

Bulky Wastes: Increasing Reuse & Recycling in Rural Areas

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What is NEWMOA?

- Non-profit, non-partisan interstate association
- Solid waste, hazardous waste, waste site cleanup, & pollution prevention programs
- CT, ME, MA, NH, NJ, NY, RI, & VT
- Formally recognized by EPA in 1986
- www.newmoa.org



Promoting Bulky Waste Reuse & Recycling in Rural Areas

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Today's Webinar

- Overview of the Project tasks and deliverables
- Provide information on four major categories of bulky waste
 - Reuse & recycling options
 - Challenges for rural communities
 - Possible solutions
- Discuss lessons learned & next steps
- Q & A

What are Bulky Wastes?

- Furniture
 - ❖ Metal
 - ❖ Wooden
 - ❖ Upholstered
- Mattresses & Box Springs
- Carpet
- Large Rigid Plastics



Bulky Waste Project Partners

- Maine
 - ❖ Androscoggin Valley Council of Governments
 - ❖ Department of Environmental Protection
- Massachusetts
 - ❖ Franklin County Waste Management District
 - ❖ Department of Environmental Protection
- Vermont
 - ❖ Central Vermont Solid Waste Management District
 - ❖ Northeast Kingdom Waste Management District
 - ❖ Department of Environmental Conservation

Current Practice

- Most is disposed
- Most transfer stations charge drop-off fees
- Many curbside programs also charge fees

Furniture & Carpet Disposal
 Please request placement of these items, do not throw into container.

Twin / Single Mattresses or Boxsprings	\$30 each
Full / Queen / King Mattresses or Boxsprings	\$30 each
Couch	\$20 each
Loveseat	\$15 each
Upholstered Chair	\$10 each
End tables, wooden chairs, kitchen/dining room tables, bookcases, bureaus	\$5 each
Area rug	\$10 each
Wall-to-wall carpet	\$25 each
Sink, toilet	\$10 each

Benefits of Reusing & Recycling Bulky Waste

- Saves money on landfill disposal & hauling
 - ❖ If material is removed from bulky disposal bin – less tonnage going to disposal & hauling less often
- Conserves energy & raw materials
 - ❖ Saves landfill space too
- Returns products & materials back into the economy & creates jobs
- Helps people who need these items but cannot afford to buy them new

Some Reuse is Happening

- Given to friends/family or via Free-Cycle
- Neighborhood yard sales
- Online sales (e.g., Craigslist, e-bay)
- Second-hand shops or consignment
- Charities that operate second-hand shops or supply goods to low-income clients

Furniture: Metal, Wood, Upholstered



Community Reuse

Communities can partner with local non-profit to promote donation &/or hold a collection event for residents to donate **good quality** items

- ❖ Habitat for Humanity
- ❖ Salvation Army
- ❖ Goodwill
- ❖ Saint Vincent de Paul
- ❖ Furniture Banks – www.furniturebanks.org
 - Serve low income families & individuals moving from shelters, fire, refugee resettlement, & domestic violence

Reuse Challenges

What about bugs in upholstered furniture?

- ❖ Treatment: heat, cold, CO₂, or pesticides
 - A furniture bank in MA & reuse program in VT heat treat
- ❖ Exclude upholstered furniture & mattresses from program, or strict screening of donations
 - Furniture bank in ME strictly screens



Furniture Reuse

Communities can also facilitate local reuse by sponsoring a:

- ❖ Permanent Swap Shop
- ❖ One-day swap event
- ❖ Fix-it clinic



Swap Shops



Swap Shop/Event

- Need staff and/or volunteers
 - ❖ Partner with local group/business
- Need a covered or sheltered location
- Need to move items that remain
 - ❖ Partner with local charity (to take good quality items)
 - ❖ Make arrangements for through town for disposal or use a private hauling service like 1-800-Got-Junk (they reuse/recycle!)
 - ❖ Charge drop-off fee to off-set expenses, but:
 - Lower fee than bulky waste disposal fee
 - Emphasize that donations are tax deductible

Furniture Refurbishing

- Communities can promote awareness of:
 - ❖ Refurbishing, remanufacturing, rebuilding, or renovating furniture means that some or all components of the item are removed & replaced
 - ❖ “Fix-it clinics” or “repair cafes” across the country
<http://repaircafe.org/en/>



Furniture: Repurposing

- Communities can also promote repurposing to residents: social media is a great source for inspiration & helpful tips



Photos Source: Pinterest

Recycling Furniture

- Wood furniture
 - ❖ Stained, painted, or treated with chemicals cannot be recycled as clean wood
 - ❖ Manufactured wood (i.e., fiberboard, particle board, & plywood) cannot be recycled as clean wood
 - ❖ Investigate collecting separately & sending to a C&D debris recycler
- Metal furniture
 - ❖ Many communities already collect & recycle metals

Recycling Furniture

- Upholstered
 - ❖ Investigate collecting with wood furniture in a separate bin & sending to a C&D recycler rather than to traditional disposal
 - ❖ Some C&D debris recyclers will take limited amounts of upholstered furniture
 - can crush with bucket loader & run through their system to retrieve wood & metal
 - do not want mattresses

Mattresses



Mattress Issues

- 15-20 million mattresses & box-springs are disposed of each year in the U.S.
- Each occupies about 40 cubic feet of landfill space
- They are hard to compact, & can easily catch in equipment used in landfill & incinerator operations
- As a result, some disposal facilities require the segregation of mattresses from other solid waste &/or charge an additional fee – this increases costs for communities

Community Reuse

Communities can partner with local non-profit to promote donation &/or hold a collection event for residents to donate **good quality** mattresses

- ❖ Some furniture donation centers also accept mattresses
- ❖ Furniture Banks – www.furniturebanks.org
 - Serve low income families & individuals moving from shelters, fire, refugee resettlement, & domestic violence
 - **Families need more than one mattress**

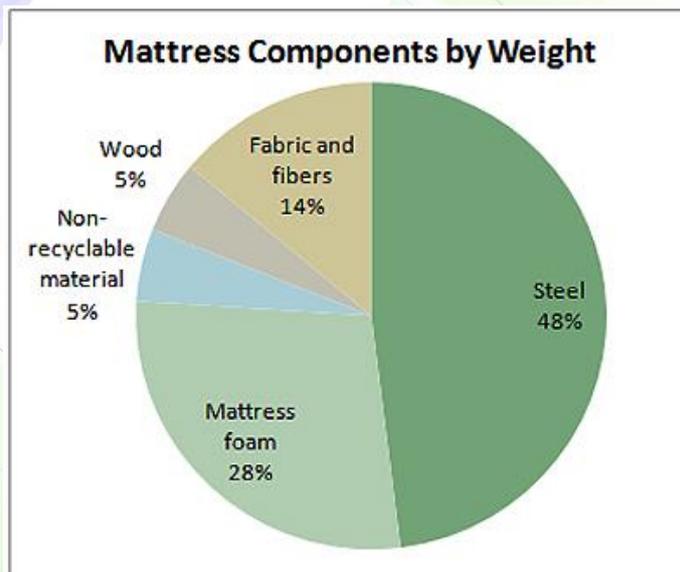
Reuse Challenges

What about bugs in mattresses?

- ❖ Treatment: heat, cold, CO₂, or pesticides
 - Furniture bank in MA & reuse program in VT heat treat
- ❖ Strict screening of donations
 - Furniture bank in ME



Mattress Recycling



Mattress Recycling



Mattress Recycling



Mattress Recycling

Communities can collect & send to recycler

- ❖ Must be kept protected from weather
- ❖ Expense to transport (recyclers in CT, MA, & RI)
- ❖ Recyclers charge fee



Manufacturer Financial Support

- Extended Producer Responsibility (EPR)
 - ❖ Requires manufacturers to establish a program to collect, transport, & recycle their products
 - ❖ Consumers pay a small fee at the point of purchase to finance end-of-life recycling/disposal costs
 - ❖ State must require EPR (pass legislation)
 - ❖ Mattress set up the Mattress Recycling Council (MRC) www.mattressrecyclingcouncil.org
- States with EPR for mattresses (so far)
 - ❖ Connecticut, Rhode Island, & California

Mattress EPR Results

Success of Connecticut's EPR Program

- ❖ Started in May 2015
- ❖ Administered by the Mattress Recycling Council (MRC), with input from the CT DEEP
- ❖ An average of **10,000 mattresses per month** are now recycled in CT
- ❖ More than 90 municipalities participate in program
- ❖ Communities report savings thousands of \$\$ in avoided disposal costs
- ❖ Supports 40-50 private sector jobs

Mattress Recycling

Has been occurring in MA without EPR:

- Non-profit:
 - ❖ UTEC in Lowell: mission to help troubled youth with employment – charges drop-off fee to help off-set expenses
- For-profit:
 - ❖ Raw Material Corporation in Gardner & Conigliaro Industries in Framingham
 - ❖ Recycle lots of different materials
 - ❖ Mainly service large generators – hotels & colleges

State Support for Recycling

- New incentive: MassDEP now has a grant program to fund the rental or purchase of a collection container & the hauling and processing fees
- Example of municipal collection program
 - ❖ Greenfield, MA



Other Mattress Recycling

- Transfer station in Maine dismantles mattresses
 - ❖ Determined the labor cost is offset by savings in hauling & disposal (6-8 mattresses a week)
- Vermont location evaluating feasibility of one-day collection for recycling at UTEC in Mass



Mattress & Furniture Deconstruction

Communities can also promote dismantling at home to residents:

- ❖ Separate into individual components
 - Reduces the overall “bulk” & allows for easier transport & recycling
 - No more bulky waste fee
 - Still some regular trash disposal
- ❖ YouTube for examples & instructions
 - Mattress takes approximately 30 minutes

Deconstruction

Handling materials at transfer stations:

- Clean wood – many transfer stations have free drop-off
- Metal – many transfer stations have free drop-off
- Foam or other stuffing – dispose
- Cover fabric materials (cotton, wool, leather) – probably dispose
 - ❖ Some clothing collection systems might accept *if clean* (can be stained/ripped) – need to check if OK

Conclusions

- Furniture
 - ❖ Promote reuse/refurbish/repurpose ideas
 - ❖ Support swapping: shop and/or one-day event
- Furniture & Mattresses
 - ❖ Promote existing donation options
 - ❖ Hold collection event for donation – need partner
 - ❖ Collect & send for recycling – evaluate:
 - Before/after waste transportation & disposal costs
 - Collection feasibility – location, container
 - Cost to transport to recycler & tipping fee
 - Drop-off fee charged to residents
 - ❖ Promote dismantling to residents & consider doing at transfer station

Carpet



Why Focus on Carpet Recycling?

- Carpet is heavy – so it's expensive to dispose of
- Reuse usually feasible only for area rugs (10x10 max) in exceptional condition
- Climate change:
 - ❖ Of all municipal solid waste – fourth greatest potential greenhouse gas reduction – behind only corrugated cardboard & office paper recycling, and food scraps composting (2011 EPA Region 10 Study)

Carpet Basics

- Carpet composed of: face fiber, backing material, and adhesive
- Nylon face fiber has value & is recyclable
- Until recently most carpet was made from Nylon 6 or Nylon 6,6
 - ❖ With some made from Olefin (polypropylene) – which also has value when recycled
- Now over 50% of carpet is made from PET – the recovered fibers are low quality and have no market – a big problem

Carpet Recycling Basics

- Commercial facilities process incoming
 - ❖ Must be dry and free of mold/contamination
- Sort incoming carpet by fiber type
 - ❖ PET has no value & carpet is disposed



Carpet Recycling Basics

Nylon & Olefin fiber sheared from backing

- ❖ Backing often disposed
- ❖ Processors with high tech equip can process backing into polypropylene & calcium carbonate (have markets)



Carpet Recycling Basics

- Fibers cleaned and sold
 - ❖ Made into variety of products including new carpet
- With more PET, processors are selling less & paying more for disposal
 - ❖ Now charging to accept mixed loads (don't really want)
- Carpet recyclers still exist in MA & NJ by:
 - ❖ Mainly focusing on commercial carpet tiles
 - Generated in large quantities through relationships with installers & construction companies
 - PVC backing has value
 - ❖ Processing & recycling other products too

Community Carpet Recycling

Communities can collect & send for recycling

- ❖ Must be kept protected from weather
 - Rent a trailer - partner with communities/businesses
- ❖ Expense to transport (processors in MA & NJ)
 - Partner with other communities/businesses to share costs
- ❖ Processors charge fee to accept mixed loads
 - Charge drop-off fee to help offset
- ❖ Or pre-sort and only send nylon & Olefin
 - Need scanner to ID fiber type (expensive)
 - Requires labor (volunteers?) & cost to dispose of carpet without value
 - Charge drop-off fee to help offset

Carpet Conclusions

- ~50 % of carpet disposed can be recycled
- Economics not favorable *at this time*
 - ❖ Changes coming! Manufactures to start labeling the backing with the face fiber type – will enable easy separating at collection and/or recycler
- Evaluate:
 - ❖ Before/after transportation & disposal costs
 - If carpet removed from bulky bin, waste disposal & transport costs lower
 - ❖ Collection feasibility – location, container, partners
 - ❖ Cost to transport to recycler & tipping fee
 - ❖ Drop-off fee charged to residents

EPR Potential for Carpet

Extended Producer Responsibility (EPR)

- States have laws for similar consumer products – for example:
 - ❖ Paint: CA, CO, CT, ME, MN, OR, RI & VT
 - ❖ Mattresses: CA, CT & RI
 - ❖ Fee assessed when purchasing new item that funds end-of-life collection, transport, and recycling
 - ❖ Must be convenient & no fee to use system
- Potential application for carpet
- Information at Product Stewardship Institute: www.productstewardship.us

Bulky Rigid Plastics

Rigid Plastics Reuse

- Appropriate for good quality
- Communities can:
 - ❖ Promote donation to charity – especially items for kids
 - ❖ Hold a swap event
- Swap events: need to move items that remain
 - ❖ Partner with local recycling option



Hybrid Reuse/Recycling

Northampton's Reuse Committee's Fall 2015 Bulky Rigid Plastic Collection

Saturday, November 7, 9am-Noon
Smith Vocational High School



Bring your large, clean, rigid, plastic
discards for sharing & recycling!

All collected items will
be available to the public free of charge



Northampton Reuse Committee's

Spring Recycling Rally

Saturday, April 30, 2016 • 9 AM to Noon
Smith Vocational High School 80 Locust Street, Northampton

- 1 → **Bulky Rigid Plastic**
Nothing flexible or crinkly,
no PVC 
- 2 → **Pellet Fuel Bags**
Must be dirt-free and dry 
- 3 → **White Styrofoam**
Large white chunks only.
Must be rigid, dry & clean 
- 4 → **Bicycles**
via **Bikes Not Bombs**
Suggested \$10 per bike donation
to offset shipping expenses 
- 5 → **Document Shredding**
Limit of 2
curbside recycling-sized boxes 

For more info visit www.northamptonma.gov/reduce-waste
or call 413-557-1059



Hybrid Reuse/Recycling



Rigid Plastics Recycling

Or communities can sponsor ongoing collection at transfer station

- ❖ Need partnership to take it!



Photos from a multi-town collection site in MA

Rigid Plastics Recycling

- Partner with MRF - many will take if asked
- Considerations:
 - ❖ Typically only take plastic – remove metal & fabric (e.g., car seats!)
 - ❖ Require a large quantity
 - Can't process through MRF – will bale separately
 - Don't have storage space for small amounts
 - ❖ *Current* plastic recycling market weak so MRF might charge a fee - but might be cost neutral overall?
 - Before/after waste transport & disposal costs
 - Recycling transport & tipping costs
 - ❖ If ongoing collection – will need location & container

Summary & Lessons Learned

Reuse

Communities can:

- Promote existing donation options (and refurbish/repurpose ideas)
- Add a swap shop at their transfer station
- Host a reuse event, such as a yard sale, swap, or zero waste event
- Partner with charity organization(s) to:
 - ❖ hold collection event for donation
 - ❖ add container(s) at transfer station that they will pick up when filled

Recycling

Communities can:

- Add dedicated container(s) at their transfer station
- Host collection event(s)

Considerations

Requires human resources:

- Staff and/or volunteer hours
 - ❖ Establish & maintain swap shop
 - ❖ Organize & run events (collection, swap, yard sale, & fix-it clinic)
 - ❖ Find donation partners
 - ❖ Manage added containers at transfer station
- Determine if there is...
 - ❖ Time & energy to change the status quo

Considerations

Requires financial evaluation of:

- Before/after transportation & disposal cost
 - ❖ Remember – if bulky item(s) removed from waste, both hauling & tipping costs lower
- Collection feasibility:
 - ❖ Is there the physical space to locate collection?
 - ❖ Costs to build storage space or rent container
- Cost to transport to recycler & tipping fee
 - ❖ Rural areas at a disadvantage
- Drop-off fee charged to residents
- Might require a subsidy to “do the right thing”

Lessons Learned

- Economics limits options in rural areas
 - ❖ Relatively low volumes
 - Need to ship full containers
 - Requires storage space
 - ❖ Collaborate with other communities – one truck does a “milk run”
 - ❖ Hauling distance to recycling is significant
- Donation options usually located in more populated area
- Partner with central “shopping” town for reuse/recycling event

Lessons Learned

- Reuse potential is highest for furniture and bulky rigid plastics
 - ❖ Reuse of mattresses might be an option
- Recycling might be feasible for mattresses and bulky rigid plastics
 - ❖ Recycling of wood & upholstered furniture by C&D recycler might be an option
- Disposal is unfortunately often the only option for carpet (exception being small area rugs for reuse)
- EPR would make mattress & carpet recycling feasible

Lessons Learned

- Swap shops and reuse events:
 - ❖ Need plan for items that remain
- For all reuse/recycling events:
 - ❖ Might take a lot of effort to set up the first time or two & not seem successful
 - ❖ But if community can count on it – momentum will build (and be much less work each time!)

FYI...

Additional information on bulky waste reuse:

- IRN: The Reuse Network
 - ❖ Manages surplus from schools, business
 - ❖ Sends overseas for reuse
 - ❖ www.irnsurplus.com
- Many universities undertake reuse:
 - ❖ Students throw out perfectly good items
 - [University of Vermont Student Move Out Project](#)
 - [Rochester Institute of Technology Goodbye Goodbuy!](#)

New Resources on NEWMOA Website:

www.newmoa.org/solidwaste/projects/bulky/index.cfm

Zero Waste Connection

A Professional Social Network

Mission & Goals

- Promote sustainable consumption and pollution prevention as the preferred methods of achieving zero waste
- Provide forums for zero waste professionals to share information on program development and implementation
- Foster innovation in zero waste programs through the exchange of ideas in real time
- Increase the adoption of zero waste practices among practitioners
- www.zerowasteconnection.org

Questions?

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