Waste Management in Connecticut

Annual strategic recommendations report

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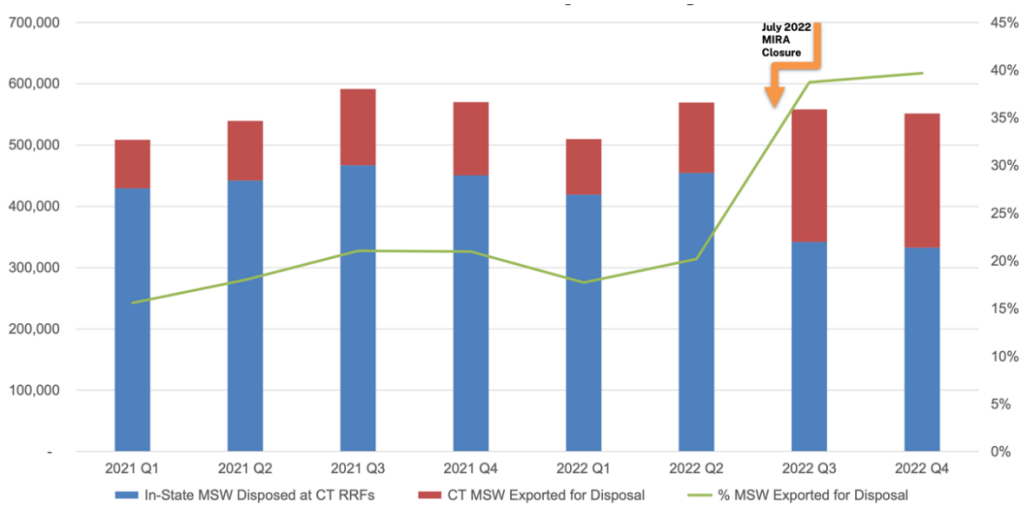
1. Introduction

Why is Waste Management a Municipal Crisis in Connecticut?

Connecticut is facing a growing municipal waste crisis. The state can only manage about 60% of its own trash, forcing the remainder to be shipped hundreds of miles to landfills in New York, Pennsylvania, and Ohio. This dependence on out-of-state disposal leaves municipalities vulnerable to rising costs, limited landfill space, and environmental risks that are increasingly outside their control.

The 2022 closure of Hartford's Materials Innovation and Recycling Authority (MIRA)—once central to the state's waste-to-energy system—marked a turning point. With MIRA offline, more than 860,000 tons of municipal solid waste must now be exported annually. This shift is not only more expensive but also less sustainable, resulting in higher greenhouse gas emissions and shifting the burden onto other states, many of which are already signaling reluctance to keep accepting Connecticut's waste.

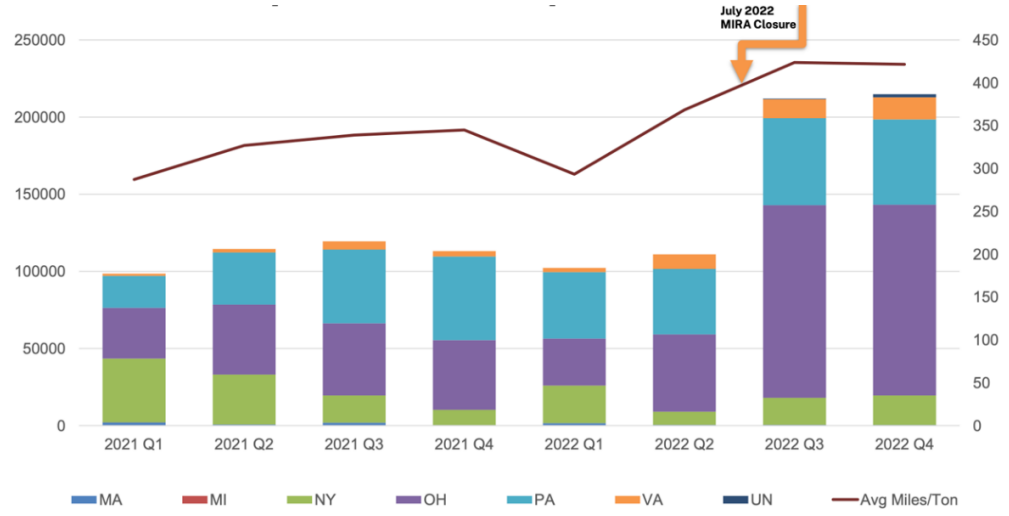


Source: Connecticut Department of Energy and Environmental Protection. 2022 Solid Waste Disposal Data. June 2023.

Figure 1.1 Generated MSW Disposed by Quarter in CT

Figure 1.1 shows a marked increase in the amount of municipal solid waste (MSW) exported for disposal and a decrease in the volume of in-state MSW disposed of in Connecticut after the closure of the MIRA, leading to a significant rise in the percentage of MSW being exported for disposal.

A significant portion of municipal solid waste (MSW) from Connecticut is sent out of state to Pennsylvania, Ohio, New York, and Virginia, with Ohio receiving the largest share (see **Figure 1.2**). Additionally, the average miles per ton of MSW for disposal increased notably after 2022 Q3.



Source: Connecticut Department of Energy and Environmental Protection. 2022 Solid Waste Disposal Data. June 2023.

Figure 1.2 Exported MSW Disposal Locations

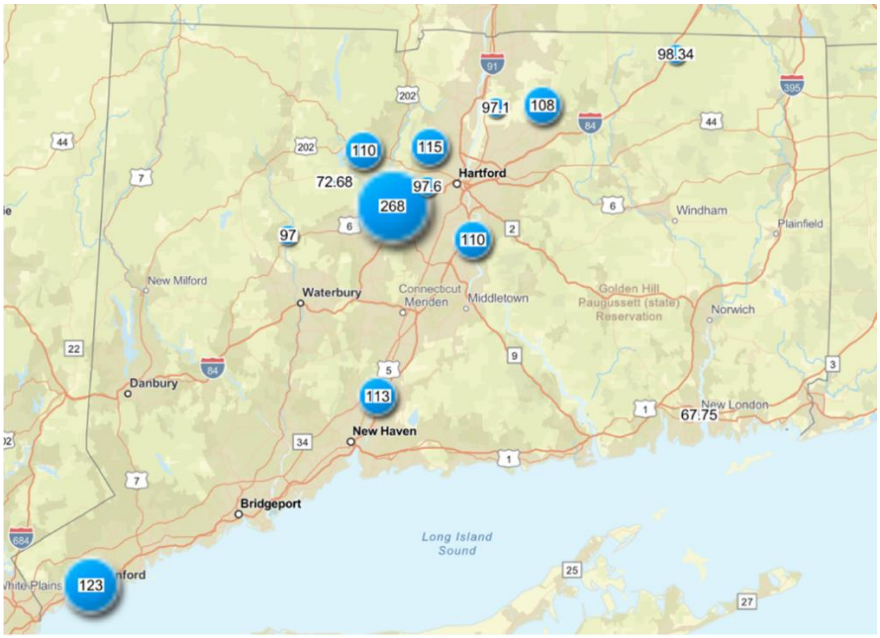
What Are the Consequences?

- **Escalating tipping fees**: With the loss of in-state capacity, towns have had to turn to private haulers and out-of-state landfills, driving costs upward. For example, Hamden's tipping fee budget increased from $1.1 million in 2019 to $2.15 million in 2022, a nearly 100% rise in just three years. Costs are not evenly distributed across the state. Towns near Hartford, like Farmington, reported tipping fees as high as $268 per ton, while others, like East Windsor, paid closer to $97 per ton. These disparities create uneven fiscal stress and complicate regional planning efforts.
- **Unstable long-term planning**: Exporting waste is a fragile stopgap solution, subject to shifting policies and market conditions in other states. Exporting municipal solid waste out of state is inherently unstable. Connecticut currently relies heavily on landfills in Pennsylvania, Ohio, New York, and Virginia. Other states may change their waste import policies, either restricting out-of-state shipments or raising fees to discourage them. Connecticut's trash often ends up in landfills near marginalized communities outside the

state, raising environmental justice concerns while increasing truck and rail emissions from long-distance hauling.

Table 1.1 Annual Budgets in Tipping Fees in Five Municipalities

Municipality	FY 2019	FY 2020	FY 2021	FY 2022	Average Annual Growth Rate
Haddam	104,153	125,000	150,000	180,000	20.01%
Hamden	1,100,000	1,550,000	1,975,000	2,150,000	25.73%
Ledyard	365,400	362,500	365,400	371,200	0.53%
Salem	26,888	30,484	30,000	32,000	6.15%
North Haven	660,350	675,000	925,000	-	19.63%
Westport	-	362,839	350,000	400,000	5.37%



Note: units in dollars per ton
Source: survey data

Figure 1.3 Tipping Fees by Town Based on Available Data

Current and Future Costs

Disposal costs are projected to quintuple by 2050. Municipal officials will bear much of the disposal costs, as budgets must absorb higher tipping fees, contractual obligations to private haulers, and investments in alternative waste solutions. Without new in-state capacity and more effective diversion strategies, towns will face increasingly constrained fiscal choices.

Consider the experience of Wilton. In January 2022, the town paid $44.80 per ton in tipping fees. By October of that same year, costs had surged to $119.54 per ton. For Wilton's Department of Public Works, this nearly threefold increase in less than a year strained budgets, forced difficult reallocations, and amplified pressure on residents through higher taxes and fees. This story is not unique—towns across Connecticut are facing the same fiscal stress.

2. Current Waste Management Practices in Connecticut

Connecticut has long recognized the need for more sustainable waste management. The Comprehensive Materials Management Strategy (CMMS), adopted in 2016, set an ambitious target: diverting 60% of materials from disposal by 2024. The plan called for stronger municipal recycling programs, new waste conversion technologies, and expanded corporate responsibility. However, progress has stalled. As of 2022, Connecticut's diversion rate was only 42%, far short of the CMMS goal. A central factor was the 2022 closure of the Hartford MIRA facility, which represented roughly one-third of in-state disposal capacity. With municipalities forced to contract with private haulers and export waste out of state, the original CMMS framework no longer matches current realities.

In response, the state introduced Governor Lamont's 2023 Legislative Proposal: Addressing the Future of Materials and Waste Management. This proposal emphasizes:

- Extended producer responsibility (particularly for packaging).
- Greater diversion of organics, including food scraps.
- Higher post-consumer content standards.
- Restructuring and decommissioning of MIRA.

While these initiatives are promising, they remain in early stages and require municipal engagement to succeed.

Lessons from Other Jurisdictions

Vermont, USA: Universal Recycling Plan (Act 148)

- Mandates composting of food waste and organic matter.
- Provides statewide access to food scrap collection and processing.
- Increase "blue bin" recycling rates through parallel collection and public space recycling.
- Result: diversion rate rose from 35% (2012) to 72% (2018).
- Application to Connecticut: Shows the value of combining mandates with infrastructure and phased rollout. Municipalities could pilot PAYT programs or develop regional composting partnerships to reduce costs and landfill reliance.

San Francisco, USA: Zero Waste Ordinances

- Implemented a three-stream waste system (trash, recycling, compost).
- Passed ordinances requiring businesses and residents to compost and recycle.
- Introduced financial incentives such as "diversion discounts" and disincentives like bag fees.
- Result: achieved an 80% diversion rate and developed a robust composting system that supports local agriculture.
- Application for Connecticut: San Francisco demonstrates the power of legal mandates combined with strong enforcement and economic incentives. While CT towns may not replicate the scale of San Francisco's programs, local ordinances could mandate food scrap diversion or incentivize commercial recycling.

Amsterdam, Netherlands: Circular Economy Initiatives

- Prioritizes multi-stream separation (glass, textiles, paper, residual waste).
- Uses technology such as sensor-fitted collection containers to reduce collection costs and emissions.
- Encourages partnerships between municipalities, universities, and private waste firms.
- Application for Connecticut: Amsterdam illustrates aspirational models—particularly in technology adoption and public-private collaboration. While large-scale sensor networks may be out of reach for most Connecticut towns, regional cooperation and shared contracts with private firms are practical steps.

3. Centralized Waste Data Dashboard: Enhancing Transparency and Planning

The Need for Data Transparency in Municipal Waste Management

The limitations of Connecticut's waste strategy underscore the foundational role of high-quality, granular data in effective environmental governance. In the absence of integrated and standardized information on material flows, producer practices, household behavior, and municipal infrastructure, policymakers are constrained in their ability to design, target, and evaluate waste reduction strategies. Connecticut's municipalities face significant data gaps in tracking, reporting, and benchmarking waste management performance. Waste data are currently fragmented across towns, regional authorities, and private haulers, with little coordination in how waste volumes, costs, and diversion rates are measured or shared. The absence of integrated data limits municipalities from tracking waste flows across collection, processing, and disposal stages, as well as from benchmarking costs per ton or per capita across towns.

A centralized waste data dashboard, CT Solid Waste Management (SWM) Database would integrate data from municipalities, DEEP, regional waste authorities, and private facilities into a single digital platform. The dashboard would allow towns to visualize and compare key indicators of waste management performance in real time. Purpose of the CT SWM Database:

- Centralize waste management data for all municipalities in Connecticut.
- Ensure uniformity in data format and reporting standards.
- Provide public and stakeholder access to track progress and identify improvement opportunities.

Example of Indicators and Metrics

Category	Indicator	Unit / Metric	Description / Purpose
Waste Generation and Diversion	Total Waste Generated	tons per year and per capita	waste output by municipality to track trends over time and compare efficiency across towns
	Recycling Rate	percentage (%)	share of total waste diverted through recycling programs
	Composting and Organics Diversion	tons and %	quantity and percentage of food and yard waste collected through municipal or private composting programs
	Hazardous and Bulky Waste Collected	tons	the total quantity of household hazardous waste and bulky items collected annually within a municipality
Cost and Efficiency Indicators	Collection and Hauling Costs	dollars per ton / per household	operational expenses associated with curbside collection and transport to facilities.
	Tipping Fees	dollars per ton	disposal cost per ton at landfills, transfer stations, or WTE facilities
	Program Administration Costs	dollars (annual and per capita)	total annual spending on staff, contract management, and program oversight
	Revenue from Recyclables	dollars (annual and per capita)	income generated from the sale of recyclable materials, offsetting disposal costs.
Program Participation and Performance	Curbside Recycling Participation Rate	% of households	share of households that actively use curbside recycling services
	Composting Program Participation	% of households	percentage of households that actively use curbside recycling services; indicates resident engagement and program reach
Infrastructure and Capacity	Collection Coverage	% of population served	share of residents with access to regular waste collection services. It identifies service reach and gaps in municipal coverage
	Hauler Network and Contracts	number and duration	number of waste haulers and length of their service contracts; helps assess market structure, coordination, and long-term service reliability.

Benefits for Municipalities

A statewide dashboard would provide the following benefits:

- **Enhanced Planning and Decision-making**: Local governments could analyze trends, evaluate new waste programs, and plan budgets based on data-driven forecasts.
- **Peer Benchmarking**: Towns could compare performance across similar municipalities, identifying best practices and cost-saving strategies.
- **Improved Compliance and Accountability**: Transparent reporting would help municipalities demonstrate compliance with state waste diversion targets and environmental goals.
- **Support for Grant Applications**: Many grant programs require performance metrics; centralized data would simplify applications and strengthen funding proposals.

4. Economic Inefficiencies and Market Failures in Waste Management

The waste management crisis in Connecticut highlights a systemic market failure driven by negative externalities, where producers or consumers do not bear the full social and environmental costs of waste disposal. These negative externalities—arising across a product's lifecycle from production to disposal—lead to inefficient resource allocation and unsustainable practices. While economic theory suggests ideal "first-best" solutions (such as pricing mechanisms that internalize all costs), real-world constraints like incomplete data, high transaction costs, and administrative limitations make such approaches impractical. The closure of the Materials Innovation and Recovery Authority (MIRA) plant has exacerbated the problem, forcing the state to rely on costly and unsustainable out-of-state solutions.

Understanding Market Failure in Connecticut

Connecticut's current system is economically inefficient and environmentally unsustainable for several key reasons, as identified in the economic analysis:

- **Unpriced Externalities:** The true cost of waste export—including transportation emissions, environmental justice impacts on recipient states, and long-term liability—is not reflected in the tipping fees municipalities pay. This makes the seemingly "cheap" out-of-state option artificially low, discouraging investment in better in-state solutions.

- **Upstream/Downstream Disconnect:** Most municipal policies (like recycling programs) target the downstream (disposal) stage. However, they have little influence on upstream decisions by manufacturers about product design and packaging. Without upstream incentives (e.g., taxes on non-recyclable materials), downstream policies often just shift waste around rather than prevent it.
- **High Transaction Costs:** The effort and cost to monitor compliance, negotiate with private haulers, and gather accurate waste data are immense for individual towns. This fragmentation across 169 municipalities prevents the economies of scale and coordinated planning needed for an efficient system.
- **Information Gaps:** The state lacks granular data on waste composition. Without knowing the precise breakdown of what is in the waste stream, municipalities cannot design cost-effective programs for specific streams like organics, plastics, or e-waste.

Why downstream interventions alone cannot deliver sustainable waste management

In the context of waste management and environmental policy, downstream refers to the later stages of a product's lifecycle, particularly its disposal, recycling, or landfilling after consumer use. Downstream policies target waste handling by households, municipalities, or waste processors (e.g., landfill taxes, pay-as-you-throw trash fees, or curbside recycling programs). These policies aim to influence consumer behavior and waste management practices but may have limited reach in shaping upstream decisions like product design. Upstream focuses on earlier stages, such as production, design, or material sourcing. Upstream policies aim to incentivize manufacturers to adopt Design for Environment (DfE) practices, such as reducing material use, improving recyclability, and minimizing toxic components.

The downstream constraint: limitations on the utilization of upstream waste information

Efforts to rectify this information gap by acquiring upstream data are constrained by downstream conditions. Understanding a product’s recyclability or toxicity, for instance, requires precise data collection at the point of disposal—data that hinges on accurate sorting and material traceability. However, such information is often difficult to obtain due to varying levels of compliance and reporting among households, municipalities, and private waste operators.

Consequently, although upstream-informed policy design is theoretically appealing, its practical implementation depends on a well-coordinated and efficient downstream infrastructure. Without this, even the most detailed upstream data remains underutilized.

The second-best solution theory in welfare economics suggests that, given these constraints, policymakers should seek alternative approaches to approximate the desired outcomes, even if they do not reach the ideal. A second-best solution in waste management might involve creating incentives for technological innovation. For example, even though it may be challenging to completely internalize all the costs of waste management, research and development subsidies for more efficient waste disposal technologies, biodegradable products, or recycling systems could be a step toward better outcomes. These innovations could make it easier to implement more comprehensive solutions in the long term. This highlights the economic inefficiencies and environmental impacts of the current system, underscoring the need for integrated policies that address both upstream production and design, as well as downstream disposal and recycling.

Circular Economy and Waste-to-energy

A circular economy keeps the value of resources in the economy for longer, extends the useful lifespan of products and reduces waste, thereby reducing environmental and climatic pressures. Waste-to-energy (WtE) is a vital component of circular economy initiatives. The implementation of waste-to-energy technologies is influenced by policy and regulatory frameworks. The regulatory landscape for WtE varies across different regions and countries, with some providing supportive environments for its development, while others pose challenges. Government policies play a crucial role in promoting or hindering the growth of WtE projects. Challenges related to emissions control and public perception also need to be addressed through effective regulations and public engagement.

Despite its benefits, waste-to-energy faces several challenges and controversies. High costs associated with the construction and operation of WtE facilities often pose financial barriers. Public perception surrounding emissions control and environmental impact can also hinder the acceptance of WtE projects. Addressing these challenges requires a comprehensive approach, including technological advancements, policy interventions, and effective communication.

Source: [The Role of WtE in Circular Economy Initiatives]

Figure 4.1 The Role of Waste-to-energy (WtE) in Circular Economy

5. Recommendations for Municipalities

Short-Term Actions

Goal: Achieve rapid waste reduction, engage the community, and establish a data-driven foundation.

- **Implement Pay-As-You-Throw (PAYT) Pilot Programs:** Introduce variable-rate pricing in targeted neighborhoods to create a direct financial incentive for waste reduction and recycling, delivering immediate reductions in disposal tonnage and costs.
- **Launch Targeted Food Scrap Diversion Initiatives:** Partner with local composters to offer convenient drop-off or curbside collection for organic waste, targeting a significant portion of the waste stream to lower tipping fees and reduce environmental impact.
- **Formalize Data-Driven Management:** Institutionalize the use of the Centralized Dashboard and Cost Modeling Tool by mandating their application in contract reviews, budget planning, and performance reporting, embedding fiscal and environmental accountability into municipal operations.

Long-Term Vision

Goal: Fundamentally reshape the waste system into a circular, economically resilient model.

- **Champion Upstream Policy and Extended Producer Responsibility (EPR) schemes:** Advocate for state-level legislation that shifts the financial and operational burden of packaging waste from municipal taxpayers to product producers, addressing the root cause of waste generation.
- **Formalize Deep Regional Collaboration:** Establish formal inter-municipal agreements or a regional authority to achieve economies of scale, co-invest in shared infrastructure, and develop unified policies, moving beyond fragmented town-by-town solutions.
- **Implement an Annual Strategic Review Process:** Maintain a dynamic and adaptive long-term strategy through yearly assessments that incorporate performance data, emerging technologies, and policy shifts, ensuring continuous progress toward a circular economy.

6. Conclusions

The UConn Zwick Center Solid Waste Management (SWM) Team will serve as a neutral, expert partner and CCM-contracted third-party academic stakeholder. This partnership provides municipalities with an opportunity to participate in a coordinated statewide effort that enhances transparency, fosters collaboration, and strengthens strategic planning.

By actively contributing to the database, municipalities can improve operational efficiency, manage costs more effectively, and make data-driven decisions. The initiative empowers municipalities to collaborate transparently with other in-state partners, while enabling the Connecticut government to engage more effectively with regional SWM stakeholders.

We encourage municipal leaders to take an active role by joining the advisory board and participating in pilot programs, helping to ensure that the database addresses local needs, fosters innovation in waste management, and supports long-term, sustainable improvements across Connecticut's statewide waste management system.

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