

Envision Charlotte:

Public, private, plus partnership, creating and implementing sustainable projects for Charlotte with measured results and replicable solutions.



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CHARLOTTE

WHAT IS THE CIRCULAR ECONOMY?

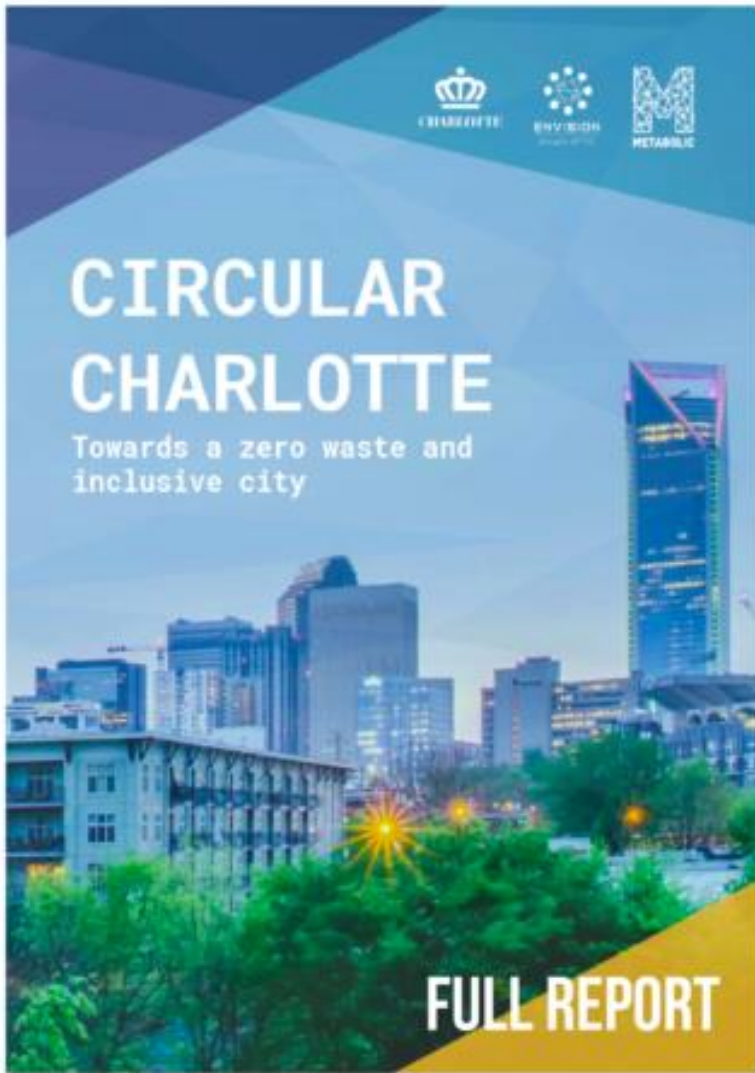
What is a circular economy?

Looking beyond the current take-make-waste extractive industrial model, a circular economy aims to redefine growth, focusing on positive society-wide benefits. It entails gradually decoupling economic activity from the consumption of finite resources, and designing waste out of the system. Underpinned by a transition to renewable energy sources, the circular model builds economic, natural, and social capital. It is based on three principles:

Design out waste and pollution

Keep products and materials in use

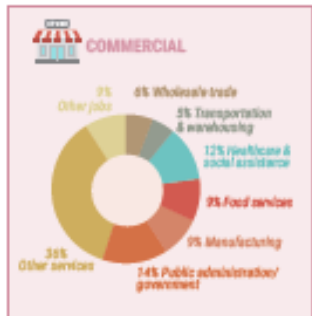
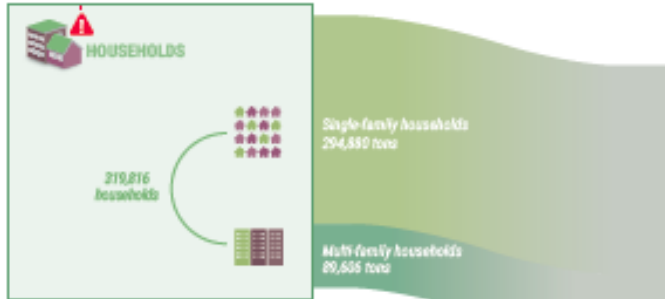
Regenerate natural systems



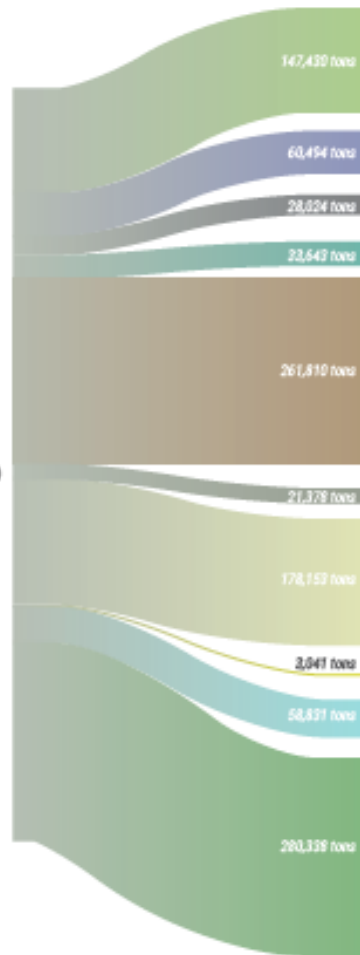
In 2018, Metabolic was hired to do a study and create a short and long term strategy for our city's transition to the circular economy.

CHARLOTTE'S WASTE FLOWS

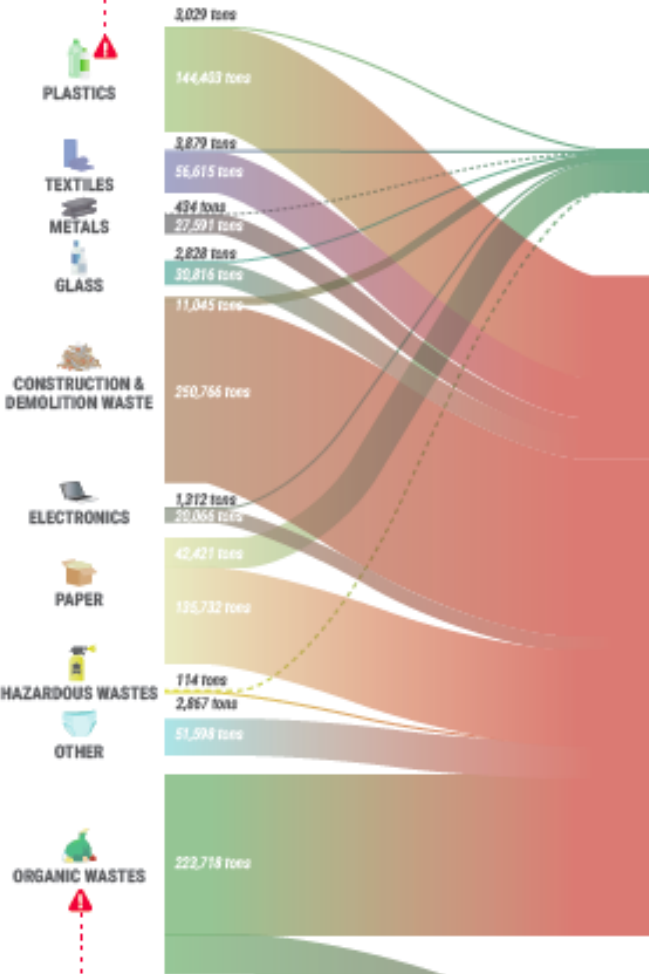
Lower recycling rates for multi-family households



TOTAL WASTE
(1,064,063 TONS)



HOPE & PET ending up in landfill despite regulations



Recycling program only costs \$7/ton, compared to \$33/ton for landfill

RECYCLING
(66,354 TONS)

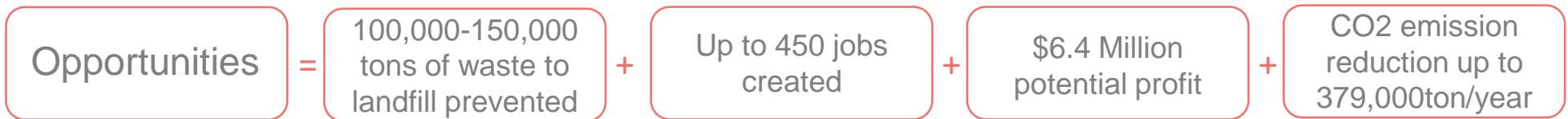
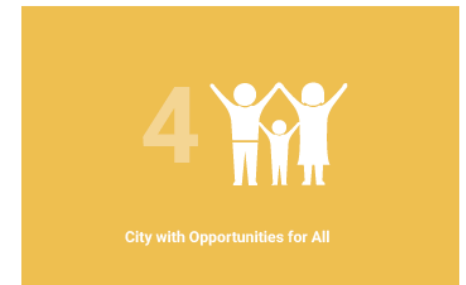
26.3% content could be recycled with existing programs

LANDFILL
(944,171 TONS)

COMPOSTING
(56,620 TONS)

Charlotte's transition to the Circular Economy

Short term focus areas:
Innovation Center (June 2021)
Plastics
Organics
Textiles
Concrete



Current curbside recycling has a success rate of only 11% in Charlotte and a national average of 35%

SmartC Recycling

Charlotte has over 147,000 tons of plastics in waste stream with only 3,000 tons being diverted

Project Goals

- Reduce contamination
- Control material destination
- Increase landfill diversion



Recycling Program - 3 Month Pilot program

Project concept

- Individuals opt in to recycling materials via a smart bag that they register online or app.
- They fill the bag and request pickup online or app.
- Bag is picked up and contents are examined for compliance and points.
- Individual receives new bag.
- Materials are baled and sold to Coca Cola Consolidated Partners

Components:

- Bags – bags have a tag that contains QR code and RFID chip and have clear instructions on what materials to include
- App/Website – Individuals have an account where they register their bags via QR code and track points/impact
- Logistics – Drivers pick up and drop off bags via dynamic routing
- MicroMrf – materials are baled at MicroMrf – sold to Coca Cola Consolidated Partners



Results/feedback

Bags –

- overall size was good, would like a hook to hang
- Pick up on average was every 3 weeks
- Bags were returned full, 1% contamination (40% current average)

App –

- Need to simplify too many steps for each action
- Registration needs to be easier
- Could be a website that is designed to be used on a phone, reduce cost/updates, more accessible
- Clarification of program ie new bags are dropped off when full ones are picked up and need to be registered. Could explore idea that bags are inspected and emptied at individuals home and same bag left.

Why did people participate –

- 97% Wanted to know materials were being recycled



SmartC Recycling Next Steps:

- Hyper focused micro mrf (materials recovery facility) process 25,000 households
- Continue plastic bottles and aluminum
- Add additional 'bags' for desired materials ie bubble wrap, air pillows
- Track and monitor
 - Equipment cost (less sorting)
 - Truck efficiency (smaller trucks, less road wear)
 - Contamination rates (self sorting)
 - Additional collections (typically not curbside recycled)



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