

FOOD WASTE CASE STUDY: EMPOWER CITIES TO PREVENT, RESCUE, AND RECYCLE

VERMONT'S UNIVERSAL RECYCLING LAW

COMPREHENSIVE LEGISLATION HELPS ADDRESS FOOD WASTE BY BANNING THE LANDFILLING OF FOOD



LOCATION:

Vermont, U.S.A.

DATE STARTED:

2012

LEAD ORGANIZATION NAME:

Vermont Agency of Natural Resources, Vermont Department of Environmental Conservation

ORGANIZATION TYPE:

Nonprofit Local government agency

PARTNERS:

Vermont Foodbank

STRATEGY IN A NUTSHELL:

Phased requirements as part of recycling legislation to divert food, alongside other organic waste and recyclables, from landfills

ORGANIC WASTE DIVERTED FROM LANDFILL:

53,254 tons/year^{1,2}

GHG EMISSIONS AVOIDED:

The implementation of these laws is estimated to reduce GHG emissions by an estimated 37% by 2022 (96,000 metric tons carbon equivalent)^{3,4}

OTHER KEY SUCCESS METRICS:

Food donations have increased by nearly 40% from 2015 to 2016

THE CHALLENGE AND OPPORTUNITY

Until 2014, more than 60,000 tons of food was thrown away by Vermonters every year. Vermont's Agency of Natural Resources estimates that 30 to 40 percent of that food was edible.⁵ Meanwhile, food insecurity in the state has nearly doubled since 2001, with 13 percent of Vermont families struggling to secure access to food. As a result, more than 18,700 hungry Vermonters rely on the Vermont Foodbank each week and 153,000 people—about 24 percent of the state's population—need help each year.⁶

Vermont is not alone. States nationwide are struggling to capture valuable food to feed those in need and recycle food scraps as part of efforts to reduce the amount of food going to waste. In fact, an estimated \$218 billion worth of food is wasted in the

AUTHOR:

Yerina Mugica

Co-authored with Alice Henly, formerly of NRDC

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United States each year, the majority of which is thrown out by grocery stores, restaurants, institutional food service, or households. The vast majority of discarded food ends up in landfills, where it emits methane and contributes to global warming. Meanwhile, 42 million Americans face food insecurity, that is, they lack reliable access to a steady supply of food. Less than one-third of the food we throw out would be enough to feed this entire population.⁷

RECIPE FOR SUCCESS

In 2012, with the unanimous passage of Vermont’s Universal Recycling Law (Act 148), Vermont joined Connecticut and Massachusetts, and as of 2016 California and Rhode Island in mandating the separation of food and food waste for uses preferable to landfilling.⁸ Vermont’s Universal Recycling Law clearly identifies the meaningful alternatives that exist for uneaten food and food scraps. The law encourages Vermonters to stop wasting food that instead can help families in need, feed animals to produce local eggs and meat, or create rich soil and renewable energy products. The law is providing new momentum for ending the decade-long stagnation, at approximately 30-36 percent, of Vermont’s recycling and composting rates. According to Bryn Oakleaf, environmental analyst in the Solid Waste Management Program of Vermont’s Department of Environmental Conservation, “The highest volume of residential waste sent to the landfill [in Vermont] is organic waste, at 28 percent or approximately 70,000 tons.”⁹

Vermont’s Universal Recycling Law includes the nation’s first legislated food recovery hierarchy (shown here), which guides businesses and residents statewide in setting priorities for what happens to food waste. The law requires that by 2020, all organic waste produced in Vermont—including food waste and yard debris—be diverted from landfill disposal.

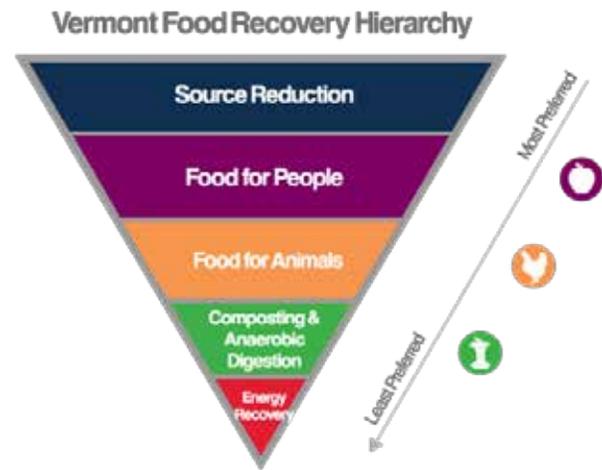
The law was designed to be implemented in phases beginning in 2014 by large food waste generators, such as manufacturers, colleges, and hospitals.

“The phased approach allows time for the development of additional infrastructure to support higher recycling and composting across the state,” said Oakleaf. “The law also aims to provide more convenient and consistent statewide waste services that give Vermonters choices.”

The law also requires trash collectors, such as transfer stations and haulers, to also collect recyclables, leaf and yard debris, and food scraps on or before the date that these materials are banned from disposal.

Phase two of the law took effect on July 1, 2015 for medium-sized institutions (those that discard more than one ton of food per week), prohibiting them from dumping that material into landfills. This led to a significant increase in food donations from retailers to the Vermont Foodbank.

“Food rescue is up at least 30 percent,” said Mica Seely, food procurement coordinator for the Vermont Foodbank. “Pickups throughout our network from retail establishments are up by more than 200 percent.”



Source: <http://dec.vermont.gov/waste-management/solid/materials-mgmt/food-donation>

“Food rescue from Vermont retailers and producers is the Vermont Foodbank’s biggest priority,” says John Sayles, chief executive officer of the Vermont Foodbank. “The increases in the amount of food we’ve been able to rescue over the past year have enabled us to increase the variety of fruits and vegetables we distribute to network partners and directly to clients and better serve traditionally underserved areas of the state including the Northeast Kingdom and Rutland County. From the Foodbank’s perspective, it’s clear that the law is gaining momentum statewide and we expect to see increased conversation lead to increased donations.”¹⁰ In 2020, the state will institute the residential food waste ban, the final phase of the Universal Recycling Law.

Vermont’s Agency of Natural Resources worked with the Vermont Foodbank to measure the surge in food donations as both medium-sized and large companies statewide divert food from landfills to kitchens.

“This is a wonderful result of getting the word out about the July 2015 recycling and food recovery deadline,” said Deb Markowitz, secretary of the Agency of Natural Resources from 2011 to 2017. “By joining efforts with hunger relief organizations, we can get the food out of the landfill and into the hands of those who need it, while saving money for retailers in hauling costs.”¹¹ The impact of the second phase of the law has exceeded all expectations so far.

“Even our own systems analysis was estimating just an uptick of a couple tons a year,” said Oakleaf. “But more than 100 tons in the year to date is really fantastic.”

Farms, food manufacturers, grocery stores, and businesses often donate excess food to the Vermont Foodbank or to food shelters. At the food bank, staff members check all donations carefully before sorting and storing the food for use.

“We receive food from Hannaford, CVS, and many other companies that all needs to be sorted to ensure the quality is acceptable,” said Seely. “Our staff open every box to check every product. In three to four hours, we’ll go through thousands of products to sort, weigh, and repackage them for use.”

The Universal Recycling Law has catalyzed connections and collaborations among professionals across the food supply, rescue, and waste management sectors that have flourished during implementation of the law's second phase. Jake Claro, director of the Farm to Plate Network, applauded the networks that have formed since July 2015.

"The Universal Recycling Law has created partnerships between food retailers and hunger relief organizations that did not exist before," said Claro. "The food [rescue] movement is expanding with new energy and new opportunities."¹² Indeed, the Universal Recycling Law has dramatically increased the amount and quality of food donated to food banks, with food donations growing by nearly 40 percent from 2015 to 2016.¹³

As these partnerships continue to develop during the rollout of the law, the Vermont Agency of Natural Resources has regularly held stakeholder discussions about the rescue and recycling infrastructure necessary to match expected needs. For example, increased donation reduces the need for additional compost capacity.

"The more that we are capturing the quality food for consumption at the upstream end through our available donation networks, the less we need to look at dozens of new composters—for example, we're piloting anaerobic digestion projects around the state," said Oakleaf. "It definitely plays a big role in how much downstream infrastructure we need."

Vermont is also beginning to implement its requirement that all trash and recycling haulers offer food scrap collection to their customers. This phase of the Universal Recycling Law went into effect in July 2017. However, some municipalities have gotten a head start. For example, St. Albans, Vermont, which received a grant to start a residential pickup route as a pilot project, began the pilot in January 2017.

"The goal is to create a profitable residential route over the course of the two-year pilot," said Aaron Shepard, program coordinator for the Northwest VT Solid Waste Management District.¹⁴

While all the measures to support food scrap recycling have not yet been phased in, Vermont is already seeing results. Between 2014 and 2015, trash disposal decreased 5 percent statewide while recycling and composting increased 2 percent. As of 2016, all municipalities have adopted pay-as-you-throw pricing, "which allows residents to reduce their waste disposal costs by paying for the units of trash they produce," according to the state Department of Environmental Conservation's 2016 status report on the recycling law.¹⁵ This creates an economic incentive to increase recycling and composting. For example, the town of Vernon saw its trash volume cut in half and its recycling increase by 50 percent after it implemented pay-as-you-throw. Other Vermont towns have had similar positive results.¹⁶

KEY SUCCESS FACTORS

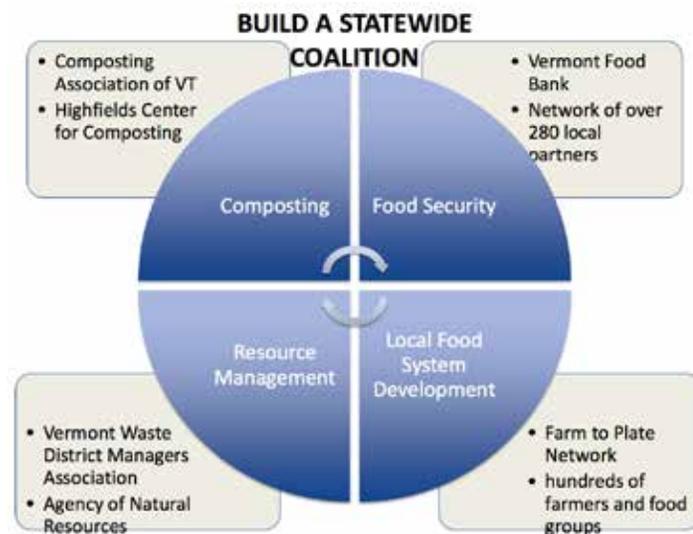
DON'T LET THE PERFECT BE THE ENEMY OF THE GOOD. While taking a comprehensive approach to reducing the amount of food that goes unused and into landfills is the ideal, Josh Kelly, materials management section chief for the Vermont Agency of Natural Resources' Waste Management and Prevention Division, suggests, "You start with what you think you can achieve." For Vermont, which has a decades-long history of recycling, passing a comprehensive, phased-in strategy that sets clear steps toward banning food from landfills made a lot of sense.¹⁷ When the Universal Recycling Law was introduced in 2012, the state had experienced years of stagnant recycling rates at between 30 and 36 percent. This, coupled with good commodity prices for recyclables, enabled Vermont to gain unanimous support for the law. Not all states or cities will be ready to pass such a comprehensive approach initially. It is critical to assess the current landscape and identify the steps needed to advance toward a comprehensive approach while starting with strategies that lay the groundwork for long-term success.

SET CLEAR GOALS AND TIME LINES FOR WASTE MANAGEMENT LEGISLATION TO INSPIRE MARKET DEVELOPMENT. The Vermont Agency of Natural Resources established clear goals for the Universal Recycling Law in order to drive market development. The goal of the law is to provide convenience and choices for Vermont residents and businesses, leading to more consistent statewide recycling and composting services.¹⁸

By establishing clear time lines for the phaseout of organics from the waste stream, the legislation "sends clear signals to both the private and public sector that recyclable and organic materials (food scraps/leaf and yard debris) will be available, which incentivizes investment in recycling, food donation, animal feeding, composting, and anaerobic digestion businesses, infrastructure, and services," according to the Agency of Natural Resources. "This in effect puts our waste to work as part of a circular economy that contributes to Vermont's environment and economy and green jobs rather than causing harm."¹⁹ Setting clear goals for the diversion of materials creates incentives for investments in infrastructure and strategies to rescue surplus food and recycle food scraps. It also allows for time to establish needed collection services and facilities to manage the recyclables, food, leaf, and yard materials.²⁰

PARTNERSHIPS AND STAKEHOLDER ENGAGEMENT ARE KEY. Connect people at every stage of food production, delivery, recovery, and disposal to build partnerships in support of common goals. Implementing Vermont's Universal Recycling Law has required continuous engagement and input from a wide range of stakeholders, including solid waste experts, the business community, environmental advocates, and haulers. This helped ensure that multiple perspectives were taken into account, leading to partnerships and building buy-in from stakeholders. These partnerships are valuable for sparking innovation, as each party has unique capacity and expertise to bring to the table. For example, the Vermont Agency of Natural Resources made a strong commitment to building

a statewide coalition by connecting all types of food scrap generators, haulers, farmers, composters, and food banks to foster collaboration around organic waste management.²¹ In addition, some local hunger-action committees are forming their own working groups focused on both food rescue and composting.^{22,23}



INVEST IN MARKETING AND COMMUNICATIONS. Alongside the rollout of the Universal Recycling Law, the Vermont Agency of Natural Resources designed a set of symbols (shown here) to be used throughout the state to show businesses, residents, and visitors what goes where when it comes to disposing of waste.

“They’re designed to be used everywhere: in public places, schools, businesses, curbside containers, even dumpsters,” said Cathy Jamieson, solid waste program manager for the Agency of Natural Resources. Jamieson hopes this will contribute toward consistent messaging nationally, as several major cities have adopted the same color scheme.²⁴



In addition, both the state and local groups have developed marketing campaigns and materials to help get the word out regarding implementation of the Universal Recycling Law. For example, Vermont’s solid waste management entities have played a significant role in providing education and outreach to residents and businesses, providing training and guidance for local communities. And groups like Farm to Plate Network have built partnerships to help “empower all Vermonters with the knowledge, tools, and resources to close the loop in their homes, farms, and communities.”²⁵

SUPPORTING ROLES

VOLUNTARY CURBSIDE RECYCLING FOR HOUSEHOLDS. Throughout Vermont, towns, counties, and regions have found innovative ways to rescue food and recycle. For example, Brattleboro was the first town in Vermont to implement a curbside organics collection program that incorporated food scraps.²⁶ After a successful pilot of curbside food scrap collection, Brattleboro extended the program to all residents. To cover the startup cost of the curbside organics recycling program, the town used the savings it had accumulated from the reduction in its tipping fees resulting from its compost and recycling program.

“The town saves \$55 for every ton of compost that is diverted from the landfill, and another \$105 for every ton of recyclable material that stays out of the trash stream.”²⁷ As a result of this and other efforts, the town has cut the amount of garbage it produces by more than half.

“Between July through November 2014 and then July through November 2015, we’ve reduced the average tonnage of garbage that goes to the dump from an average of 1,030 tons to 472 tons monthly,” said David Gartenstein, chairman of the Brattleboro Selectboard. The success of these programs has allowed the town to switch to every-other-week trash pickup, which helps it save even more.²⁸

CITIES CAN LEAD IN REDUCING FOOD FROM THE WASTE STREAM. While this case study is focused on the comprehensive program implemented by the state of Vermont, both cities and states across the United States are moving toward strategies that limit the amount of food scraps that end up in landfills. Austin, Texas, Portland, Oregon, Seattle, New York City, and San Francisco have all implemented rules that reduce the amount of food that goes into the garbage and thereby spur greater food donations and more effective composting programs and markets.²⁹ Other states that have implemented similar measures include Massachusetts, Rhode Island, Connecticut, and California.

FILLING IN THE GAPS TO SUPPORT NEW INDUSTRY. We need leadership from both the public and private sectors to transform how we handle recyclables and wasted food. As Kelly of the Vermont Agency of Natural Resources’ Waste Management and Prevention Division describes it, “Often, the role of the public sector is to try to fill in the gaps when the private sector won’t or isn’t able to do something that is in the public interest.” In one Vermont example, the Central Vermont Solid Waste Management District started collecting food waste when no private haulers were willing to provide the service. Now that the service has been established, the district is selling its route and equipment to a private enterprise that will build upon the base established by the district.³⁰

EQUITY IMPACT

MAKE FOOD RESCUE AND GETTING HEALTHY FOOD TO THOSE IN NEED THE TOP PRIORITIES.

Vermont set the food waste pyramid priorities to ensure that surplus food would go to hunger relief organizations instead of straight to composting. As a result, food donations have increased significantly, growing by nearly 40 percent from 2015 to 2016.³¹ This influx of donated food has transformed operations at various Vermont hunger relief organizations. For example, The Salvation Army of Greater Burlington reported in 2016 that thanks to increased food donations, it had slashed its cost per meal to under \$0.07, compared with about \$1.47 just two years ago.

“We are spending less than \$500 a month on food and we’ll serve around 40,000 meals this year,” said Lieutenant Scott Murray of the Burlington area Salvation Army. “[T]he quality of what we’re serving is so much better than before we started getting these particular fresh food donations – healthy and nutritious meals, fresh fruits and vegetables and new dinner offerings such as kale, pork, chicken and so much more. This program has changed how we cook, what we serve, and benefits so many people. There is no way we could afford to buy the same food as is donated.”³²

INVEST IN JOBS. While complete job creation numbers for Vermont’s Universal Recycling Law are not yet available, various studies indicate that organics rescue and recycling programs create more jobs than landfilling. An analysis of Massachusetts’ Commercial Food Waste Disposal Ban shows that the law has created more than 900 direct and indirect jobs and stimulated \$175 million in economic activity across the Commonwealth of Massachusetts during the first two years of its landfill ban. The study also shows that food waste haulers and processors as well as food rescue organizations have generated a total of more than \$46 million of labor income. In fact, according to Martin Suuberg, commissioner of the Massachusetts Department of Environmental Protection, “Massachusetts businesses have been able to cost-effectively reduce disposal of food and divert it to higher value uses, such as food donation, animal feed, composting, and renewable energy. The results of this study show that the ban has been both a success in reducing the waste stream and a stimulant for economic growth.”³³ A study by the New York State Energy Research and Development Authority estimates that New York could save \$22 million annually by following a strategy that redirects food currently going into the waste stream to food donations and organic recycling centers.³⁴

According to the Vermont Agency of Natural Resources, the following items must be in place by each of the following dates:⁴⁰



Universal Recycling TIMELINE

JULY 1
2014

- Transfer stations/Drop-off Facilities must accept residential recyclables at no extra charge
- Food scrap generators of 104 tons/year (2 tons/week) must divert material to any certified facility within 20 miles

JULY 1
2015

- Statewide unit based pricing takes effect, requiring residential trash charges be based on volume or weight
- Recyclables are banned from the landfill
- Transfer stations/Drop-off Facilities must accept leaf and yard debris
- Haulers must offer residential recycling collection at no extra charge
- Public buildings must provide recycling containers alongside all trash containers in public spaces (exception for restrooms)
- Food scrap generators of 52 tons/year (1 ton/week) must divert material to any certified facility within 20 miles

JULY 1
2016

- Leaf, yard, and clean wood debris are banned from the landfill
- Haulers must offer leaf and yard debris collection
- Food scrap generators of 26 tons/year (1/2 ton/week) must divert material to any certified facility within 20 miles

JULY 1
2017

- Transfer stations/Drop-off Facilities must accept food scraps
- Food scrap generators of 18 tons/year (1/3 ton/week) must divert material to any certified facility within 20 miles

JULY 1
2018

- Haulers must offer food scrap collection

JULY 1
2020

- Food scraps are banned from the landfill



FACTS THAT HELP EDUCATE VERMONTERS TO ADVANCE THE UNIVERSAL RECYCLING LAW

- In 2011, Vermonters threw an average of 3.62 pounds of materials per person per day into landfills, a 15 percent increase since 1987.³⁵
- In 2009, about 58,000 tons of recyclables—worth \$7.5 million, valued at \$131 per ton of material—were landfilled in Vermont.³⁶
- Components of Act 148, such as organics collection, mandatory recycling, and financial incentives to separate resources from trash, will help Vermont achieve higher recovery rates.³⁷
- Each ton of material recycled avoids about 2.92 metric tons of carbon dioxide (CO₂) pollution.³⁸
- Capturing 50 percent of the recyclables now going to landfills in Vermont (or 29,000 tons per year) could eliminate upwards of 85,000 metric tons of CO₂ pollution per year, the equivalent of taking 17,708 cars off the road (4.8 metric tons/year/vehicle, according to the EPA).³⁹

ENDNOTES

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- 22 Josh Kelly, materials management section chief for the Vermont Agency of Natural Resources' Waste Management and Prevention Division, personal communication, July 6, 2017.
- 23 Highfields Center for Composting no longer exists, but it helped bring about the passage of the Universal Recycling Law and with the early stages of its implementation.
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