

**Massachusetts Department of Environmental Protection (MassDEP)**  
**Recycling Market Development Workgroup**  
**September 15, 2022, 10:00 am to 12:00 pm**  
**Meeting Summary**  
**Topic: Education, Outreach, Networking, and Information Sharing**

The meeting began with a summary of previous meetings:

Meeting #1 – Introduction (January 2022)

- MassDEP market development initiatives
- Occupational Services Division Environmentally Preferable Purchasing (EPP) program
- MassDevelopment
- MA Office of Business Development

Meeting #2 – Regional and National Perspectives (February 2022)

- Northeast Recycling Council
- Circular Matters

Meeting #3 – Business Support & Economic Development (April 2022)

Meeting #4 – Demand-side Strategies (June 2022)

Participants then joined one of four breakout groups, each focused on different groups of recyclable materials:

1. **Packaging – all forms of packaging**
2. **Organics – food scraps and other organics**
3. **Construction & Bulky Materials – construction, furniture and other bulky materials, mattresses and household goods (including textiles)**
4. **Materials with New and Emerging Markets – such as solar panels and wind turbines**

Questions to consider for each material group:

*What are the education, outreach and networking needs and opportunities to:*

- *Help generators of materials, haulers, and/or recycling facilities connect with existing market outlets.*
- *Enable recycled product manufacturers or others that are using or want to use recycled content feedstocks to obtain reliable supply.*
- *Improve knowledge and conduct research to develop new applications and uses for post-consumer materials.*
- *Drive innovation in technology development.*

**Group 1 (Packaging) Notes:**

We've discussed opportunities to reuse packaging, which would require centralized collection and distribution locations available to the public. Similarly, centralized aggregation points for small businesses might make recycling of some packaging more worthwhile.

It's about the quality and quantity to make collection worth it.

Expanded Polystyrene (EPS) can be converted to resin and other products. Insulation Technology has sited a pilot collection bin at Bridgewater State University. Hopes to be open to public eventually. Would it be possible to start municipal programs?

Their process involves melting EPS material down into 13x13x6, 35 lb. blocks (ignot) which are palletized and shipped. One silo bag of melt can be compressed down to half a pallet. Suppliers/customers send back scraps for recycling, there are some drop-offs. Word-of-mouth accounts for many connections; hoping to make more via social media.

Packaging that isn't easily recyclable can be converted into energy, low-sulfur diesel, resin and other materials.

Leverage power of trade organizations to help connect members and highlight opportunities.

Consumer product packaging is obviously a huge generator of waste. Recycled content mandates are looking to change that, but how can we meet them?

Education is needed for both industry and consumers. There are regional issues; 59 different municipalities in MA have plastic and/or packaging bans in place. It's difficult to find alternative packaging for all the different banned items, particularly as they differ from town-to-town. There is support from the business community for some statewide bans, for example: plastic bags. Statewide bans make it easier for industry to make products.

With a recycling campaign, messaging is important. For instance, on Cape Cod, there is great regional pride. But behavior change is hard, so that message needs to be there every step of the process: signage and messaging at point of sale (stores) to point of impact (recycling barrel, for example: at the beach). Use the same media and signage on social media, in the supermarkets, on beaches.

We need to fund solutions like water filling stations and place recycling bins in places like beaches.

Who are the most important allies for messaging? Retailers, manufacturers, government? How do we involve social media?

It's important to model programs that work. We can partner with industry. That partnership extends all the way to the store employees themselves.

MassDEP's organics diversion model could be used for packaging materials. The Organics diversion map is a good example. You could make something similar for packaging materials.

Tools might include directories, maps, mailing lists, regional pilots (collaboration with RecyclingWorks in Massachusetts).

Incentives help change public behavior.

## **Group 2 (Organics) Notes:**

There are two stages of end markets for organics to consider: 1) markets for organic material generated by residents & businesses (e.g. composting facilities) and 2) markets for finished compost material.

RecyclingWorks MA has supported municipalities in reaching their business communities. For example, supporting Cambridge small businesses participating in the City's curbside food scraps collection program.

Aggregating local businesses for food scrap services is helpful for hauler route densification and efficiencies.

MassDEP received approval for grant funding to include commercial collection equipment.

How has MassDEP notified restaurants or other generators of the upcoming organics ban?

- MassDEP does their own outreach. Previously tried a direct mail campaign which was found to be not as effective
- RecyclingWorks sends information to their email list with over 7,000 contacts
- Work through business associations, trade associations, haulers
- Social media, traditional media outlets
- Send notices to entities disposing of organics.
- If anyone has suggestions for groups to meet with, present to, contact, MassDEP is open to those opportunities

When implementing a plastic bag ban, the Town of Shrewsbury worked very closely with the Department of Public Health (DPH). When food businesses get something from the health department, they pay attention. Also, inspectors visit the businesses each year.

- MassDEP has done some DPH outreach through RW but is sensitive to not put additional burdens on local public health officials.
- RecyclingWorks is presenting at Massachusetts Health Officers Association conference in October.

Black Earth Compost is vertically integrated in that they collect, compost, and distribute end product so they observe the full process.

- With commercial accounts, more education is needed about contamination. With restaurants, they see a lot of contamination and spend a lot of energy figuring out ways to remove the trash from the process.
- Composters and haulers need to collaborate as much as possible.

RecyclingWorks can help businesses prevent contamination and that is also an important piece to note in outreach/communication.

Do we have standard signage for restaurants?

- RecyclingWorks has some signage, which can be customized based on end-site specs

For schools and cities, do they find industries are having difficulty with their collection? And on the processing side – are they able to sell the end-product they generate?

- They are typically able to clear out all material over the course of a year, but spring/fall is the busiest time of year. One opportunity is organic lawn care, shifting people from pesticides

Another end market for compost can include garden clubs and botanical gardens (such as the New England Botanical Garden in Boylston).

Businesses/restaurants/events diverting food waste have a public platform to share what they are doing and why.

To ensure consistent end-markets, there is a need for a plan going forward to address PFAS.

### **Group 3 (C&D and Bulky Items) Notes:**

It was a challenging summer in the C&D world. The two markets for the highest grade “specification-A” wood - PRE-Greenleaf and the Plainfield, CT gasification facility that produces biomass energy had an unscheduled shutdown at the end of May. They consume about 25 percent of A-grade wood (about 25,000 tons per year). They are still down and it is uncertain when they will come back up. But the possibility is it won’t reopen until early 2023. Another reliable market – Tafisa in Quebec, Canada is a longtime wood market but took a two-week scheduled shutdown for maintenance late July and the shutdown became a three-week shutdown). Unlike past years, they had no excess storage capacity to hold materials during shutdown. MA had very limited markets for several weeks this summer, so MassDEP had to issue waste ban waivers to permit A-grade wood to be sent to disposal instead of recovery. It shows how tenuous our markets are.

Wood generation over the past five years has been about 100,000 tons/year. Most goes to Tafisa (75 percent); the rest for biomass in CT.

MassDEP also conducted a bulky waste study which included 10 days of surveying about 400 C&D loads at five facilities. The report on the study results shows composition of C&D:

[MassDEP BulkyWaste ReportCover v2.indd](#)

What we saw: C&D waste contained over 40 percent waste ban materials. We are not separating that 40 percent because some components - like engineered wood - have very limited markets. But we also found additional recoverability potential for 22 percent.

The take-home: we could be doing a lot more recovery and diversion; only 34 percent of C&D loads were absolutely non-recoverable.

Currently most C&D facilities are recovering 15 percent of inbound tonnage, but there’s a lot more opportunity than that.

Asphalt shingles are readily recyclable but there’s no outlet at this time for this material.

Gypsum is also a recoverable material but we only have an outlet for the clean gypsum wallboard (about 25 percent of generation); the rest is painted or wallpapered and we have no markets for that at this time.

Vinyl siding is also present in C&D waste but we are not doing a good job to recover this material.

How are we thinking about the marketplace for this? Are there any markets in MA today? Is there an online marketplace or a central clearinghouse of buyers and sellers? Also, we have a wealth of skills and intellect among our university students; how can we harness this power to find solutions to these problems?

There are markets for vinyl siding and vinyl windows. Networking among trade associations is good way to connect end-users and generators.

The geographic region that markets cover is fascinating. For instance, moving material by rail is common from New York City. Also, some material exits via barge. It would help to have a database that clarifies the transportation mode, logistics, minimum volume or weight of material accepted. For example, if there are facilities with rail access, that's helpful to know. Also – how far is too far to move a material? Depending on the value of the material, you can move material a long way. Is there a way to calculate or determine the distance that a particular material can travel and still make economic sense (i.e. a calculator of sorts, where you could input the material, the closest market, and the impact of shipping the materials to recover them vs. using virgin materials)?

A waste ban is MassDEP's most effective tool to increase recycling and foster market development. November 1 will bring mattress and textile waste bans. Brooke Nash described the growth of Massachusetts' mattress recycling industry over past six years, during which time MassDEP seeded development of recyclers through grants for equipment, a state contract for mattress recycling and grants to incentivize municipalities to separate mattresses and send them to a state contract recycling vendor.

Seattle has a model where building permits include a deposit on C&D separation/diversion. Proof of successful separation and recycling means the deposit is returned. Incentivizes the practice of recycling through an economic lever.

Vinyl is produced far from where it's used (virgin material), so we should look at the life cycle analysis of moving material to a recycling destination vs. disposing of it.

Education could occur when a permit is pulled for demolition: to share market information regarding reuse and recycling with all contractors and to incentivize with financial savings for documented reuse/recycling (e.g. reduced permit fee or tax incentive).

Vermont has a system that works like a deposit: the contractor gets deposit back with verified reuse/recycling.

Q: Regarding potential recovery, have we looked at the barriers for recovering some of this material? Is it about aggregation? Needing enough material in one location?

A: For asphalt shingles, it's specifications – per the DOT – not likely to be allowed in federally funded highway projects, but secondary roads, state highways, or parking lots might be able to use it. With gypsum, NEWMOA is holding series of webinars this winter on wallboard recycling, exploring the obstacles and opportunities. We'll conclude with an in-person stakeholder meeting to develop an action plan and network for clean and used gypsum wallboard.

There's a market for vinyl; it's a matter of aggregating and moving it to market. No processing is needed.

Re: Lack of source separation. At a transfer station in Roxbury, dismayed to see how many banned materials were being mixed into loads of C&D. What if we picked one high-value material and mandated it be source separated at the construction site?

We're seeing some companies eager to do source separation at the job site and hope to be seeing more of this.

#### **Group 4 (New and Emerging Materials) Notes:**

It would be useful to have a Recycle Smart-like website and database for who is accepting the solar panels and what they do with them. For example, this could include Recycle Smart messaging updates regarding processing information for haulers (e.g., Facilities in Arizona, Nevada etc).

Two processing companies in Western MA are currently working with solar panels. It would be helpful to gather these companies and distributors for information-sharing.

Enable recyclers to obtain reliable supply:

- More information regarding solar panels and EV batteries
- Research outcomes and dollar values for unique Solar PVs and wind turbines
- There are established markets for other materials, but not in this area
- Research countries where onshore turbines operate

Improve knowledge and conduct research

- Connect with Massachusetts Institutes (from class projects to industrial scale)
- Bring in organizations like Greentown Labs, MA Clean Energy Center, etc.

Drive Innovation

- R&D examples from Europe
- Examples from Vermont like Call2Recycle mail-away boxes and EPR for electronics

Other discussion items:

- Further coordination with Solar Energy Industries Association (SEIA)
- Further information sharing on install and reinstall efforts e.g., breaking down polymer/glass binders
- Potentially mandating further transparency from "Recycled Content Product Manufacturers" e.g., TerraCycle
- In addition to glass and aluminum in panels, further information sharing around markets for unique materials
- Additional State and municipal level assistance on safely collecting and transporting e-waste

#### **Next Steps**

Meeting #6 – Research and Development

- Product testing and development of new technology
- Scheduled for December 15, 2022 from 10 am to 1 pm

Draft Action Plan

- To be developed in Winter 2023
- Looking for stakeholder feedback in Spring 2023