Trash 101 - What Waste Problem?

Hosted by CCM and HRRA

September 10, 2020
Today's Presenters:

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Commissioner  
CT DEEP

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Executive Director  
HRRA

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President  
MIRA

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COO  
USA Hauling & Recycling
Connecticut Coalition for Sustainable Materials Management

Kickoff Meeting
September 8, 2020
Welcome & Introductions

Participating Towns within the CCSMM
As a municipal leader, what’s the most pressing challenge or opportunity you’re focused on?

- “The exorbitant cost of single stream recycling”
- “I find organics to be a real challenge to remove from the waste stream”
- “Educate residents about the importance to reduce waste ... encourage sustainable choices.”
- “Increasing the effectiveness of recycling (getting correct materials into the recycling stream”
- “Increasing costs and public awareness.”
- “Lower disposal costs”
- “Trucking trash out of state is not a good option”
- “The most pressing challenge for our City is to implement programs to reduce waste without additional costs.”
What Will We Achieve Together?

- **Work together** for a modern, cost-effective, and environmentally sustainable materials management system
- Share information and best practices through **working groups**
- **Solicit ideas** from developers, service providers, and community members about innovative waste management solutions
- Develop momentum for shared approaches / policies
- Align resources with shared goals
What Will We Achieve Together?

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- Develop a menu of viable opportunities for improving materials management, including reducing the amount of waste disposed
- Make a commitment to create a more cost-effective and environmentally sustainable system
Challenges & Opportunities

- Municipal Solid Waste (MSW) disposal heavily reliant on aging Waste to Energy (WTE) infrastructure
- Rising costs of disposal and recycling
- Environmental and public health impacts
- "Land of steady habits"

vs.

- Historical commitment to recycling & reducing landfilling
  - 30% recycling rate, above national averages
- Low reliance on landfilling
- Local innovation
- Policies to promote new technologies
- Robust private sector involvement in waste management and infrastructure development
Connecticut’s Waste Infrastructure

- 5 Waste to Energy facilities
- 1 Ash Landfill
- 4 Food Scrap Anaerobic Digestion facilities permitted, one in operation
- 30 Volume Reduction facilities
- 4 Intermediate Processing Centers for Single Stream/mixed recyclables
- Transfer Stations in almost all municipalities
- 1 Glass recycling end market & 1 Glass Processor
- 15 Bottle Bill Redemption Centers
- Virtually no C&D disposal – 90% goes out of state
Connecticut’s Waste Infrastructure is disproportionately located in Environmental Justice communities

- 3 of the 5 Waste to Energy facilities
- 1 Ash Landfill
- 4 Food Scrap Anaerobic Digestion facilities permitted, one in operation
- 10 of the 30 Volume Reduction facilities
- 3 of the 4 Intermediate Processing Centers for Single Stream/mixed recyclables
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Connecticut’s Waste Generation

- Approximately 3.5M TPY of MSW is generated in CT
- ~1.25 million is recycled or composted
- ~2.3 – 2.5 million TPY of MSW is disposed
- ~87% of CT disposed MSW goes to CT’s 5 waste-to-energy plants which generate electricity as a by-product. CT has the lowest rate of landfilling of any state
- In 2016, 100K tons of MSW went out of state for disposal; currently ~400K goes out of state for disposal
Waste to Energy Capacity (2019)
Estimated annual pounds of MSW generated per capita (residential) = 740
Recent Cost Trends

- General trend of increases in tip fees for municipalities
- MIRA’s 2018 tip fee was $68 per ton
- MIRA MSA Tip Fee for MSW = $91-93/ton = ~35% increase
- HRRA MSW tip fee in 2019 = $88.21 & in 2020 = $95.31
- CT municipalities are paying on average $80 - 90 per ton for MSW and
- $25-$87 per ton for recyclables, excluding transportation
A Fork in the Road?

- MSW generation is 2.3M TPY
- With the potential loss of MIRA WTE capacity – In-state disposal capacity falls to ~1,540,000 TPY
- The state will see a significant disposal capacity shortfall
- Increased tipping fees driven up by market demand and limited in-state capacity
- Uncertainty regarding the reliability of our remaining capacity for MSW disposal
Waste Composition, 2015

Residential MSW Composition, 2015

- Paper
- Plastic
- Metal
- Glass
- Food Scraps
- Other Organics
- C&D Debris
- HH Haz Waste
- Electronics
- Other Wastes
CCSMM Interest in Solutions

Responses to CCSMM Municipal Survey
Food Scraps Snapshot
Responses to CCSMM Municipal Survey

- 68.00% Does not currently manage food scraps, but is interested...
- 50.00% Barriers to collection or management
- 10.00% Transfer station drop-off permitted
- 8.00% Send to a composting facility or AD
What additional materials should be added to an EPR program?

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tires</td>
<td>54.05%</td>
</tr>
<tr>
<td>Household Hazardous Waste (HHW)</td>
<td>45.95%</td>
</tr>
<tr>
<td>Other</td>
<td>45.95%</td>
</tr>
<tr>
<td>Propane Tanks</td>
<td>40.54%</td>
</tr>
<tr>
<td>Packaging (including recycling bin...)</td>
<td>37.84%</td>
</tr>
<tr>
<td>Sharps (i.e., needles)</td>
<td>35.14%</td>
</tr>
</tbody>
</table>
Unit Based Pricing (SMART)

Courtesy of Waste Zero, Inc.
SMART & Food Waste Diversion

Courtesy of Waste Zero, Inc.
SMART & Complementary Measures

Courtesy Waste Zero, Inc.

Annual MSW Tonnage Impact with the Base SMART Program Residential Only

- 2018 Actual: 1,265,000
- Residential WTE-Led: 1,035,000
  - SMART Only: 579,600
  - Res. + Commercial SMART: 579,600
- Add Res. Food Waste Collection: 463,680
- Add Commercial Food Waste Collection: 885,500
- Add Res. Textile Collection: 463,680
- Add Res. Glass Collection: 659,698
- Add Commercial Glass Collection: 659,698
- Add Res. HTR Plastics Collection: 645,844
- Commercial WTE-Led: 1,265,000
- Add Commercial Food Waste Collection: 659,698
- Add Commercial Glass Collection: 422,303
- Add Commercial HTR Plastics Collection: 411,745
A U.S. recycling rate of 75% by 2030 would create 1.1 million new jobs.

Recycling and reuse create at least 9 times more jobs than landfills and incinerators, and as many as 30 times more jobs.

86% of the total U.S. waste management jobs are in recycling, reuse and remanufacturing, even with a nation-wide 30% recycling rate (eco-cycle®).
What Do Your Constituents Care About?

Responses to CCSMM Municipal Survey

When considering new programs or services to reduce waste, what priorities are the most important to the citizens of your town?
Materials Innovation and Recycling Authority

Disposal Capacity Crisis and the Status and Outlook for Municipalities and MIRA’s CSWS (Hartford CT) Waste-to-Energy Project

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CSWS Facilities

Resource Recovery Facility - Hartford
- RDF Technology
- WPF & PBF

Recycling Facility - Hartford
- Single Stream

Transfer Stations
- Essex
- Torrington
- Watertown
- Ellington — Dormant since 2013

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Municipal Service Agreements (MSAs) with 51 towns through June 2027, but can exit each year in March.

One-Year Delivery Agreements with 36 Waste Hauling Companies.

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CT MSW (Post Recycling) Waste Disposal Capacity

• Statewide Generation: >2.2 Million tons/year
• Private WTE: ~1.3 million tons/year
  ❖ Bridgeport, Preston, Lisbon, Bristol
• MIRA WTE: publicly owned, Hartford: 720,000 ton/year (design)
• Export to out of state landfills: ~400,000 tons/year pre covid19

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Hartford WTE facility and 3 Transfer Stations

- Contract Towns: 403,900 TPY (279k direct)
- Non-Contract Towns: 114,800 TPY (95k direct)
- 2020 Total: 518,700 TPY (374k direct)

Note 200,000 tons of capacity reduction due to facility age/capitalization issues.
Single Stream Recyclables - Tons Managed by MIRA — FY2020

- Hartford Recycling Facility
  - Total: 73,400 TPY (100,000 capacity)

Direct delivery and from Transfer Stations

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Tip Fees - FY2021

- **MSW - Contract Towns:** $91.00 per ton (includes NO Fee Recycling)
- **MSW - Non-Contract Towns:** $93.00 per ton
- **Recyclables - Contract Towns:** No Charge
- **Recyclables - Non-Contract Towns:** $72.00/ton

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Cheap Energy Effect on WTE

▪ Wholesale price for electric energy is a fraction of the historical value.

▪ Average sale price for electric power, January thru June 2020 = $19.99/MWh

▪ Compare to $120.00/MWh during the 30 year term of the original project. Many Millions in revenue lost.
Non-Tip Fee Revenues/Subsidy - FY2021

- Jet Turbine Facility electric Revenues = $9.3 MM
- Equates to $11.78/ton subsidy to MSW Tip Fee
- This subsidy is unavailable at the expiration of Jet Facility permits in 2023

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Future of the System

- **DEEP’s Resource Rediscovery Initiative**
  - DEEP RFP (Legislatively Mandated) — November 2015
  - Targeted 60% diversion of MSW, Public Private partnership, private financing, market competitive.
  - Wide industry interest, many innovative proposals evaluated
  - Sacyr Rooney Recovery Team LLC (SRRT) selected

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Future of the System

- **SRRT Proposal: Refurbish MIRA’s Hartford WTE and Recycling facilities**
  - 30 years of reliable capacity and potential for significant diversion (markets permitting)
- **$333 MM Capital Investment**
- **MSW tipping fee $145 per ton beginning 2025**
  - Assumed 30 year town commitments

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Future of the System

- Resources Rediscovery Failed: No Municipal interest in 30 Year Term at non competitive $145/ton tipping fee
- Suggested solutions proposed:
  - Power Purchase Agreement (Millstone model)
  - Enhanced REC (solar/wind renewable energy model)
  - General Obligation Bond (Public/private Partnership model)
  - Regulatory approach (prohibit/tax waste export)
- State of CT has Declined to Provide Public Support

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Future of the System

- MIRA will maintain service to participating Municipalities through the 2027 term of agreement.
  - Encourage DEEP’s effort to reduce MSW generation and increase diversion. (DEEP’s CT coalition for Sustainable Materials Management)
- Status Quo operation of RRF for up to 3 years
- Facility conversion to transfer station effective 2023 or sooner (note limited capacity, not all presently contracted communities will be served)
- Potential Conversion to intermodal (truck and rail) transfer station at a date to be determined

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The Challenge

• Disposal Capacity across New England is insufficient and shrinking
• Capacity in Western and Southern States is available but shrinking
• Transport infrastructure is in peak demand (trucks, trailers, Drivers)
• Costs are volatile and rising fast: Road taxes, tolls, fuel, fees.
• Reliance on the willing acceptance of CT and NE regional waste by receiving states is a significant policy risk
Potential diversion landfills
The Challenge

Key point: If you absorb nothing else from this presentation please know this:

We should do all we can to:
- REDUCE Waste generation (PYT, Composting, Extended Producer Responsibility etc.)

BUT: Even if successful beyond our hopes with waste reduction and recycling the State will

STILL REQUIRE REPLACEMENT OF THE 700,000 TONS OF HARTFORD FACILITY CAPACITY

by reliance on transfer to out of state landfills or more prudently, development of a replacement facility. There is no other option.

August 11, 2020
Housatonic
Resources
Recovery
Authority

Jennifer A. Heaton-Jones
Executive Director, HRRA
The unwanted & discarded...
Everyone, every one... generates waste
When’s trash day?
Setting the course and deciding on a direction
Waste Reduction - Waste that never gets created and doesn’t have waste management costs. Or... Reducing the amount of materials entering the waste stream from a specific source by redesigning products or patterns of production or consumption (e.g., using returnable beverage containers). Synonymous with Source Reduction. (EPA Glossary)

Source Reduction - Reducing the amount of materials entering the waste stream from a specific source by redesigning products or patterns of production or consumption (e.g., using returnable beverage containers). Synonymous with waste reduction. (EPA Glossary)
Material Management Solutions

Extended Producer Responsibility (EPR)
Paint, Mattresses, Thermostats, E-waste

Source Separation Programs
Textile Recycling
Municipal Organic Collection
Bag bans *(change human behavior)*
Plastic Film Return to Retail
Deposit Systems

Unit Base Pricing
At the curb and at our transfer stations

Recycling Right
Reducing cost, increasing value
The TRUTH about Mixed Recycling

It's typically, dirty... bagged... and mixed with unacceptable material.
Why so much contamination?
Prescription bottles, bottle caps, shredded paper, batteries and other bits –

DO NOT BELONG
This is why shredded paper does not belong in the mixed stream. It should be recycled separately.
Can you guess what this is?
Propane tanks are bombs
“Tangles” Cords and Wires... add cost
Dead plants in the recycling stream... just don’t make sense
It starts and ends at the curb
Jennifer Heaton-Jones  
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Jennifer@hrra.org
Trash 101: What Waste Problem?

An Industry Perspective

Connecticut Conference of Municipalities
September 10, 2020
Frank M. Antonacci
FRANK M. ANTONACCI

➢ COO of USA Waste & Recycling and All American Waste (locally-owned & established in 1974 serving Connecticut and Western Massachusetts)
➢ Manager of Murphy Road Recycling LLC and F&G Recycling, LLC
➢ Vice chair of RecycleCT
➢ DEEP-certified transfer station operator
➢ Recipient of Waste360’s 40 Under 40 award
➢ Director of New Valley Bank & Trust
SPECTRUM OF MUNICIPAL INVOLVEMENT IN WASTE MANAGEMENT

Conn. Gen. Stat. Sec. 22a-220(a)

“Each municipal authority shall make provisions for the safe and sanitary disposal of all solid wastes which are generated within its boundaries”

- Subscription Towns (Resident directly pays for collection & disposal) About 50% of towns
- Municipal Contract (Town pays service provider for collection & disposal) About 35% of towns
- Municipal Collection and Disposal (Town pays directly for collection & disposal) About 15% of towns
MUNICIPAL PRIORITIES IN ASSESSING WASTE PROGRAMS

According to a survey conducted by Connecticut Coalition for Sustainable Materials Management (CCSMM), municipalities rank priorities as follows in terms of importance:

1. Reliability
2. Convenience
3. Affordability
4. Sustainability
1. RELIABILITY
Connecticut’s waste management system is reliable and resilient.

➢ **Connecticut’s Waste Management Infrastructure is Robust.** Connecticut boasts 37 materials recovery facilities (MRFs) and recycling processing facilities, 150 municipal transfer stations, 4 permitted anaerobic digesters, 5 waste-to-energy (WTE) facilities and hundreds of private and municipal haulers.

➢ **COVID-19 Pandemic and the MIRA Shutdown Both Handled Seamlessly.** Two recent historic stress tests were managed effectively and efficiently by private and public haulers, transfer stations and disposal facilities.

➢ **Essential Service During Pandemic.** Despite pressures and limitations imposed by the pandemic, statewide service was uninterrupted and safely operated.

    ❖ **Not a Given.** Other jurisdictions like Maryland, Massachusetts and Philadelphia all struggled with collection delays and labor issues amid the pandemic.

➢ **MIRA Facility Breakdown.** When both turbines shut down unexpectedly at MIRA for several months in 2018-2019, the State’s existing waste infrastructure collected and responsibly disposed all of MIRA’s diverted waste with no interruption.

➢ **Diverse Approach to Waste Management.** The State’s waste infrastructure has proven capable of flexing and adapting to changing market conditions by utilizing sufficient WTE capacity, responsible landfilling, and recycling facilities.
2. CONVENIENCE
Connecticut’s waste management system is convenient for residents.

➢ **Collection System.** Collection system statewide is containerized, clean, and efficient.
   - 98% of towns have curbside pickup.
   - Not a given across the region.

➢ **Automation.** Waste and recycling services are highly automated throughout the state.

➢ **Recycling.** We have found that the best way to increase recycling participation is by keeping it simple and convenient.
   - 94% of municipalities statewide have single stream recycling.
3. AFFORDABILITY
Connecticut’s waste management system provides affordable full-service.

➢ **Full Service at Affordable Cost.** In Connecticut, average household residential service, including waste and recycling, is $20-$40 a month.
  - Price covers cost of trucks, insurance, labor, fuel, insurance, taxes, disposal, etc.

➢ **Comparatively Inexpensive.** Residential service is substantially less than other ordinary monthly expenses.

➢ **Affordable Despite Adverse Market Conditions.** Costs remain affordable despite legislative wage increases of 50% and historic lows in the recycling market.

➢ **Varies by Municipality.** Municipal economic responsibility and financial outlay depends on each municipality’s selected waste system.

![Diagram showing the range of cost affordability between Least and Most.
Least: Subscription Towns (Resident directly pays for collection & disposal) About 50% of towns
Least: Municipal Contract (Town pays service provider for collection & disposal) About 35% of towns
Most: Municipal Collection and Disposal (Town pays directly for collection & disposal) About 15% of towns]
4. SUSTAINABILITY
Connecticut is a national leader in sustainable waste management and its waste system is sustainable.

- **Recycling.** Year after year, Connecticut is recognized amongst the top 10 in the country for recycling by Waste360.
  - **35% Statewide Recycling Rate.** Higher than the national average.
- **Effective and Robust Legislative and Regulatory Framework.** Connecticut requires parallel collection, mandates recycling, requires organic diversion and more.
  - **Neighbors.** Even Massachusetts does not have mandated parallel collection.
- **Maintains Diverse Management Options.** By utilizing WTE, responsible landfilling, and recycling facilities, disposal costs remain more competitive and innovation is encouraged.

Connecticut’s MSW tons actually disposed have been trending downward = the State’s system is working.
ORGANICS, EPR AND PAYT

Connecticut has expended considerable time and commissioned extensive research on Extended Producer Responsibility (EPR) and Pay As You Throw (PAYT).

➢ Organics.
   ❖ Existing legislation for large producers; four permitted anaerobic digestion facilities.
   ❖ Extraction of organics from solid waste stream has potential, but efficacy, cost-effectiveness, and collection/extraction system is still to be determined.

➢ EPR. Refer to 2017 Governor’s Task Force to Study Methods for Reducing Consumer Packaging That Generates Solid Waste, available here.
   ❖ Can be successful for certain hard-to-handle materials (mattresses, paint and potentially for batteries and tires)
   ❖ Unnecessary for easily-recycled materials like everyday consumer packaging (the State has a well-established infrastructure for this material).

➢ PAYT.
   ❖ The State already has a “PAYT” system in place, 62% of Connecticut towns have some form of PAYT.
   ❖ All commercial service is based on a PAYT model.
   ❖ There are considerable concerns that enhanced PAYT programs may not “move the needle” with respect to municipal solid waste generation in a state like Connecticut where a robust and effective waste management system is already in place.
THE PATH FORWARD

- Support MSW and recycling infrastructure
- Further leverage of existing in-state network of transfer stations
- Maximize existing capacity at WTE facilities
- Maintain flexibility to use out-of-state resources
- Explore more efficient & eco-friendly technology
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Questions?

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Upcoming Series Dates

Thursday, September 24th
Thursday, October 15th
Thursday, November 5th
Thursday, November 19th
Thursday, December 10th