

Williamstown: Working Towards Zero Waste



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Table of Contents

Summary	4
General Background	5
Williamstown Waste Sources	6
Residential Waste	6
Restaurant Waste	6
Waste Management Infrastructure	7
Transfer Station	7
Private Haulers	7
Casella Compost Facility	8
Current Composting Policies	8
Massachusetts	8
Newburyport	10
Cambridge	10
Hamilton	12
Vermont	13
Evaluations for an Effective Composting Program	13
Price	14
Enforcement	14
Environmental Benefits	14
Education and Outreach	14
Nuisances	15
Proposed Voluntary Models	15
Pilot Program	15
Advantages	17
Challenges	18
Williams College Compost Collection Expansion	18
Advantages	19
Challenges	20
Voluntary Curbside Pickup	20
Advantages	20
Challenges	21
Working with Local Farms	21
Proposed Mandatory Bylaw Model	22
Part A: Transfer Station Dropoff	22
Part B: Mandatory Curbside Pickup	22
Part C: Home Composting	23

Advantages	24
Challenges	24
Suggestions for Williamstown	25
Starting a Pilot Program	25
Arguments Against Bylaw	25
Looking Ahead	26
Schools and Nursing Homes	26
Expanding to Berkshire County	26
Conclusion	27
Appendices	27
Evaluation Matrix	28
Interview List	28

Summary

Residents and business in Williamstown M.A. currently dispose of their waste and recycling either through the town-run transfer station or by private hauling companies. The majority of the town's waste is hauled by Casella Waste Systems and placed in landfills or incinerated across upstate New York. Some large institutions and businesses like Williams College and Wild Oats have exceedingly large amounts of waste, requiring them by state law to divert their food scraps. However, most residents and businesses have no incentive to divert their organic waste, and very few community members currently participate in composting. The Northern Berkshire Solid Waste Management District, which Williamstown is a part of, provides subsidized home composting equipment that a couple hundred households have bought. However, the town of Williamstown is lacking town-wide composting options for both residents and restaurants to participate in. This report analyzes how other areas have introduced composting into their municipalities and comes up with options that could succeed in Williamstown.

In other cities and states across the Northeast, leaders have come together to create large-scale composting services that save the municipalities and residents money while reducing their carbon footprint. After talking to solid waste management directors, Casella, community compost leaders, and extracting successes from case studies across Massachusetts, a combination of voluntary and mandatory composting models were fabricated. Voluntary options include starting a pilot program, expanding Williams College's compost collection area, and promoting curbside composting. A mandatory option would include a bylaw that would require the transfer station to have a food scraps drop off area, private haulers to provide composting bins and pickup for food waste collection, and an expansion of home composting for residents and restaurants.

The report evaluates all the model options based on price, enforcement, environmental benefit, education and outreach, and nuisances. The final conclusion and recommendation from this report is that the town start with a pilot program to introduce composting to the town. The town has the infrastructure in place to start diverting food waste, and can significantly reduce the costs and greenhouse gas emissions associated with solid waste management. Looking towards the future, schools and nursing homes will be other sources of food waste that can be diverted. Another long-term goal will be to create composting models for other towns and cities in Berkshire county based off of the successes in Williamstown. Overall, this report shows that Williamstown is ready to start composting and can do so with the tools and resources included below.

General Background

The United States discards roughly 60 million tons of food waste every year, higher than any other country in the world.¹ America's food waste is estimated at between 30-40 percent of the food supply and is valued at \$165 billion lost annually.² Once the food waste is rotting in anaerobic landfills, it releases methane, a potent greenhouse gas, that contributes to climate change. Food waste is composed of 70% water, and burning it in an incinerator requires considerable amounts of energy.³ If food waste globally were a country, it would be the third largest greenhouse gas emitter after China and the US.⁴ According to Drawdown, reducing food waste is one of the most effective solutions to combating climate change globally.⁵

States and cities across the globe are taking the food waste challenge head on: reducing the food produced at the source, donating extra food to food banks and shelters, and diverting food scraps to farms. Another tactic that has become part of many people's daily lives is composting. Composting is the natural process of recycling organic matter, such as leaves and food scraps, into a valuable fertilizer that can enrich soil and plants. Organic discards can be processed in industrial-scale composting facilities, in smaller-scale community composting systems, and in anaerobic digesters, among other options.

Zero-waste composting is possible in households and scaled all the way up to entire countries. Nationally, composting has grown substantially over the past 40 years and is predicted to continue growing. U.S. composting was negligible in 1980, but it rose to 8.5 percent of general solid waste management in 2018.⁶ Looking locally, the practice of composting in Williamstown is almost non-existent in households and uncommon among commercial businesses. Looking at other cities and states as models, it is our task to understand the challenges and possibilities with composting in Williamstown as a way to both decrease the town's carbon footprint and lead by example to become a template for other Berkshire towns to follow.

¹ "2018 Wasted Food Report," Environmental Protection Agency, last modified November, 2020, https://www.epa.gov/sites/production/files/2020-11/documents/2018_wasted_food_report.pdf.

² "Food Waste FAQs," U.S. Department of Agriculture, accessed December 15, 2020, <https://www.usda.gov/foodwaste/faqs>.

³ Mike Brown, "Is Waste a Source of Renewable Energy?," *Zero Waste Europe*, August 31 2015, <https://zerowasteurope.eu/2015/08/is-waste-a-source-of-renewable-energy/>.

⁴ "Food Wastage Footprint: Impact on Natural Resources," Natural Resources Management and Environment Department, last modified 2013, <http://www.fao.org/3/i3347e/i3347e.pdf>.

⁵ "Reduce Food Waste," Project Drawdown, accessed December 15th, 2020, <https://drawdown.org/solutions/reduced-food-waste>.

⁶ "Advancing Sustainable Materials Management: 2018 Fact Sheet," Environmental Protection Agency, last modified November 2020, https://www.epa.gov/sites/production/files/2020-11/documents/2018_ff_fact_sheet.pdf.

Williamstown Waste Sources

Residential Waste

Williamstown has a population of 7,700, and roughly 75% of individuals live in single-family homes.⁷ It is estimated that the 2,200 households of Williamstown as a whole generate roughly 11 tons of solid waste daily.⁸ With residential waste being transported off to a combination of landfills and incinerators across upstate New York, this waste is out of sight and easily forgotten about.

Households are responsible for the largest portion of all food waste in the food producing sector. Over 50% of solid waste can be composted (21% being food scraps) and thus, can be diverted from landfills and incinerators.⁹ Using estimates of food waste per person calculated by the EPA, the yearly tonnage of food waste for the residential sector of Williamstown is equal to almost 525 tons.¹⁰ To put this number into perspective, the amount of food waste Williamstown residents produce per year is equivalent to the weight of two Statue of Liberties. With very few households currently composting in Williamstown, there is a large potential for food waste diversion in the residential sector.

Restaurant Waste

In Williamstown, there are roughly 25 small-scale restaurants, cafes, and grocery stores.¹¹ While many of the restaurants reside in close proximity in the center of the town, Spring St. and Water St., there are other restaurants that are spread across the town. Food scraps are typically the largest single component of waste generated by restaurants and diverting this material from disposal can be a way to reduce disposal and overall operational costs.¹² Collectively, these restaurants produce more than 70 tons of food waste per year.¹³ While most restaurants do not have a composting practice in place, there are a handful of commercial establishments that do. As of right now, Wild Oats, the Clark Cafe, and Orchards Hotel dining all compost. Some of this

⁷ “Quick Facts,” United States Census Bureau, accessed October 29, 2020, <https://www.census.gov/quickfacts/williamstowntownberkshirecountymassachusetts>.

⁸ “National Overview: Facts and Figures on Materials, Wastes and Recycling,” Environmental Protection Agency, accessed October 10, 2020, <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials>.

⁹ “Infographic: Compost Impacts More Than You Think,” Institute for Local Self-Reliance, last modified April 2, 2018, <https://ilsr.org/compost-impacts-infographic/>.

¹⁰ “2018 Wasted Food Report.”

¹¹ “Food,” Destination Williamstown, accessed December 1, 2020, https://destinationwilliamstown.org/event_category/food/.

¹² “Waste Ban Compliance Tips for Restaurants,” RecyclingWorks, accessed November 21, 2020, <https://recyclingworksma.com/wp-content/uploads/2018/07/Restaurant-Tip-Sheet.pdf>.

¹³ Katherine Butler, “Williamstown Businesses Collaborate in Local Composting Initiative,” *RecyclingWorks*, November 9, 2018, <https://recyclingworksma.com/williamstown-businesses-collaborate-in-local-composting-initiative/>.

was attributed to a “Table to Farm” outreach campaign conducted by Williamstown’s COOL (CO2 Lowering) Committee in 2018.¹⁴ The rest of the commercial businesses most likely have all their waste collected by Casella, where it is eventually incinerated or buried in a landfill across upstate New York.

Waste Management Infrastructure

Transfer Station

Currently, there are two ways for residents to have their waste disposed of. One option is the Williamstown Transfer Station, which requires a yearly membership plus an added cost per bag of trash disposed of (pay as you throw). At the transfer station, members can dispose of their trash, recycling, yard waste, used motor oil, and other waste items each with extra fees attached to them. For the year of 2020, yearly membership costs were \$120 per year and trash bag tickets were \$2/ticket.¹⁵ One ticket covers a single 15-gallon trash bag. The Transfer Station sold 933 permits in the 2019 fiscal year.¹⁶ That same year, the transfer station collected 307 tons of solid waste. The town of Williamstown has a contract with the private hauler Casella Waste Systems to collect the solid waste from the transfer station.

The transfer station runs on a self-sustaining model, meaning that what the town pays to operate the station and how much members pay to dispose of their waste is balanced. Any additional costs of operating and maintaining the transfer station get calculated into the cost of membership, so the financial burden falls on the individuals. For example, in 2018 China stopped accepting many plastics and other materials headed for the nation's recycling processor, removing a cheap recycling collector for America.¹⁷ This effect trickled down to the Williamstown transfer station, where costs for membership increased once the cost of recycling increased.¹⁸ If any new service were to be provided by the transfer station with no financial support from the state, that service’s price would be reflected in the price of membership.

Private Haulers

A second option for trash disposal is private hauling. In Williamstown, there is one company, Casella Waste Systems, that provides private hauling services for the majority of the town.

¹⁴ Brad Johnson, “‘Table to Farm’ adds twist to farm-to-table movement,” *Berkshire Trade and Commerce*, May 2018, <http://www.btaonline.com/wp-content/uploads/2018/04/May-2018-BTAC.pdf>.

¹⁵ “Transfer Station,” Town of Williamstown, accessed December 1, 2020, <https://williamstownma.gov/transfer-station/>.

¹⁶ “The Town of Williamstown CY19 Annual Report,” Northern Berkshire Solid Waste Management District, accessed October 23, 2020, <http://www.nbswmd.com/media/5e68ef19c6673.pdf>.

¹⁷ Sara Kiley Watson, “China Has Refused To Recycle The West's Plastics. What Now?,” *NPR*, June 28, 2018, <https://www.npr.org/sections/goatsandsoda/2018/06/28/623972937/china-has-refused-to-recycle-the-wests-plastics-what-now>.

¹⁸ Tim Kaiser (retired Williamstown Director of Public Works) in discussion with the author, November 2020.

Casella is a waste management company based in Rutland, Vermont. In 2019, Casella acquired TAM Waste Management, taking over TAM's waste hauling, recycling, and composting services provided to many residents, restaurants, and institutions in Northern Berkshire. Today, there are a few smaller family-owned operators including Scott Smith Trucking, Delmoino & Sons, East Adams Transport, and RL Waste; however, they tend to cater to a small number of clients and do not have the capacity to expand their operations to new services like composting.¹⁹

Casella Compost Facility

Casella has a composting facility in Shaftesbury, VT where they compile food waste to create topsoil. This topsoil is sold to create a revenue stream that makes their composting initiative profitable. Currently, Casella hauls the food scraps of the few residences and businesses in Williamstown, the largest being Williams College. Casella has indicated that they have the capacity to expand their program to the entire town of Williamstown and would be interested in creating a plan with both residents and restaurants. An important factor in maintaining Casella's support for large scale composting in Williamstown while also keeping service costs low is ensuring that the market for compost is profitable into the future.

In 2014, the United Nations estimated that the world only had 60 more years of productive farming before the Earth would run out of fertile topsoil. The planet is capable of producing only three centimeters of fertile topsoil per 1,000 years naturally, and with a third of the Earth's soil already degraded due to anthropogenic causes, the global need for compost and topsoil will only increase over time.²⁰ Looking locally, there are ways to sustain the market for compost. The town of Williamstown, Williams College, and other large landscaping and agriculture companies can commit to buying local compost and topsoil to support companies like Casella. The more the town buys back topsoil and compost produced by the very food waste they discarded, the lower Casella can make its composting fees. This cyclical process not only supports local composting businesses, but connects residents and restaurants back to the food scraps they diverted.

Current Composting Policies

Massachusetts

Solid waste disposal presents an increasingly difficult and costly problem for municipalities in Massachusetts. Landfills in the state are closing and incinerators are near 100% capacity.²¹

¹⁹ Trevor Mance (Casella Food Waste Project Manager) in discussion with the author, October 2020.

²⁰ Chris Arsenault, "Only 60 Years of Farming Left If Soil Degradation Continues," *Scientific American*, December 5 2014, <https://www.scientificamerican.com/article/only-60-years-of-farming-left-if-soil-degradation-continues/>

²¹ "Compost for a Healthier Newburyport," Alliance of Climate and Environmental Stewards, accessed December 15, 2020, https://www.cityofnewburyport.com/sites/g/files/vyhlf3521/f/pages/final_guide_compost_for_a_healthier_newburyport.pdf.

Massachusetts is running out of places to put trash and the situation will put upward pressure on prices as the cost of trash disposal rises for haulers.²² According to the Massachusetts Department of Environmental Protection (MassDEP), landfill scarcity in Massachusetts makes for some of the nation's highest dumping fees, between \$75 and \$90 per ton.²³ The fees at compost or biogas facilities are often about 20 percent lower, because rotting food is the raw material for their marketable products. To address this issue, Massachusetts has committed to reducing statewide waste disposal by 80% in 2050 from its 2010 level. As a solution to divert organic waste from landfills and incinerators, MassDEP banned the disposal of commercial organic waste by businesses and institutions that dispose of one ton or more of these materials per week starting October 1, 2014.²⁴ In Williamstown, that law currently covers larger establishments including the college and grocery stores like Wild Oats.

MassDEP recently proposed a waste ban amendment to lower the threshold for the commercial organics ban so that it would apply to businesses generating one-half ton or more of food waste per week. These changes are proposed to take effect on October 1, 2021.²⁵ To contextualize this number, any full-service restaurant that serves roughly 1,000 meals a week would fall under this new amendment.²⁶ Depending on the capacity that restaurants are operating at right now, this reduction in tonnage could impact restaurants and other businesses in Williamstown. While the town may not be ready for composting now, serious planning needs to start soon to better understand if restaurants fall under this regulation. With proper planning, costs can be kept down and unnecessary nuisances can be avoided.

Many cities and towns in Massachusetts have taken it upon themselves to create municipal and optional composting programs.²⁷ Looking to these cities as case studies, it can be helpful to see how other areas in Massachusetts are taking advantage of composting to reduce food waste and greenhouse gas emissions in their communities. Newburyport, Cambridge, and Hamilton MA have each taken their own approach over the past 10 years to expand composting beyond the state's food waste regulations. We elaborate on each approach below.

²² Jim Hand, "Piling up: As landfills and incinerators close or reach capacity, Massachusetts is running out of places to process trash, which could put upward pressure on disposal prices" *The Sun Chronicle*, September 14 2019, https://www.thesunchronicle.com/news/local_news/piling-up-as-landfills-and-incinerators-close-or-reach-capacity-massachusetts-is-running-out-of/article_576fe4cb-fb37-5860-9b19-4d1bef935e9a.html

²³ "Massachusetts 2010-2020 Solid Waste Master Plan," Massachusetts Department of Environmental Protection, last modified April 2013, <https://www.mass.gov/doc/2010-2020-solid-waste-master-plan-a-pathway-to-zero-waste/download>.

²⁴ "Commercial Food Material Disposal Ban," Massachusetts Department of Environmental Protection, accessed October 12, 2020, <https://www.mass.gov/guides/commercial-food-material-disposal-ban#-about-the-disposal-ban->.

²⁵ "MassDEP Waste Disposal Bans," Massachusetts Department of Environmental Protection, accessed October 12, 2020, <https://www.mass.gov/guides/massdep-waste-disposal-bans>.

²⁶ "Food Waste Estimation Guide," RecyclingWorks, accessed October 13, 2020, <https://recyclingworksma.com/food-waste-estimation-guide/>.

²⁷ <https://www.acton-ma.gov/524/Transfer-Station-Food-Waste-Collection>; <https://www.boston.gov/environment-and-energy/project-oscar>; <https://www.ipswichma.gov/273/Composting>.

Newburyport

The city of Newburyport, Massachusetts has done extensive work to expand composting to its residents. The city's composting efforts started in 2015 with a two-year curbside composting program. In partnership with Black Earth Compost and with a MassDEP grant, the city provided free weekly curbside compost pick up for roughly 429 households over the course of a pilot program. After the program ended, residents noted a drastic decrease in their trash volume and weight.²⁸ Periodic surveys the town conducted showed that nearly 30% of the group decreased the volume of their trash output by 50% or more by participating in the program. An additional 44% of the group reported at least a 20% decrease in trash. In total, the pilot program diverted 150 tons of food scraps from the city's waste stream.

Today, Newburyport has a subsidized curbside composting program and a free compost drop-off program. After the pilot program ended in late 2017, curbside composting for residents went private with a large subsidy from the city. Nearly 600 households now pay \$1.89 a week for curbside pickup from Black Earth (as opposed to \$10). It is estimated that each household keeps about 11 to 12 pounds of food scraps out of the city's garbage haul per week.²⁹ With the help of a new education and awareness campaign, the city expects 900 residential households, nonprofits, and businesses on the City waste disposal contract to regularly practice composting in the coming year.

Their second city-wide option is a compost drop-off bin. When residents' compost containers are full, they have the option of dropping their food scraps off at a free compost collection bin located at the Newburyport Waste Water Treatment Facility.³⁰ Looking towards the future, the city will evaluate the possibility of additional drop off sites starting May 2021.

Cambridge

Cambridge, Massachusetts took its own unique approach to composting by first addressing food waste from businesses and schools before moving to the residential sector. In Cambridge, businesses and institutions pay by volume for trash services, creating a financial incentive to decrease the amount of waste they dispose of, while residents pay a flat-rate for municipal waste pickup. In 2006, the city partnered with a private hauler to collect compostables for a handful of restaurants, universities, hotels, grocery stores, and eventually schools.³¹ While at first the program was subsidized by the city, after a few years the program expanded to enough

²⁸ "Compost for a Healthier Newburyport," Alliance of Climate and Environmental Stewards.

²⁹ "The Need for Free Curbside Composting in Massachusetts," Sierra Club, last modified May 23, 2019, <https://www.sierraclub.org/massachusetts/blog/2019/05/need-for-free-curbside-composting-massachusetts>.

³⁰ "Compost for a Healthier Newburyport."

³¹ Judith Layzer and Alexis Schulman, "Municipal curbside compostables collection: What works and why." *Urban Sustainability Assessment Project, Department of Urban Studies and Planning, MIT* (2014), <https://dusp.mit.edu/sites/dusp.mit.edu/files/attachments/project/Municipal%20Curbside%20Compostables%20Collection%20%20What%20Works%20and%20Why.pdf>

businesses that it became a self-sufficient operation: the fees charged by the composting hauler for pickup covered the operational costs. The cost of composting is competitive with the costs of paying to have it hauled off as garbage, and many businesses have reported saving between hundreds to several thousands of dollars per year.³² Within five years of starting the program, more than 200 Cambridge businesses and institutions were reported participating, diverting an average of 14 tons of food waste per day from landfills and incinerators.

Cambridge's success with businesses and institutions fueled the expansion of composting to city residents, first through a drop-off and pilot program. Cambridge first started a city-sponsored drop-off site for residents to dispose of their organic food waste, serviced by the same organic waste private hauler. After a 6-month trial period, the drop-off became permanent, and today there are 5 locations where residents can dispose of their organic waste for free.³³ Looking to expand composting to the municipalities curbside pickup service, the city first conducted a feasibility study with a \$67,000 MassDEP Sustainable Materials Recovery Program grant which helped convince city officials to sign-off on a 1-year pilot program. The pilot was partially funded by the grant, which covered tipping fees at the chosen composting facility. Details of the pilot program are as followed.

A specific area in North Cambridge was selected for the pilot due to its mix of housing and lack of access to existing food scraps drop off sites. With a goal of recruiting 500-800 participating households (single family homes and multifamily buildings with up to 12 units with City trash service), the city spent the fall of 2013 to the winter of 2014 encouraging eligible households to sign up for the pilot via a monthly recycling e-newsletter, signs in the neighborhood, info tables at key community locations, and a letter to families from the Cambridge Public Schools.³⁴ On the first day of collection in 2014, 554 households who agreed to participate received a green kitchen container to collect food scraps, a year's supply of BioBags to line the container, a green curbside bin, free weekly collection, and finished compost. During the pilot, Cambridge communicated regularly with participants to encourage best practices and issued six surveys to collect demographic information and feedback on user experience. Keeping track of weights of trash and compost before and throughout the pilot suggested an 89% capture rate of organics.

With such high satisfaction rates among participants, a rollout of citywide curbside organics pickup started in April 2018. Cambridge invested \$1 million towards carts, trucks, marketing,

³² "Massachusetts 2010-2020 Solid Waste Master Plan," Massachusetts Department of Environmental Protection, last modified April 2013, <https://www.mass.gov/doc/2010-2020-solid-waste-master-plan-a-pathway-to-zero-waste/download>.

³³ "Compost Drop-off," City of Cambridge, accessed December 15, 2020, <https://www.cambridgema.gov/Services/curbsidecomposting/compostdropoff>.

³⁴ "Curbside Organics Collection From Residents: Phase 2 Report," City Of Cambridge Department Of Public Works, last modified Summer 2015, https://www.cambridgema.gov/-/media/Files/publicworksdepartment/recyclingandrubbish/PDFs_Keep/2015cambridgecurbsideorganicsphase2report.pdf.

and education. The City provided free kitchen containers and curbside collection carts to all residences (under 12 units) using municipal waste removal. The added weekly service is free for residents. The city's hope is that the free materials will incentivize households to compost and that their reduced rates of trash will pay off the large investment the city made in composting. According to the city's Zero Waste Master Plan, it costs Cambridge DEP about \$60 to dispose of a ton of food waste, whereas it costs \$100 a ton to dispose of trash.³⁵ Today, Cambridge is looking to further expand curbside compost pickup to larger-unit households as the program continues to show success environmentally and economically.

Hamilton

The small semi-rural town of Hamilton and its neighboring town of Wenham started a weekly curbside compost collection program in 2012, the first of its kind in New England. After introducing a pay as you throw model for trash pickup, the town implemented pilot programs to introduce composting into their municipal waste collection. The first was a free two-month pilot program for 75 households for the town to track how much food waste was being diverted from their solid waste.³⁶ The second pilot was a 1-year program where residents were asked to pay \$75 for weekly compost curbside pickup. The first 500 households received a kitchen container and curbside bin for free, and in the end, over 675 households signed up. The high signup rate showed the strong support and interest of residents for composting.

Today, the two towns have incorporated composting into their municipal waste management services and are preparing to expand composting participation rates further with a bylaw. In 2012, every resident received a curbside collector and kitchen bags for free and were encouraged to introduce composting into their daily lives through intensive outreach programs. The communities published stories in the newspapers, conducted door-to-door pamphleteering, appeared before the boards of selectmen, spoke before different community organizations, and even had a hotline for composting questions.³⁷ Solid waste pickup for trash was switched to an every other week operation, which drove residents to compost and recycle even more. Pushback from a few residents eventually brought back weekly trash pickup during the pandemic and the town witnessed composting rates dropping down by half.³⁸ Late in 2020, the board of selectmen in Hamilton voted to ban residents from putting food waste and compostable paper in their trash, starting February 1, 2021.³⁹ While there will be no fines imposed nor enforcement actions taken

³⁵ "Zero Waste Master Plan," City of Cambridge, last modified October 2019, <https://www.cambridgema.gov/-/media/Files/publicworksdepartment/recyclingandrubbish/zerowastemasterplan/zwmp10119.pdf>.

³⁶ Layzer and Schulman, "Municipal curbside compostables collection."

³⁷ "Rural/Small Town Organics Management Case Study Hamilton and Wenham Massachusetts Curbside Composting Program," Northeast Recycling Council, accessed November 26, 2020, https://nerc.org/documents/Organics/Case%20Study_Hamilton%20MA.pdf.

³⁸ Jon Gorey, "In a quest to save the earth — and a little cash — the push for curbside composting," *RealEstate*, April 17 2019, <http://realestate.boston.com/news/2019/04/17/push-curbside-composting-programs/>

³⁹ "Hamilton's Updated Compost Program," Hamilton Board of Selectmen, last modified December 24 2020, <https://www.hamiltonma.gov/hamiltons-updated-compost-program/>.

for non-compliance with this ban, trash haulers will be instructed not to pick up the trash bin from a household that does not have either a curbside compost bin next to their trash bin, or have a valid issued exemption sticker for home composting affixed to their trash bin. Through their success, Hamilton has shown that small semi-rural and rural towns have the ability to successfully divert food waste through the residential sector.

Vermont

Our neighboring state of Vermont has become the leader in state-driven food waste reduction initiatives through its Universal Recycling Law. Passed in 2012, the law provides a timeline for slowly expanding recycling and composting to everyone in the state while reducing trash waste amounts. Starting in 2014, the amount of food waste that commercial and residential sectors could produce before they were required to compost was set at 2 tons per week, and ratcheted down year by year. Transfer stations were required to accept food scraps starting July 2017 and in 2020, all food scraps were banned from landfills and haulers were required to provide food scrap collection.⁴⁰ This phased-in approach created demand for food scrap pick-up services and prompted investments in food scrap collection and processing infrastructure. Vermont residents and businesses have the option of curbside pickup, using the transfer station, or home composting to divert all food waste from going into the trash. As the program continues to be implemented throughout the state, it will be important to look back on the successes and challenges that Vermont towns face with implementing this zero-waste program. Their initiative will become the standard that cities and states all across the country will emulate as composting becomes more and more critical for effective waste management.

Evaluations for an Effective Composting Program

Price

Price is an important factor when deciding which composting model is most appropriate. Adding a composting service brings with it an added cost. For different models, the burden of cost will fall on different people and institutions. Having a voluntary composting program will ensure that the burden of cost only falls on those who choose to participate in the program, whereas a mandatory program would place costs on all members of the community, regardless of their ability to absorb that added cost. It is important to factor in grants, business partnerships, and town funding support to try to offset many of the added costs. With something so new as composting, it is hard to predict the long-term savings, but other towns have shown that it is possible for composting services to save people and municipalities money in the long run, negating any costs that may come with the service.

⁴⁰ “Vermont’s Universal Recycling Law,” Department of Environmental Conservation, accessed September 21 2020, <https://dec.vermont.gov/waste-management/solid/universal-recycling>.

Enforcement

Enforcement ability of a program dictates how well people will comply with the change in waste disposal practice. Much of enforcement has to do with how binding composting is and how little people's way of living will need to be altered. It is easier to ask community members to participate in a program that nicely fits into their daily lives. Not all models are going to be convenient for all types of people and businesses, but planning so that the burden of composting isn't too high will ensure that people comply with the program. A mandatory composting bylaw would guarantee that waste management services provide composting options, and would compel people to compost to abide by the law. However, unless there is community buy-in and ease of compliance in composting, there would need to be a punishment for not composting to ensure that restaurants and residents follow the food waste ban. In Cambridge, a trash checker would go around checking for compliance and zero-contamination, and would place a "Rejection Sticker" on bins that were not in compliance that were then not emptied for the week. A program that is well planned and benefits the community will not need strong punishment, but will run with the enthusiasm and support of residents and restaurants who believe in the program.

Environmental Benefits

The environmental benefits of composting food scraps over having them go into landfills or incinerators is clear. Food waste in incinerators makes the trash slurry wetter and requires a higher heating point to burn the waste mixture. Once removed, trash can be burned at lower temperatures and use less energy in the process. In oxygen-less landfills, food waste isn't able to naturally decompose and instead releases methane, a major greenhouse gas. The more food waste that is diverted from incinerators and landfills means less greenhouse gasses are emitted into the atmosphere. Other environmental factors to balance are the emissions produced by trucks picking up food scraps as well as the amount of paper and plastic potentially being used to promote composting programs. To maximize environmental benefits, residents and restaurants will need to be educated on what is compostable so that contamination does not ruin a batch of food scraps from being composted. To manage all these factors, proper monitoring and measuring of food waste will allow for the town to quantify environmental benefits and ensure the community is taking proper steps to better protect the environment.

Education and Outreach

Many composting programs will need proper outreach efforts to spread awareness and education efforts to teach people how to properly divert their food waste. Looking at other case studies, continual education and frequent reminders for composting programs were the most important tool for ensuring success of a program. The theme of "early and often" outreach lets community members know what is coming so that they can expect a change and gives them opportunities to ask questions along the way. Signage and flyers, whether that be on waste bins, around town, or in people's emails, can serve as awareness tools and visual reminders. Education will also help

address the preconceived “yuck” factor that many people have with composting. Most importantly, education and outreach can emphasize the tremendous diversion/waste reduction opportunity that comes with organics recovery. This helps residents and restaurants know that they are making a difference.

Education and outreach can be time consuming, costly, and may require a group of dedicated volunteers. However, the more of it that is conducted before and during a program will ensure that the program runs smoothly and reaches the largest number of people. Some models will be more intuitive than others and will require less time and funding put towards education and outreach. Considering that composting is a pretty new phenomenon for most residents and restaurants, most programming will require some degree of education. When comparing composting models, we factor the amount of outreach and education necessary to run the program as a way to start quantifying the work that will need to be done to get the model going.

Nuisances

With any waste management model, preventing any unnecessary nuisances is important so that residents and restaurants stay happy and healthy. Composting comes with preconceived notions of increased odor and vermin attraction. However, these fears are oftentimes fabricated and they fail to realize that residents and restaurants are already equipped with ways to deal with nuisances that come along with food waste. Separating organics from trash doesn't mean there will be any more waste than there would be if trash wasn't separated, meaning that there wouldn't be increased odors or other nuisances on top of what was already present. If anything, separating food scraps from trash allows for the better control of odors and smells by concentrating the source of these nuisances in one area. There are also tricks like putting scraps in the fridge/freezer or using a special bin with aeration holes to prevent unwanted odors. Many compost bins are thicker than trash bins and sometimes come with locks, meaning that they are capable of deterring unwanted bears and racoons better than trash bins. With each model, it is important to factor the potential for increased nuisances while also understanding that many of those issues can be resolved with proper planning and education.

Proposed Voluntary Models

Pilot Program

A way to introduce composting into a community to gauge its popularity, successfulness, and potential issues is through a voluntary subsidized pilot program. A pilot program needs to be diverse in the types of residents and businesses it includes and be enticing enough that people will agree to join. For this model, we chose a set of specific locations to include in the pilot program but the selected location could be moved to anywhere else in the community that achieves these criteria: balance of rural and central to town, close proximity to one another, mix

of residential and commercial, spread of apartment and single-family residential, and a large enough population for sufficient volunteer sample size. We recommend approaching the commercial and residential spaces on Spring St., Latham St., Meacham St., Southworth St., and Pine Cobble Rd. (Figure 1). This sample group includes 13 restaurants/cafes, 63 single family homes, and 24 apartment units that could voluntarily join the program.

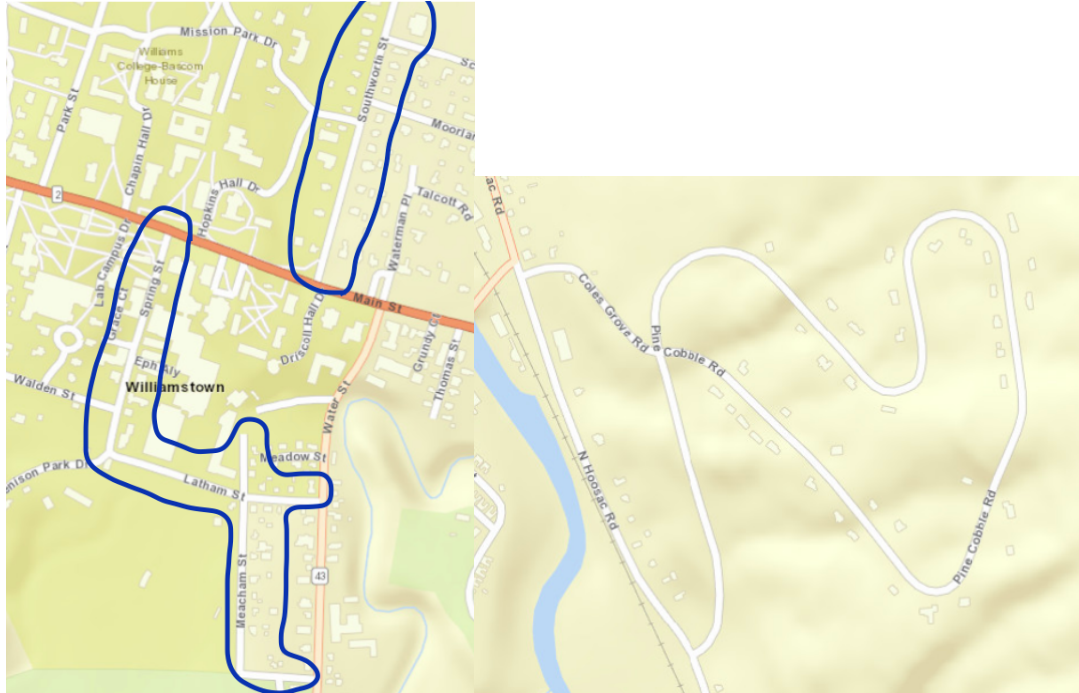


Figure 1 Map of recommended pilot participating sites in the center of town (left) and on Pine Cobble Drive (right)

The pilot program would be a curbside model, where Casella would collect separated organic food scraps from residential locations every other week and from restaurants weekly. To incentivize the program, the pilot project will have a \$10,000 grant attached to it to lower the cost of buy-in from participants as kinks are worked through. The grant money would be split between two sources: Casella and the Williamstown Community Climate Fund, overseen by the Williamstown COOL Committee. The COOL Committee is a group of volunteers from Williamstown who work to promote sustainable living practices in Williamstown in a way that inspires community engagement, prompts individual action, and promotes the exchange of ideas and practices in order to reduce greenhouse gas (GHG) emissions.⁴¹ Their Climate Fund provides grant money for projects that align with the town's Climate Action Plan for reducing GHG emissions. The process of receiving funding is now being redefined by the COOL Committee; however, a clear proposal and a community expert to oversee the project are essential for starting the conversation of receiving the grant.

With the \$5,000 from the Climate Fund and a matched \$5,000 from Casella, the \$10,000 is used to subsidize the program. We recommend finding a balance between affordability and longevity

⁴¹ Williamstown Cool Committee, accessed November 15 2020, www.coolwilliamstown.org

of the program. Case studies have shown that offering a free pilot program, knowing that it is unsustainable and will eventually need to have a charge attached to it, makes transitioning into a paid program at the end incredibly challenging. For this reason, we propose the grant cover half the cost to each resident/restaurant that participates. When calculating the costs of a pilot project, estimating how many restaurants and residents were to opt-in became the largest challenge. We predict that half the restaurants and residents offered the opportunity to join will indeed join. This ratio completely depends on how well composting leaders in the community are able to advocate for and market this program as an environmentally friendly, money saving initiative. For our cost calculations, we predicted that 45 participants – 40 residences, and 5 restaurants – would join.

Item	Total	Notes
Educational Materials	\$100	Posters, brochures, green bin lid stickers, and flyer in kitchen collector
Kitchen Containers and Compostable Bags	\$450	\$7 bin, \$3 for roll of bags
Collection Cost	\$4500	400 resd. + 100 rest. = \$500 per month

Table 1 Budget for pilot project

Working under the impression that roughly half of the participants will opt-in to the program and that each individual pickup costs \$10, half of which the grant will cover (costing participants \$5), the program’s funding will last for nine months. We believe that nine months is an appropriate time to allow participants to feel comfortable with the composting process and for issues to surface to learn from. Nine months will include multiple seasons of the year, allowing the town to evaluate the effectiveness of composting in cold winters and hot summers. Just as important as the pilot program is communicating with participants before, during, and after the program. That way, any kinks of a compost program can be worked through before a larger town-wide initiative is created.

Advantages

The advantage of a pilot program is that the town can test the popularity and success of composting without fully committing funding and resources towards a town-wide initiative. A pilot program will allow Casella and pilot program leaders to work out issues that can potentially arise with diverting food scraps in Williamstown. A pilot program will also show the town how popular composting is within the residential and restaurant sector. This program also reduces the cost of composting with the help of grants, meaning that more people will be inclined to participate with the offset cost. Overall, a pilot program will provide lessons for the future that will be valuable when crafting larger programs.

Challenges

The few challenges with a pilot program pertain to participation and costs going forward. A pilot program can only support a small percentage of the town, meaning that the model alone is not sustainable forever. The pilot will require a lot of outreach and promotion to raise awareness for the program, especially considering it will be the first composting initiative the town will take. Participants will also need a lot of educating to properly divert their food scraps. The last challenge will be the future cost increases. Once the pilot program ends, the subsidy that came with it will disappear. Residents and restaurants will potentially be asked to pay more to continue composting, possibly dissuading people from continuing to divert their food waste.

Williams College Compost Collection Expansion

Williams College has an established composting program that the Williamstown community can learn from and collaborate with the college on. The college has a strong commitment to confronting climate change and environmental degradation. One way in which the school is decreasing its carbon footprint is through composting its unused and uneaten food from the dining halls and special events, a program that started in 1994. One way in which Williams can continue to improve its composting program while benefiting members of the town is by expanding its existing composting initiative to include Williams owned buildings as well as residents who are keen on composting their food scraps.

The way in which Williams College currently composts goes as such: PJ's Trash & Appliance Removal collects food waste and compostables from each of the dining halls and collection areas around campus on a daily basis and empties this food waste daily into large totes.⁴² These totes are part of the Facilities storage area located behind the tennis courts. Here the totes are layered with sawdust and maintained by the facilities department until it is collected once a week by Casella. The college continues to improve its composting program to reduce contamination and increase the percentage of food waste that reaches the compost bins. While their practices aren't perfect, we believe that they are at a level where they could expand their program to those outside the Williams community with very little extra cost and time.

In this model, both residents of Williamstown and businesses in Williams-owned buildings would utilize the college's compost collection area. Williams would have open drop off hours throughout the week where residents would be able to dispose of their food scraps free of charge. We recommend that a monitor person be around during these open hours to facilitate residents coming in and out of the space and to ensure no obvious contamination happens. For restaurants in Williams-owned buildings (i.e. Spring St. Marketplace, the Log, the Barn, Tunnel City), Williams would pay PJ's Trash to add these restaurants to its collection route free of charge to

⁴² "Composting," Williams College, accessed October 25 2020, <https://sustainability.williams.edu/waste/composting>.

the restaurants. Depending on the popularity of the program, Williams would have to add more compost collection totes and pay extra to Casella for these added bins.

To maximize the composting and greenhouse gas emissions reduction potentials, Williams could require that residents and restaurants who reside in Williams owned buildings to compost their food scraps. When building contracts and leases are written or renegotiated, this clause could be added to ensure that the people residing in Williams spaces were following the environmental practices that the college itself was implementing. Residents and restaurants would be incentivized to participate in this program because it would reduce the amount of trash waste they were paying to dispose of, either by the transfer station or private hauler. Many residents of the town work at Williams and commute to the campus daily, making the extra effort to bring their food scraps not a large inconvenience.

The college continues to create climate action initiatives, many of which are documented in its decadal Sustainability Strategic Planning Reports.⁴³ One of the goals from the most recent report is fostering community collaborations in sustainability by expanding the knowledge and resources that the college has. As Williams prides its education of students and its commitment to the environment and the community, expanding their composting collection area can be a great way to combine all three pillars. Students can be a key player in educating the community on how to compost and can conduct community outreach. They also can help monitor the drop off as well as conduct surveys and collect data points to assess the success of the model. Williams College has a responsibility to share innovative environmental strategies and magnify their impact through collective action, a responsibility that can be better reached with this expanded composting program.

Advantages

The advantages to this model would benefit both the town and the college. The college would fulfill its strategic planning goals and create stronger ties to the community through this program. The college could also create learning experiences for students by providing community engagement and education opportunities tied to the program. Students could teach community members about composting, interact with people using the drop off, and help quantify the successes of the program. The advantage of this model to community members would be that it is completely free and voluntary. Residents and included restaurants would decrease how much they pay in trash fees by being able to dispose of their food scraps at the expanded college compost drop off. People could choose to utilize the service, or can opt out if they are not interested.

⁴³ “Report of the Working Group Sustainability,” Williams College, last modified June 2020, <https://www.williams.edu/strategic-planning/files/2020/07/Sustainability-FINAL.pdf>.

Challenges

The challenges that come with this model stem mostly from persuading the college to commit to the program. Williams College, through conversations with the assistant director of the environmental center and the provost, has indicated that they would need to see town-wide interest in composting before they were to expand their collection area.⁴⁴ The scope of this report does not include a polling of community members so it is unclear at this time where interest in composting stands. Gauging community interest, either through a poll, speaking with the elected town leaders, or through a pilot program would be a challenge to overcome before this model can be implemented. The other challenges with this model are that it does not include restaurants that are residing in buildings not owned by the college and that it would require a lot of outreach to advertise the program's existence since it is not mandatory unless it is tied into building contracts.

Voluntary Curbside Pickup

Expanding curbside compost pickup would be a voluntary addition to household and restaurant waste management services. People would have the option of adding Casella curbside composting services as a way to divert their food scraps from going into the trash. This option can be easily incorporated into restaurants and resident's current contracts with Casella. The hauling company has also indicated that they would happily provide this single service to those who do not utilize Casella for their waste management.⁴⁵ As an early estimate, Casella imagines that adding a curbside composting option would cost participants an additional \$15-25 a month and would come with a free compost bin that Casella would provide. To put that into perspective, most residents pay anywhere from \$50 to \$70 a month for weekly waste and recycling pickup from Casella. Residents and restaurants that reduce their trash amounts dramatically after starting to compost food scraps can work to negotiate every other week trash pickup with Casella to reduce their solid waste management fees. Considering that Casella already collects compost for a few businesses in Williamstown, this model requires very little preparation planning aside from outreach to spread word of the existence of this opportunity to people in Williamstown.

Advantages

The advantages of this model are that it is convenient and that it has cost saving potential. Voluntary curbside collection can be easy and convenient for people who utilize private hauling once they understand how to separate food scraps. Many of the same practices of bringing the waste bins outside once a week will continue as usual, with the addition of a smaller bin for compost. Since it is voluntary, the contamination levels will be low as only the people who are

⁴⁴ Mike Evans (Assistant Director of Zilkha Center) and Dukes Loves (Williams College Provost) in discussion with the author, November 2020.

⁴⁵ Trevor Mance in discussion with the author, December 2020.

eager and willing to compost will participate. For some people, diverting food scraps to a compost bin will dramatically reduce their amount of trash, and can lower their trash collection bill as they decrease the rate at which trash is collected.

Challenges

The challenges that come with this model include an increase in cost and the large amount of outreach that would be required to promote the service. This model requires people to pay more for a new service, a request that many people will not want to willingly fulfill. That will limit the amount of people who choose to participate, and in turn, limit how much overall food waste the town diverts. Due to this option being voluntary, continued outreach on the part of Casella, the town, and composting community leaders will be crucial in ensuring this program maintains a significant number of participants.

Working with Local Farms

One solution to close the loop between farm produce and food scraps is to partner with farms to collect community food waste that is then composted back on local farms in Williamstown. This model is implemented at a small scale at Caretaker Farm, where community service agriculture (CSA) members receive fresh produce each week and then return their organic waste for the farm to use as compost.⁴⁶ This initiative adds up to roughly 275 households in the summer and 118 families in the winter bringing food scraps. This greatly benefits the farm as it is regaining those nutrients needed to maintain fertile soils and gives CSA members the opportunity to partake in composting. Because Caretaker Farm is an organic operation, they cannot expand their composting collection to the rest of the community and risk incorporating scraps that have been sprayed with chemicals that go against their organic requirement. Another issue is certification for receiving more organic waste as well as organization for how more people would drop off their food scraps. Because of these reasons, Caretaker is hesitant to collect town-wide organic waste.

Overall, it does not seem like farms in Williamstown are at a level where they can handle the large amount of food scraps that residents and restaurants produce to make this a viable option. Other towns where there are less people, more farms, and lots of hungry pigs may find that working with farms to redirect food scraps is the cheapest and easiest solution for them. For Williamstown, this is not the case at the time of this study, and other models need to be considered for creating lasting town-wide composting programs.

⁴⁶ Don Zasada (Caretaker Farm Operator) in discussion with the author, November 2020.

Proposed Mandatory Bylaw Model

Part A: Transfer Station Dropoff

As the town increases composting of organic waste, the Williamstown Transfer Station can create a space to collect this newly separated waste, especially if a bylaw is passed that bans the disposal of food scraps into the trash. The transfer station would have to work with the town board of health and conservation commission to determine a suitable area to collect organic waste from members. In discussion with Casella, a system of 4-6 65-gallon totes picked up weekly would be an adequate way of collecting compost at the transfer station.⁴⁷ This system would be user and space friendly for the station, especially considering that the transfer station does not have an abundance of free land. The totes can be rolled to where residents use them and rolled to a storage area when the station closes.

Incorporating a compost drop off service can be a self-sustaining addition to the transfer station that could even save the town money in the future. Working with the Williamstown Transfer Station and Northern Berkshire Solid Waste Management District (NBSWMD), Casella would create a contracted price to remove organic waste from the transfer station. The town would in turn modify the price of a membership to reflect the added cost of organic waste pickup. To incentivize members to compost their food scraps, composting organics would need to be cost competitive to throwing away trash. We recommend that disposing of food scraps be a chargeless service like recycling or battery disposal. The only cause of concern would be monitoring that contamination of trash in the organics bin doesn't occur. Considering that the transfer station has a pay as you throw model for trash bags, members will have an incentive to compost their food scraps to decrease the amount of trash bags they need to pay for. Members can offset the potentially increased membership sticker cost by lowering their weekly trash bag costs.

In the long run, if the transfer station educates enough members on the benefits of composting through signage, programming, and one-on-one personal assistance during drop off, the overall trash disposal and the expensive tipping fees that come with it will decrease as food scraps get diverted to the compost totes. Cambridge, Hamilton, and Newburyport municipalities all cut their solid waste disposal bills in the long run by incorporating composting into their services. Williamstown too can reap the financial benefits of composting while decreasing the transfer station's carbon footprint by updating its practices to be more in line with the future of solid waste management.

Part B: Mandatory Curbside Pickup

A mandatory curbside compost program would require anyone who utilizes private hauling to separate their food scraps and have their compost picked up alongside their trash and recycling.

⁴⁷ Trevor Mance, email message to Niku Darafshi, November 30, 2020.

This option would be enforced through a food-waste ban bylaw similar to the one that Vermont or Hamilton, MA have in place. Many of the logistical details would be similar if not exactly the same as the voluntary curbside pickup model, but would now include all residents and restaurants. For most residents, the change to mandatory curbside composting from what they have now will only be an increased cost of service from Casella and a new bin that they will need to fill and bring out once a week. For a handful of residents and businesses who do not have Casella as their private hauler, they will need to either create a compost-only contract with the company or find an alternative arrangement to divert their food waste.

A uniform curbside compost model that would require all residents to separate food scraps has the potential to maximize the environmental benefits of composting. Firstly, it is clear that many people need a push to change their habits, especially habits as ingrained as throwing away trash. A bylaw would ensure that haulers provide the service and that residents take this initiative seriously. Currently Casella sends one compost truck a week to collect food scraps in the town of Williamstown and leaves the town far from full capacity. If the truck were to come and leave with a full bed, that would make the best use of energy and space the truck is taking up. If everyone utilizing private hauling in Williamstown were to start composting, the same one truck would be required to pick up all the organic waste, but this time, would head to the compost-making facility much closer to full capacity.

Part C: Home Composting

One option to expand composting in Williamstown is through promoting home composting more. Home composting allows for residents to create their own compost from their organic food scraps through a tumbler or bin. Home composting eliminates the cost of disposing of organic waste by a hauler or transfer station, and would be an alternative option for residents and restaurants if a food-scraps ban were to be instituted. However, the process of composting at home can be challenging to learn and maintain, and would require a lot of training and community support.

Home composting is different from industrial composting that Casella conducts and comes with its own benefits and challenges. Home composting allows for residents and restaurants to have their own free source of compost, with which they can use for their houseplants or yards. Home composting does not create a hot enough environment to allow for the inclusion of meat, bones, dairy, fats, or pet waste to be safely composted in this environment, however.⁴⁸ If composting outside, people have to be careful not to attract unwanted bears or rodents and in a rural environment like Williamstown, this challenge can be particularly difficult. However, there are people who successfully compost at home in Williamstown and are able to save money on their trash fees and decrease their personal greenhouse gas emissions.

⁴⁸ “Composting at Home,” Environmental Protection Agency, accessed December 2 2020, <https://www.epa.gov/recycle/composting-home>.

To promote home composting, the NBSWMD has utilized MassDEP grants to buy composting bins and kitchen collectors that they sell at reduced prices.⁴⁹ Their Earth Machine composting bin has a capacity of 11 cubic feet, the equivalent of about four bags of leaves. The cost is \$43. Kitchen collectors, which act as a bin in the house to compile food scraps through the week, cost \$7.⁵⁰ So far, over 250 Earth Machines have been purchased across the Northern Berkshires. NBSWMD has also partnered with communities to put on home composting programming in order to educate people on this zero-waste option.

If home composting were to be expanded, more bins and kitchen collectors would need to be purchased to meet the new demand and outreach events held. NBSWMD would also need more support hosting educational sessions for community members to normalize composting at home. Composting does not require fancy compost bins, and can even be done indoors.⁵¹ Williamstown, with its rural setting and single-family dominant households, is the perfect setting for home composting. Without knowing about the benefits of home composting and how it works, residents and restaurants will not be inclined to take on the challenge. By finding passionate community members and/or college students who can share their knowledge on home composting, the practice can spread from one household to another.

Advantages

The advantage of creating a bylaw that would combine composting at the transfer station, in private hauling, and at home, would be its all-encompassing nature. The bylaw model provides options for everyone in the community to compost, regardless of their current waste management method. A bylaw would not only reach all types of people, but would also have the largest compliance and enforcement potential. Being a law, the majority of residents and restaurants will comply with the ban on food waste going into the trash. This would mean that a bylaw would provide the maximum food waste reduction of any model and would decrease the town's greenhouse gas emissions by the largest percentage.

Challenges

Depending on how quickly the bylaw is adopted, there can be a handful of potential challenges with implementing this model. A bylaw that requires all residents and restaurants to divert their food scraps will impose a new service and any costs associated with that new service on to all members of the community. For some people, this price increase is not something that they can afford, putting an undue burden on them. However, there may be ways to alleviate some of these burdens on those most impacted by the price increase, and over time the bylaw may save people

⁴⁹ Linda Cernik (Director of NBSWMD) in discussion with the author, November 2020.

⁵⁰ "Compost Bins," NBSWMD, accessed October 15 2020, http://www.nbswmd.com/compost_bins

⁵¹ Hiroko Tabuchi, "How to Start a No-Smell, No-Hassle Compost Box in Your Living Room," *New York Times*, May 19, 2020, <https://www.nytimes.com/interactive/2020/05/19/burst/compost-box-indoors-coronavirus.html>.

money as they decrease their trash amounts. Still, a bylaw will receive pushback from members of the town who do not want to be forced into changing their habits. Depending on the amount of pushback, the levels of contamination may be much higher with a bylaw than they would be in a voluntary program. Without proper education and outreach, there is the possibility for people in the town, especially those who may not be passionate about composting, to mess up food waste separation. High levels of contamination decrease the effectiveness of the bylaw.

Suggestions for Williamstown

Starting a Pilot Program

After evaluating all the models based on cost, enforcement, environmental benefit, education, and nuisance, we believe the first step should be in implementing the composting pilot program. Like many other towns and cities across Massachusetts have done, starting with a pilot program will not only introduce residents and restaurants to the act of composting, but will bring to light potential issues and success areas that can be a guide when creating a large-scale food waste diversion program for the entire town. A pilot program can better gauge community support that will show the governing body of Williamstown as well as Williams College how high of a priority composting is to residents and restaurants. A group of waste management experts and composting community leaders can come together and start this pilot program as soon as 2022. Funding can be found through MassDEP grants like the Sustainable Materials Recovery Program grant, a Casella partnership grant, and the Williamstown Community Climate Fund to name a few.⁵² Williams College, with its composting expertise and a multitude of eager students willing to help, should be a partner as this pilot program is being planned and administered. A pilot program is a low cost, low commitment option that will start the conversation on how to prepare our town's solid waste management for the future.

Arguments Against Bylaw

Depending on the success of a pilot program and the eagerness of community members to compost their food waste, a bylaw that bans food waste from going into the trash may be a path that Williamstown will want to go down in the future. That bylaw would have to include a combination of curbside pickup, transfer station drop-off, and home composting options. Seeing how much the town still needs to learn about expanding compost throughout the community, it does not seem like a bylaw is the appropriate step to take at this moment. It took Hamilton, MA ten years of testing and tweaking to get to a point where the municipality and haulers were comfortable requiring everyone in the town to divert their food scraps. While we are lucky enough to have their town and others as models to copy and learn from, there are so many aspects of solid waste management and community makeup that make Williamstown unique. A

⁵² “Apply for a Sustainable Materials Recovery Program (SMRP) Municipal Grant,” MassDEP, accessed December 2 2020, <https://www.mass.gov/how-to/apply-for-a-sustainable-materials-recovery-program-smrp-municipal-grant>

bylaw would require that Williamstown re-think its entire waste management system, a task that is not easy and to some people, unnecessary. This town can achieve zero waste through a bylaw, but that will take time and work within the community to ensure that the bylaw will be effective and have the support of the majority of the town.

Looking Ahead

Schools and Nursing Homes

While this report only focused on residents and restaurants of Williamstown, larger businesses and institutions like schools and nursing homes in Williamstown are sources of food waste that can incorporate their own composting programs. Some of these places include the Williamstown Elementary School, Mount Greylock Regional School, Sweetwood Nursing Home, Williamstown Commons, and local hotels. In 2021, when the ½ ton per week food waste limit is put into practice, these businesses and institutions will need to assess how much organic waste they produce and potentially create a composting diversion plan. Using Recycling Work’s food waste estimating guide and public property records, it doesn’t seem like any schools, nursing homes, or hotels in Williamstown are large enough to produce ½ ton of food waste per week.⁵³ This does not mean, however, that these places should not conduct an accurate measurement of how much waste they produce to ensure they do not exceed the limit.

If a business or institution does exceed those limits, including curbside compost pickup in their waste management services is an easy solution to divert food waste from going into the trash, but more creative options can be developed. It is possible that schools and nursing homes can even be included in early phase composting plans like the pilot program if they are interested. Either way, communication to create an effective program that will work for these unique spaces will need to be thought through.

Expanding to Berkshire County

The tools presented in this report are specific to Williamstown but can be applied to other towns in Berkshire County. Williamstown’s composting initiatives can be a template for more towns to follow suit, helping the county collaborate in reducing food waste and greenhouse gas emissions. Williamstown, through its successes and challenges, can generate workable models for neighboring towns and cities to follow and prompt the establishment of the necessary infrastructure for composting in the county. The lessons learned in Williamstown will be essential in motivating and convincing the rest of the Northern Berkshires to incorporate composting into their communities. The actions of Williamstown have rippling effects within the county and can be the starting point for a county wide composting movement. While

⁵³ “Food Waste Estimation Guide,” RecyclingWorks.

Williamstown may become the trailblazer for composting in Berkshire County, the town surely won't be the last. Working closely with the NBSWMD, compost programming can be expanded beyond the Williamstown border and into businesses and residents all across the county.

Conclusion

We recommend that the town of Williamstown create a pilot program to introduce composting to the greater community.

In conversation with waste management leaders and composting educators, we believe that Williamstown is prepared to expand composting to members of the community. There are successful case studies to look towards for guidance and reassurance, as well as motivated members of the community to get the program into action. With the support of Casella Waste Systems and Linda Cernik, the director of the NBSWMD, the infrastructure to expand composting is available and ready to be mobilized. All that is required are bold leaders to push the community to change its ingrained practice of trash disposal.

It is easy to look at a system like solid waste management, which is poorly understood and taken for granted by most residents and restaurants of Williamstown, and continue business as usual if the job gets done day in and day out. We argue that with landfills and incinerators reaching their maximum capacities and communities becoming more conscious of their environmental impact, this system is in need of change if it wants to succeed into the future. Composting can improve how waste is disposed of while benefiting the environment and saving municipalities and people money in the long run. While at first glance it seems impossible to incorporate composting at a large scale in a town like Williamstown, when the challenge is broken up into small steps and spread out over years to allow people to learn and adapt, the feat doesn't become daunting anymore. The pilot program is a great first step to either show the town that composting is possible in Williamstown and should be expanded, or that the location and/or current time is not appropriate for such a change. Through composting, Williamstown will continue to be a leader amongst the county and prove that positive environmental change can be beneficial to the community.

We thank Ann McCallum, Linda Cernik, Sarah Gardner, and all of the community leaders with whom we spoke to for their help in completing this report.

Appendices

Evaluation Matrix

	Do nothing	Pilot Program	Williams Collection	Curbside Pickup	Transfer station drop-off	Home compost expansion	Bylaw (all 3 blue options)
Price							
Low cost	+	+	+	-	-	+	-
Enforcement							
Convenience for restaurants	+	+	-	+	-	-	-
Convenience for residents	+	+	+	+	+	+	-
Compliance	-	+	-	-	-	-	+
Envi. Benefit							
Reduction in food waste	-	+	+	+	+	+	+
GHG reductions	-	+	+	+	+	+	+
Education							
Intuitive	+	-	+	-	+	-	-
Nuisances							
Low odor issues	+	+	+	+	+	+	+
Low vermin attraction	-	+	+	+	+	-	+
Total*	5	8	7	6	6	5	5

*The higher the total score (sum of all the +), the better the option.

Interview List

Veronique Blanchard, *Municipal Assistance Coordinator, Western District, MassDEP*

Linda Cernik, *Director, Northern Berkshire Solid Waste Management District*

Mike Evans, *Assistant Director of the Zilka Center*, Williams College
Tim Kaiser, *retired Williamstown Director of Public Works*, Williamstown
Jeff Kennedy, *Health Inspector*, Williamstown
Paul Laliberte, *President*, PJ's Trash & Appliance Removal
Dukes Love, *Provost*, Williams College
Trevor Mance, *Food Waste Project Manager*, Casella Waste Systems
Ann McGovern, *Consumer Waste Reduction Coordinator*, MassDEP
Ashley Muspratt, *Client Services Manager*, Center for EcoTechnology
Nancy Nysten, *Founder and Member*, Williamstown COOL Committee
Don Zasada, *Operator and Farmer*, Caretaker Farm