

# The US Recycling Landscape

25 July 2023



**The Recycling  
Partnership**  
Solving for Circularity

We mobilize people, data, and solutions across the value chain to reduce waste and our impact on the environment while also unlocking economic benefits.



## **The Recycling Partnership: Overview**

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## **US Recycling Landscape**

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## **Policy**

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## **System Investment and Technology**

# The Recycling Partnership



# Building a recycling system that works for people, communities and companies.



## People

Recycle consistently, correctly, & confidently



## Communities

Provide equitable access to all households



## MRFs

Accept & process all materials



## Manufacturers

Transform recycled material into valuable inputs



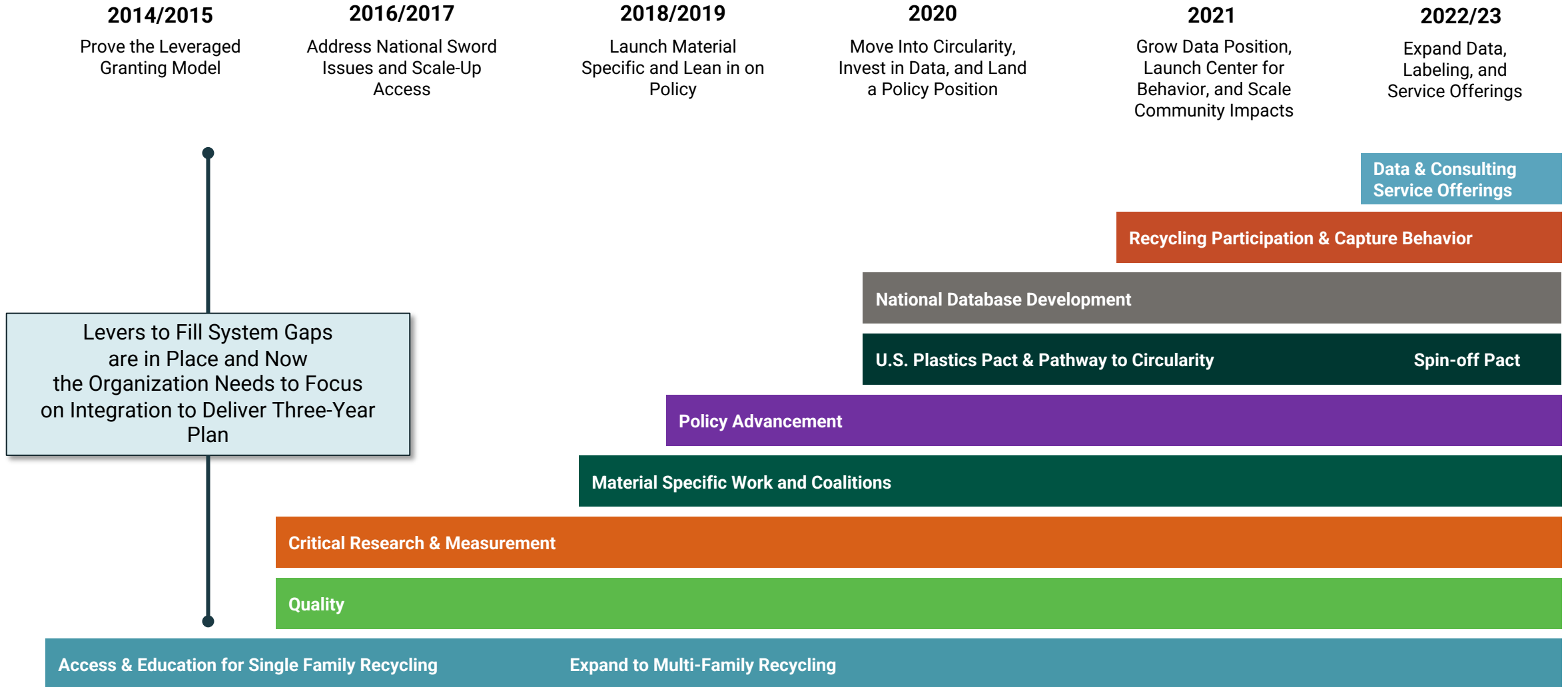
## Brands & Retailers

Develop & market recyclable packaging

Data driven decision making & well-designed recycling policy



# The Partnership Model





**106** Active Grant Projects

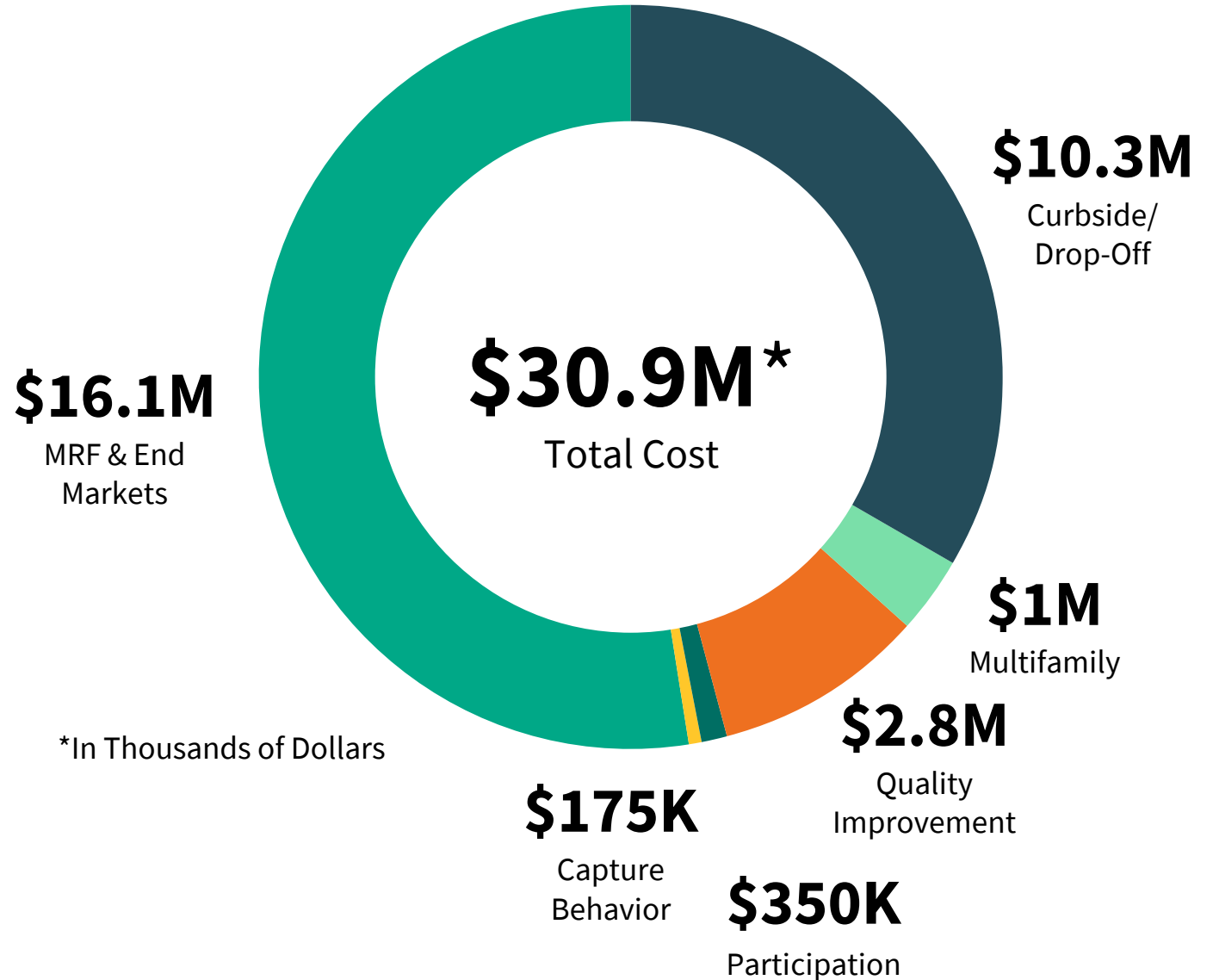
**17** Additional Contracts Pending

**18.7M** HHs Impacted

**128K** New Tons Captured

**263K** New Access

**\$31M** Encumbered



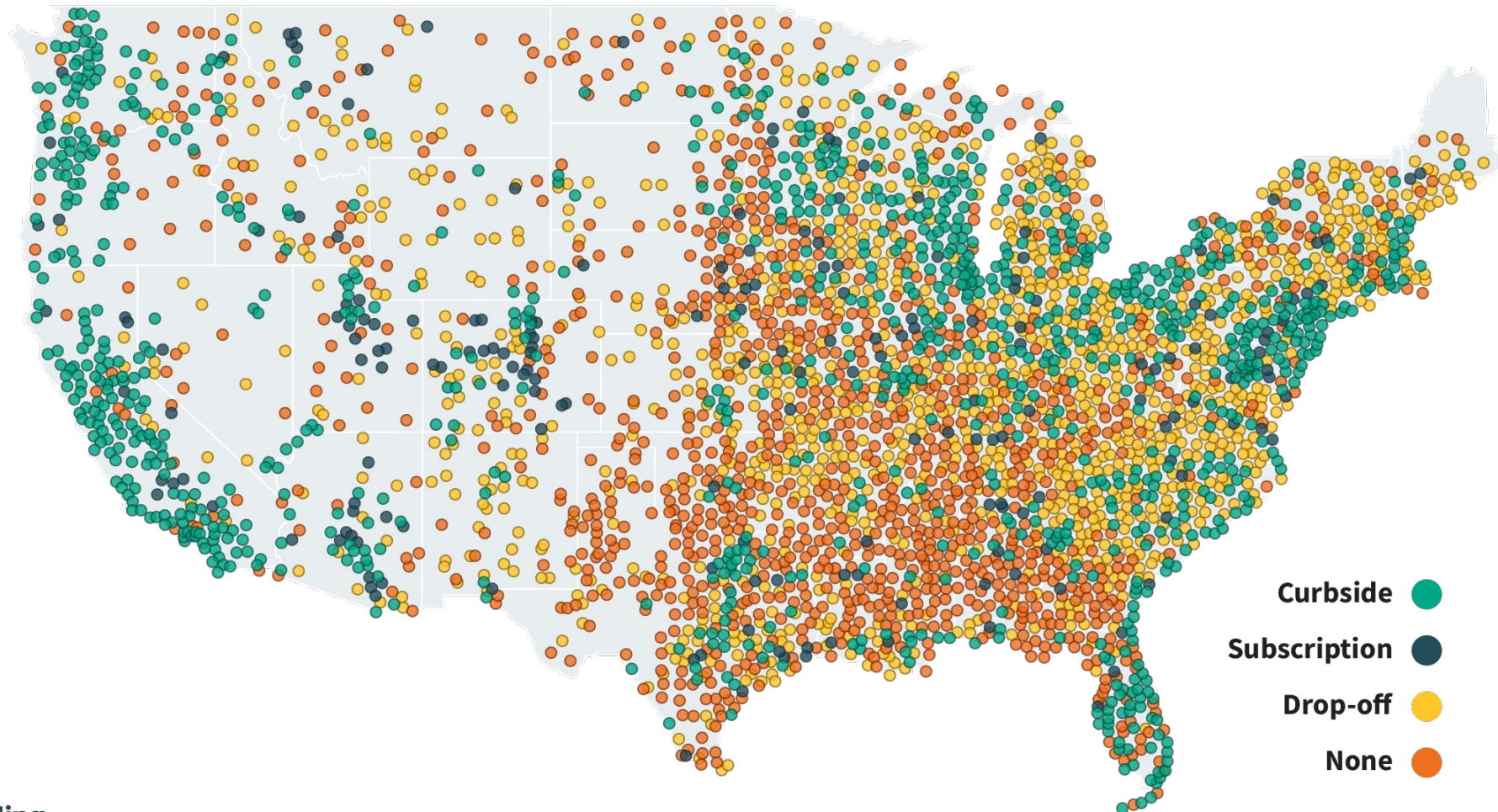
# The U.S. Recycling Landscape





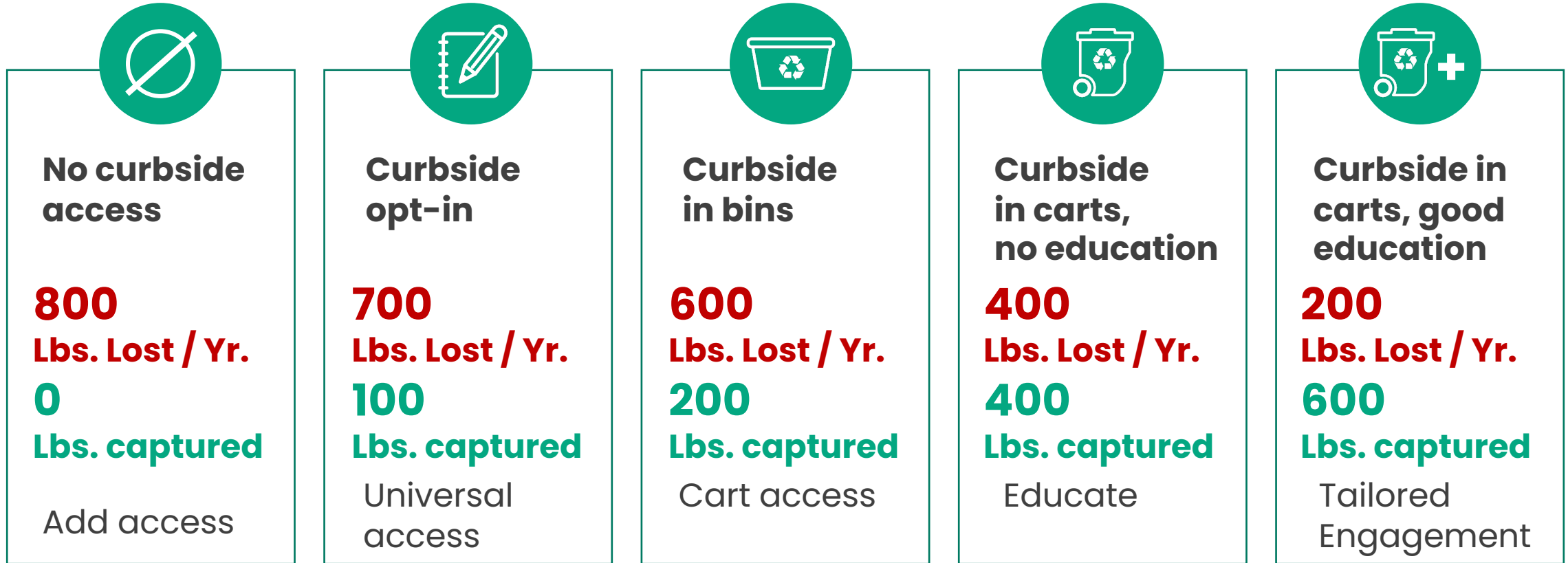


# 9,000+ programs | 30,000+ communities





## Where to make the right investments...



*How do we ensure this valuable material is accepted and processed?*

# Policy





## Goals

**Overarching Goal:** Engage policymakers to pass more harmonized and effective recycling policies at the state and federal level.



Improve, advance and support the implementation of **smart, well-designed state recycling collection policies** throughout the country;



Shape and catalyze **effective federal government action** that advances recycling



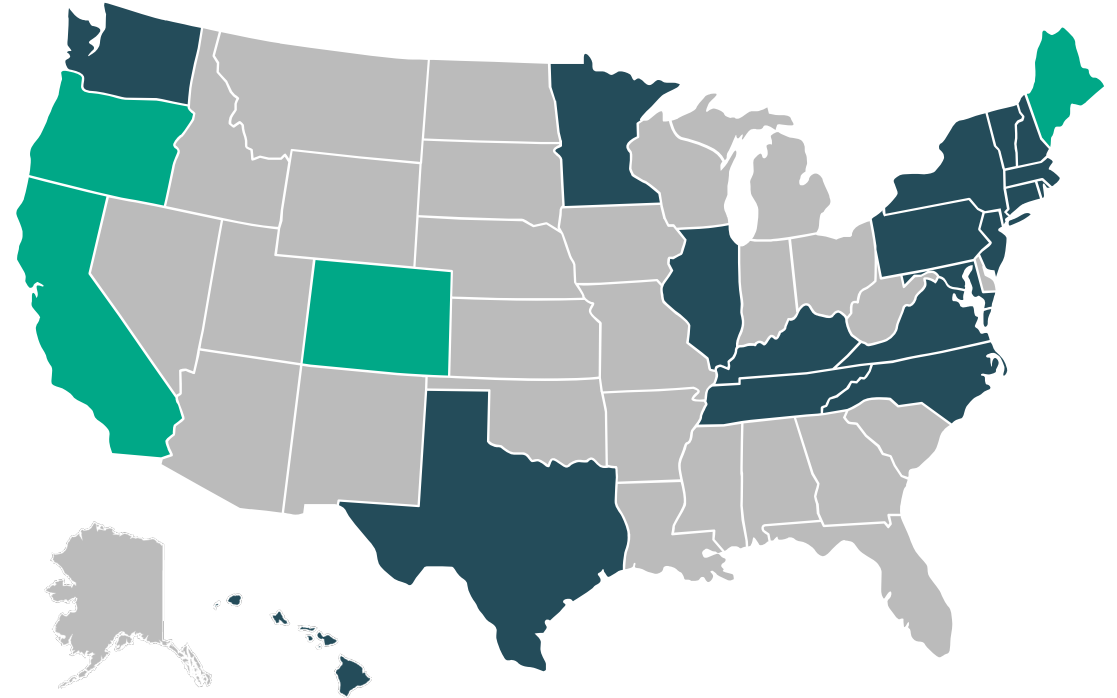
Convene, equip, and lead an **impactful network of stakeholders** across the recycling value chain



# Extended Producer Responsibility Legislation\*

- EPR Laws Passed & Currently Being Implemented  
(California, Colorado, Maine, Oregon)
- EPR Legislative Activity in 2023

*\*Packaging/Printed Paper and Packaging EPR*





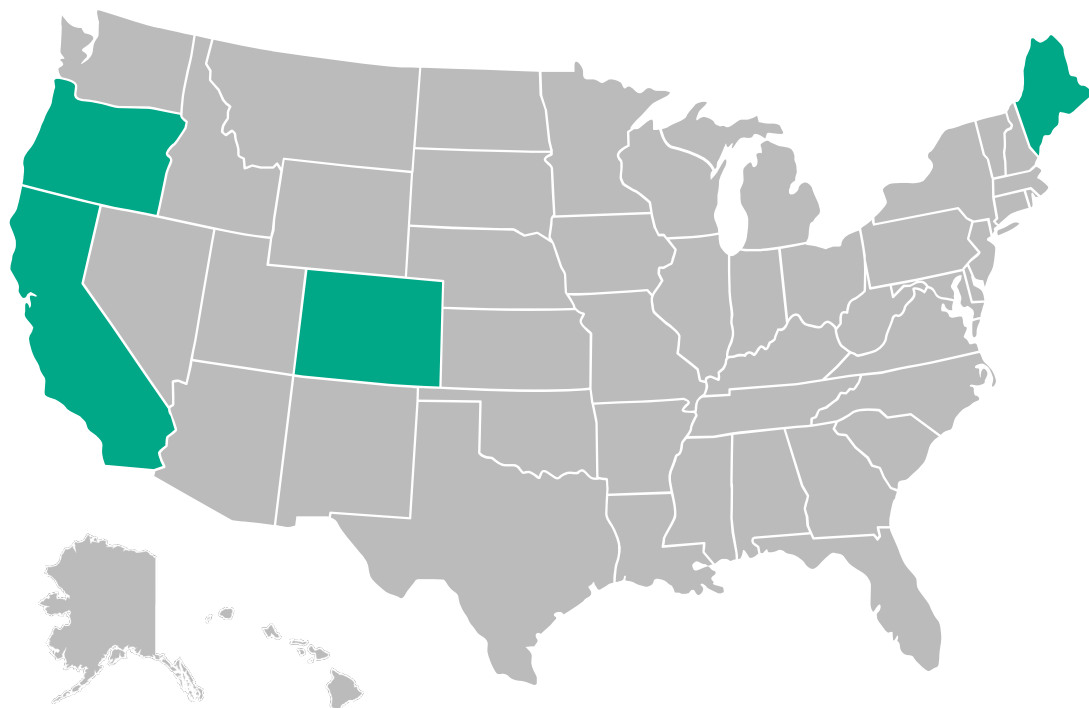
# Policy Landscape

- **We expect 3-6 states to pass EPR in the next 1-3 years**
  - West Coast – WA; Midwest – MN, IL; Northeast – NY, NJ, CT, MA, RI, VT
- **U.S. recycling collection is overwhelmingly single-stream**
  - Material-specific EPR for packaging is not used globally – *We are all in this bin together*
- **EPR Recyclability can impact all**
  - Packages deemed recyclable could change across the country





### EPR States



**Policy state implementation in four states will increase the national rate by 4-5%.**

**The Partnership will need to focus on both EPR and non-EPR states to be successful at improving the national recycling rate.**

# System Investment





**Ensure All Households Can Recycle**



**Help the Public Recycle Correctly, Consistently, and Confidently**



**Make Packaging Recyclable**



**Support Smart Policy to Pay for the System**

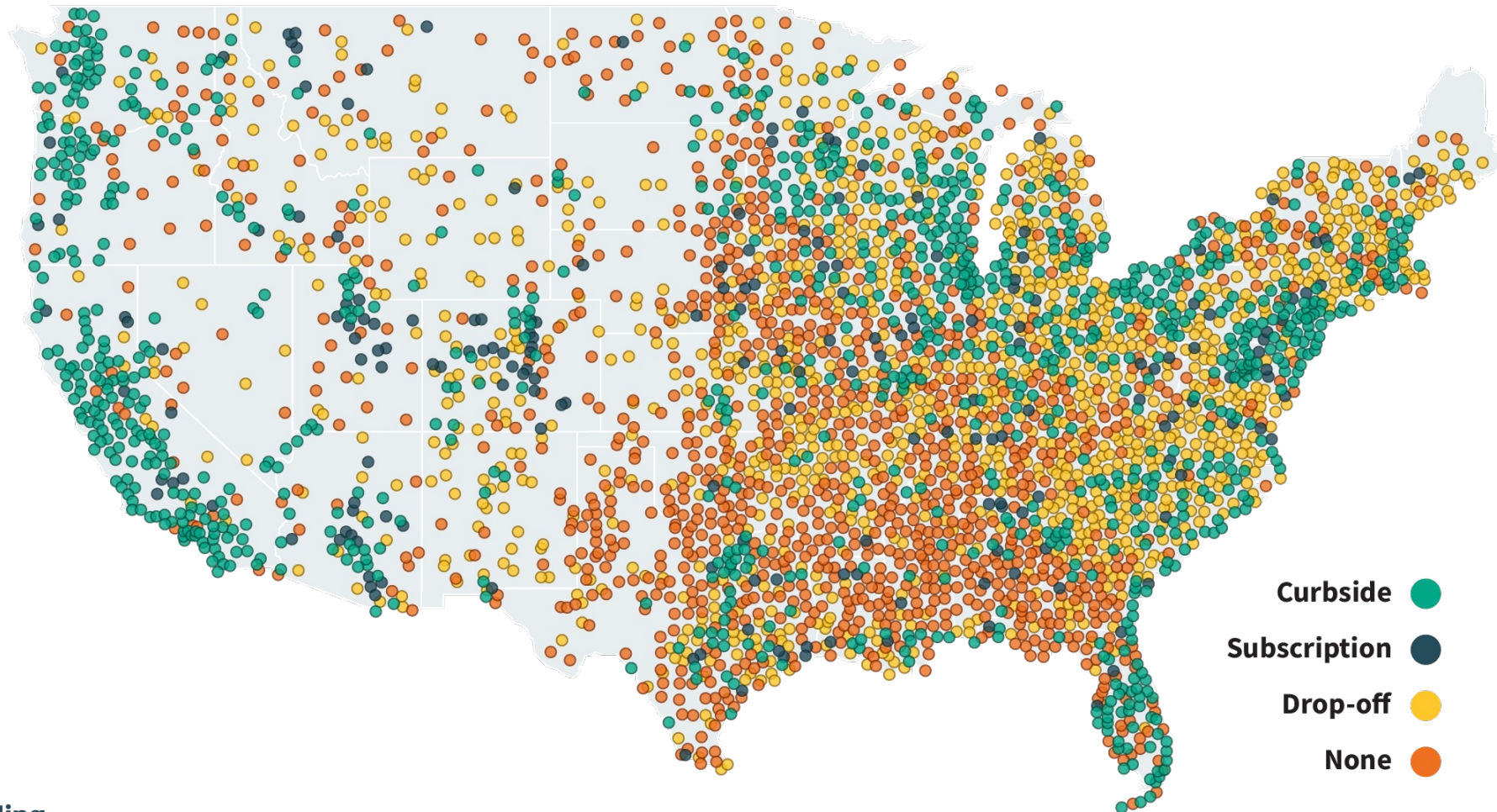


**Innovate for a Better System**



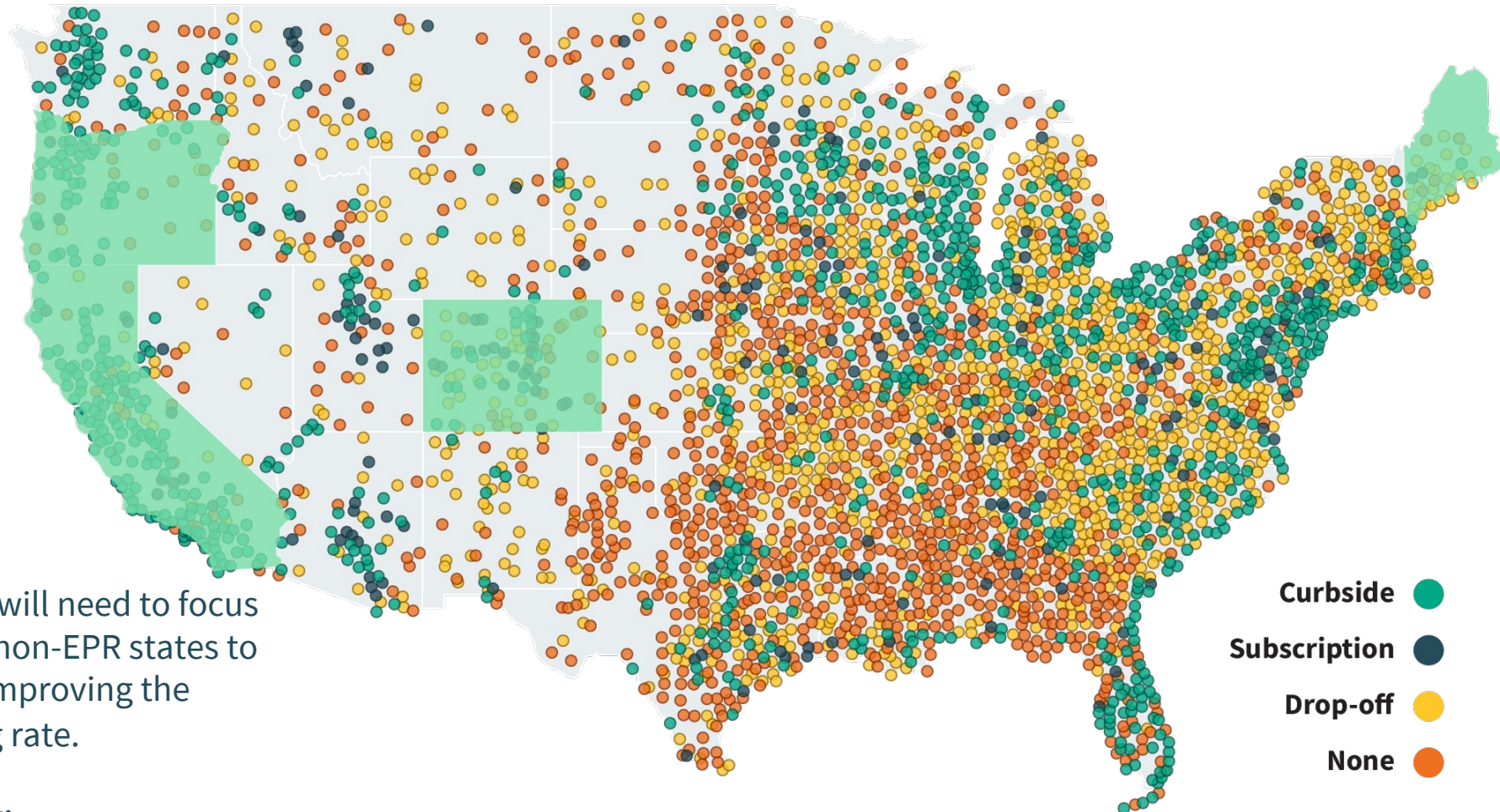


# 9,000+ programs | 30,000+ communities





## States that have passed EPR represent just 15% of the U.S. Population



The Partnership will need to focus on both EPR and non-EPR states to be successful at improving the national recycling rate.

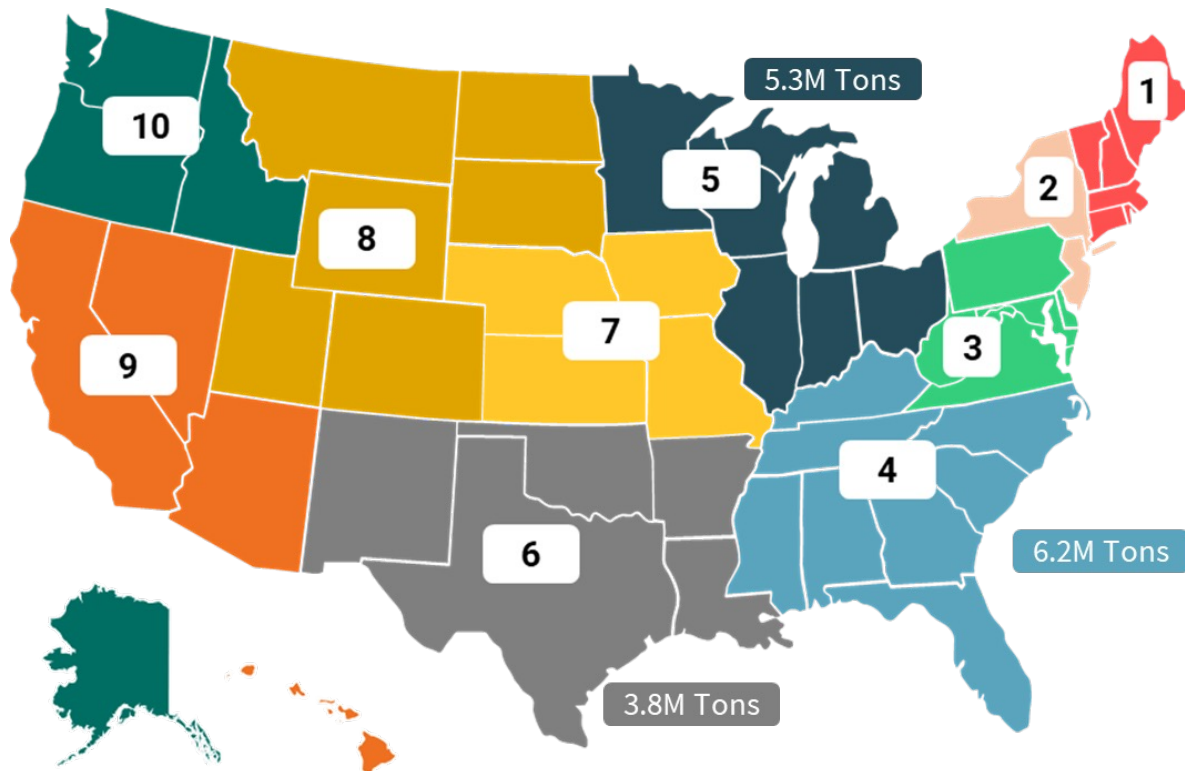




# Which Regions Have Strongest Opportunity?



Regions without policy have the largest opportunity to capture tons and improve the national rate.



EPA Region	Lost Tons Per Year (M)	Est. Region Recycling Rate
4	6.2	18%
5	5.3	23%
6	3.8	17%
3	3.1	20%
2	2.1	29%
9	3.3	36%
7	1.6	15%
8	1.2	15%
1	1.4	28%
10	1.2	28%



# Technology for MRFs





Computer vision to identify broad categories of materials to specific items

- ✓ Retrofit or new equipment buying decisions
- ✓ Staffing and operational decisions
- ✓ Specific-educational guidance



### Resources

- [www.greyparrot.ai](http://www.greyparrot.ai)
- [www.endwaste.io](http://www.endwaste.io)
- [www.everestlabs.ai](http://www.everestlabs.ai)
- <https://binit.ai/>
- [www.max-ai.com](http://www.max-ai.com)
- [www.amrobotics.com](http://www.amrobotics.com)
- <https://wasterobotic.com/>





- ✓ Ideal for quality control
  - ✓ Capture a new commodity
  - ✓ Capture commodities recycled the wrong way
- ✓ Space requirement easier than optical, etc.
- ✓ High quality sorting during difficult labor markets
- ✓ Reduce downtime and increase revenue with operational adjustments



- X Space concerns
- X Speed of belt
- X Incline of belt
- X Width of belt & burden depth







- Tools for fighting contamination
- MRF Contracting Guide
- Material-specific MRF assistance
  - Polypropylene
  - Used-beverage cans (UBC)
  - PET
  - Film and flexibles
- General MRF assistance

**The Recycling Partnership**  
SOLVING FOR CIRCULARITY

Recycling in the U.S. cannot succeed without a healthy and efficient MRF system. The Recycling Partnership's *Scaling Up Estimates* report estimates the U.S. needs \$3 billion to upgrade and expand MRF infrastructure. The Partnership is working hard to drive that investment by engaging with facilities around the U.S. to provide assistance in support of improving operations, enhancing business models, and ensuring communities have access to processing capacity.

**Community MRF Assistance**  
The Partnership's expert staff is always grateful to receive the MRF operator perspective and can help explore ways to support a facility's long-term success. Understanding the significant interdependent relationship between public recycling programs and materials processors, we provide resources to aid community processors, we provide resources to aid win relationships with the MRFs receiving their materials. To learn more about the Partnership's MRF Contracting Guide, visit [recyclingpartnership.org/MRF-Contracts](https://recyclingpartnership.org/MRF-Contracts).

**Material Specific MRF Assistance**  
Our MRF team works across commodities at MRFs, second and collaborative granting process.

**Polypropylene Recycling Coalition**  
Polypropylene (PP) packaging is prevalent in the household material stream and has an increasing solid and consistent market value. The Partnership Polypropylene Recycling Coalition has provided dozens of MRFs across the U.S. with grants to support equipment upgrades allowing for PP sortation. To learn more about the grants and technical assistance available, visit: [recyclingpartnership.org/polypropylene](https://recyclingpartnership.org/polypropylene).

**PET Recycling Coalition**  
A new initiative of The Partnership, this coalition will optimize capture of PET bottles in MRFs. Revenues from this core material stream and non-bottle PET is emerging as a profitable material and an increasingly important. To learn more about the grants and technical assistance available, visit: [recyclingpartnership.org/pet-recycling-coalition](https://recyclingpartnership.org/pet-recycling-coalition).

**Controlling Contaminants**  
Understanding the importance of a clean, commodity-rich inbound stream, we have proven strategies to reduce contaminants at the household level, so that MRFs get more of what they want and less of what they don't. In addition to providing [free toolkits and resources](https://recyclingpartnership.org/resources), we work to assist communities with cleaning up their inbound loads. The Partnership also established The Center for Sustainable Behavior & Impact to drive measurable improvement in residential recycling behavior and mobilize household participation in the circular economy. The Center's combination of research, data collection, testing and best practice sharing will enable us to spur meaningful improvement in recycling behavior thereby driving improvements to the quality and quantity of the residential recycling stream.

**Partnering in Measurement**  
The Recycling Partnership is a data-driven and research-backed organization, and we work every day to increase our understanding of residential materials generation and the portfolio of inbound materials at MRFs across the country. This work can be used to help inform and prioritize anti-contamination messaging as well as MRF decision-making around investments. As the technology landscape continues to evolve in the recycling industry, so does material data capture. Connect with us about our bespoke material composition grant using artificial intelligent scanners to create data profiles on your facility's material stream.

**General MRF Assistance**  
Our MRF and facility grants are not limited to the above material streams. Want to talk about a grant at your facility? Have a retrofit or a new build on the horizon? Reach out to us to see how our grants can assist.

**For more information contact:**  
Spence Davenport, Director of MRF Advancement  
[sdavenport@recyclingpartnership.org](mailto:sdavenport@recyclingpartnership.org)

**The Recycling Partnership**  
SOLVING FOR CIRCULARITY

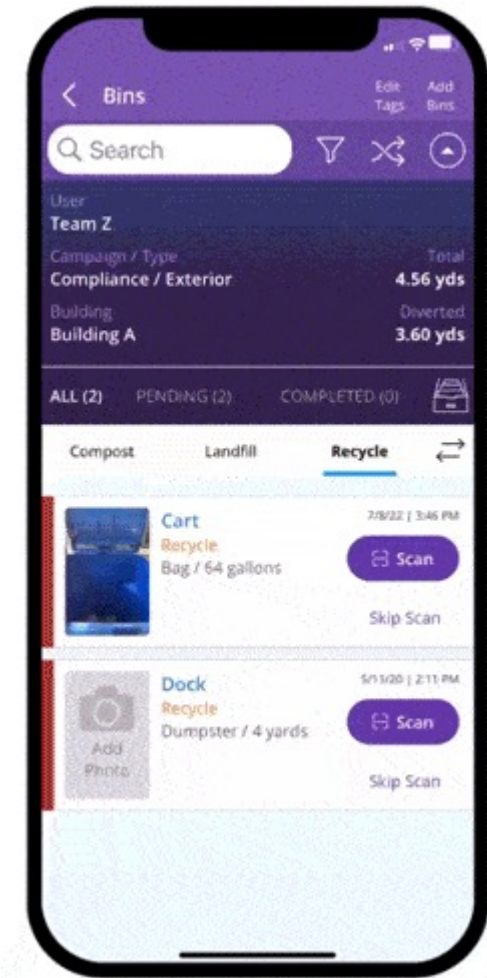
# Technology for Measurement







- ✓ Powerful, data-driven
- ✓ No development time
- ✓ Volume & materials data from photos
- ✗ Staff time
- ✗ Operational costs





- ✓ Remote quality control
- ✓ Re-routing efficiencies
- ✓ Collection efficiencies
- ✗ Adding contaminants
- ✗ Interior-container color







- ✓ Ideal for roll-off containers
- ✓ Reduce collection & labor costs
- ✓ Collection schedule recommendations
- ✓ Efficient quality control
- ✓ Top issue reporting

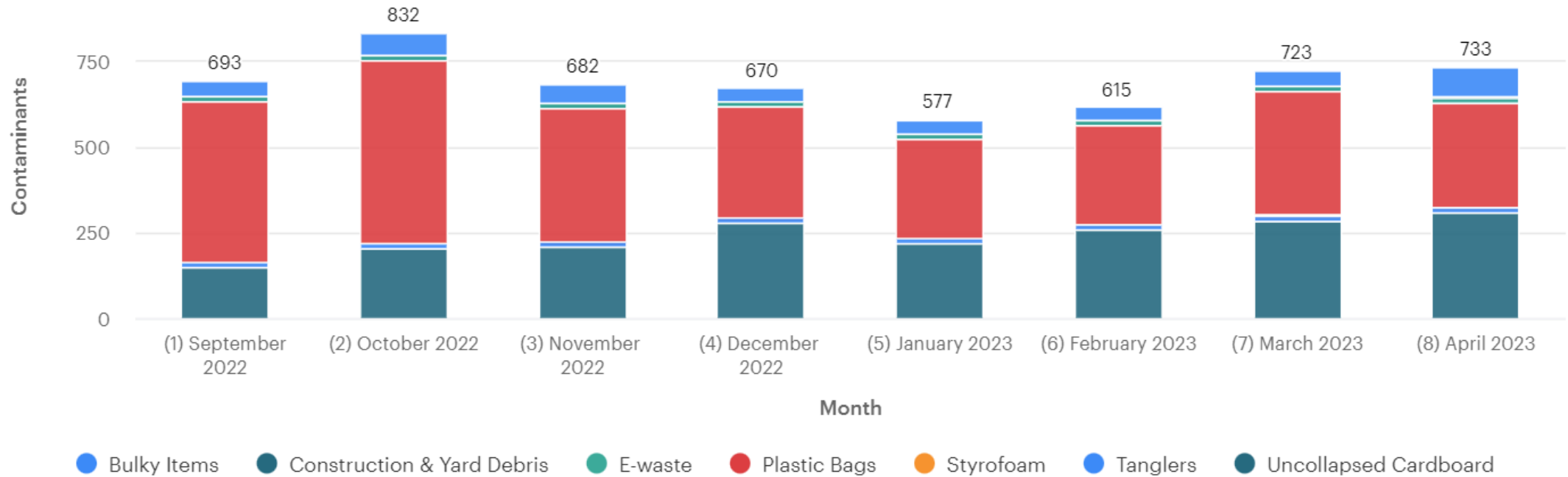
Container 08-3546



 65% Full



- X Contamination priority reporting
- X Site size (container movement during collection)
- X Data customization



# Technology for Single- Family Measurement







## Tagging and Tracking Outcomes



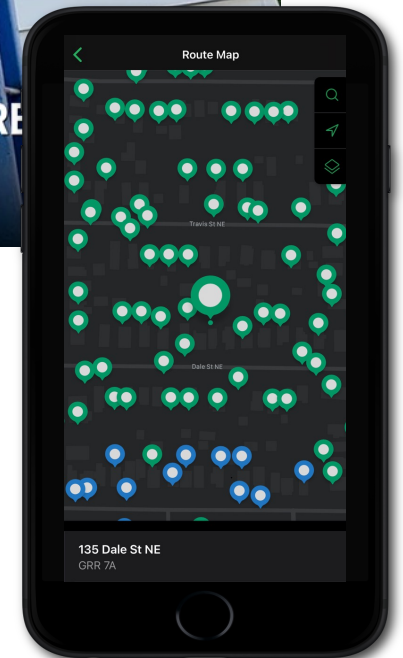
**40% reduction** in contamination



Improved **capture of recyclables**, less going to waste

## App generated lists

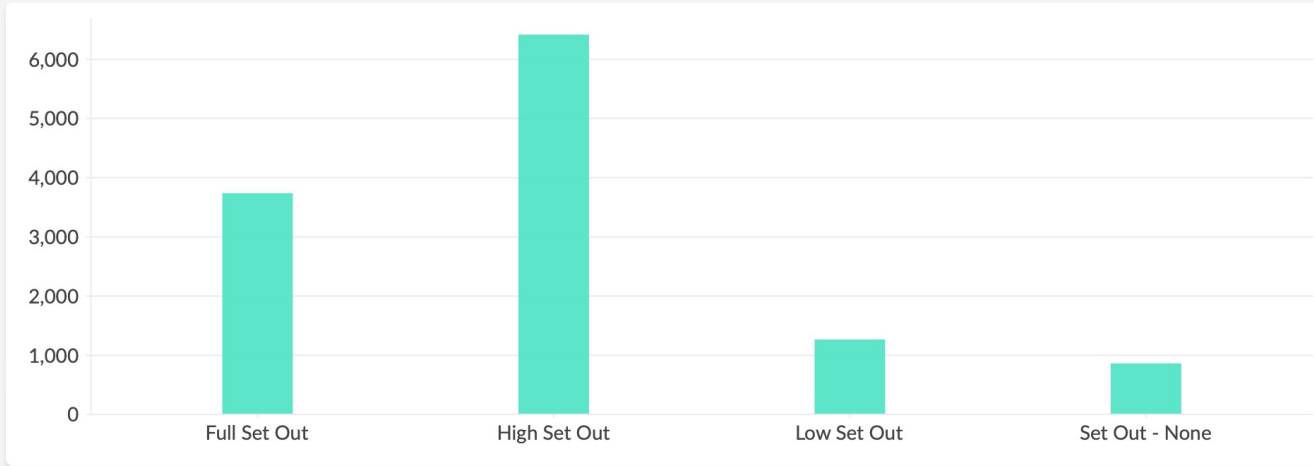
- Households that did not set out recycling for 8 weeks.
- Households that had contaminated carts three consecutive weeks







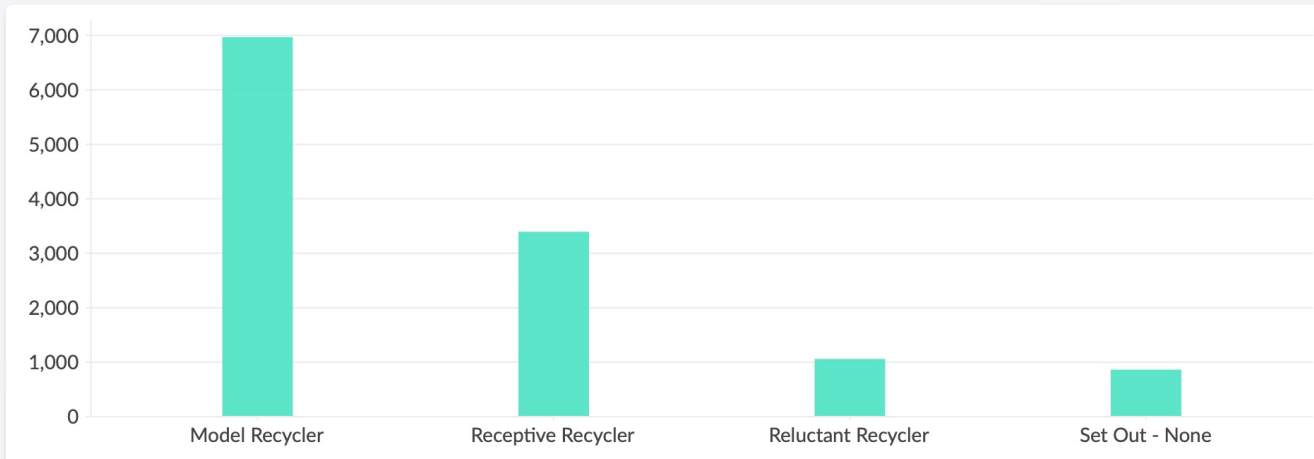
## Set-Out Portraits



- Full Set Out**  
Generator set out a container for all observations.
- High Set Out**  
Generator set out a container for more than half (but not all) observations.
- Low Set Out**  
Generator set out a container for less than half (but not 0) observations.
- Set Out - None**  
Generator did not set out a container for any observations.

*Portraits are calculated for the 12,238 generators that were observed on all passes.*

## Contamination Portraits



- Model Recycler**  
None of the generator's observed containers were contaminated.
- Receptive Recycler**  
At most half of the generator's observed containers were contaminated.
- Reluctant Recycler**  
More than half of the generator's observed containers were contaminated.
- Set Out - None**  
Generator did not set out a container for any observations.

*Portraits are calculated for the 12,238 generators that were observed on all passes.*



Camera in truck photographs contents of cart after tipped



Contaminants are identified and labeled



Postcard with photo sent to household



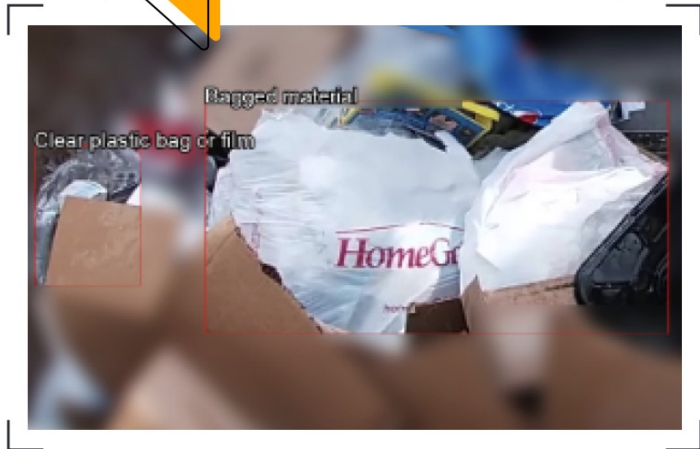
Measure for decrease in contaminated carts and determine effectiveness method





1 Using **artificial intelligence (AI)** on **trucks** to identify contamination

During your most recent collection – our team noticed the *incorrectly sorted items in your cart.*



2 Sending **standard and "moral nudge" mailers** to determine effectiveness

**DO YOU KNOW WHAT TO THROW?**

We need to **recycle the YES things** and **keep the NO things out.**



Scan to find out what's recyclable in East Lansing.

**517-337-9459**  
[cityofeastlansing.com/recycle](http://cityofeastlansing.com/recycle)

**ARE YOU WISHCYCLING?**



Scan this **QR code** to make sure you are recycling the right things and are helping to keep recyclables out of the landfill.

**517-337-9459**  
[cityofeastlansing.com/recycle](http://cityofeastlansing.com/recycle)





Local Recycling Program Dashboard with Customized Recommendations



Data-driven Localized Recycling Information on Packaging



Data-driven Actions to Optimize Access, Measurement, Engagement



**Demographic information**

\$85,812.00 Mean income per household About 0.8 times the U.S. rate (\$97,842)	19% Black, Indigenous and People of Color (BIPOC) About 0.4 times the U.S. rate (46.2%)	96% Occupancy rate Close to the U.S. rate (99%)	34% Bachelor's Degree About 0.3 times the U.S. rate (106.4%)
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**Your program's impact**

6,175 tons of recyclables captured per year	13,523.25 tons of CO <sub>2</sub> saved per year	43,225,000 gallons of water saved per year
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**Recommendations**

The Recycling Partnership  
Home Geographical Overview Resources FAQ SIGN IN SIGN UP

## Improve, and enhance your recycling program.

We help community managers and teams to improve, share, exchange, and enhance the recyclability in their communities.

GET STARTED

- Compare recycling programs
- Explore national data
- Access free resources
- Receive customized recommendations

The Recycling Partnership  
Center for Sustainable Behavior & Analytics  
Foundational Auditor Segmentation Research S

**Why This Matters**

The Auditor Segmentation Research S is a foundational research project that provides insights into the recycling behaviors of different segments of the population. This information is critical for developing targeted recycling programs and policies that can effectively reduce waste and increase recycling rates.

**My Courses**

- How to Guide
- Mini Course
- Mini Course
- Mini Course
- Mini Course
- Mini Course

eschsulser schusler  
Does anyone have ideas for reducing contamination without using cart tags? I don't

eschsulser schusler  
Check out our new video to remind people what to do with their plastic ba

eschsulser schusler  
Type @ to mention another member in your comment

**RECYCLE**

Cans  
Aluminum & Steel Cans

Glass  
Bottles & Jars

Paper & Cardboard  
Magazines, Books

Plastic  
Bottles & Containers

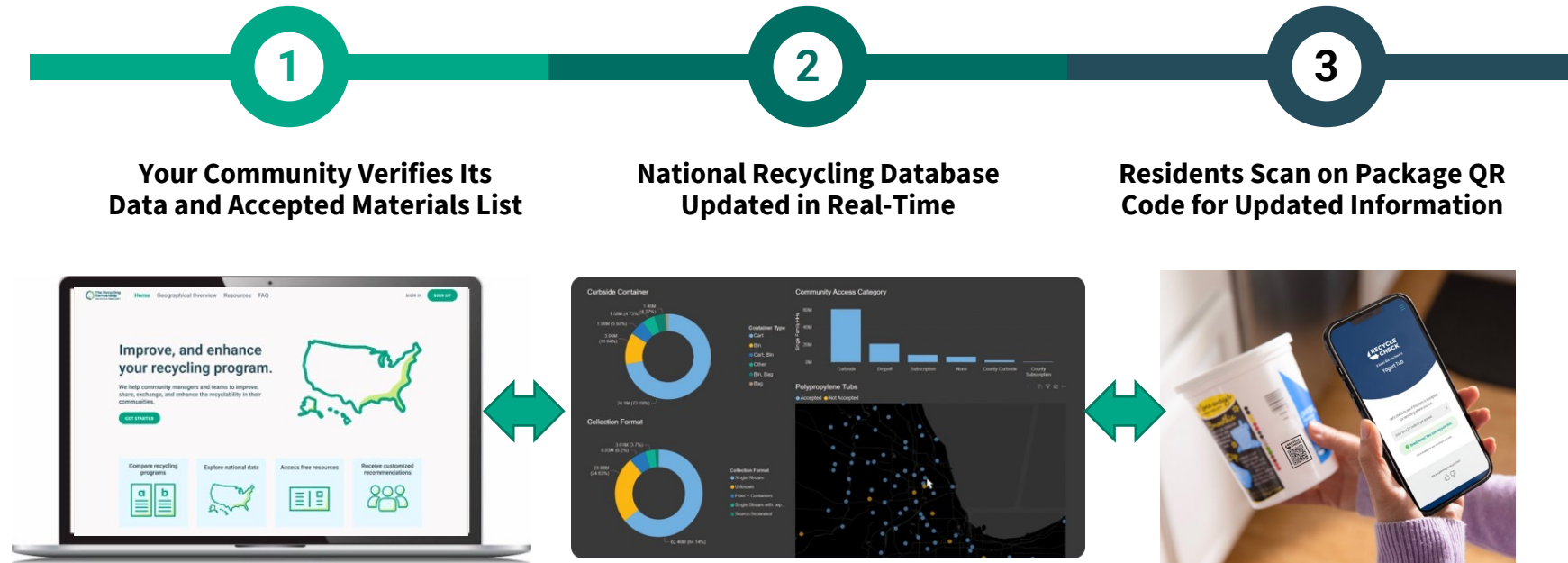
www.recycle-sample.com 123.456.7890

Launching Spring 2023



## Informing Labeling and Communications on Packaging

# Driving Behavior Change with Dynamic Information on Packaging and in Your Communities





Connect with US!





# Thank You to Our Partners!



Get in Touch:

# Craig Wittig

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 [recyclingpartnership.org](https://recyclingpartnership.org)



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