

Downtown Solid Waste Study

1

KNOXVILLE, TN

DRAFT FINAL REPORT
SEPTEMBER 14, 2023



Tasks Completed

2

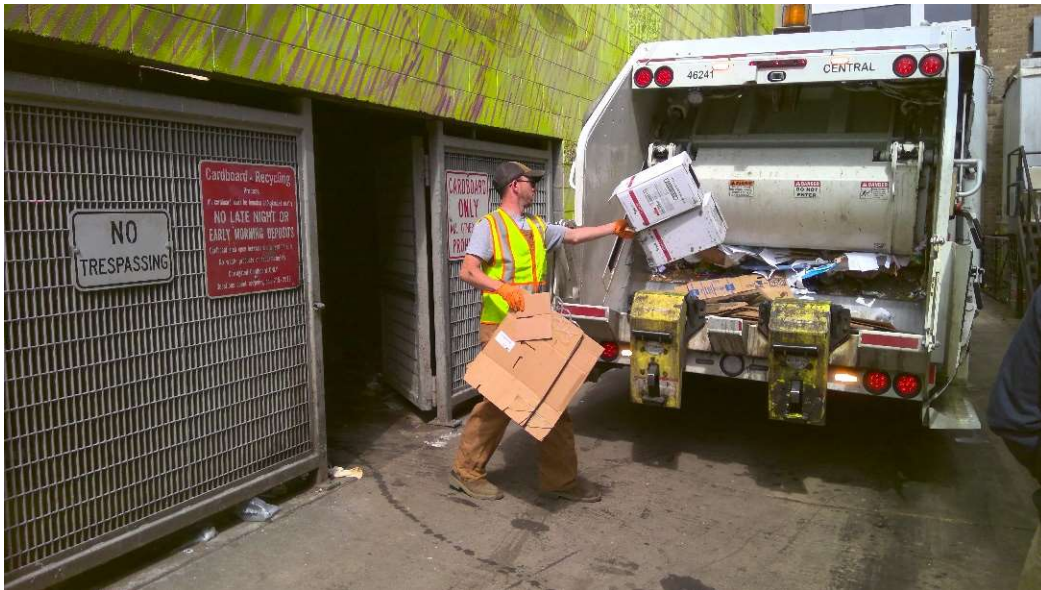
- Compile & Review Existing System Information
- Site Visit
- Focus Group Initial Input – 2 sessions
- Preliminary Customer Classification
- Baseline Cost Model
- Alternative Analysis

Overview of the Current System

3



Various corral styles – similar strategy could be taken for other shared containers



Open containers fairly common in corrals and alleys. OCC in trash cart.

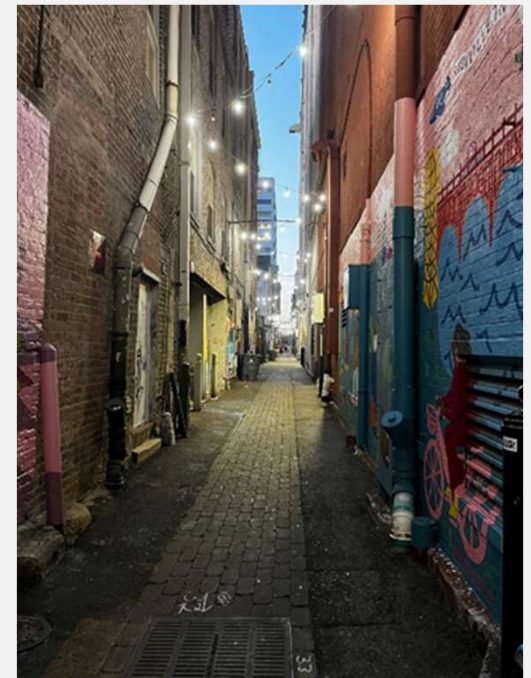
There are also several private containers observed in the Downtown area.



Key Findings

6

- It is labor intensive to service the number of roll carts and sidewalk containers supporting the large commercial district.
- Open carts result in litter and wet cardboard.
- Continued growth in downtown area makes cart option difficult.
- Corrals are aesthetically good option vs. numerous carts along the sidewalk.
- Several alleys are not wide enough for collection trucks or compactors.



Focus Group Meetings

7

- Alliance Location
 - 1 business & 3 residents
- Old City
 - 15 attendees, mix of businesses & residents
- 2 Follow-up interviews with others who could not attend



Current Cost of Service Analysis

8

Material Tonnage

9

Program	Disposal Facility	2022	2023
Downtown Garbage	Solid Waste Transfer Station	2,095	2,137
Downtown Recycling	Westrock	658	671
Total		2,754	2,809

Stream	Lbs./Cart/Collection*
Downtown Trash	21.64
Downtown Recycling	21.86 (includes OCC collected outside of carts)

**Low compared to weekly curbside collection, so assuming many are partially full or not in use or put out daily*

Full Cost of Service

10

Cost Center	Annual Revenue Need
Collection	\$557,676
Curbside Garbage	\$325,678
Curbside Recycling	\$231,998
Total	\$557,676

Alternative(s)

11

1. COLLECTION

2. REVENUE MECHANISM

Collection Alternative – Shared Compactors

12

- Establish shared compactor sites in multiple locations

Photos from other central
business districts



Self-Contained Compactors


13

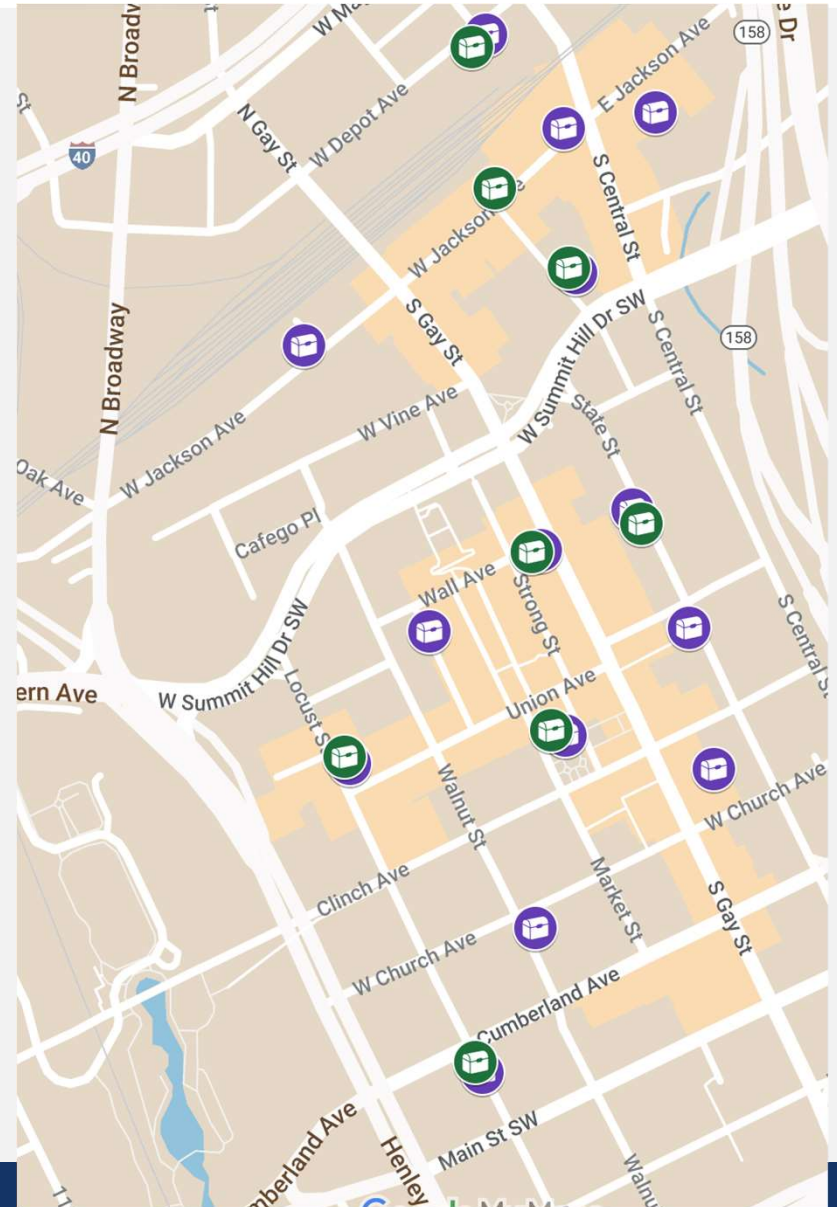
- Deposit material
- Push button to run
- Roll-off truck takes to empty
- Example with cart tipper



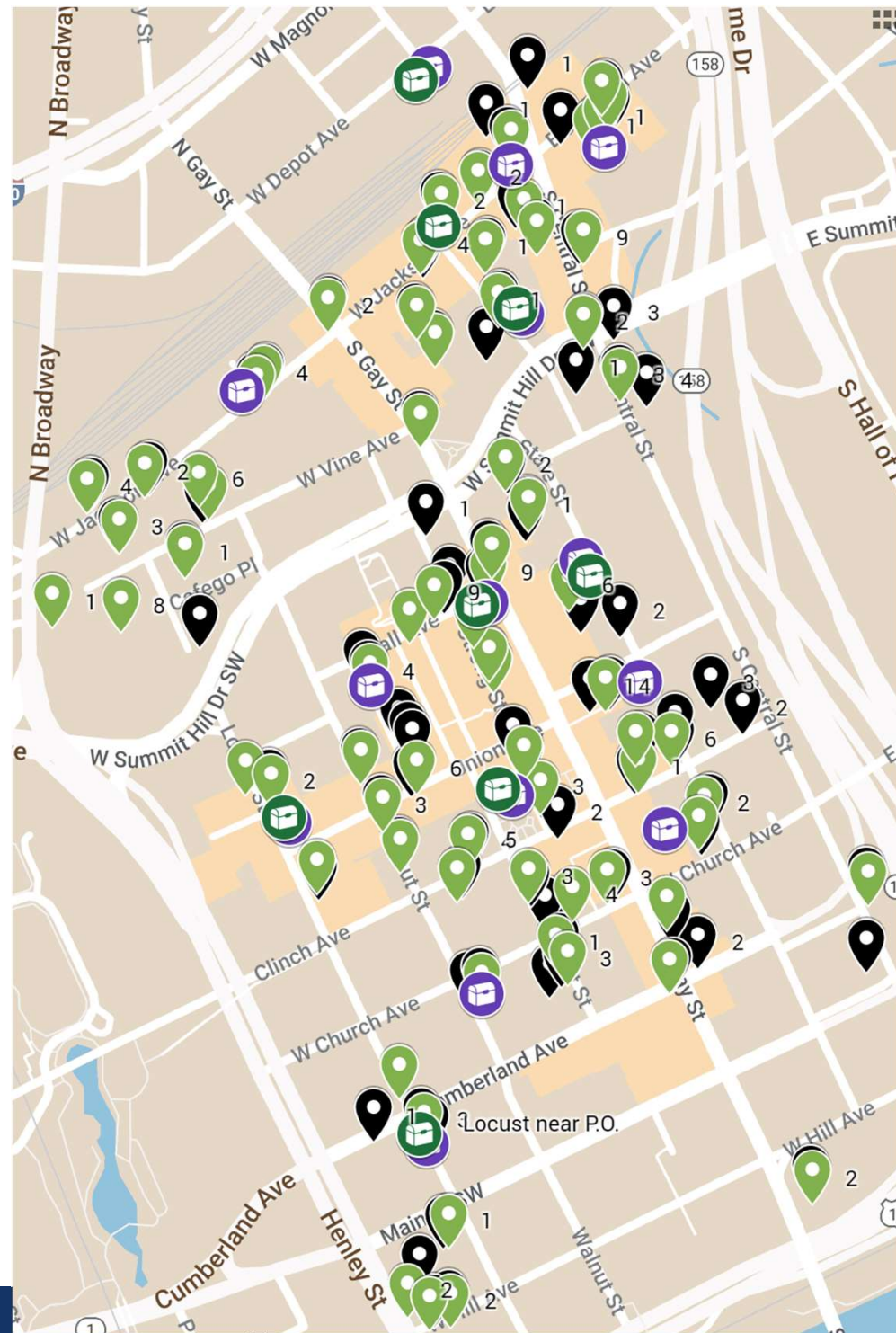
Potential Compactor Sites

14

- Estimating 5 to 9 garbage & 3 to 5 recycling compactor locations needed to handle volume, depending on available sites & space of each
- 14 potentially feasible locations for garbage (purple markers) & 8 recycling (green markers) on map 
- Final locations would be determined by City through discussions with businesses and residents based on site availability, installation costs and business/citizen input



Showing existing garbage carts (black), recycling carts (green) and possible compactor sites (treasure chests)



Some of the Potential Compactor Locations



Shared Compactor Cost Components

17

- **Capital Cost**
 - Purchase or long-term lease of sites (if not City owned)
 - Site prep - concrete pad, electricity, enclosure, etc.
 - Equipment procurement
- **Annual Operating Costs**
 - Maintenance
 - Ten-year replacement set aside
 - Staffing and roll-off truck cost of service (or contract cost)
 - Tip fees

Cost Comparison

18

Initial Capital Cost for Compactors & Site Establishment	Est. Annual Operating Costs with Compactors	Annual Cost of Current System
\$800,000-\$1,100,000	\$296,000-\$422,000	\$557,676
<i>Depending on number & size of compactors</i>	<i>Exclusive of initial capital investment</i> <i>Assumes 10%-20% of current costs remain</i>	

Funding Option A

19

- Add to annual property assessment based on assessed value

	Current Assessment	Assessment to Include Cost of Current Services	Assessment to Include Cost of Services w/ Compactors
Tax Rate per \$100 Assessed Value	\$2.48	\$2.71	\$2.65
Incremental		\$0.24	\$0.17
Total Assesment Revenue (Commercial)	\$5,815,921	\$6,373,597	\$6,215,921
<i>Difference</i>		\$557,676	\$400,000

Funding Option B

20

- Implement collection system based on business type and magnitude – **example** of monthly rates ranges

Business Type	Class I	Class II	Class III	Class IV
Food Service	\$25-\$60	\$65-\$120	\$125-\$425	\$250-\$800
Retail/Wholesale				
Offices and Services				
Lodging				
Manufacturing				
Event/Entertainment Venue				
Other (schools, parks, parking stations, railroad, etc.)				

NOTE: Data on per employee generation coefficients are not sufficiently available to charge by business type and number of employees. Ranges are currently based on business type and square footage.

Comparison to Stand-alone Knoxville Commercial Collection Monthly Rates

21

- 8-yd dumpster serviced 5x/week = \$795
- Private compactor on a 5-year rental agreement serviced weekly is ~\$3,500/month

Next Steps

22

SUMMARY REPORT TO THE CITY

CITY IMPLEMENTATION