

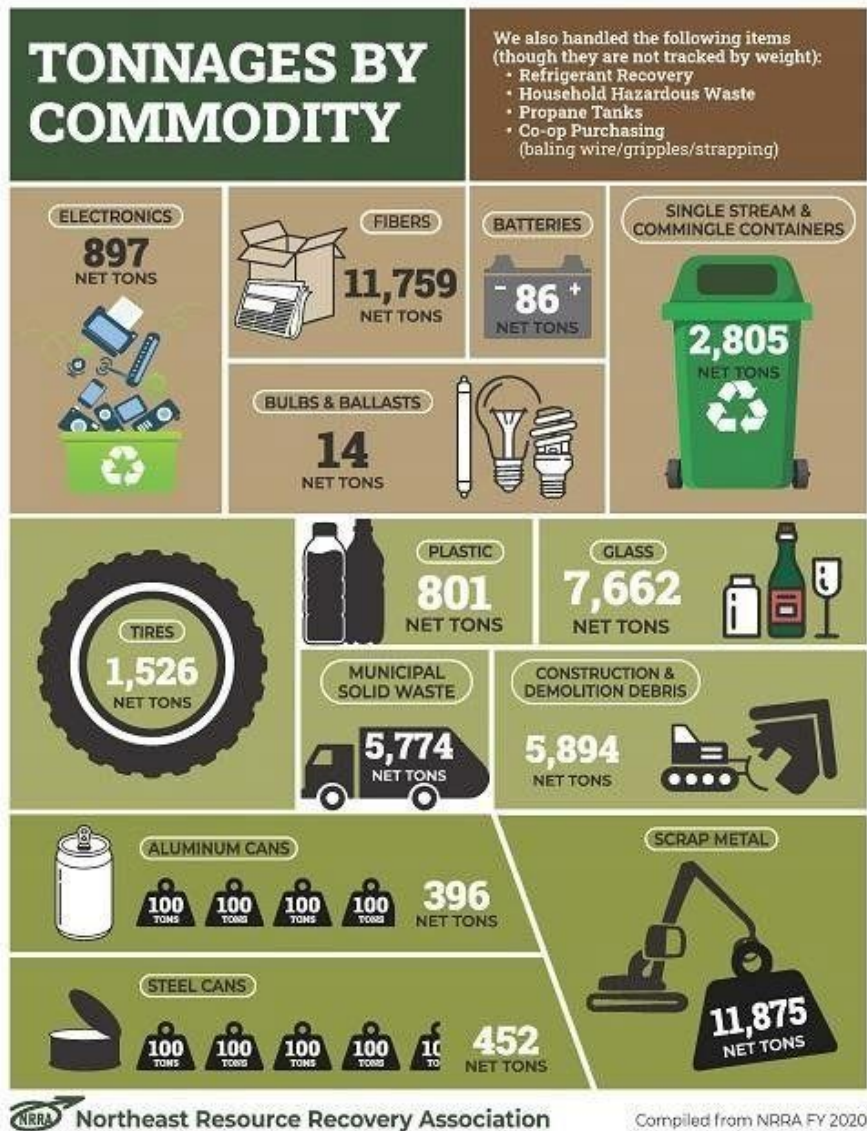
Recycling 101: Municipal Solid Waste & Recycling in New Hampshire

Lakes Region Planning Commission
October 25, 2021

Heather Herring
Northeast Resource Recovery Association



Recycling non-profit
founded 40 years ago
that enables
communities to manage
their own recycling
programs





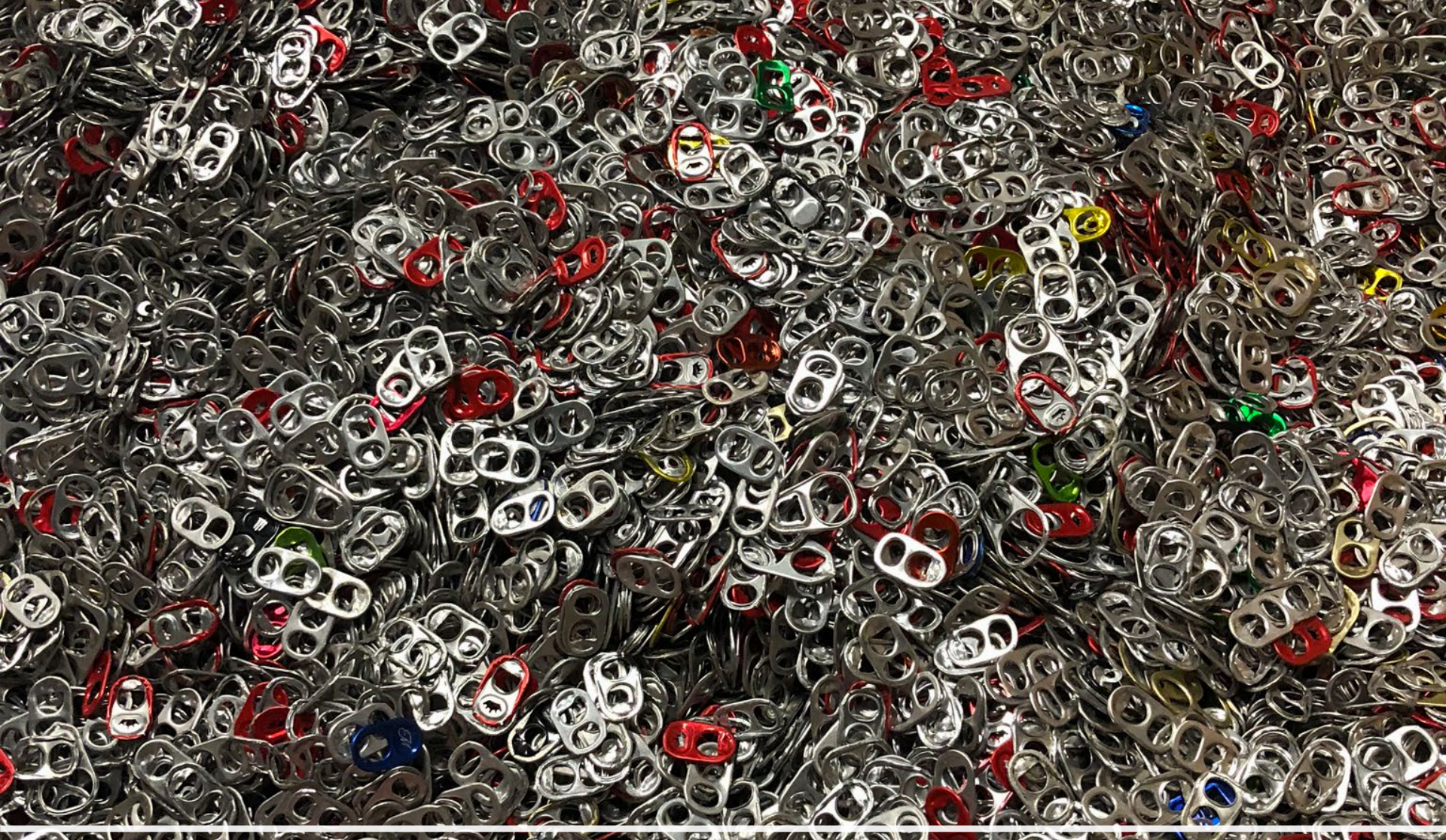
Cooperative Marketing and Purchasing

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

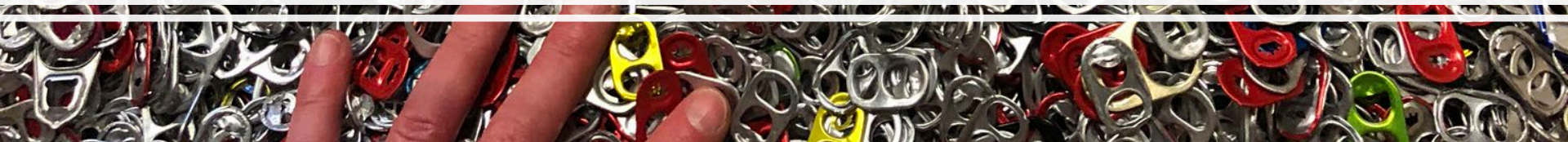


Education

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



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



Source Separated Recycling

Residents separate out
recyclables individually
at local transfer station





Dual Stream Recycling

Fibers 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



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

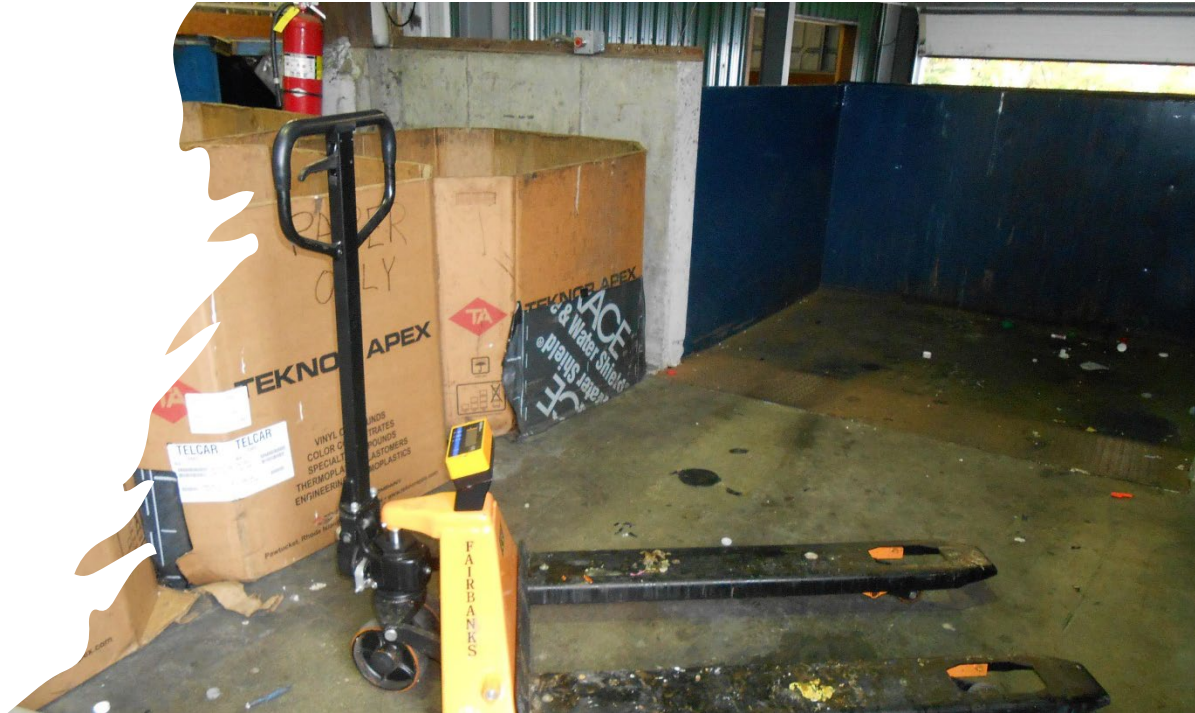


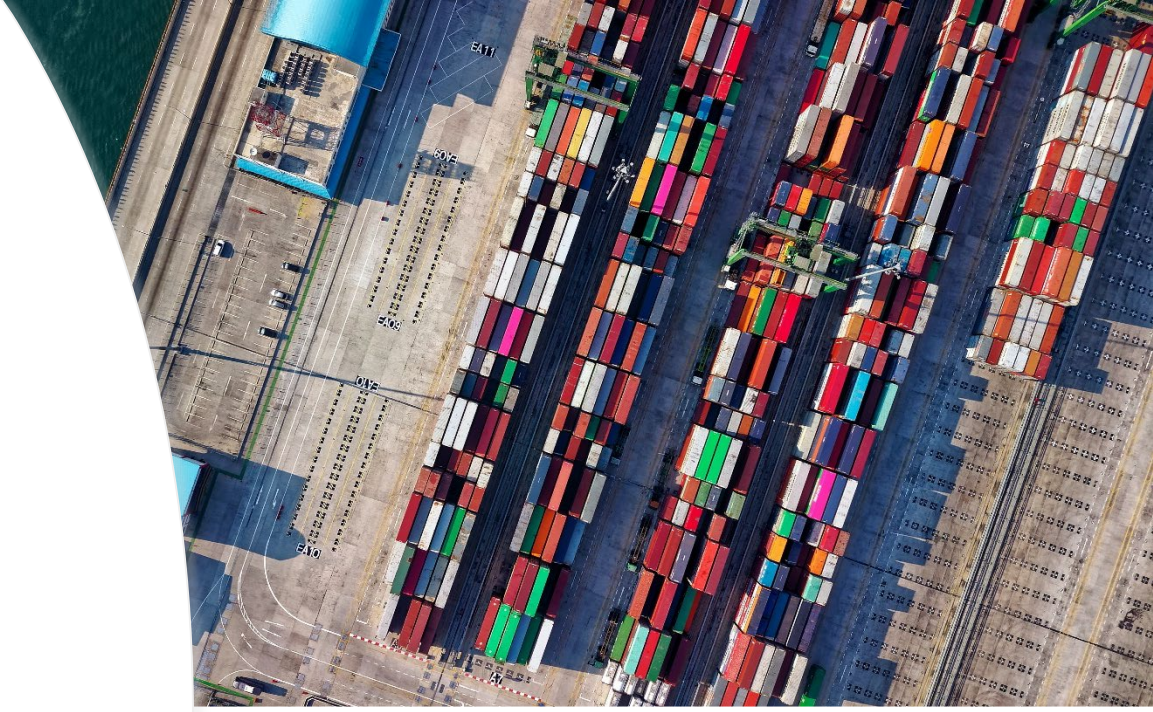
Direct to mill or to a broker

Marketing Material Considerations



Recycling Equipment



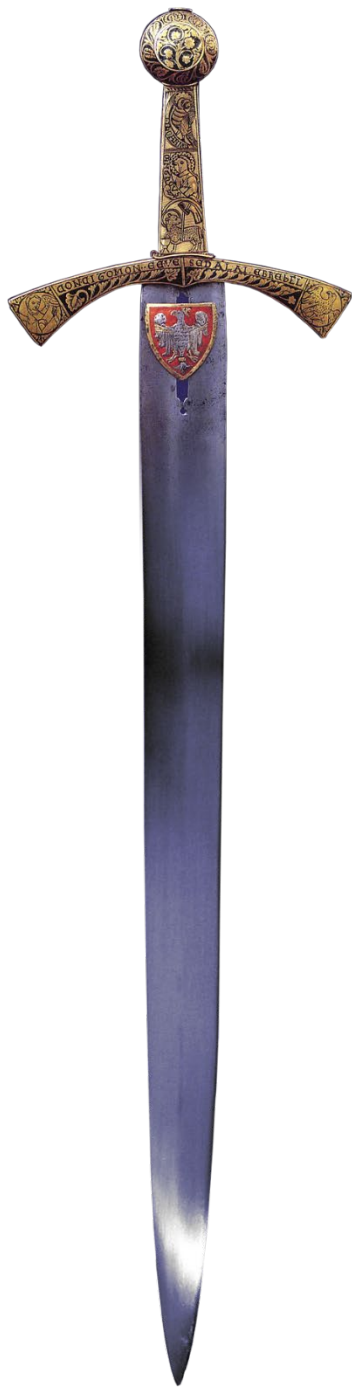


Transportation



Recycling
Markets

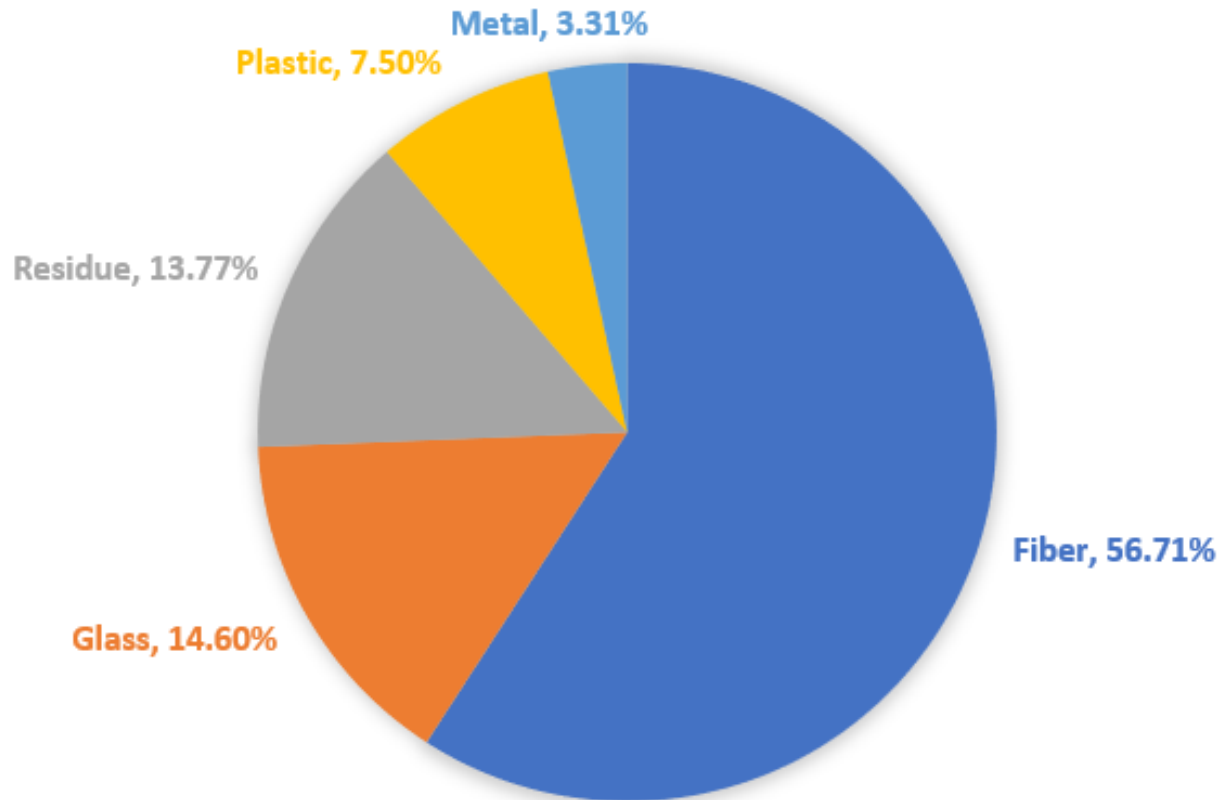
China's National Sword &
COVID-19 Impacts



China's National Sword Policy

- Ban effective Jan. 1, 2018
- All plastics, unsorted mixed paper & textiles
- Some glass and metals

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



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



Fibers (cardboard
and mixed paper)

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

Silver Lining



Domestic investment in
paper mills



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



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

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

Current Markets - Fibers

Overall, increased in value compared to a year ago due to decreased supply for businesses and schools


- General sense of fibers pricing – due to little to no exporting, domestic mills will get full and market value will go down (supply/demand)





Current Market
Impacts - Plastic

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



Current Market Impacts - Aluminum

Can shortage due to can manufacturer operations being disrupted

Some increase in revenue, but lower than this time last year



- Limited markets in the Northeast
- Bottle to bottle recycling ideal but a challenge
- Fiberglass and aggregate more common

Glass Recycling



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 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 road and infrastructure projects
- 60+ communities in NH, VT & MA



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

- Responsible end markets with reputable vendor
- Lower value than if separated
- Easier for residents and transfer station staff
- Partial mill direct because make own lumber furniture with #2 natural
- But mechanical problems





#3-7 Mix

- Recovering #2, #4, #5 and some #7 (primarily want #2 and #4)
- Materials recovery facilities often miss some #1s and #2s when sorting
- Residue to fuel replacement and landfill



#1 PET
#2 HDPE Natural
#2 HDPE Colored

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

Z Bales

- #1 PET
- #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





Budget Impacts |

Single & Dual Stream Communities



Higher tipping fees than pre-China's National Sword, but recent improvements



Additional fees if exceed set contamination limits



Some switching back to source separation



Some burning or landfilling recyclables temporarily



Example: Aluminum Cans

High quality material will always have a home; main goal of member communities is to move material at fair market value ; the majority do not have the luxury of holding /storing material in hopes of higher pricing . One exception is a north country Member that held on a load of aluminum cans from September 2020 to October 2021.

- Aluminum can prices started at \$.585/lb. in Sept. 2021 ; Member finally sold the load at \$.\$.7325/lb. Net Revenue for full trailer load \$19,045.

Analyze Facility Fees - Example

- Gilford, NH C&D
- Data showed only 55% of their costs covered by fees
- Costing town nearly \$40k beyond fees
- Why? Hard for staff to estimate volume brought in
- Used data to get town approval to purchase truck scale



Learn More at www.nrrarecycles.org

The screenshot shows the homepage of the Northeast Resource Recovery Association (NRRA). The top navigation bar includes the NRRA logo, a search icon, and buttons for 'MY ACCOUNT', 'LOG OUT', 'SUBSCRIBE TO E-NEWS', and 'DONATE'. The 'SUBSCRIBE TO E-NEWS' button is circled in red. Below the navigation bar, there are menu items: 'About NRRA', 'Resource Library' (circled in red), 'Member Programs & Services', 'School Recycling Club', and 'News & Events'. The main content area features a large background image of an outdoor meeting at a recycling facility. A text box overlaid on the image reads: 'Blue Skies Over Gilford, NH for Monthly MOM Meeting and Tour Blue skies and a brand new recycling facility attracted NRRA members from near and far to attend the October 14th outdoor meeting. We were all eager to hear about what sparked Gilford to build this \$1.4 million recycling center complete with horizontal baler and floor scale and what advice they...'. A 'Read More' button is located below the text. At the bottom of the page, there are five colored buttons with icons and text: 'Members' (orange), 'Educators & Students' (teal), 'Vendors' (green), 'Member Price Lists' (blue), and 'Load Request Form' (dark green).

NRRA NORTHEAST RESOURCE RECOVERY ASSOCIATION

MY ACCOUNT LOG OUT **f** **SUBSCRIBE TO E-NEWS** DONATE

About NRRA **Resource Library** Member Programs & Services School Recycling Club News & Events

Blue Skies Over Gilford, NH for Monthly MOM Meeting and Tour
Blue skies and a brand new recycling facility attracted NRRA members from near and far to attend the October 14th outdoor meeting. We were all eager to hear about what sparked Gilford to build this \$1.4 million recycling center complete with horizontal baler and floor scale and what advice they...

Read More

Members Educators & Students Vendors Member Price Lists Load Request Form

Questions & Thank You!



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STAY CONNECTED

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