

Recycling in NH: State of Recycling Markets

New Hampshire Municipal Association
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Northeast Resource Recovery Association

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Agenda

1. About NRRRA
2. Intro to Recycling
3. Recycling Markets
4. Budget Impacts

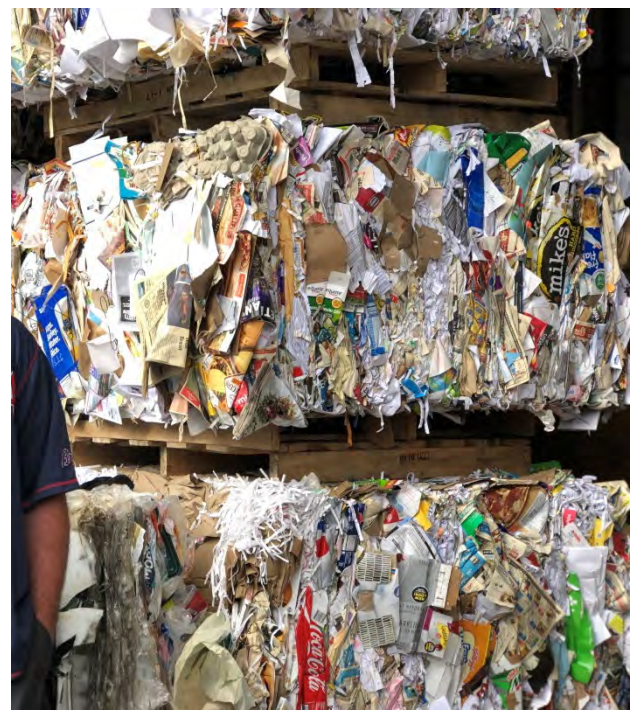
- Recycling non-profit
- Founded 40 years ago
 - Over 450 members





Cooperative Marketing and Purchasing

- Connect municipalities selling recyclables to companies that purchase recyclables
- Returned \$1.8 million to members in 2020





Education & Technical Assistance

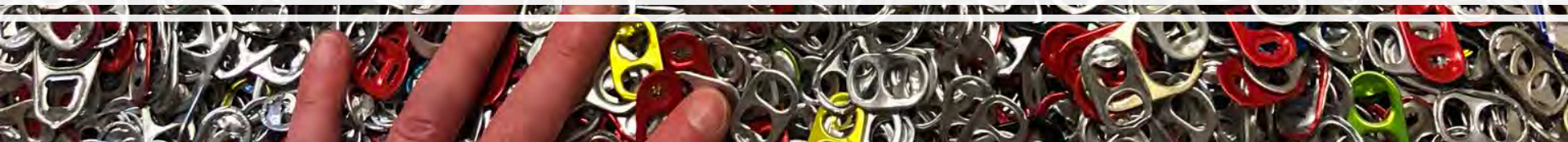
- Member meetings, facility tours, annual conference
- Hands on technical assistance
- School recycling programs

Intro to Recycling

Foundational principles



Why Recycle & Reduce Waste?



Conserve Financial Resources



Waste diversion can help avoid higher cost of municipal solid waste disposal



Though not always true with single and dual stream recycling when markets are down



Costs of landfilling and incineration will continue to rise

Conserve Natural Resources

- Waste diversion saves energy and natural resources
- Saves valuable landfill capacity for waste that cannot be diverted



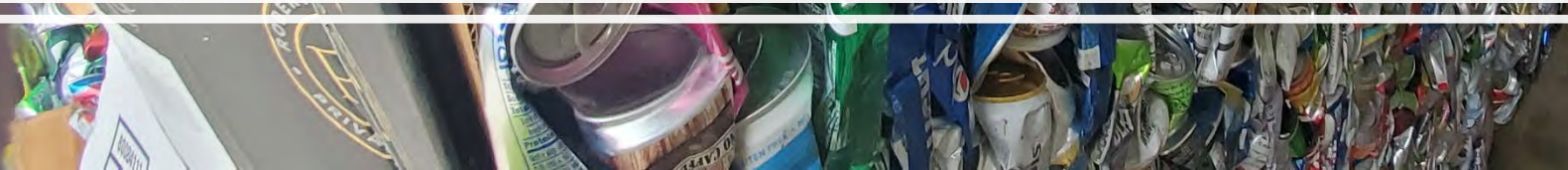
Aluminum Example

- Recycling aluminum saves more than 90% of the energy needed to create new aluminum
- Cheaper to recycle than extract more
- Nearly 75% of all aluminum produced is still in use today





Types of Recycling Programs



Source Separated Recycling

Residents separate out
recyclables individually
at local transfer station





Dual Stream Recycling

Fibers (paper products) separated from containers



Single Stream Recycling

Containers and fibers all mixed together

Higher cost to “unscramble the egg”

Typically lower value commodities because more contamination



Getting Recyclables to Market



Reputable vendor with environmentally sound practices



Price – get quotes for best price



Service – responsiveness for logistics and billing



Transportation – timely pickup if handled by vendor



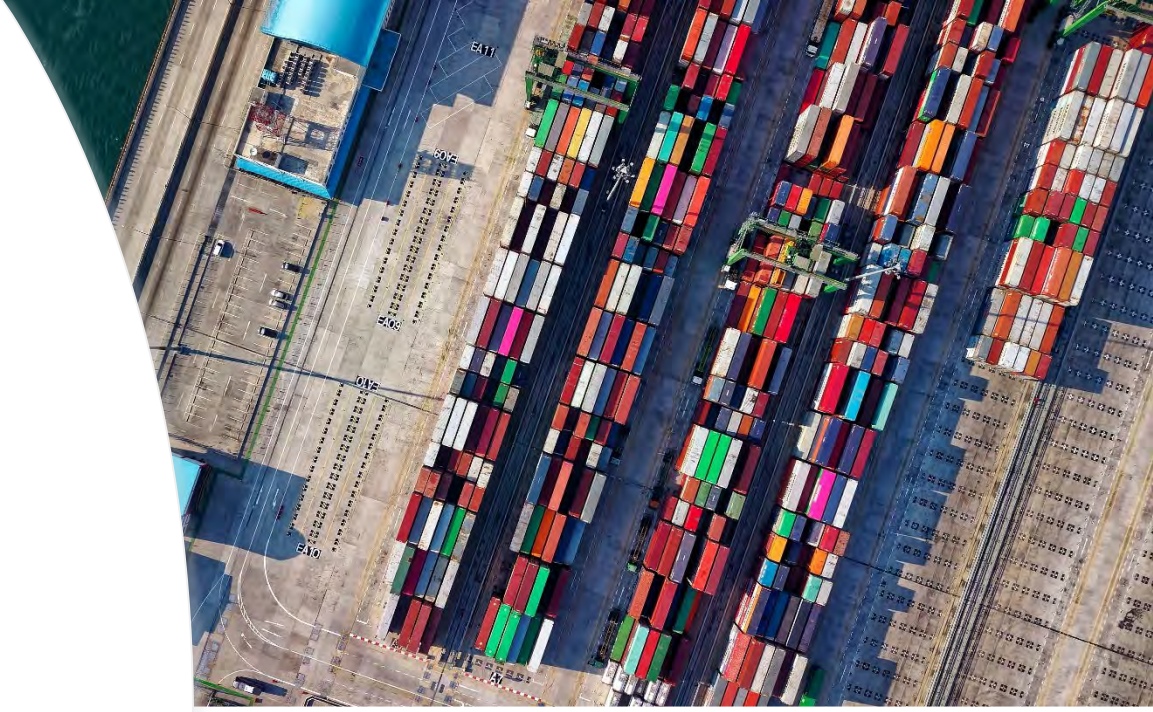
Direct to mill or to a broker

Marketing Material Considerations



Recycling Equipment





Transportation



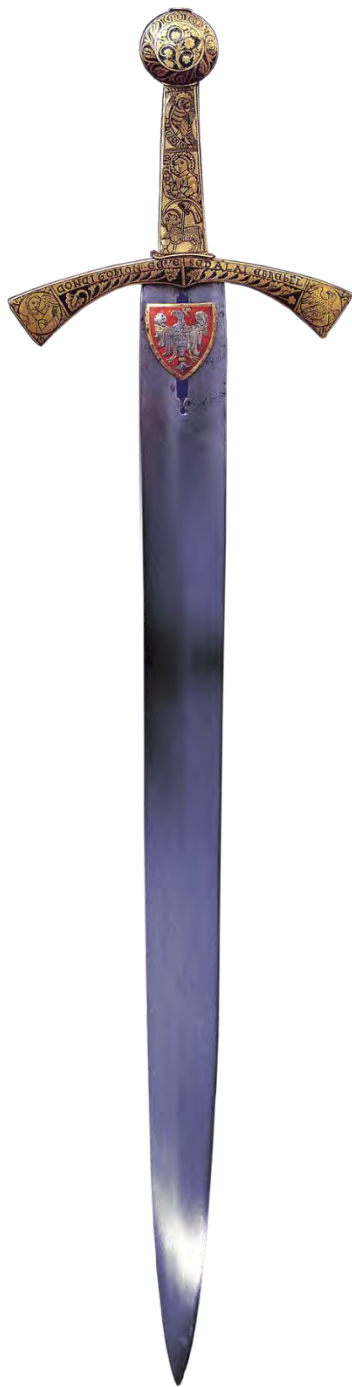
Did You Know?

-
- Solid waste operators must:
 - Attend full day basic training class
 - Pass written exam to obtain certification
 - Obtain annual continuing education credits
 - Transfer station often one of few departments generating revenue



Recycling
Markets

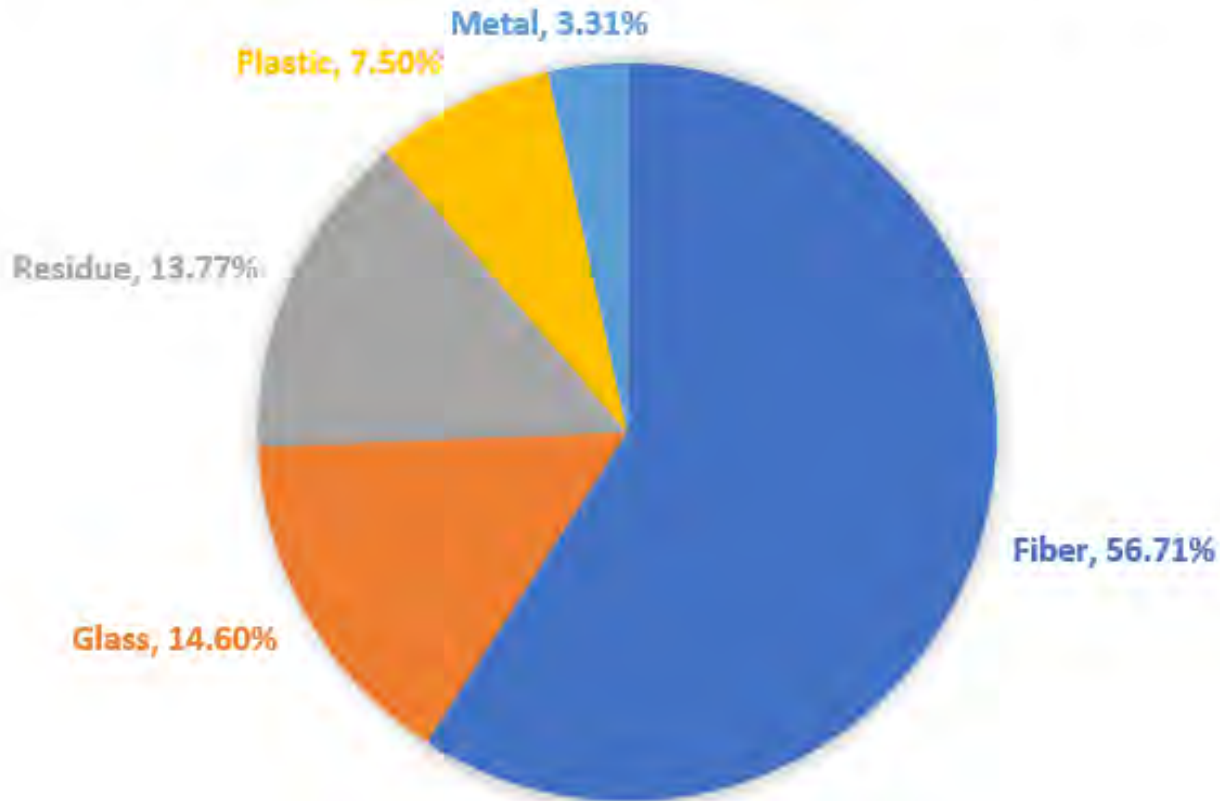
China's National Sword &
COVID-19 Impacts



China's National Sword Policy

- Ban effective Jan. 1, 2018
- All plastics, unsorted mixed paper & textiles
- Some glass and metals
- All waste products, including cardboard, later banned effective Jan. 1, 2021

AVERAGE PERCENTAGE OF OUTBOUND TONS MARKETED PER COMMODITY BY NORTHEAST MATERIALS RECOVERY FACILITIES IN 2019



[Source: Northeast Recycling Council \(Aug. 2020\)](#)



- Biggest impact from China's National Sword
- Pre-Sword, China purchased 55% of world's scrap paper

Fibers

Silver Lining



Domestic investment in
paper mills



30 new and existing mills
increasing capacity for
recycled fibers (mostly
cardboard)



[Source: Northeast
Recycling Council \(May
2021\)](#)

COVID - More Residential Material

- Residential recycling and trash tonnage way up because everyone home
- Commercial and school waste dropped dramatically





Initial Market Impacts

- Fibers Pricing:
 - Climbed April & May 2020
 - Dropped in June 2020
- Why?
 - Low supply when businesses shut down
 - Then market adjusted when price rose



Initial Market
Impacts - Plastic

#1 PET bottles pricing down, in part because
apparel and carpet manufacturing down and
supply up while people home

Types of Plastics

- #1 PET (ex. water bottles)
- #2 HDPE Natural (ex. milk jugs)
- #2 HDPE Colored (ex. laundry detergent)
- #3 PVC (ex. plastic tubing)
- #4 LDPE (ex. grocery bags)
- #5 Polypropylene (ex. yogurt containers)
- #6 Polystyrene (aka Styrofoam)
- #7 Other – multiple plastics combined

Chasing Arrows Confusion

- Voluntary system with little to no regulation
- Identifies predominant type of resin in the plastic
- That's it!
- Doesn't mean item is recyclable



#1-7 Mixed

- Lower value than if separated
- But easier for residents and transfer station staff





#1 PET
#2 HDPE Natural
#2 HDPE Colored

- All have stable markets
- Requires three separate storage spaces
- #5 has value, but not enough volume to separate and store it for market

Z Bales

- #2 HDPE natural and HDPE colored baled together (Z bale)
- Lower value for Z bale than if separate colored from natural
- But easier for residents and saves space



Question

What's the most valuable recyclable by weight, of all the items in your recycling bin?





Answer

Your translucent plastic milk jug!
(or your apple cider jug these days)



Initial Market
Impacts -
Aluminum

Can shortage due to can
manufacturer operations being
disrupted



Challenges with Glass Recycling

- Heavy and therefore expensive to transport
- Ardagh bottling plant closed in MA in 2018
- Contaminants like Pyrex and ceramics detrimental when creating new glass or fiberglass insulation
- Broken glass can create wear and tear on equipment



Single or
Dual Stream

Vendor may provide financial incentive
to remove glass

Glass Recycling



Glass bottles and jars only



Canadian vendor cleans and crushes



Made into new bottles and jars or fiberglass insulation back in US



40 communities in NH, VT & MA

Processed Glass Aggregate

- Glass bottles and jars
- Pyrex, ceramics, porcelain, window glass
- Crush into aggregate
- Subbase for infrastructure projects
- 60+ communities in NH, VT & MA



NRRA Sample Market Pricing (November 2021)

		Revenue / (Cost) Per Ton		% change since Nov. 2020
		Low	High	
Plastic	#2 HDPE Natural (ex. Milk jugs)	\$1,200	\$2,000	Up 60%
Metal	Aluminum Cans	\$1,000	\$1,500	Up 53%
Plastic	#2 HDPE Colored (ex. Detergent bottles)	\$940	\$1,000	Up 26%
Plastic	#2 HDPE "Z" (#2 HDPE Natural + Colored) combined	\$940	\$1,000	Up 26%
Plastic	#1 PET (ex. water bottles)	\$240	\$360	Up 61%
Fiber	#8 Newsprint	\$180	\$195	Up 67%
Fiber	OCC (Cardboard)	\$180	\$210	Up 36%
Fiber	Sorted Office Paper	\$220	\$260	Up 44%
Plastic	#1 - #7 Mix	\$0	\$60	Up 23%
Fibers	Mixed Paper	\$75	\$85	Up 71%
Glass	Into Aggregate or Fiberglass	(\$75)	(\$40)	n/c
TRASH	MUNICIPAL SOLID WASTE	(\$120)	(\$70)	n/c



(assumes material baled and shipped in full trailer loads)

Looking Ahead

- Expecting drop in value over the next months
- Impacting fibers and plastics
- Why?





Budget Impacts |


Recent Market Impacts



Increase in revenue from source separated recycling



Decrease in costs for single and dual stream recycling



Comparative Revenue Example

NH municipal recycling
facility

Cardboard, mixed paper,
plastics, aluminum and steel
cans

7/01/19 – 6/30/20 \$15,127

7/01/20 – 6/30/21 \$33,080

Example: Recent Plastics Revenue

One NH Town's load of baled plastics:

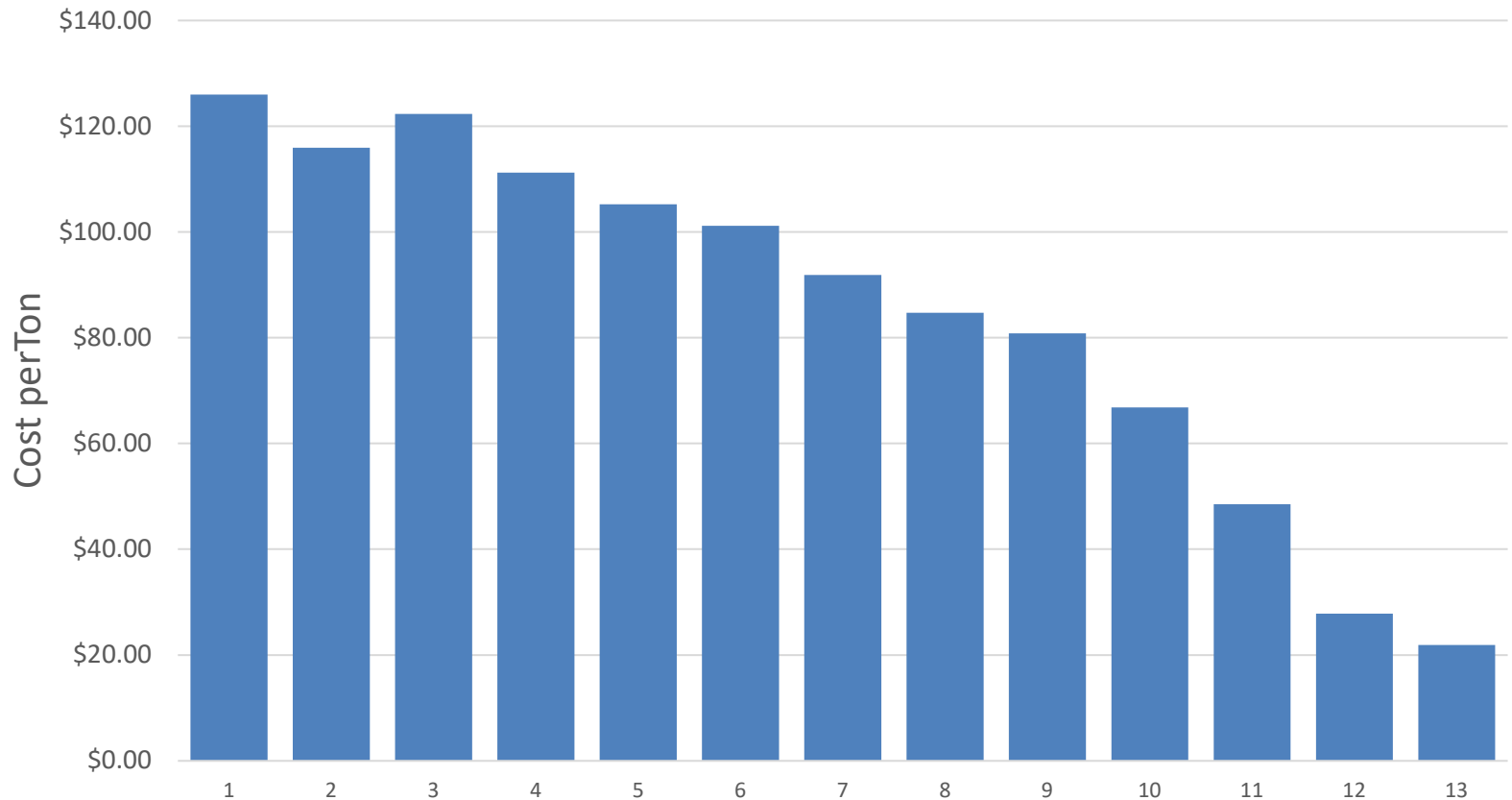
- #2 HDPE Natural (translucent milk/water jugs)
- #2 HDPE Mixed Color (detergent containers)
- #1 PET (water/soda bottles)

Revenue \$24,688! (\$.73/lb)



Single Stream Pricing

November 2020 – November 2021



Key Marketing Factors

- Quality
- Pricing
- Storage

C Most # 1-7 Plastic Containers
Most Containers with A Neck
Detergent Bottles - Water Bottles - Soft Drink Bottles
Other Containers
Yogurt - Margarine - Peanut Butter - Solid White Milk Jugs
NO Plastic Bags - Any Oil Containers - Chemical Containers
Common Items Are Listed - Questions? Ask A Staff Member

NO Accepted Paper Containers
NO
NO

NO Accepted Paper Containers
NO
NO

NO Accepted Paper Containers
NO
NO

NO Accepted Paper Containers
NO
NO

RECYCLING YEAR IN REVIEW
MIDDLEBURY COLLEGE



Benefit of Storage

- Can wait on markets to change
- Aluminum can example
- 9/2020 pricing \$.58/lb.
- 10/2021 pricing \$.73/lb.

Net revenue: \$16,334!



Staffing Challenges

Staffing issues abound in the recycling industry

Many municipal recycling facilities are running low staffed without a reduction in hours and with an increase in materials

Solid Waste Budget Tools

Pay As You Throw

Special Revenue Fund

Motor Vehicle Registration Fees

Annual Review of Disposal Fees

Full Cost Accounting

Full Cost Accounting

- Reporting system developed by the US EPA
- Systematic approach for identifying and characterizing costs of providing solid waste services



Recent NHDES Workshop

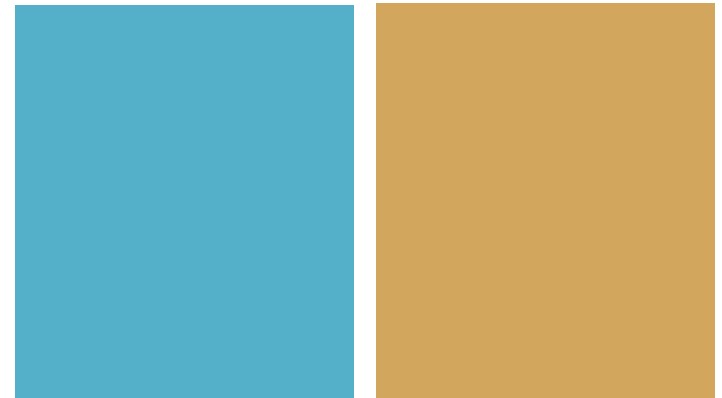
- Grouped expenses into 4 “Paths”
 - Recycling
 - Waste to Energy (WTE)
 - Compost
 - Landfill
- Determine cost per resident

Lancaster NH FCA Results

UNIT COSTS	Total Solid Waste Costs	Landfilling	Waste-to-Energy	Recycling	Composting
Tons Processed	2,247	1,474	-	743	30
Net Cost, \$/Ton	\$ 99.52	\$ 132.22	\$ -	\$ 37.30	\$ 39.60
Population	3,507	3,507	3,507	3,507	3,507
Net Cost per Capita	\$ 63.77	\$ 55.57	\$ -	\$ 7.90	\$ 0.34

Benefits of Full Cost Accounting

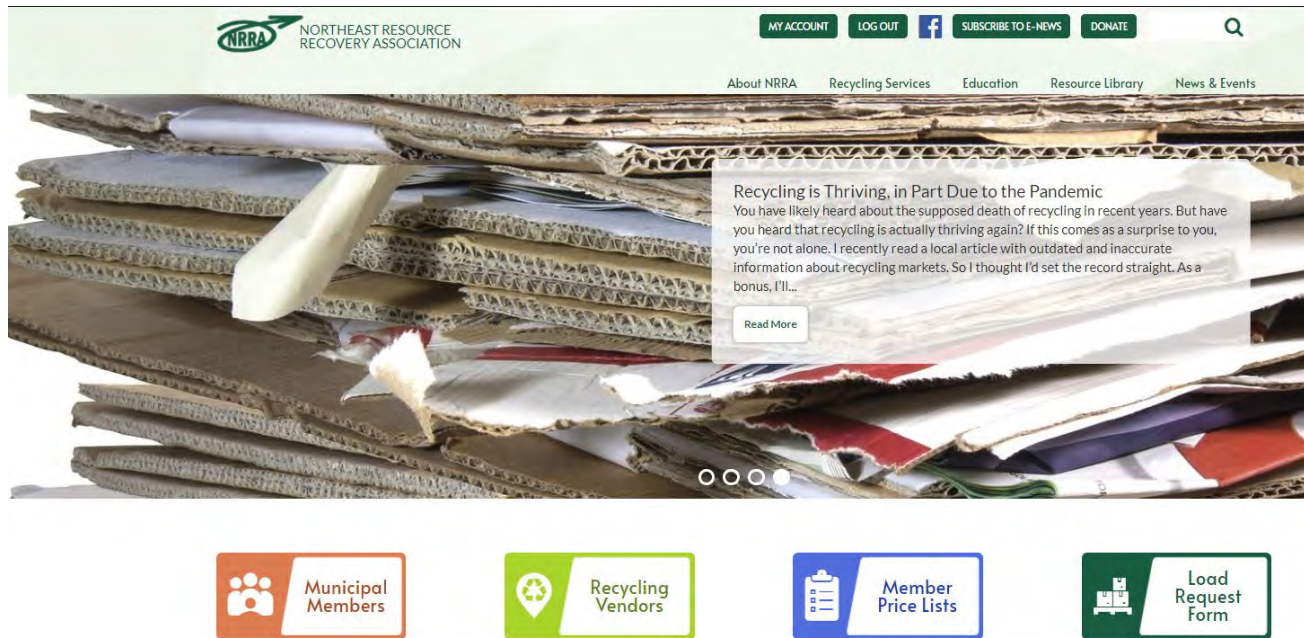
- Gilford, NH construction and demolition debris
- Data showed only 55% of their costs covered by fees
- Costing town nearly \$40k beyond fees



USDA
Recycling
with Results
Grant

NRRA will be helping communities develop full cost accounting models for solid waste

Eligibility based on population (under 5,500) and household income (below state median)



Full Cost Accounting: <https://www.nrrarecycles.org/news/full-cost-accounting-solid-waste-managers>

Learn More at www.nrrarecycles.org

Conference
May 16 & 17,
2022
*DoubleTree
Hilton
Manchester*



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Questions & Thank You!



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