Existing Composting Laws Analysis:

Recommendations for Enhancing the Enforcement and Effectiveness of Rhode Island's Wasted Food Policies

RI FOOD POLICY COUNCIL

Executive Summary

Wasted food[1] comprises approximately 30-40% of the food supply in the US, which is approximately 133 billion pounds of food lost – RI is not much different. Over 100,000 tons of wasted food and compostable materials are sent to The Central Landfill each year, Rhode Island's only waste disposal site which is expected to reach capacity in 2046 with little other infrastructure options in place as the state approaches this deadline. At the same time, in Rhode Island, the percentage of food insecure households is estimated at 38%. Over one in three Rhode Islanders is food insecure, a staggering fact that enhances the need to reduce wasted food.

While Rhode Island has two key laws in place to address wasted food in the state, namely the Food Waste Ban and the School Waste Recycling and Refuse Disposal Law, the state still has low rates of wasted food diversion and low compliance with the Food Waste Ban among businesses. The primary drivers for the ineffectiveness of the legislation are a lack of enforcement, staff, and funding.

In order to address these key wasted food challenges in Rhode Island, the following changes are needed:

1) Provide regulatory authority to the Rhode Island Department of Environmental Management (RIDEM) by the state legislature to implement and enforce the Food Waste Ban.
2) Increase funding and staff support for RIDEM to implement and enforce the Food Waste Ban.
3) Create and fund a state-supported technical assistance program for businesses to comply with the law.
4) Institute inspections as an enforcement mechanism.
5) Enhance donation support and funding.
6) Introduce phase-in legislation for waste tonnage and distance requirements to expand the number of covered entities subject to the Food Waste Ban.

Based on a cost analysis of the above recommendations,the RIFPC estimates it should cost the state approximately $545,000 annually to implement these solutions. While the potential cost savings are estimated between $214,000 and $640,000 annually ignoring the benefits in helping meet the state's Act on Climate.

To come to the proposed recommendations for strengthening the enforcement of the state's Food Waste Ban, The RIFPC reviewed both Rhode Island's policies on wasted food and the policies of four other states who have established wasted food and/or organic waste bans,

[1] In this document you will see the terms wasted food and food waste used. Food Waste will primarily be used as a proper noun as in "Food Waste Ban" which is an official title on the RI state law. Wasted food will be used to describe perfectly good food that has been wasted. This includes food scraps, surplus food that ends in landfills, etc.

namely New York, Massachusetts, California, and Vermont. Their policies were compared and contrasted to one another and to Rhode Island and weighed to consider what the best avenue for change to Rhode Island wasted food legislation might be (see Tables 1 and 2 for an overview of the policy comparison). However, in considering the adaptation of successful components of other state policies, the current limitations of RI infrastructure and funding systems must also be considered. Thus, an important aspect of this report will involve estimating the costs of implementing these policy components, providing a comprehensive understanding of how to practically improve RI wasted food legislation.

Introduction

With 100,000 tons of wasted food and compostable materials being sent to landfills each year in Rhode Island and Rhode Island's only landfill, Central Landfill, expected to reach capacity by 2046, the state has implemented two primary policies aimed at addressing this issue: the Food Waste Ban and the School Waste Recycling and Refuse Disposal Law. The former aims to address wasted food at the commercial level, while the latter works at the school level, with both working to divert wasted food from the landfill and promote composting and organics recycling.

Food Waste Ban

The ban requires that "covered entities", that is, institutions producing at least 104 tons of organic-waste material, educational institutions producing at least 52 tons of organic-waste material, and K-12 schools producing at least 30 tons of organic-waste material, ensure that organic-waste materials are recycled at either an authorized composting facility, anaerobic digestion facility, or another authorized recycling method if they are located no more than 15 miles from one of these facilities. Waivers may be obtained by these entities when the tipping fee charged by the Rhode Island Resource Recovery Corporation (RIRRC) is less than the fee charged by the recycling facility to which the entity would deposit their materials.

Following the ban's implementation in 2014, the amount of wasted food composted (a difficult number to track[2]) has increased, but not nearly enough to reduce the speed at which Central Landfill is reaching capacity. Another study cited the law as an impetus for increases in the development of infrastructure in the state for anaerobic digestion and composting, allowing for increased processing of diverted materials. Despite this, overall diversion rates remain low and most covered entities are not in compliance with the law.

School Waste Recycling and Refuse Disposal

This K-12 school-level policy promoting waste reduction acts as a type of complement to the school component of the wasted food ban requiring educational entities to conduct school waste audits in coordination with the RIRRC. The audits will produce waste management reports that will help develop guidelines and strategies for reducing waste, promoting recycling, and

[2] An accurate number of wasted food diversion is difficult to come by. ReFED estimates that around 40K tons of waste was composed in 2023, while RIRRC estimated under 7,000 tons total for all "other recycling" which includes food scraps. It will be necessary for either RIFPC or RIDEM to track such a number moving forward to help assess the progress of wasted food diversion and the ban.

contributing to local food distribution. Educational entities are also required by the law to design and implement collection systems for waste diversion including diverting surplus foods. Additionally, educational entities must be sure that any food service companies they work with donate unserved nonperishable and unspoiled perishable food to local food banks to further prevent waste.

One report on the effectiveness of the law found that schools had little awareness of the policy, with only 36% of surveyed schools having heard of the policy and only 33% having an active composting program established. The researchers concluded there was a need for greater education and outreach to schools to encourage awareness and compliance with the policy, a similar point of emphasis for the Food Waste Ban.

Challenges
There have been low rates of wasted food diversion and an overall lack of compliance, specifically with the Food Waste Ban. The reason for this slow progress has been cited in terms of a lack of enforcement, support, and funding for businesses under the law to effectively comply. There are no clear regulations or enforcement mechanisms in place to help ensure businesses comply with the Food Waste Ban. In particular, **RIDEM has not been given authority in the statute to establish rules and regulations for compliance and enforcement mechanisms.** Further, the current funding needed to help the RIDEM support enforcement is not sufficient. In the past, RIDEM has received grants related to wasted food ranging in amounts between $35,000-$100,000 from entities including the Environmental Protection Agency, Department of Energy, and U.S. Department of Agriculture. However, these are neither consistent nor sufficient funding sources to effectively reduce wasted food. Finally, the technical assistance, i.e., the supports provided to businesses to create, manage, and enhance waste diversion efforts, while available through a few different funding sources, are not widely and robustly provided to assist with compliance through a coordinated system through RIDEM as is the case in other states.

With these limitations in view, Rhode Island can look to other state's wasted food bans which have had more success in implementation, funding, enforcement, and support to understand possible mechanisms by which the gaps in the Rhode Island policy may be filled.

Review of Other State Policies

A variety of other states have enacted their own wasted food and organics recycling programs to address the widespread issue of waste and landfill usage with varying degrees of implementation style, effectiveness, and challenges. The designs of these programs may serve as guidance for how RI may improve and effectively implement its own waste diversion law.

Some key features that arose consistently included whether or not there was 1) a donation requirement for edible surplus food 2) residential food scrap diversion requirements 3) Exemptions to the law for generators based on their distance from a qualified facility 4) tonnage

requirements that trigger the law based on amounts generated. A summary of their key components is listed in **Table 1**. Additionally, **Table 2** compares enforcement mechanisms across different state waste policies.

Table 1: Basic Components of Wasted Food

	Rhode Island	Massachusetts	New York	California	Vermont
Donation Requirement	N/A	N/A	Businesses donate excess edible food	Businesses must have food recovery programs	N/A but encouraged through waste hierarchy
Residential Requirement	N/A	N/A	N/A	Curbside collection or self-hauling	Local food waste drop-offs, curbside food scrap haulers, or composting
Distance Exemption (from recycling facility)	More than 15 miles	N/A	More than 25 miles (less than 50 beginning 2026)	N/A	N/A
Tonnage Threshold for organic and food waste	Between >30 and >140 tons per year depending on type of entity	>1/2 ton per week	>2 tons per week through 2026, >1 ton 2027-2028, >1/2 ton from 2029 on	N/A	N/A

New York

New York's primary policy for addressing wasted food in the state is its 2019 Food Donation and Food Scraps Recycling Law, implemented in 2022. This law requires that all businesses and institutions that generate at least 2 tons of wasted food per week, identified as designated food scraps generators (DFSGs), must first separate excess edible food for donation and then secondarily recycle the remaining food scraps at an organics recycling facility, provided the facility is no more than 25 miles away (50 miles beginning in 2026) from the DFSG. The New York State Department of Environmental Conservation (NYSDEC) oversees the implementation and enforcement of the law, as authorized by Adopted Part 350, including publishing a list of DFSG. To support DFSGs with technical assistance for complying with the law, NYSDEC funds three different entities: 1) the Center for Ecotechnology (CET) to run the Rethink Food Waste NY program providing businesses with site-specific assistance in sustainably managing excess food and food scraps, 2) Feeding NYS to provide food donation technical assistance for businesses, transportation support, staffing, outreach, and education support for regional food banks, and 3) the Pollution Prevention Institute (P21) to provide resources for how businesses and municipalities can best manage wasted food and food scraps through reduction, donation, and recycling.

Education and outreach to DFSGs, e.g., guidance for separating materials and preventing contamination, serve as the primary focus of NYSDEC's enforcement efforts, which is the case for all state wasted food policies reviewed here. Additionally, NYSDEC requires that DFSGs submit annual reports which document the amount of food donated, the amount recycled, and the recyclers and transporters used to comply. However, for businesses that continue to fail to comply with the law, financial penalties may be imposed in accordance with Title 27 of Article 71, though these have been limited in implementation in favor of technical assistance efforts.

An evaluation of NYS's wasted food law found that, from 2021-2022, food donation increased by 60% and food scrap recycling increased by 529% with 77% of grocery stores, 85% of supercentres, and 55% of colleges and universities reporting donations. This suggests significant success for NYS's wasted food law. However, there are also key concerns and needs for improvement to the laws implementation and enforcement including the cost for collection and transport of waste, managing contamination, competing with disposal facilities, and product marketing for newly composted products.

Massachusetts

Similar to both New York and Rhode Island, Massachusetts' food material disposal ban is commercial, applying only to businesses and institutions. Unlike the other states described here, MA only has regulation, i.e., no legislation for its wasted food ban. The ban requires that businesses and institutions that generate at least ½ ton of wasted food (stepped down from 1 ton in the initial implementation from 2014-2022) and other types of commercial organic waste described in the law, must divert these wastes from disposal to either composting, conversion, or recycling/reuse. Massachusetts' Department of Environmental Protection (MassDEP) is given the authority to implement and enforce the law. Like in NY, MassDEP fully funds technical

assistance through RecyclingWorks which includes phone and email services for resource direction and find-a-recycler tools to businesses and institutions required to comply with the regulation.

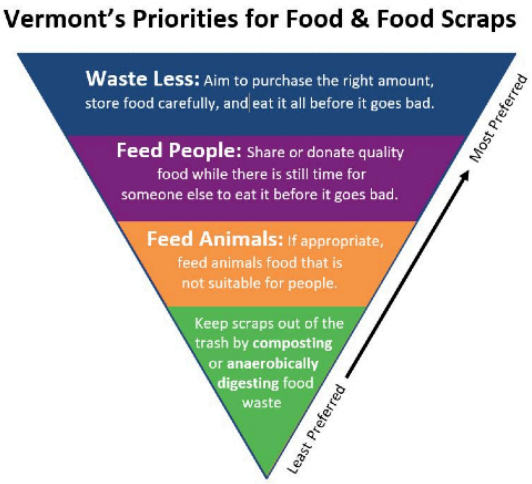
Following education and outreach as the first step, enforcement primarily comes from inspections which occur at the point of disposal, i.e., inspections that begin at solid waste facilities and work back through the waste haulers based on loads with large amounts of banned materials to determine where any compliance issues originated. MassDEP issues notices of compliance to businesses that have been deemed noncompliant with the law. The first issuance comes with no penalty, but businesses are required to respond and take action to comply. Penalties, while rare, are used as an enforcement mechanism for repeat violators.

An Economic Impact Analysis of the Commercial Food Waste Ban found significant growth for organic waste haulers, processors, and food rescue organizations including a 40% increase in total tonnage for processing companies and a 93% increase in total tonnage for rescue companies between 2016 and 2024. The report also noted growth in employment with the number of collector/haulers, processor, and rescue employees growing by 97%, 30% and 6%, respectively between 2016 and 2024, and $194 million in value added to the Massachusetts economy. Additionally, a separate analysis looking at the impact of the ban found that there was a 25.7% decrease in greenhouse gas emissions per ton of disposal with over 380,000 tons of wasted food being diverted and repurposed each year. The main mechanism of success has been identified as the inspection efforts of MA DEP, i.e., their enforcement efforts. Additional cited mechanisms of the success of MA's regulation have been the affordability of compliance, given the extensive food scrap recycling and composting network with a large amount of infrastructure in terms of density, coverage and capacity, and regulatory simplicity, as shown by the lack of exemptions and little changes to waste generation thresholds.

Vermont

Vermont's wasted food ban is the last component of its larger Universal Recycling Law (Act 148) that was phased in over the course of several years. While the ban started at the commercial level like in NY and MA, in July of 2020, the law was expanded to the residential level banning all Vermonters from disposing food scraps in the trash or landfills. Vermont's Agency of Natural Resources (ANR) has the authority to implement and enforce the Universal Recycling Law. The law requires residents to separate food scraps and utilize either local food scrap drop-offs, curbside food scrap haulers, or composting to manage waste. Vermont towns have a unique pay-as-you-throw system mandate which requires waste collectors to charge for trash based on weight. Businesses are similarly required to separate food scraps from the trash and are encouraged (though not mandated as in NY) to donate quality food to the charitable food system when possible. Individuals are encouraged to reduce wasted food according to the following priorities (see Figure 1): 1) waste less, 2) feed people, 3) feed animals, and 4) keep scraps out of trash by composting or anaerobic digestion, though ANR cannot explicitly regulate the mechanisms by which residents and businesses choose to divert wasted food as long as the food scraps are not going to the landfills.

Figure 1



As with the other states, ANR explicitly prioritizes outreach and compliance efforts, followed by financial penalties for repeat violations. Unique to Vermont, however, enforcement efforts are typically initiated based on complaints the agency receives, rather than through spot reviews for compliance. ANR also heads up technical assistance, unlike other states which contract with other organizations to support businesses and organizations with complying with the law.

According to a report from the University of Vermont, following the food scrap ban's full implementation in 2020, Vermont residents increased the amount of wasted food that was separated from trash from 48% to 71%, an increase of 48%, primarily due to increased composting rates among residents, indicating a large amount of success at the start of the program. However, approximately 26% of residents reported feeling confused about the food scraps ban requirements and 37% and 53% of food retailers and food service operators, respectively, reported that compliance with the law was difficult, indicating more work is needed to help these larger businesses and organizations comply with the law.

California

Like Vermont, California has an organic waste ban, SB 1383: California's Short-Lived Climate Pollutant Reduction Strategy, which applies not only to commercial businesses but to all individuals and entities in the state. The law has three key components: organic waste collection and recycling through curbside collection or self-hauling, food recovery, and, uniquely, jurisdictional procurement of recycled organic waste products which requires jurisdictions to purchase and/or collect a certain amount of recycled products such as compost or mulch. CalRecycle, California's Department of Resources Recycling and Recovery, is responsible for oversight and enforcement of the law for jurisdictions.

CalRecycle also provides technical assistance to these jurisdictions including grants, training and guidance, and implementation checklists and resources. California jurisdictions (i.e. towns and cities), however, are responsible for proper implementation. Each jurisdiction must supply

education and outreach to residents, businesses, haulers, solid waste facilities, and food recovery organizations. These jurisdictions must conduct inspections including route reviews, which are annual visual inspections of randomly selected waste containers, and waste evaluations, biannual examinations of generators, to evaluate compliance with the law. For generators and entities identified as noncompliant with the law, jurisdictions must issue notices of violations requiring compliance, followed by financial penalties for continued noncompliance. Jurisdictions must also submit annual reports detailing implementation of the law including organic waste collection, education and outreach, edible food recovery, and procurement.

Approximately 94% of California jurisdictions have reported having residential organics collection since implementation, suggesting a high level of compliance with the first component of the law. Further, the California Association of Food Banks found that almost ⅔ of food banks reported receiving more donations compared with the period prior to SB 1383, with some receiving more nutritious items, though about half of food banks also reported receiving more inedible food which has imposed greater burden on the food recovery system.

Table 2: Enforcement

	Rhode Island	Massachusetts	New York	California	Vermont
Prioritizes education and outreach?	✓	✓	✓	✓	✓
Technical assistance funded by state?	Partially funded by RIDEM	✓ RecyclingWorks funded by MA DEP	✓ Rethink Food Waste NY, Feeding NYS, and Pollution Prevention NY funded by NY DEC	✓ Through CalRecycle	✓ Through VT Agency of Natural Resources
Conducts Inspections?	X	✓ At the point of disposal	✓	✓	✓
Issues notices of compliance?	X	✓	X	✓	✓
Has financial penalties for noncompliance?	X	✓	✓	X	✓

Discussion

Each state policy reviewed has its own unique components regarding their respective wasted food bans. Rhode Island is in a position to learn from and choose the components that are most effective, particularly in Rhode Island's context. More specifically, to improve the strength of Rhode Island's wasted food legislation the following ought to be considered for their effectiveness as seen in other states: 1) a provision for a defined enforcement authority, 2) increased funding and staff support for RIDEM, 3) state-supported technical assistance, 4) inspections as an enforcement mechanism, 5) donation support and funding, and 6) phase-in legislation to expand covered entities.

Provision for Enforcement Authority

Each state analyzed above has a government agency that has been assigned authority, to make the rules and regulations for their wasted food/organic waste ban. For example, in its regulation, NY DEC has been given the authority over its commercial organics recycling law to implement and enforce the law. This has given these state agencies the ability to make important decisions regarding how to best encourage compliance, support businesses and organizations with implementing composting and source separation initiatives, and take enforcement actions. With this authority lacking in Rhode Island, RIDEM has been unable to take the same action, thereby limiting the effectiveness of the Food Waste Ban.

Increased Funding and Staff Support for RIDEM

With an enforcement authority established for RIDEM, having the staff and funding to support these initiatives is necessary to significantly improve the legislation and incorporate other changes. A key challenge with RIDEM's ability to support and enforce the Food Waste Ban, beyond having enforcement authority, is having the resources to run these initiatives. California, for example, has introduced a variety of grants to help support its wasted food ban and the state has provided the necessary staff and resources for implementation and enforcement. To support any meaningful policy changes, obtaining additional funding sources for staffing, grants and infrastructure support will be critical. Additionally, RIDEM has a cap on the number of full-time employees it can hire, which creates a barrier to hiring additional staff specifically to address the Food Waste Ban. Expanding the cap to support staff directly focused on the Food Waste Ban could significantly increase the impact RIDEM has, especially if RIDEM is given the authority to implement and enforce the law.

Technical Assistance for Education and Outreach

In this context, technical assistance is a resource made available to businesses and organizations to help support the implementation of wasted food initiatives and management. This includes training and support for reduction, donation, composting programs, and source-separation techniques. Every state analyzed prioritizes technical assistance for education and outreach as the main source of enforcement for compliance, prior to utilizing other methods of enforcement. In both New York and Massachusetts, technical assistance has been highlighted as critical to the success and growth, as well as compliance with their respective wasted food laws. In New York, through NY DEC-funded contracts with CET and

Rethink Food Waste NY, their technical assistance program supports businesses with managing excess food and food scraps. The program provides site-specific assistance connecting businesses with organics recyclers, transporters, and transfer facilities with managing the food scraps recycling process which also helps to support compliance with the law. Through these efforts, approximately 33 tons of material were diverted in 2023, significantly increasing waste diversion rates in the state.

Massachusetts' RecyclingWorks program, similar to the work of Rethink Food Waste NY, is funded by MA DEP and delivered through CET providing technical assistance to businesses to support waste reduction, recycling, and recovery. A report from RecyclingWorks found that during fiscal year 2024, CET helped Massachusetts divert 1,781 tons of material. This was accomplished by over 1,800 phone and email conversations with businesses and in-person and virtual technical assistance services that reached 199 businesses. Contracting with outside organizations like CET to provide technical assistance has proven successful in New York and Massachusetts for reducing waste, suggesting a mechanism for Rhode Island to support the covered entities they require to reduce their wasted food. While RIDEM does work with CET to fund limited technical assistance, a lack of consistent funding has prevented a comprehensive state-supported effort which would allow greater reach, availability, and resources for businesses as seen in New York and Massachusetts.

Inspections as an Enforcement Mechanism

Beyond providing compliance support through technical assistance, inspections have routinely proven beneficial as an enforcement mechanism. Massachusetts has been highlighted as the state with one of the most successful wasted food bans in the country specifically as shown by the state's progress in the reduction of landfill waste. An analysis by Anglou et al. (2024) noted that the main mechanism, in addition to the affordability of compliance and the regulatory simplicity of the policy, is the strong enforcement and monitoring that Massachusetts has embedded within its regulation implementation. Massachusetts had 216% higher rates of inspections per generator-year than Vermont, the state with the next highest rates of inspections. California has also begun to take steps toward making inspections more prominent, which a report hypothesizes will likely increase the rate at which landfill waste reduction is occurring as it has in Massachusetts. The example that Massachusetts has set with high rates of inspection to encourage and enforce compliance acts as a jumping off point for Rhode Island to follow to increase wasted food diversion rates.

Donation Support and Funding

In their efforts to reduce wasted food, multiple states have emphasized donations to encourage diversion of still edible food. In New York, which included a mandate for businesses to separate excess edible food to be donated before recycling remaining food scraps, food donation by DFSG's increased by 60% from 2021-2022 significantly reducing the amount of edible food that has gone to waste while feeding the food insecure population in New York State. In Vermont and Massachusetts, where food donation is not mandated but encouraged, similar progress has been observed. In Vermont, following the requirement for businesses to reduce wasted food, food donations increased by 40%. Massachusetts saw 26,000 tons of food donated in 2018,

which was a significant increase from the rates of donation in 2014 before the commercial wasted food ban was implemented. However, despite the donation progress, there are important concerns for the food recovery system, namely not having the proper infrastructure to support the major influx of edible food into the system and lower quality food entering the system. Ensuring the proper infrastructure has been critical to reaping the benefits of increased food diversion rates, as shown through the growing infrastructure that these states have introduced.

Phase-In Legislation to Expand Covered Entities

To help manage challenges with implementing new policies that require complex infrastructure and involvement across a variety of sectors, many states have utilized a phase-in approach. For example, Vermont required businesses to separate their food scraps from trash prior to expanding the requirement to the residential level. This allowed the state to adjust to increases in food donations, composting efforts, and waste diversion such as increasing the amount of infrastructure for food recovery organizations and waste hauling efforts. Similarly, Massachusetts has a phased approach to its tonnage regulation. In 2014, the ban required businesses producing more than 1 ton per week of commercial organic material to divert waste from landfills. This tonnage requirement was reduced to ½ ton beginning in 2022, thereby expanding the number of businesses that would be required to comply on a gradual basis. New York has included a similar process with regard to its distance limits for who qualifies as a DFSG, currently requiring businesses within 25 miles of a composting facility or anaerobic digester to comply and expanding to 50 miles in 2026. As with Vermont's phase-in, this allows both businesses required to comply and state agencies to efficiently prepare to manage the food scraps and other organic materials now being diverted following compliance with the law while also expanding. While Rhode Island's legislation technically includes a step down in the tonnage threshold for educational institutions, the lack of enforcement of the ban and the absence of this step down for other businesses suggests the importance of incorporating this phase-in component into the legislation once enforcement has been established.

Recommendations and Final Evaluation

The above policy components have contributed to the success of other wasted food bans. However, in considering the adaptation of these policy changes and supports, the current limitations of Rhode Island infrastructure, funding, and support systems must be considered. Thus, the following first steps are recommended based on priority needs for the state:

1) **Clear legislative provision of authority for RIDEM** to implement and enforce the Food Waste Ban. This will give RIDEM the ability to set rules and regulations for the plan including education and outreach plans, enforcement and compliance mechanisms, and a better means for supporting businesses and organizations with reducing wasted food.

2) **Increased funding and staff support for RIDEM.** Following the lead of other states, having an established team within RIDEM to manage the Food Waste Ban will help

reduce burden on other staff members and encourage targeted efforts to enhance compliance with the ban. To support this, additional grants and other sources of funding should be obtained that specifically allocate funds for the Food Waste Ban. In the past, RIDEM has received grants from the Environmental Protection Agency, Department of Emergency, and U.S. Department of Agriculture in amounts ranging from $35,000 to $100,000 that have been utilized to address wasted food in the state. Additionally, expanding the RIDEM full-time employee cap, even by one or two employees, to establish a team to support the Food Waste Ban specifically, could increase RIDEM's ability to effectively implement and enforce the law.

3) **State funded technical assistance program** administered by RIDEM and conducted through a partner organization focused on supporting businesses with wasted food reduction such as CET. Every state with successful wasted food bans has emphasized the importance of technical assistance for supporting businesses and organizations with compliance, including Massachusetts which has seen some of the most significant progress in reducing waste through its work with CET in the RecyclingWorks program.

4) **Instituting inspections as an enforcement mechanism.** As RIDEM obtains the authority to implement and enforce the Food Waste Ban, prioritizing inspections, in addition to education and outreach programs, will establish a strong system for enforcement as seen with Massachusetts's successful enforcement efforts.

Following these priority recommendations, the state should also consider 5) introducing a phase-in plan for extending covered entities, including reducing the tonnage requirement and increasing the distance to a digestion or recycling facility requirement and 6) increasing support and funding for donations to encourage the diversion of wasted edible food into the food recovery system. While these efforts are important components of other states' organic waste bans and can contribute significantly to reducing wasted food in Rhode Island, they are likely to only have maximum impact once the previous four recommendations have been implemented.

Cost Analysis

With the above recommendations outlined, it is important to consider what the potential costs and cost savings of the first four policy changes could be to help inform the state about what will be required to make those policy changes occur and what the benefits of making those investments will be.

Potential Costs

There are three potential costs of these policy recommendations: a RIDEM employee, the state-funded technical assistance program, and an employee to conduct inspections. In line with recommendation two, once RIDEM has been given the authority to implement and enforce the Food Waste Ban, it will be beneficial to have at least one employee in the department that is specifically focused on the ban. This will allow for specialized attention to the ban to ensure that

progress is being made on its implementation. According to estimates from Glassdoor and the RIDEM website, salaries for a RIDEM employee can range from $36K-$67K for a Policy Worker, $68K-$111K for a Program Director, and $110K-$127K for an Administrator, all of which may perform similar roles to the RIDEM employee who would head up the oversight of the Food Waste Ban. It is estimated that a midpoint of $80,000 may be appropriate plus an additional 25% ($20,000) in fringe benefits, indicating that hiring an additional RIDEM employee would cost the state approximately $100,000 per year.

Meanwhile, other states have had success in funding and implementing a state-funded technical assistance program that is contracted out to private nonprofits as detailed in recommendation three. Discussions with industry experts suggest that a similar program to the one run in Massachusetts would cost Rhode Island approximately $350,000-$500,000 per year, with the program likely to have the most impact if it is sustained for several consecutive years. For the purposes of this analysis, the midpoint estimate of $425,000 is assumed.

Finally, to implement inspections as a means of enforcement (recommendation four), it will be important to have at least one employee devoted to this effort. This could be done by hiring an additional RIDEM employee to run these efforts. An alternative to RIDEM doing inspections could include using RIRRC staff to conduct audits of incoming waste at Central landfill or the use of consultants at the landfill or at generator locations, particularly given Massachusetts's success with point of disposal inspections. Estimates of a lower-end RIRRC operator who could be trained to inspect for wasted food are as low as $45,000 annually. While more inspection and enforcement has shown to be effective, you might be able to fund a portion of existing RIRRC staff time as an alternative to a RIDEM employee doing inspections for wasted food compliance. However regardless of which path is taken the total cost for an employee performing inspections should not exceed what it would otherwise cost for RIDEM to do the inspections themselves therefore this estimate will use the RIDEM cost as the threshold. Assuming that the individual in this role would spend ~25% of their time focused on inspections, based on the estimated $80,000 salary of a RIDEM employee, it is estimated that the cost of the inspection recommendation would be about $20,000 per year.

Thus the potential costs associated with implementing the first four recommendations to improve the Food Waste Ban total $545,000. A breakdown of the potential costs is shown in Table 3.

Table 3: Potential Costs

Recommendation	Cost Per Year
1. Legislative authority for RIDEM	$0
2. Increased Funding and Staff Support for RIDEM	$100,000
3. State-funded Technical Assistance Program	$425,000
4. Inspections as an Enforcement Mechanism	$20,000
Total	$545,000

Potential Savings

With the diversion of wasted food expected to occur following the implementation of the recommendations of this report, the state has the potential to see cost savings as a result (Table 4). A report from RIRRC, for FY 2024, the total commercial waste recovered at Central Landfill was 162,000 tons. According to a 2015 Waste Characterization Study conducted for RIRRC, approximately 14.9% of Rhode Island's commercial waste was vegetative food scraps and 2.6% was protein food scraps. Using these estimates, in FY 2024, approximately 28,350 tons of commercial wasted food was produced in the state that could be diverted. RIRRC charges $115 per ton to collect commercial waste. As shown in Table 4, this tipping fee can be used to estimate how much diversion of a portion of the state's commercial wasted food could save the state. In Massachusetts, which has been most successful in its food and organics waste diversion as a result of its ban, the state gradually achieved a 13.2% reduction in organic waste going to the landfill. If it is assumed that Rhode Island could achieve this rate, the state could save ~$430,353 per year (Scenario 1). Other percentage changes in waste diversion are modeled in Scenarios 2-4 ranging from 5-15%, with potential savings ranging from $163,000-$489,000.

It is likely that, with the increased infrastructure and collection of wasted food as a result of the implementation and enforcement of the Food Waste Ban, other types of compostable waste may also be diverted, enhancing both the impact and cost savings associated with the ban. As shown in Scenarios 5-8, if it is assumed that diversion also increased for compostable paper, which accounts for 5.5% of commercial waste recovered by RIRRC according the Waste Characterization Study, the tons of waste diverted and potential savings could significantly increase, ranging from $214,000-$642,000, depending on the percentage of waste diverted.

Table 4: Potential Savings

	Tipping Fee	% of waste attributed to food	Tons of Food Waste	% of waste diverted	Potential Savings
Scenario 1	$115	17.5	28,350	13.2	$430,353
Scenario 2	$115	17.5	28,350	5	$163,012.5
Scenario 3	$115	17.5	28,350	10	$326,025
Scenario 4	$115	17.5	28,350	15	$489,037.5
Scenario 5	$115	23	37,260	13.2	$565,606.8
Scenario 6	$115	23	37,260	5	$214,245
Scenario 7	$115	23	37,260	10	$428,490
Scenario 8	$115	23	37,260	15	$642,735

It is important to note that while most of these costs would be incurred by the state (employee salaries, technical assistance), much of the savings would in theory go to the businesses. Businesses, however, do not typically pay for waste hauling in this lb/ton format. Instead, they generally pay by the size and/or frequency of pickup of their waste. Thus, savings for these businesses may come not just from reducing the amount of waste they divert but from changing the mechanisms by which they divert waste such that the frequency and size of pickups are reduced, e.g., through increasing composting and donation efforts. Further, even with most savings going to businesses, the state still has the potential to benefit from the cost savings. For instance, any income that businesses do not spend on waste hauling could contribute to the profits of said businesses, increasing profits that are taxed by the state, thereby increasing tax revenue. Alternatively, businesses could put cost savings toward additional labor or other expenses that could also raise additional tax revenue from which the state could benefit. Additionally there is no reason to believe RI would not see similar gains to Massachusetts which as detailed above include: growth in employment with the number of collector/haulers, processor, and rescue employees growing by 97%, 30% and 6%, respectively between 2016 and 2024, and $194 million in value added to the Massachusetts economy.

Conclusions

Rhode Island, like much of the country, has both very high rates of wasted food and high rates of food insecurity. Additionally, the state's only landfill, Central Landfill, is quickly filling up and is expected to reach capacity by 2046, raising concerns about where wasted food, along with other materials, will go in the future. While the state's Food Waste Ban seeks to reduce the amount of wasted food in the state, it has suffered for lack of an authority to enforce it, funding and staff for RIDEM to support it, and the infrastructure and technical assistance to implement it successfully. Using the legislation of other state food and organic waste bans as guidance and considering RI's limitations and resources, we recommend the state introduce the following policy changes to strengthen the Food Waste Ban's effectiveness: 1) a provision for a defined enforcement authority, 2) increased funding and staff support for RIDEM, 3) state-supported technical assistance, and 4) inspections as an enforcement mechanism. Once implemented, introducing 5) donation support and funding and 6) phase-in legislation to expand covered entities will further help augment the impact of the law.

Making policy changes is a gradual process, as is reducing the amount of wasted food in the state and slowing the filling of Central Landfill. However, the changes recommended in this report have the potential to significantly impact the wasted food landscape of RI, as many of the policy components have in other states. Rhode Island should follow the momentum of other states in their waste reduction progress.

Acknowledgements

This report was made possible with the critical input of a variety of stakeholders throughout the country including Kristine Ellsworth of New York State Department of Environmental Conservation, John Fischer of the Massachusetts Department of Environmental Protection, Neil Edgar of the California Compost Coalition, Natasha Duarte of the Composting Association of Vermont, and David McLaughlin, Alyson Brunelli, and Mark Dennen of the Rhode Island Department of Environmental Management. This report was written by Rhode Island Food Policy Council Food, Climate, and Environment Program intern Amaya Allen under the direction of Program Director Isaac Bearg.