



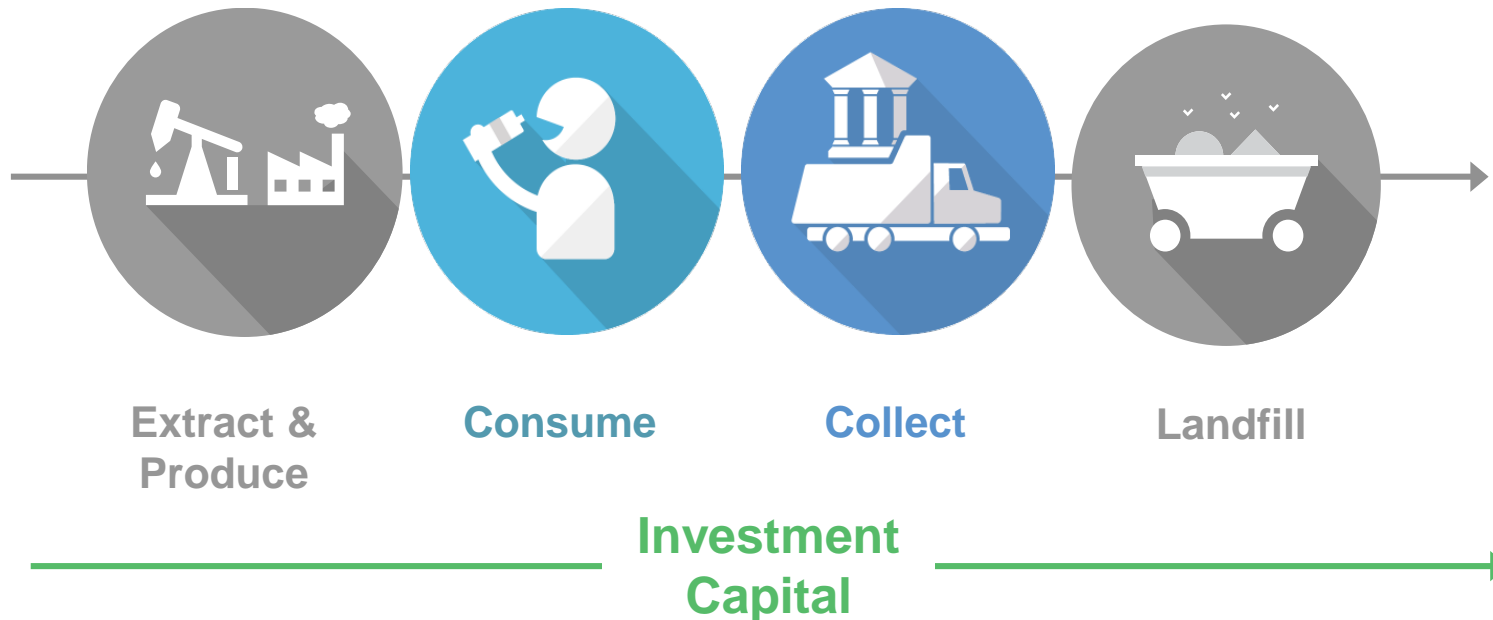
C L O S E D
L O O P *fund*



How will we make “Closing the Loop” a reality?

Linear supply chains cost us too much

Linear Supply Chains



\$5.4 Billion

To landfill recyclables, food, clothes, and electronics

\$80-120 Billion

plastic packaging material value lost to the economy

100s of Millions

MTs of GHG Emissions Produced

A more circular supply chain creates value across the system

Circular Supply Chains



- Creating new markets for low value materials
- Processing to improve quality of material

- Increasing access in Recycling Deserts and substandard recycling areas
- Modernizing MRFs and expanding capacity

We invest in infrastructure and innovation to scale circular supply chains

INVESTMENT

Closed Loop Fund

Project finance focused on building circular supply chains in North America

Closed Loop Ventures

Seed stage, market rate venture capital investment in disruptive circular technologies and business models



INNOVATION

Closed Loop Foundation

Research and development grants and reports focused on identifying key bottlenecks and solutions



Center For Circular Economy

Incubator, convening center and solution search practice focused on the circular economy.

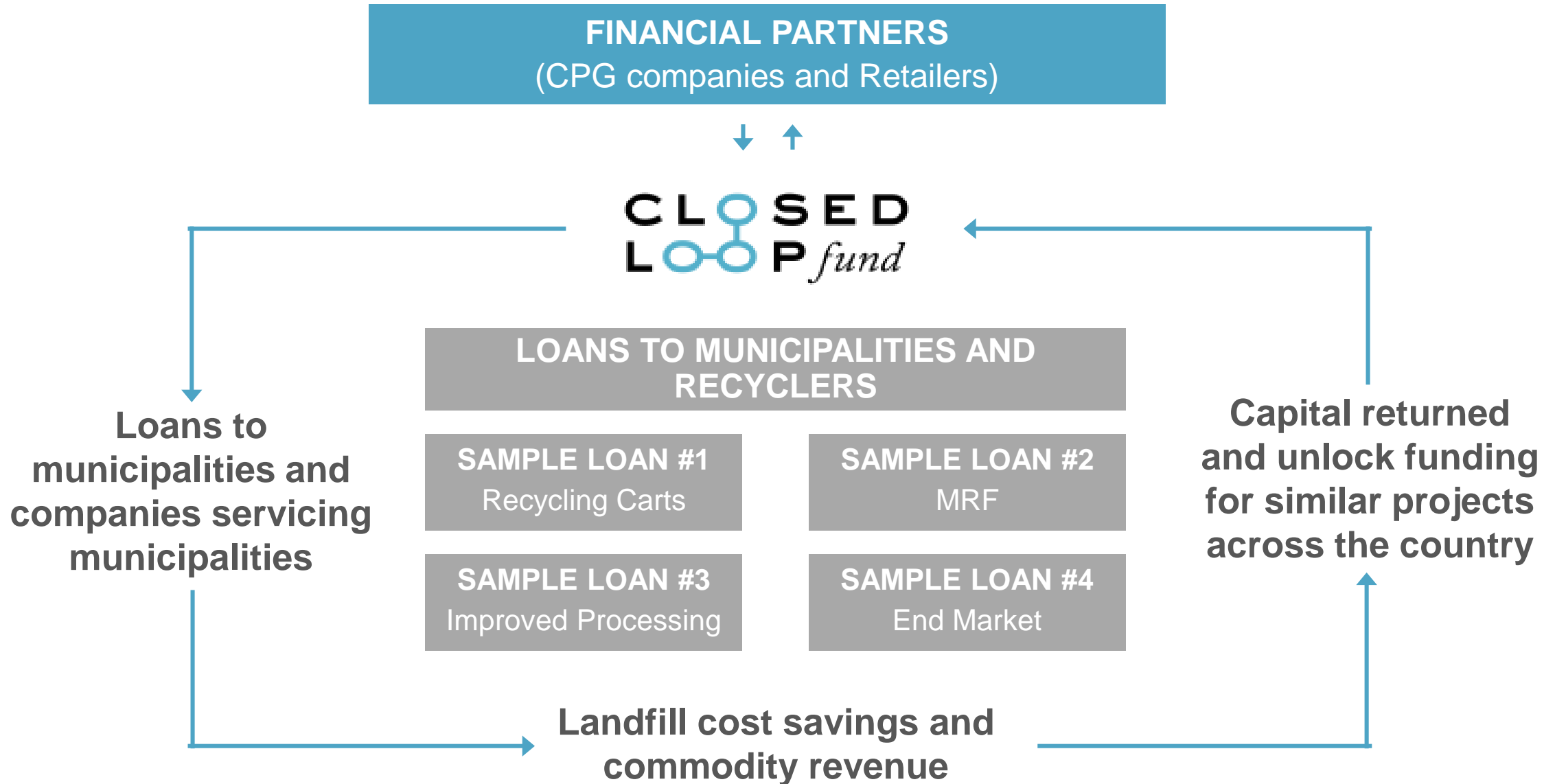


The Closed Loop Fund is a social impact fund investing \$100M to increase the recycling of products and packaging.

Investors include:



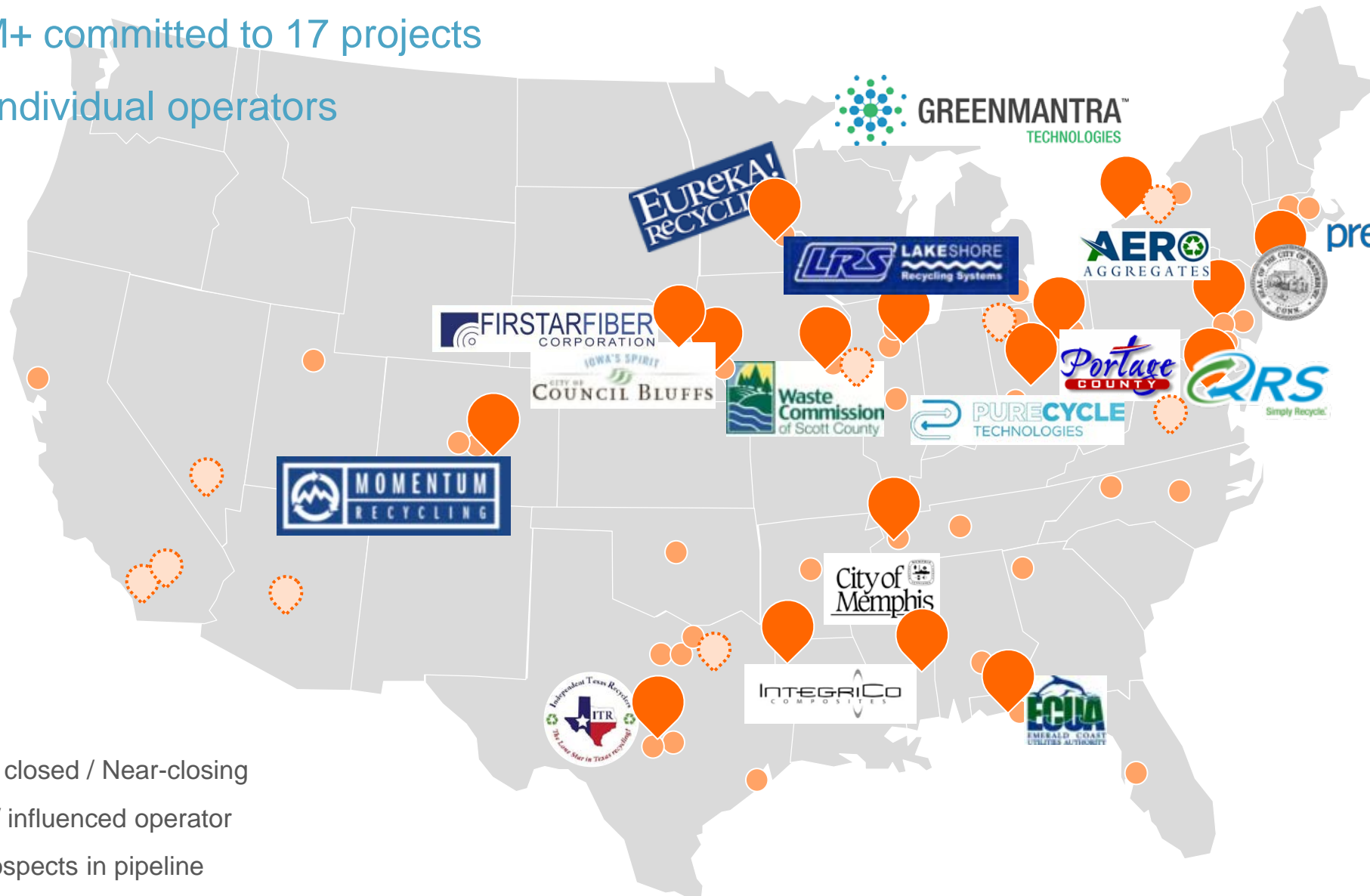
Closed Loop Fund Structure



**The world today looks a lot different than it did in
2015...**

CLF's First Investments: From Collections to Manufacturing

- \$40M+ committed to 17 projects
- 70+ individual operators



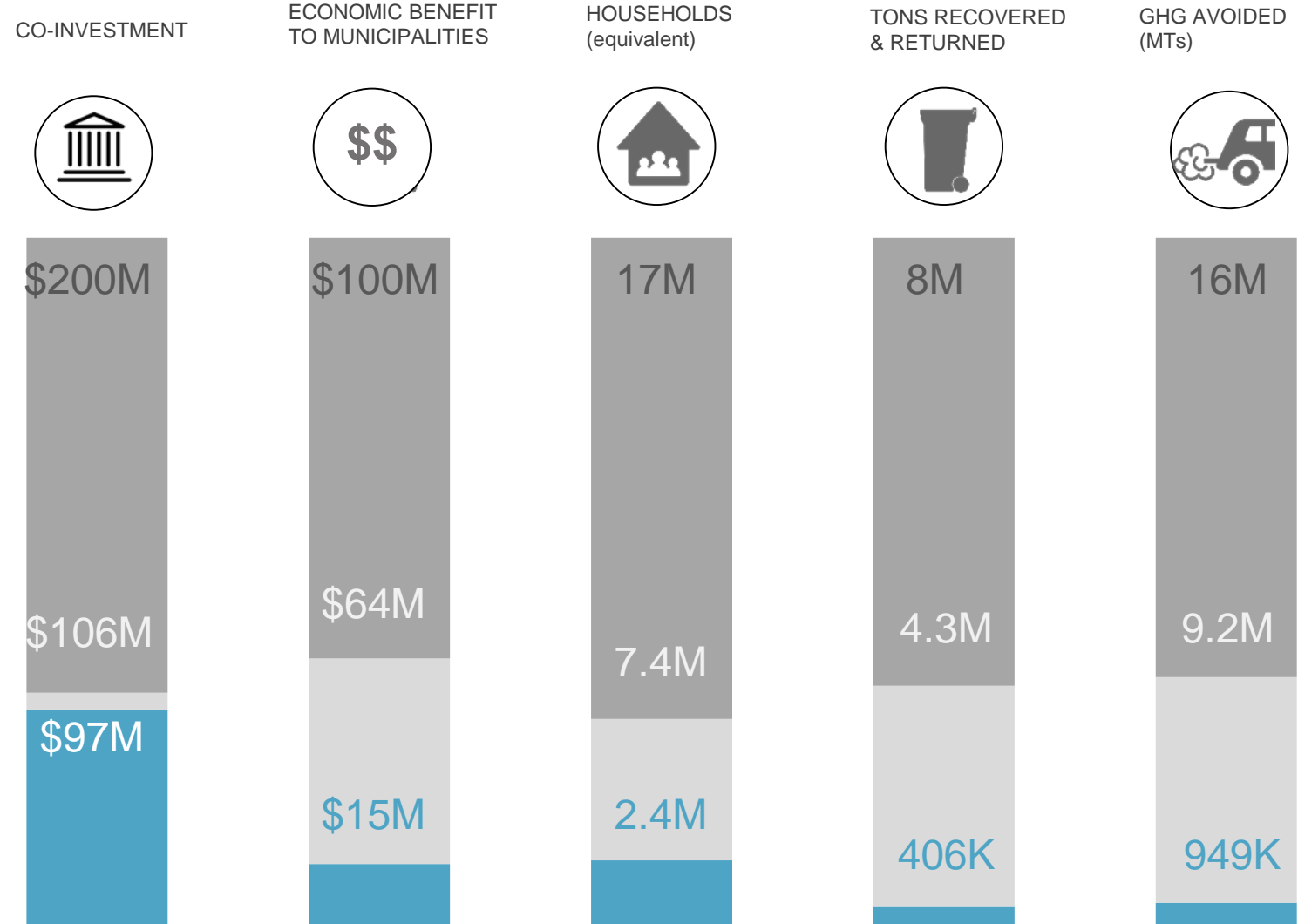
● Export markets (e.g., Canada)

- CLF Deal closed / Near-closing
- Affiliated / influenced operator
- Active prospects in pipeline

We are making progress

By 2025, we will expect to achieve at least...

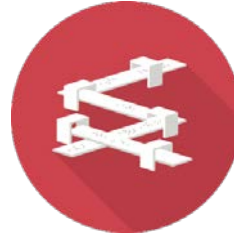
With \$40M deployed in 17 projects...



Investments are driving positive economics across the system



Collection



Sortation



Processing ► End use



105,000 new recycling carts;
165,000 tons / 10 yrs;
463,000 GHG MTs / 10 yrs



Advanced recycling facility for
Chicagoland area
1.1m tons / 10 yrs;
3.3m GHG MTs / 10 yrs



Uses mixed, waste plastics to
produce railroad ties;
184,000 tons / 7 years;
209,000 GHG MTs / 7 yrs

What Have We Learned About Our Value to the System?

**CLF Fund
Performance**

Financial Returns

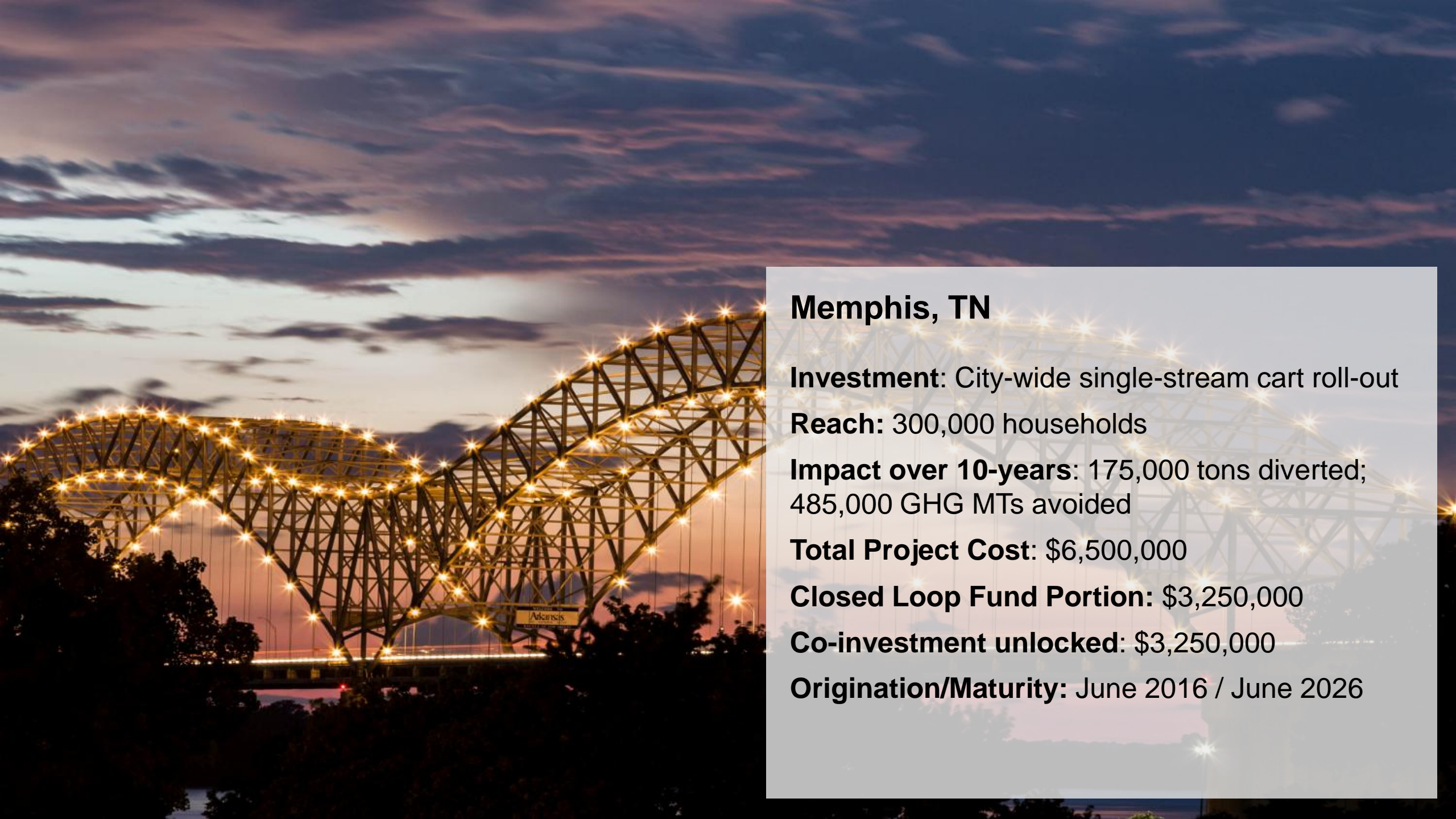


Value of System Solutions

Increased Recycling

**Supply Chain
Optimization**

Catalytic Capital



Memphis, TN

Investment: City-wide single-stream cart roll-out

Reach: 300,000 households

Impact over 10-years: 175,000 tons diverted;
485,000 GHG MTs avoided

Total Project Cost: \$6,500,000

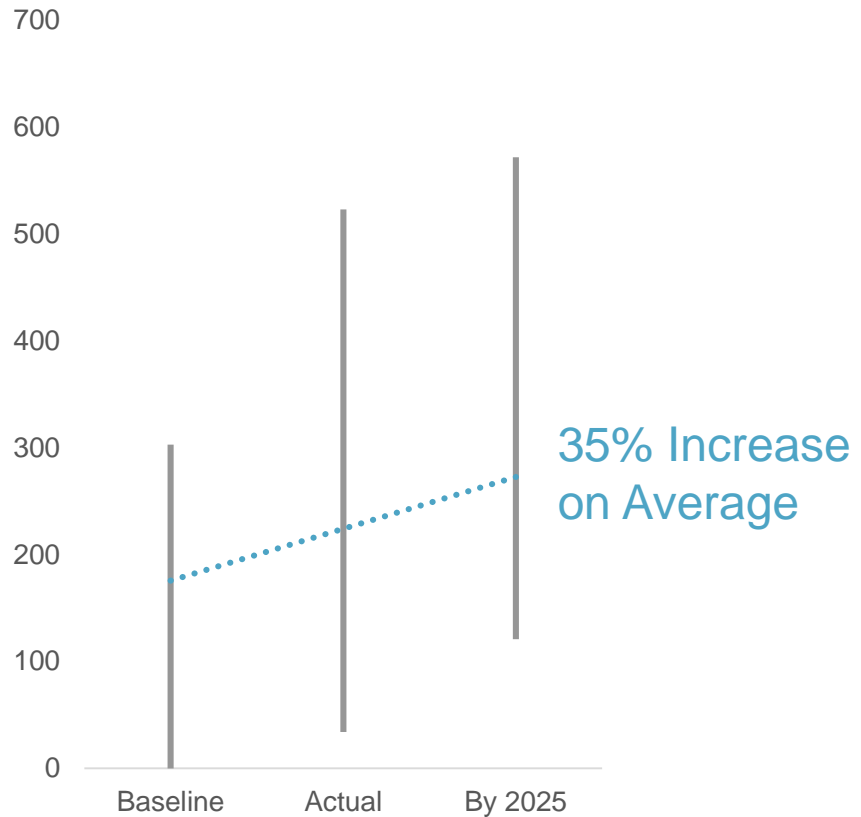
Closed Loop Fund Portion: \$3,250,000

Co-investment unlocked: \$3,250,000

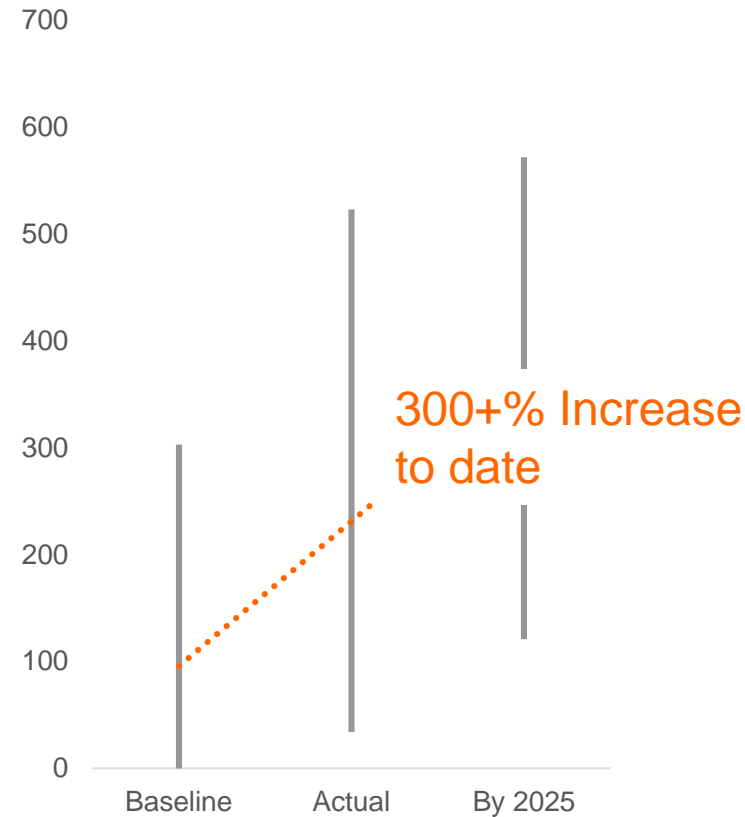
Origination/Maturity: June 2016 / June 2026

Memphis has seen a significant increase in Recovery Per Household

Annual Lbs. Recovered CLF Portfolio



Annual Lbs. Recovered Memphis, to date



Prior to the citywide rollout of 100K+ curbside carts, they collected a **baseline of 80 lbs/hh** of recycling.

In the past year, the City has seen a lift of **an additional 180 lbs/hh** of recycling collected.

Key Insights | Memphis



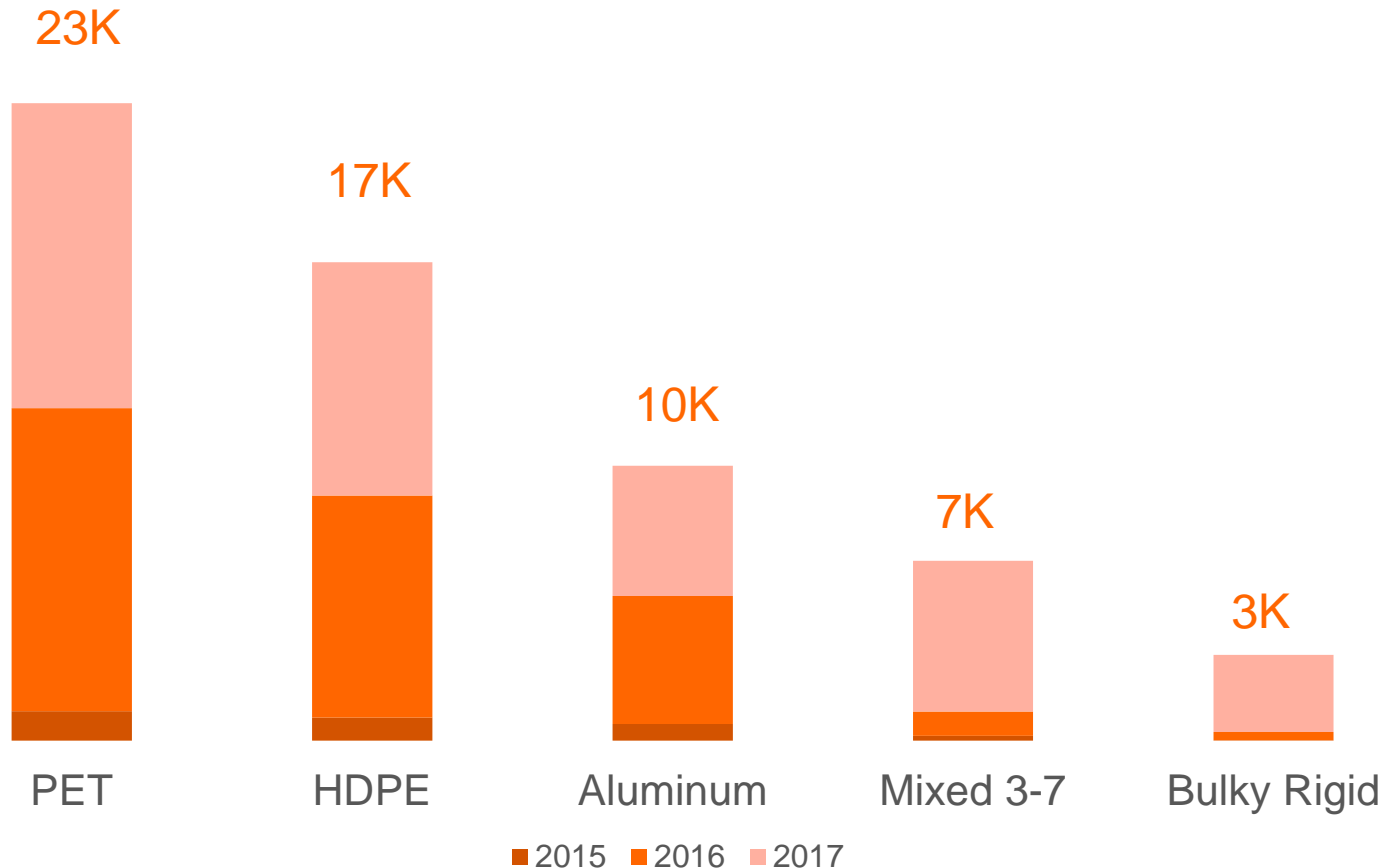
1. Public leadership and commitment is essential

2. Money alone will not solve the problem

3. Stick with it

Portfolio focuses on returning **key materials** to supply chains

Tons Recovered and Returned to Supply Chains CLF Portfolio (2015-2017)

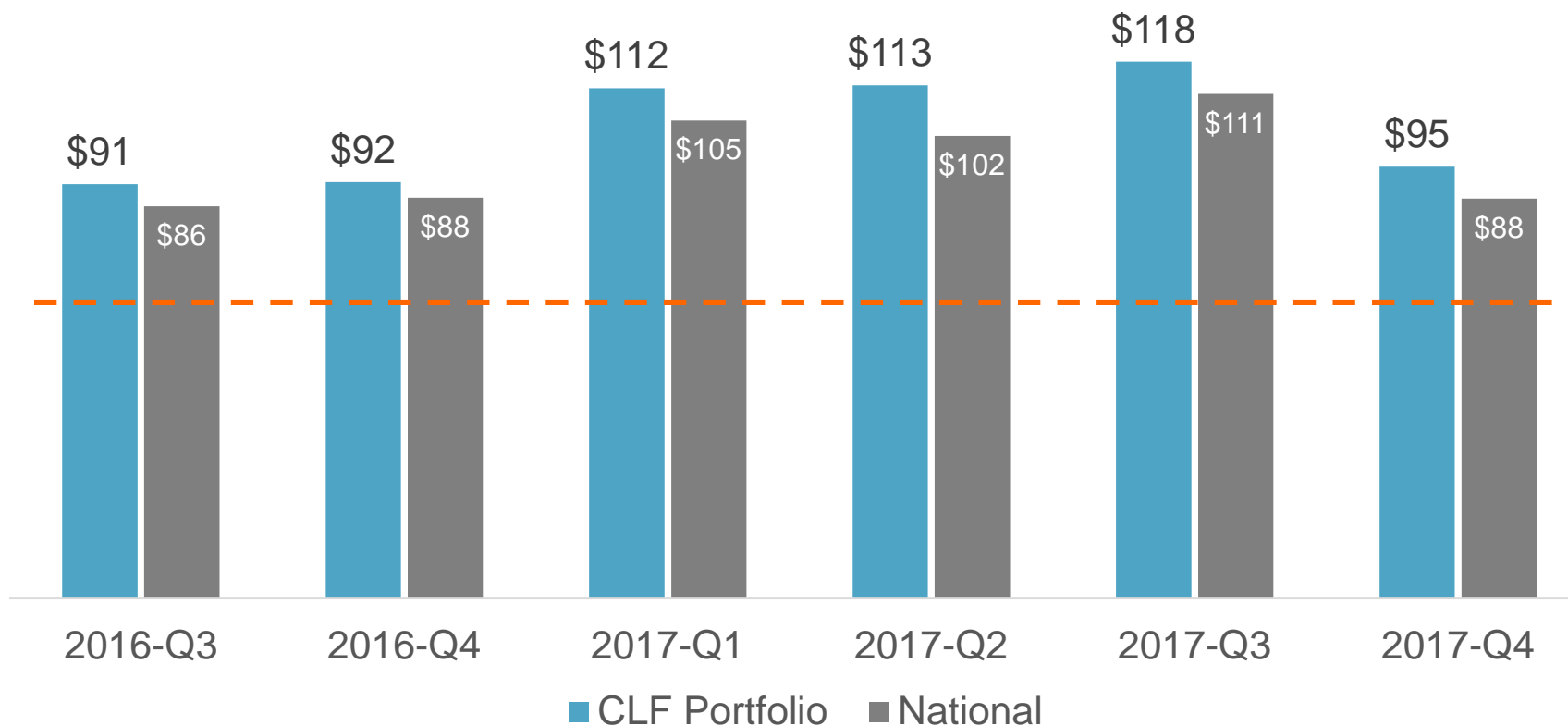


For every \$1 invested, we will see:

- **220 lbs.** of all recyclable material types
- **40 lbs. plastics**
- **4 lbs. PET**

CLF Portfolio has historically outperformed national average “basket” commodity values

Blended Average \$/ton, by Quarter
CLF Portfolio versus **National Average**



- Average processing cost: ~\$70/ton
- Declines in commodity pricing have continued in 2018

Investments are demonstrating opportunity to improve supply chains for **Single Stream Glass**



Collections



Sortation



Processing



End Use



- Upgraded SS MRFs in Chicago, IL
- Sorting 100,000+ tons of SS/year
- ~ 1,000 tons/mth of glass
- Glass revenue: \$10/ton

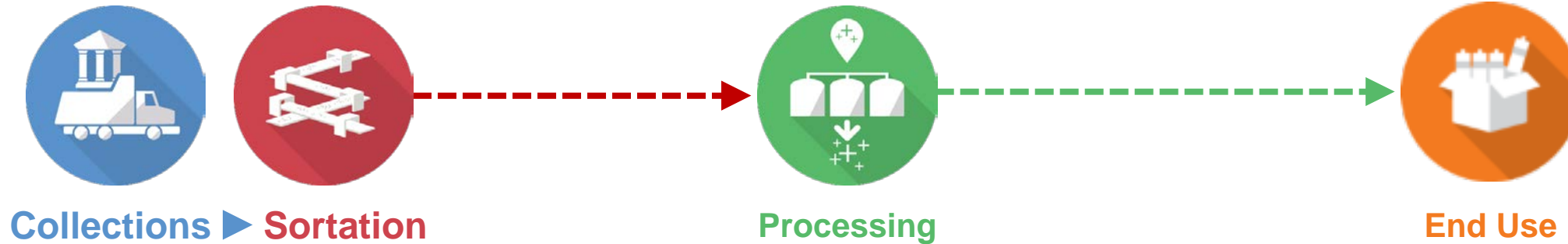


- New glass processor – only one in CO
- Processing 75,000 tons of SS MRF glass/year
- Marketing to bottlers, fiberglass, abrasives



- New manufacturer of foamed glass aggregate in Eddystone, PA
- Using 35,000 tons of PCR glass feedstock/year
- Marketing to construction (e.g., PENNDOT)

Investments are demonstrating opportunity to improve supply chains for **Single Stream Mixed Rigids**



Brand owners like



CLF Portfolio MRF

- Mixed rigid bales from Minneapolis-St Paul, MN
- Contamination: <10%

CLF Portfolio Processor

- New plant in Ohio
- FDA-grade clear/natural PP pellet from post-consumer resin

CLF Investor

- Packaging made with higher % of PCR

Key Insights | Supply Chain



1. Long-term relationships with domestic markets are critical

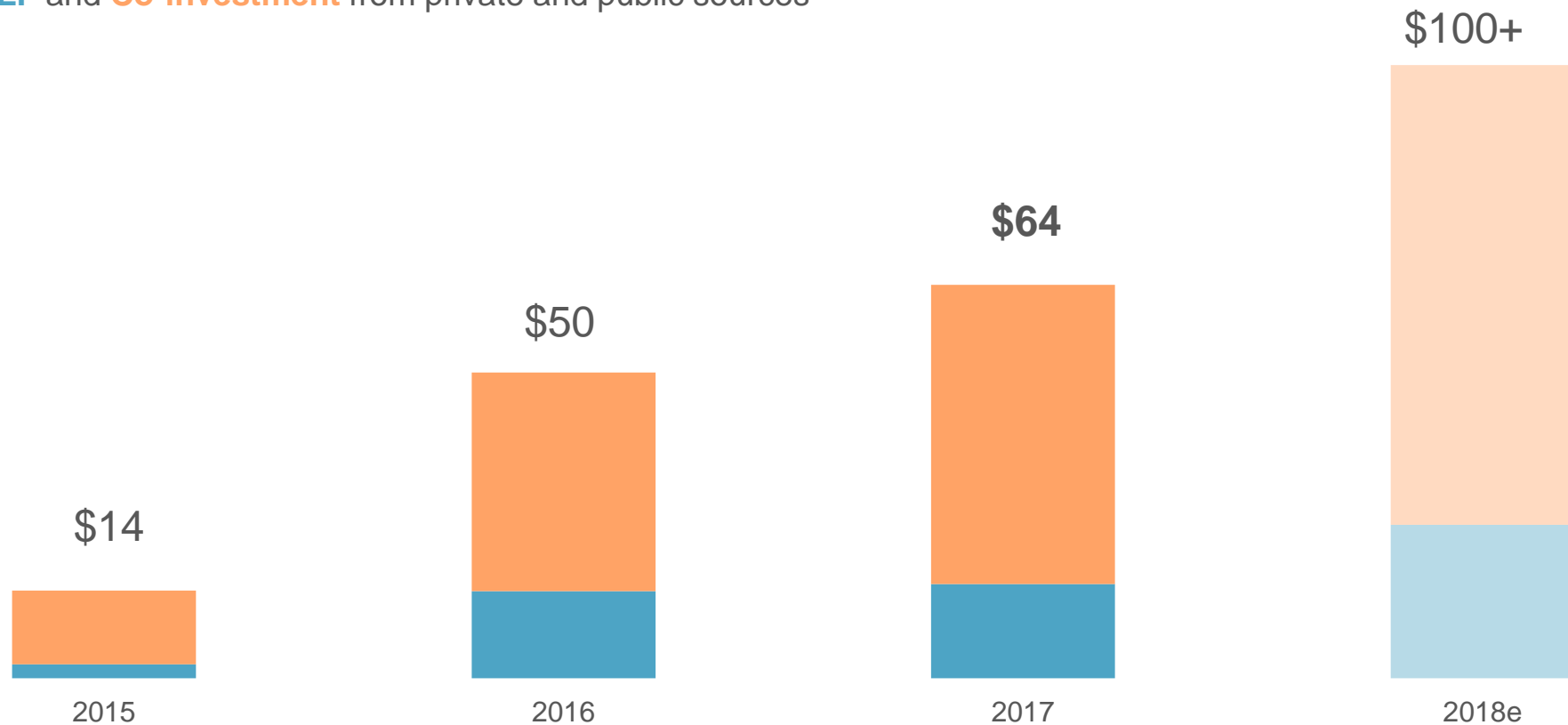
2. Value needs to be created across the system

3. “Connecting the dots” will help infrastructure scale faster

For every \$1 CLF invests, we achieve **\$3 in co-investment** from private and public sources

Capital deployed (\$ millions), by year

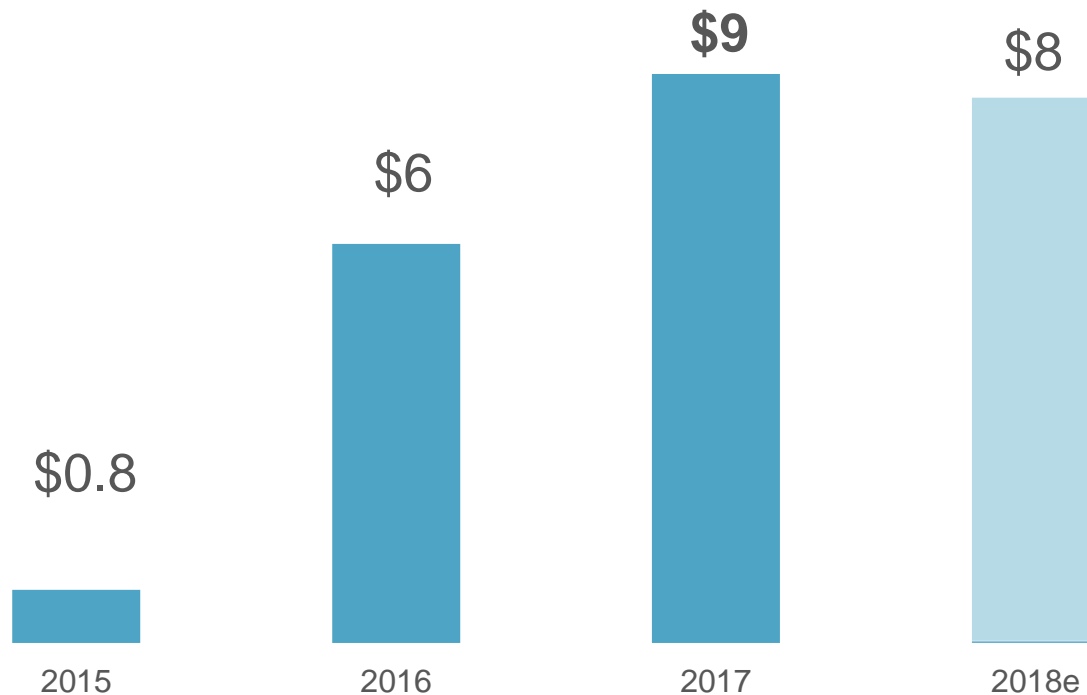
CLF and Co-investment from private and public sources



Investments have generated more than **\$15 million in economic benefit** to communities

Economic benefit (\$ millions)

Includes new revenue and savings realized by municipalities and wages from new jobs created



- **\$1** from CLF = **\$2.40** in direct revenue and savings by 2025
- **Avg. \$43/ton** to municipalities
- **250+ jobs** created

We are partnering with state agencies and other funders to drive more capital for impact



- # of CT Households:
1.35 million
- Landfill tip fee (state avg.):
~\$70/ton
- DEEP grants to recycling:
\$95,000 (2016)

Opportunity: CT Department of Environment and Energy Protection (DEEP) and CLF have established a formal partnership to support recycling infrastructure

If we are successful:

- Efficient and coordinated deployment of high-impact capital
- Replicable model
- Stronger local markets through follow-on investments across the system

Key Insights | Catalytic Capital

1. We need different types of capital – and more of it

2. Communities can realize economic benefit in many forms

3. Cross-sector partnerships are creating more opportunities for impact

What can we do now?

We are making progress, but we have more to do

- We need to **resist** pressure to remove materials from SS programs
- Contamination adds costs throughout the system – Everyone needs to **pay attention** to quality
- Near-term: Get a better understanding of domestic markets; **rethink** relationships
- Mid-term: **Invest** to improve quality, vertically integrate and expand processing capacity

Each of us has a **role** to play

Investors

Invest strategically.

Municipalities

Collect more.

Recyclers and Brokers

Grow circular business models.

**Entrepreneurs and
Innovators**

*Solve more system
bottlenecks.*

Brands and Retailers

Design for circularity.

Plastics Manufacturers

Use more recycled material.

Enabling Partners

*Support with data, tools,
and research.*

