Bulky Wastes: Increasing Reuse & Recycling in Rural Areas

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Northeast Waste Management Officials’ Association (NEWMOA)

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
Project Outline

- Stakeholder Group in each partner location
- Guidance documents:
  - Furniture
  - Mattresses
  - Carpet
  - Large Rigid Plastics
- Workshops
- “What to do” fact sheets in each location
- Webinar – lessons learned
- Project Website: [www.newmoa.org/solidwaste/projects/bulky](http://www.newmoa.org/solidwaste/projects/bulky)

Outreach Materials
Current Practice

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

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](http://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
Communities can also facilitate local reuse by sponsoring a:

- Permanent Swap Shop
- One-day swap event
- Fix-it clinic
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
Communities can also promote repurposing to residents: social media is a great source for inspiration & helpful tips.

**Furniture: Repurposing**

- Photo 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
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

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](http://www.furniturebanks.org)
  - Serve low income families & individuals moving from shelters, fire, refugee resettlement, & domestic violence
  - Families need more than one mattress
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

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**Mattress Recycling**

**Mattress Components by Weight**

- Steel: 48%
- Mattress foam: 28%
- Fabric and fibers: 14%
- Non-recyclable material: 5%
- Wood: 5%
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

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](http://www.mattressrecyclingcouncil.org)

States with EPR for mattresses (so far)

- Connecticut, Rhode Island, & California
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

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
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

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
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

Nylon & Olefin fiber sheared from backing
- Backing often disposed
- Processors with high tech equip can process backing into polypropylene & calcium carbonate (have markets)
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
~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

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

Communities can:
- Promote donation to charity – especially items for kids
- Hold a swap event
- 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

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**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 413-587-1029

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**Hybrid Reuse/Recycling**

Image showing a collection event with various items for recycling and reuse.

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12/15/2016
Or communities can sponsor ongoing collection at transfer station

- Need partnership to take it!

Photos from a multi-town collection site in MA

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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

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

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!)
Additional information on bulky waste reuse:

- **IRN: The Reuse Network**
  - Manages surplus from schools, business
  - Sends overseas for reuse
  - [www.irnsurplus.com](http://www.irnsurplus.com)

Many universities undertake reuse:

- Students throw out perfectly good items
  - [University of Vermont Student Move Out Project](http://newmoa.org/solidwaste/projects/bulky/index.cfm)
  - [Rochester Institute of Technology Goodbye Goodbuy!](http://newmoa.org/solidwaste/projects/bulky/index.cfm)

New Resources on NEWMOA Website:

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](http://www.zerowasteconnection.org)

Questions?

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