Sustainable Collection and Processing of Single-Stream Recyclables

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What is Single Stream?

Clean, unsorted recyclables.
Benefits of Single Stream Collection:

- No sorting at the curb
- Allows for fully automated collection
- Allows for higher compaction rates and load sizes
- Lower workers compensation/injury rates
- Uniform fleet for recycling and MSW

Collection costs are reduced by 20%-130%
Curbside Collection has come a long way in the last 30 years...
Increased volume and ease of access...
Added compaction...
Semi-automated Compacted Containerized Collection...
Fully-automated Compacted Containerized Collection...
Benefits of Single Stream

Residents:

• Simple.
• Wheeled carts are easier to get to the curb
• Covered carts eliminate blowing
• Large sized carts can handle all the material—less temptation to throw that 128 oz Tide Bottle in the trash
• Often have what’s recyclable on the lid
Benefits of Single Stream

MRF Operator:

- Keeps haulers and residents happy
- More volume

Volumes typically grow 20%-70% per municipality
Single-Stream Challenges

Collection:

• You can’t see what’s in the cart
• New trucks increase efficiency but are expensive
• Carts are more expensive than bins
• Route balancing and transition
Single-Stream Challenges

Residents:

- Where do I put this big cart?
Single-Stream Challenges

MRF Operator:

• $6-10 million dollars of equipment are necessary to do the job right
• What do I do with the mixed broken glass?
• New maintenance challenges and higher costs
• Maintaining QUALITY bale production

$10,000,000 Hartford Single Stream System and Building Improvements
Innovation in Hartford

Screens

• More than 7 active disc-screens agitate, flip and separate the fiber from the containers.

• Waterfall configuration of most screens keeps containers and glass fragments from riding on the paper.
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Glass

• Only MRF in the country that has optical sort to remove ceramics and other contaminants from broken glass

• Able to sell glass directly to the glass bottle manufacturer.
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• Well lit, ergonomically correct sort stations coupled with low burden depth = QUALITY
Manager and team is incentivized based on
1. Safety  2. Quality and 3. Production
Additional Innovation to foster quality:

- We staff a picker on the residue belt.
- We QC our material going into the baler with two sorters.
- We use optical sorters to pull PET (no PLA or PP slips through).
- We QC all material sorted by the optical sort.
- All bales are inspected before they are stacked in inventory and a second time before they are loaded.
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Additional Innovation to Foster Quality:

• Our team constantly tinkers with the system to improve quality.

• System is designed with checks and balances—extra sort stations just in case

• Great communication with CRRA to monitor and improve the inbound quality

• Great communication with our end markets—we have been selling to some companies for more than 20 years.