov 30</td>
<td>Ad 2</td>
<td>55,807</td>
<td>1,762</td>
<td>1,442</td>
<td>83</td>
<td>$302.94</td>
</tr>
<tr>
<td>Dec 6 - Jan 11</td>
<td>Ad 3</td>
<td>76,652</td>
<td>1,705</td>
<td>1,461</td>
<td>65</td>
<td>$305.96</td>
</tr>
<tr>
<td>Totals</td>
<td>Ads</td>
<td>181,476</td>
<td>4,439</td>
<td>3,790</td>
<td>157</td>
<td>$908.89</td>
</tr>
</tbody>
</table>

Paid Social Media Campaign 1 Analytics:

- **Ad Creative**: For Social Campaign 1, our ad creative was a 15-second video of a Hispanic female describing how to participate in the PET Community Recycling program.
- **Ad Copy**: Help reduce waste and litter by recycling PET 1 plastics outside Sam’s Club locations
- **Ad CTA button**: Download the App & Learn More
- **Creative Performance**: This social campaign was set to an “Auction” bid strategy to optimize the ad delivery format for the highest volume of link clicks. The most clicked ad format is “Mobile Feed” using the CTA “Download the App”. Engagement metrics showed a gender distribution of 73% male and 26% female engagement with this creative. The campaign also received 3 instances of male users commenting on the appearance of the woman in the ad. Comments were removed.
- **Ad Adjustments**: Though the video in Campaign 1 was informational, most users who engaged with it saw only the “preview” version of the creative which appears as a static photo similar to an article.
preview. Creative in Campaign 2 has been changed to a static photo that appears as a news article preview. Copy in Campaign 2 has been re-packaged to appear as an article preview and encourage social sharing.

- **Ad Placements:** Social Campaign 1 used the highest volume bidding campaign to place ads on the feeds of users most likely to engage with it. The highest performing placements were on Facebook platforms.
- **Ad Placement Adjustments:** Ad placement for Social Campaign 2 has been adjusted to highest volume bid on Facebook platforms only.
Ad Demographics: Social Campaign 1, ran for an audience of 18-65+ to test audience engagement. Highest engagement in the campaign came from the 35-65+ age group. The gender distribution of the campaign was higher with male users 73% vs. 26% female users.

Ad Demographics Adjustments: The disparity in distribution could be due to the ad creative, which displayed a photo of a female. The ad creative for Social Campaign 2 has been adjusted to feature a female recycler next to the receptacle as well as a Sam’s Club sign. The age demographics have been adjusted to the 30-65+ year age range. Demographics from a MeCycle user survey showed 35 of 40 active users surveyed were over 35.

Locations
Where people were located when they saw your ads.

- Texas: 93%
- New Mexico: 7%
- Chihuahua: <1%

Ad Target Location: The location of Social Campaign 1 was set to El Paso +25 mile radius. This will remain the same for Social Campaign 2.
Paid Social Media Campaign 2 Analytics:

- **Ad Creative:** For Social Campaign 2, our ad creative was a photo of a Hispanic female celebrating after using the PET Community Recycling program receptacle beside a photo of the Sam’s club sign in El Paso.
- **Ad Copy:** A new program is paying the El Paso community to recycle PET 1 plastic bottles and thermoforms to keep the city litter free! Ad copy in Social Campaign 2 referred to the pilot as “A new program” which may have resulted in positive engagements due to the connotation of word program to community resources. Comments by users included:
  - “Great program! I’d like to participate”
  - “This is a great program. I’d like to be able to recycle #5 plastics locally.”
- **Ad CTA button:** Learn More & Find a location near you
- **Creative Performance:** Engagement metrics showed a gender distribution of 83% female and 17% male engagement with this creative. This is near the opposite of Ad 1’s distribution of 73% male vs. 26% female. This may be due to a more neutral photo of a woman in Ad 2.
- **Ad Adjustments:** Creative in Campaign 2 was a static photo that appears as a news article preview. Copy in Campaign 2 has been packaged to appear as an article preview and encourage social sharing. For Social Campaign 3, the ad creative has been adjusted to a male and female couple in front of the PET Recycling receptacle being interviewed by a male. Keeping the “news article” package, for Ad 3 but adding a male to the photo.
**Ad Placements:** Social Campaign 2 used the highest volume bidding campaign to place ads on the feeds of users most likely to engage with it. This campaign ran only on Facebook platforms due to low engagement on other platforms in Social Campaign 1.

**Ad Placement Adjustments:** Ad placement has remained the same for Social Campaign 3.

**Ad Demographics:** Ad Campaign 2, ran for an audience of 35-65+ as they were the highest engagement in Ad Campaign 1. The gender distribution of the Campaign 2 was higher with female users 83% vs. 17% male users.
Ad Demographics Adjustments: The disparity in distribution could be due to the ad creative, which displayed a photo of a female recycler next to the receptacle as well as a Sam’s Club sign. While Ad 1 had higher engagement in males, and ad 2 had higher engagement with female creative for Social Campaign 3 has been adjusted to feature a female and male recycler next to the receptacle being interviewed by a male recycler. The age demographics have been adjusted to the 30-65+ year age range. Demographics from MeCycle’s user survey showed 35 of 40 active users surveyed were over 35.

Locations
Where people were located when they saw your ads.

- Texas: 93%
- New Mexico: 7%
- Chihuahua: <1%

Ad Target Location: The location of Social Campaign 2 was set to El Paso +25 mile radius. This will remain the same for Social Campaign 3.

Paid Social Media Campaign 3 Analytics:

Ad Creative: For Social Campaign 3, our ad creative was a photo of a male and female couple being interviewed by a male interviewer in front of a PET Recycling receptacle.
• Ad Copy: A new program is paying the El Paso community to recycle PET 1 plastic bottles and thermoforms outside of Sam’s Club! Get started:

• Ad CTA button: Learn More, Start Recycling, Get Paid

• Creative Performance: Engagement metrics showed a gender distribution of 84% female and 15% male engagement with this creative. This is nearly identical to Ad 2’s distribution of 83% female vs. 17% male.

• Ad Adjustments: Creative in Campaign 3 was a static photo that appears as a news article preview. Copy in Campaign 3 has been packaged to appear as an article preview and encourage social sharing but copy has an incentive for recycling focus.

• Ad Placements: Social Campaign 3 used the highest volume bidding campaign to place ads on the feeds of users most likely to engage with it. This campaign ran only on Facebook platforms due to low engagement on other platforms in Social Campaign 1.

• Ad Placement Adjustments: Ad placement has remained the same for Social Campaign 3.
• Ad Demographics: Ad Campaign 3, ran for an audience of 35-65+ as they were the highest engagement in Ad Campaign 1. The gender distribution of campaign 2 was higher with female users 84% vs. 15% male users.

• Ad Demographics Adjustments: The creative featuring a photo with two men in Ad Campaign 3 was meant to level out the disparity in distribution we saw in Ad Campaign 2. However, the distribution remained largely female. While Ad 1 had a higher engagement in males, and Ad 2 had a higher engagement with females creative for Social Campaign 3 was adjusted to feature a female and male recycler next to the receptacle being interviewed by a male recycler. This creative did not have an effect on engagement with males, remaining at 15%. The age demographics were adjusted to the 30-65+ year age range. The highest engagement was seen in the 45-65+ year age range for females.

This ad reached **31,096** people in your audience.

<table>
<thead>
<tr>
<th>People</th>
<th>Placements</th>
<th>Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Texas</strong></td>
<td><a href="#">29952</a></td>
<td><a href="#">29952</a></td>
</tr>
<tr>
<td><strong>New Mexico</strong></td>
<td>1080</td>
<td></td>
</tr>
<tr>
<td><strong>Chihuahua</strong></td>
<td>64</td>
<td></td>
</tr>
</tbody>
</table>

• Ad Target Location: The location of Social Campaign 3 was set to El Paso +25 mile radius. We have continued to see most of the ad distribution in El Paso/ Texas with minimal distribution in New Mexico and Chihuahua, Mexico area. This could be due to native El Pasonans commuting to New Mexico and the El Paso community that commutes to Mexico.
### Paid Digital Advertising Analytics:

#### ABC 7 Digital Campaign Summary - ABC 7 website 30 second video

<table>
<thead>
<tr>
<th>Month</th>
<th>Impressions</th>
<th>VCR (views to completion)</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>10,120</td>
<td>97.84%</td>
<td>100% CTV (internet connected tv)</td>
</tr>
<tr>
<td>November</td>
<td>40,022</td>
<td>99.19%</td>
<td>100% CTV (internet connected tv)</td>
</tr>
<tr>
<td>December</td>
<td>10,022</td>
<td>99.19%</td>
<td>100% CTV</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>60,164</strong></td>
<td><strong>97.84%</strong></td>
<td><strong>100% CTV</strong></td>
</tr>
</tbody>
</table>

#### ABC 7 Digital Campaign Summary - ABC 7 Hover Ads

<table>
<thead>
<tr>
<th>Month</th>
<th>Impressions</th>
<th>Total Clicks</th>
<th>Clicks on Smartphone</th>
<th>Clicks on Desktop</th>
<th>CTR (click-through rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>39,981</td>
<td>78</td>
<td>23</td>
<td>55</td>
<td>0.20%</td>
</tr>
<tr>
<td>November</td>
<td>59,250</td>
<td>81</td>
<td>79</td>
<td>19</td>
<td>0.24%</td>
</tr>
<tr>
<td>December</td>
<td>59,250</td>
<td>81</td>
<td>77</td>
<td>4</td>
<td>0.14%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>158,481</strong></td>
<td><strong>240</strong></td>
<td><strong>179</strong></td>
<td><strong>74</strong></td>
<td><strong>0.20%</strong></td>
</tr>
</tbody>
</table>

- Ad Creative: Ad creative is hover graphics and a 30 second video of a Hispanic female describing how to participate in the PET Pilot with branding consistent to receptacles.
- Ad Copy: “Howdy El Paso, let’s reduce litter! Get paid to recycle PET 1 plastics outside of Sam’s Club”
- Ad CTA button: Let’s Reduce Litter!
Ad Creative Adjustments: 30-second video ad saw a 97.1% VCR (video completion rate) compared to a 62% benchmark for videos under 1 minute. Creative for future campaigns was adjusted to add a “scan to participate” QR code since 100% of views were from CTV (internet-connected television).
Sources


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