Issues and Opportunities around Food Waste on Martha's Vineyard

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July 12,2021

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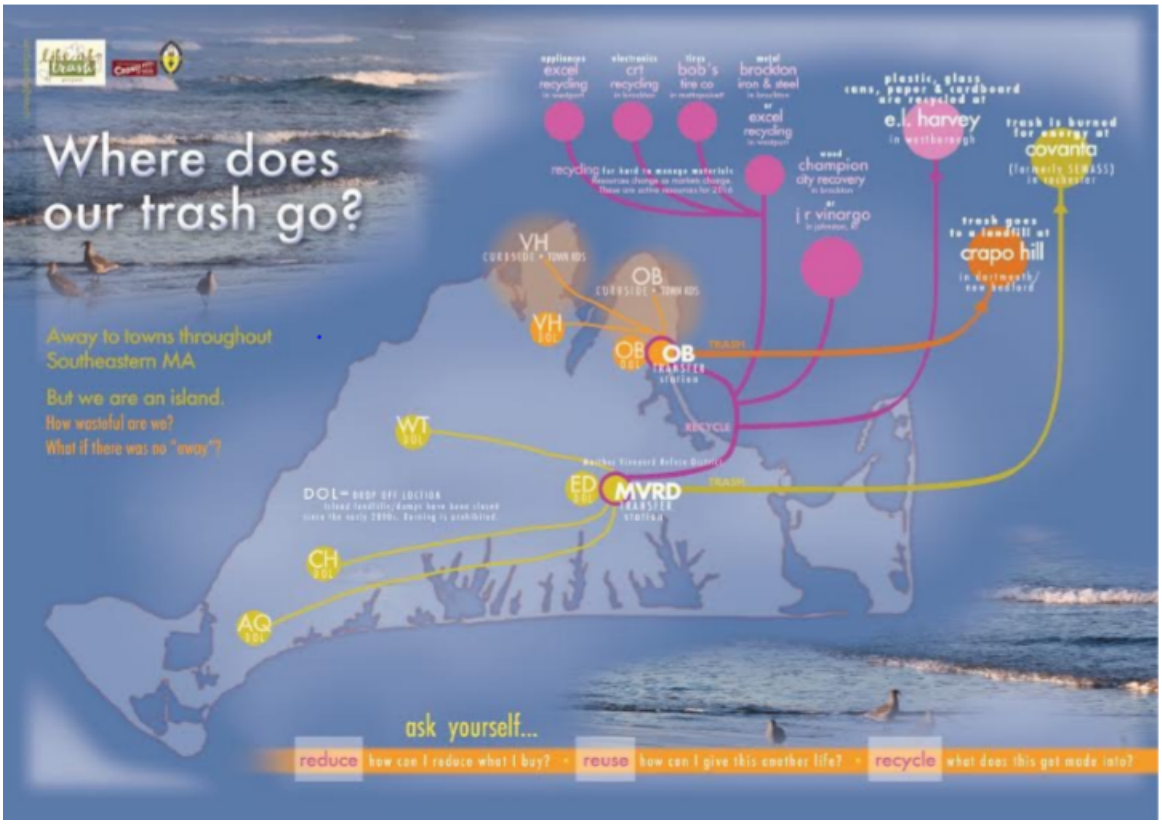
SOLID WASTE OVERVIEW MARTHA'S VINEYARD

Yearly, Martha's Vineyard exports about 19,000 tons of solid waste from two separate waste districts- the Martha's Vineyard Refuse Disposal and Resource Recovery District (MVRRD) and that of Tisbury and Oak Bluffs (OB.) The former sends solid waste to the SEMASS/Covanta Waste-to-Energy incinerator in Wareham, MA, and OB exports solid waste to the Crapo Hill landfill in New Bedford, MA.



MVRRD

Founded in 1983, the Martha's Vineyard Refuse Disposal and Resource Recovery District (MVRRD) has a waste disposal contract with SEMASS/Covanta in Wareham, MA, which expires in 2025. MVRRD is made up of four towns--Edgartown, West Tisbury, Chilmark, and Aquinnah—each with a residential drop-off center called a Local Drop-Off (LDO.) There is no municipal curbside collection in any of the four member towns. Stickers may be purchased to allow drop-off of recyclables without charge and town residents pay a per-bag solid waste disposal fee. Any vehicle can be weighed on the Edgartown Transfer Station scale for bulk waste disposal at $100.56/ton.. The Edgartown Transfer Station accepts different types of waste at different per-ton rates (s*ee MVRRD rate sheet appendix,)* and provides a range of prices for disposal of large items such as appliances and mattresses and has special drop-off events for hazardous waste. In 2019, 5,920 tons of mixed construction and solid waste went across the MVRRD scale and generated $595,315 in solid waste tipping fees.

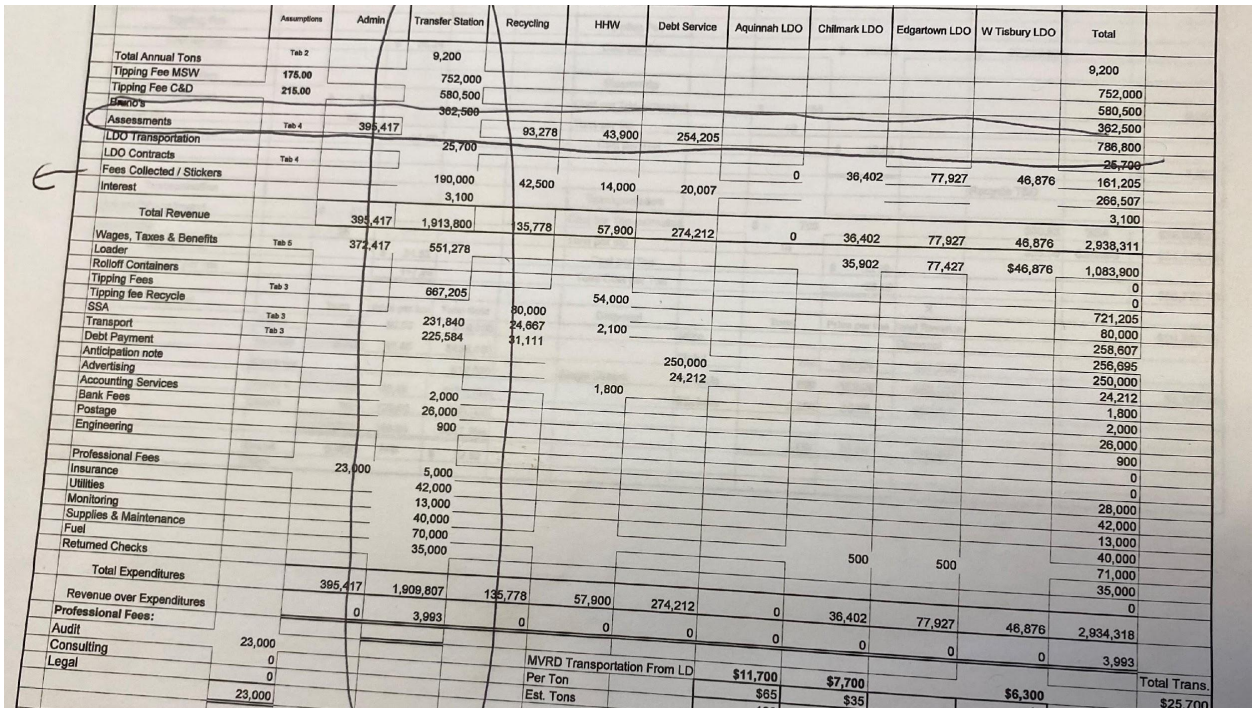
Collectively, the four MVRRD towns exported 1,640 tons in LDO waste in 2019. The 2019 breakdown by town:

Aquinnah – 94 tons
Chilmark – 123 tons
West Tisbury – 468 tons
Edgartown – 955 tons.

Between LDO and bulk solid waste, MVRRD exported and disposed of 7,560 tons of solid waste in 2019.

Each of the four member towns pay a pro-rated annual assessment fee which is composed of debt service, administration, recycling, hazardous waste, and site-by-site management but does not include the export and disposal cost of solid waste.

MVRRD 2021 Budget



	Assumptions	Admin	Transfer Station	Recycling	HHW	Debt Service	Aquinnah LDO	Chilmark LDO	Edgartown LDO	W Tisbury LDO	Total
Total Annual Tons	Tab 2		9,200								9,200
Tipping Fee MSW	175.00		752,000								752,000
Tipping Fee C&D	215.00		580,500								580,500
Bruno's			362,500								362,500
Assessments	Tab 4	395,417		93,278	43,900	254,205					786,800
LDO Transportation			25,700								25,700
LDO Contracts	Tab 4						0	36,402	77,927	46,876	161,205
Fees Collected / Stickers			190,000	42,500	14,000	20,007					266,507
Interest			3,100								3,100
Total Revenue		395,417	1,913,800	135,778	57,900	274,212	0	36,402	77,927	46,876	2,938,311
Wages, Taxes & Benefits	Tab 5	372,417	551,278					35,902	77,427	$46,876	1,083,900
Loader											0
Rolloff Containers											0
Tipping Fees	Tab 3		667,205		54,000						721,205
Tipping fee Recycle				80,000							80,000
SSA	Tab 3		231,840	24,667	2,100						258,607
Transport	Tab 3		225,584	31,111							256,695
Debt Payment						250,000					250,000
Anticipation note						24,212					24,212
Advertising					1,800						1,800
Accounting Services			2,000								2,000
Bank Fees			26,000								26,000
Postage			900								900
Engineering											0
Professional Fees		23,000	5,000								28,000
Insurance			42,000								42,000
Utilities			13,000								13,000
Monitoring			40,000								40,000
Supplies & Maintenance			70,000					500	500		71,000
Fuel			35,000								35,000
Returned Checks											0
Total Expenditures		395,417	1,909,807	135,778	57,900	274,212	0	36,402	77,927	46,876	2,934,318
Revenue over Expenditures		0	3,993	0	0	0	0	0	0	0	3,993
Professional Fees:											
Audit	23,000										
Consulting	0										
Legal	0										
	23,000										

MVRD Transportation From LD					
Per Ton	$11,700	$7,700			Total Trans.
Est. Tons	$65	$35		$6,300	$25,700

OAK BLUFFS/TISBURY

The towns of Oak Bluffs and Tisbury each have an LDO and share the Oak Bluffs Transfer Station which is run by Bruno's Roll-off (Bruno's). In 2019, 1,887 tons of solid waste was collected at both LDOs (732 tons from OB and 1155 tons in Tisbury) and 10,113 tons of solid waste went over the scale at the Oak Bluffs Transfer Station. Both towns sell LDO stickers which allow drop-off of recyclables without charge and have a pay per-bag garbage disposal fee. The Oak Bluffs Transfer Station provides per ton disposal for solid and construction waste.

Since 2017, Oak Bluffs has paid Bruno's $146.50/ ton for export and disposal of their solid municipal waste. In 2019, Oak Bluffs paid Bruno's $107,000 in solid waste disposal fees. We estimate that Tisbury pays Bruno's $158.50/ton for export and disposal. In 2019, we estimate Tisbury paid Bruno's $183,000. *We have not been able to verify these numbers with Tisbury town officials.*

Bruno's in turn pays Tisbury/OB a $6 per ton "host fee" for all waste that goes over the OB scale. Based on 2019 numbers that is about $61,000/ year. It is unclear how those funds are used or shared as site maintenance costs are covered by the site manager, Bruno's.

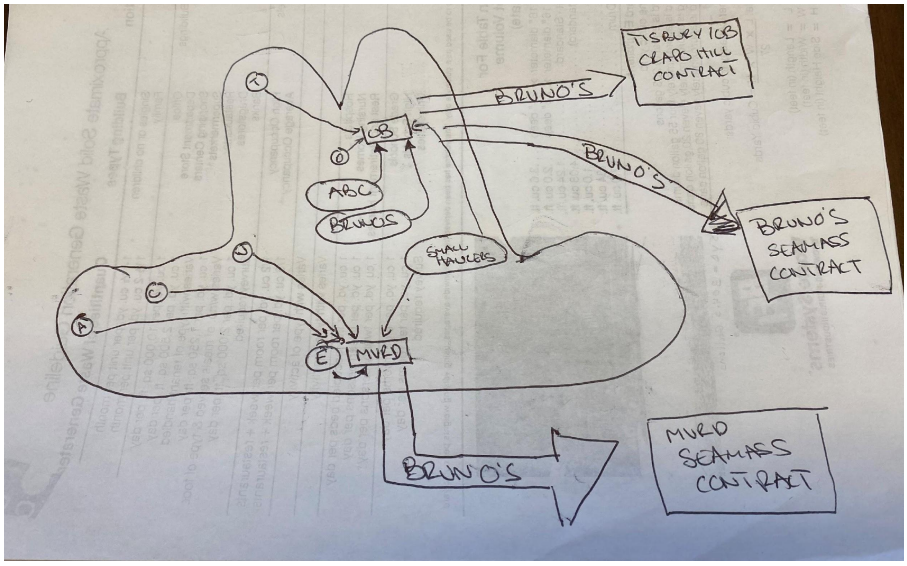
Tisbury provides curbside recycling and solid waste collection only to a small area close to the town center. Tisbury has no collection vehicles or staff and contracts with Bruno's to manage their curbside collection, and garbage and recycling export form the Tisbury LDO. We do not know how much this service costs Tisbury each year.

Oak Bluffs offers no curbside collection but does have trucks and staff for municipal waste collection. We do not know how much this costs Oak Bluffs every year.

ISLAND WASTE HAULERS

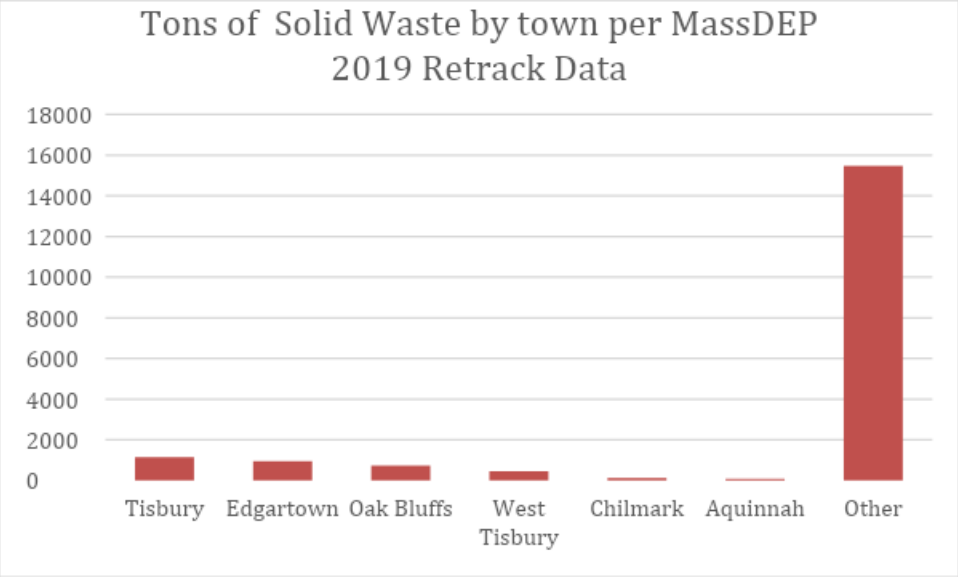
Bruno's is the largest waste hauler on the Island. MVRRD contracts with them to haul all waste to SEMASS/Covanta. Oak Bluffs and Tisbury contract with them to export solid waste to Crapo Hill, and Bruno's also runs the OB Transfer Station and has its own contract with SEAMASS/Covanta.

Curbside collection is a luxury on Martha's Vineyard. Only one of the six Island towns offers this service to a subset of town geography. Most residential and commercial collection is done by Bruno's, followed by ABC and many more small-scale waste haulers. Both Bruno's and ABC tip their waste through the Oak Bluffs Transfer Station.



MassDEP requires every Massachusetts town to declare its garbage, recycling, and other waste disposal each year in their Re-TRAC system. Towns are only required to report waste produced in their town. All six Island towns collectively declared 3,500 tons of garbage in 2019. As both transfer stations on Island accept waste from any source, garbage moving through either Island transfer

station does not need to be declared by any town. The transfer stations are not required to report, and those numbers are absent from the Re-TRAC system. Most Island waste -15,500 tons- is not LDO waste and is therefore not the responsibility of any of the Island towns. Of that, 5,920 tons is exported by MVRRD, and 9,580 tons is exported by the OB Transfer Station.



FINANCIAL CONCERNS

We are approaching an important turning point in waste disposal on Martha's Vineyard because contracts for both systems must be renegotiated in 2023 (OB) and 2025 (MVRRD.) In 2020, MVRRD paid a tipping fee of $62/per ton plus $33.72 in transportation costs for a total cost of $95.72 per ton of solid waste. Historically, the cost of waste removal has varied across the two systems, but future cost projections appear to be consistent for both.

We know waste costs will go up:

- By 2022, Massachusetts will have only **3 remaining landfills** accepting others' municipal waste.
- Massachusetts' **landfill capacity has decreased by 63%** from 890,000 tons in 2017 to 330,000 tons by 2021.
- MassDEP projects that **Massachusetts will export 40% of its trash** out of state by 2025 which will increase disposal costs.
- In the past, revenue from recycling helped to underwrite disposal costs. Currently **it costs more to dispose of recyclables than solid waste - $35 more per ton** - and there is no reason to expect this to improve in the near-term. (As of January 2020, China no longer accepts even the most pristine US recyclables, and the US does not have the infrastructure to process recyclables here.)

Current and projected costs to export and dispose of 19,000 tons of solid waste

The numbers below use MVRRD's actual numbers and represent only the hauling, shipping, and disposal costs - not all the other costs associated with waste management such as staffing, equipment, and other operational costs. We use pre-COVID flat population projections, but anecdotally we believe there are 5,000 more year-round residents today. In 2023 and 2025 respectively, OB/Tisbury and MVRRD must renegotiate their waste contracts. As of June 2021, Nantucket pays $428.46/ton for handling ($212.47 per ton,) export and disposal ($215.99 per ton) of solid and construction waste. We have used $100/ton as a conservative estimate for export and disposal costs for MVRRD in 2025. The yearly increase is calculated at 2 1/2% for both transportation and disposal costs.

Annual solid waste export and disposal costs 2025-2040

Year	Tons of solid waste	Per-ton Transportation Cost	Per-ton Disposal Costs	Total cost	Total yearly cost to export and dispose
2025	19,000	54.24	100.00	154.24	2,930,560.00
2026	19,000	55.60	102.50	158.10	3,003,900.00
2027	19,000	56.99	105.06	162.05	3,078,950.00
2028	19,000	58.51	107.69	166.20	3,157,800.00
2029	19,000	59.87	110.38	170.25	3,234,750.00
2030	19,000	61.37	113.13	174.50	3,315,500.00
2031	19,000	62.90	115.96	178.86	3,398,340.00
2032	19,000	64.47	118.86	183.33	3,483,270.00
2033	19,000	66.08	121.83	187.91	3,570,290.00
2034	19,000	67.73	124.88	192.61	3,659,590.00
2035	19,000	69.42	128.00	197.42	3,750,980.00
2036	19,000	71.16	131.20	202.36	3,844,840.00
2037	19,000	72.94	134.48	207.42	3,940,980.00
2038	19,000	74.76	137.64	212.40	4,035,600.00
2039	19,000	76.63	141.08	217.71	4,136,490.00
2040	19,000	78.55	144.60	223.15	4,239,850.00
Total 2025-2040					**$56,781,690.00**

It should be noted that waste is a volume business in that the higher the volume the lesser the price per ton resulting in lower fees if all Island volume is combined and tipped together.

FOOD WASTE MARTHA'S VINEYARD

Of the 19,000 tons of solid waste exported annually, an estimated 6,500 tons is food that has been grown, processed, and transported to or around the island only to be shipped back off-island as waste. Wasted food represents **432 trucks** on the Steamship and the highways to export food waste and import bulk compost from Bridgewater every year.

In the 2009, the Martha's Vineyard Commission's (MVC) 2009 Island Plan recognized the great expense of exporting waste off island and recommended converting waste into useful resources with an integrated, Island-wide program of waste management. Their recommendations included a large-scale composting facility to transform wasted food into a needed island commodity.

In 2015, following the Environmental Protection Agency and the United States Department of Agriculture announced goal to reduce US food waste by 50% by 2030, MassDEP banned the disposal of commercial organic waste by businesses and institutions that dispose of one ton or more of these materials *any week of the year*. In response, the Martha's Vineyard Vision Fellowship (MVVF) assembled a group of Island stakeholders, the Island-Wide Organics Waste Committee (the "Committee"), to examine issues around food waste recycling and to develop recommendations for local food waste management. The Committee hired Sophie Abrams as project manager and Robert Spencer, an environmental planning consultant, to study Island food waste sources and volumes along with the costs of exporting food waste off-Island.

To demonstrate the feasibility of food waste collecting and composting on-Island, the Committee launched a restaurant food waste collection pilot in early 2016. The project shared the MV Shell Recycling Project's pick-up truck and collected 17 tons of food waste for composting primarily at Morning Glory Farm. As part of the study, the Committee reviewed potential Island-wide solutions, including anaerobic digestion, in-vessel drum, aerated static pile, turned windrow, off-Island export, and manufacturing animal feed using extrusion technology. The Committee's report, *The Island-Wide Organics Feasibility Study*, was published in 2017 and several educational meetings were held to engage the public. The Committee then developed business plans for several of the priority composting technologies, including windrow, in-vessel, and extrusion. Coker Composting & Consulting, in association with Robert Spencer, were hired. The 2018 report, *Business Plan for Recycling Food Waste on Martha's Vineyard*, estimated the cost of each of thecomposting technologies.

Based on the report and study, the Committee recommended an in-vessel drum as the best technology for use on Island, based on the balance of volume, cost, odor, and vermin management. In 2020, the Committee commissioned Stantec Environmental Consulting to estimate in the capital costs for an in-vessel rotary drum system to process 6500 tons of food waste at the MVRRD. The Stantec report – *The MV Feasibility Draft Report* - showed $9,826,496 as the all-in capital cost for a fully operational composting system at MVRRD.

Island Grown Initiative (IGI) has been engaged in food recovery efforts since the launch of their gleaning program to collect and redistribute edible food from Island farmers in 2009. Their commitment expanded several years ago through their relationship with the Committee. In 2017, IGI hired Sophie Abrams, who had been the project manager on the original feasibility study, and IGI's Executive Director, Rebecca Haag became a member of the Committee in December 2017.

IGI's commitment to food waste prevention, rescue and recovery is now codified in its five-year strategic plan which was developed and published in 2018.

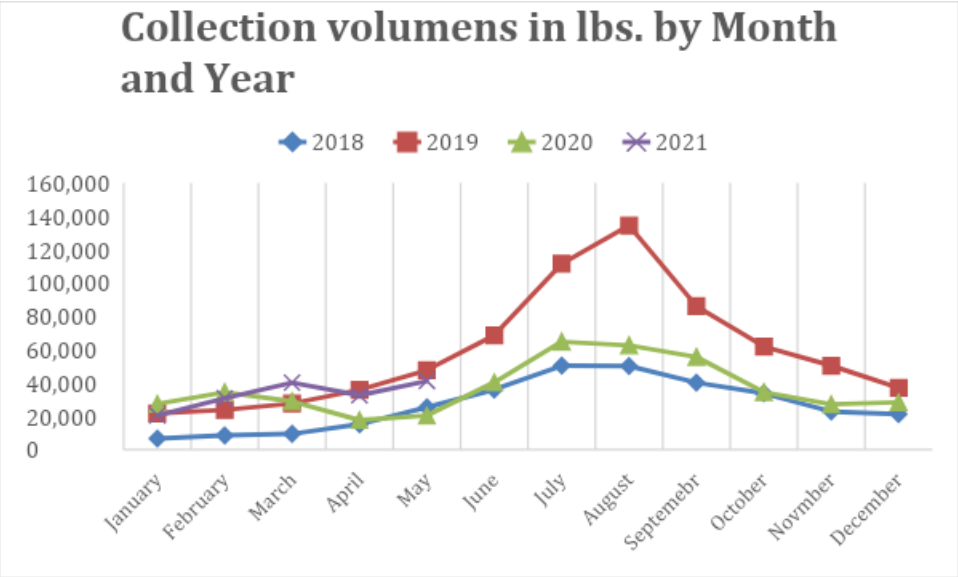
Beginning in 2017, IGI initiated several new efforts to address food waste and food security on Island. These included: a food recovery program to collect edible food from Island grocers, a mobile market selling discounted vegetables to communities around the Island, and a prepared foods program to transform recovered food into meals for food insecure Islanders. In addition, in 2017, IGI took over the Committee's food waste collection pilot and has since evolved it into Island Food Rescue (IFR) food waste collection pilot.

FOOD WASTE COLLECTION & PROCESSING PILOT

By the end of 2018, IFR had collected and processed 160 tons of food waste with a basic windrow composting system, and a part-time manager. Thanks to the catalytic support of the BJFFF, 2019 was a year of exponential growth. The BJFFF grants included funds to purchase an old in-vessel composting drum, a used food waste collection truck, and funds for a Project Director, Eunice Youmans, to lead the initiative. By the end of 2019, the IFR, which at this point had been renamed the Martha's Vineyard Food Waste Initiative (MVFWI) showed a 56% increase in clients, a 122% increase in food waste collection volumes, and 100% increase in revenue.

The greatest challenge at the end of 2019 was the staffing and maintenance of the food waste collection truck. However, in January of 2020, this was solved when IGI entered an agreement with Bruno's Rolloff to subcontract the collection program. Our work on Martha's Vineyard was gaining traction and the MVFWI even received national recognition by the Environmental Protection Agency (EPA) as a top New England organization keeping food waste out of landfills.

Then came the pandemic. By April of 2020, COVID had shuttered all Island schools and most businesses and food waste collection volumes plummeted. COVID placed serious financial pressures on local businesses and Island families and many Island restaurants reduced or closed in-person dining and all were fighting for financial survival. To lower the barriers for restaurants and individuals to participate, the MVFWI suspended collection fees for June, July and August for commercial clients and suspended collection fees for all Island transfer station through September of 2021. At the end of 2020, MVFWI had collected 221 tons of food waste. Our collection volumes did not begin to increase until February of 2021 and continue to track closely with 2019 volume numbers. The pilot is on track to collect 360 tons of food waste in 2021.



Collection Volumes in Tons by Month and Year				
	2018	**2019**	**2020**	**2021**
January	3.4	11.5	13.8	10.2
February	4.3	11.9	17.2	15.4
March	4.8	13.9	14.5	20.1
April	7.7	17.9	8.9	16.3
May	12.7	23.9	10.2	20.6
June	18	34.3	20.24	
July	25.2	55.7	32.4	
August	25.1	67.2	31.3	
September	20.1	43	27.8	
October	16.9	31	17.2	
November	11	25	14	
December	10.7	18.6	14.2	
Total	160.3	354.1	221.34	82.6

In May of 2021, Bruno's formally took over the food waste collection and customer service program and we are on target to collect 360 tons of food waste in 2021.

INCREASING LOCAL FOOD WASTE RECYCLING

There are an estimated 20 businesses or institutions on-Island that are subject to MassDEP's one ton Organics ban. They have a collective tonnage of food waste per week of roughly 43 tons or 2,240 tons of food waste a year. That is the equivalent of 173 garbage trucks full of food waste, that

are illegal for the restaurants, grocery stores, and institutions to dispose of in a way that ends up in landfills. To date, there has not been a strong emphasis by the state on compliance, primarily because the infrastructure to process food and other organic waste has not been built. All signs indicate that an expansion of the MassDEP organics ban to ½ ton producers will be in place by fall of 2021. MassDEP estimates this will double the tonnage that cannot legally be disposed of. Compliance with the ban on Martha's Vineyard will require a combination of education, local or state monitoring and enforcement, and on-Island processing capacity of 4,000 tons of food waste a year, by the year 2025. Current capacity is 1,000 tons.

To encourage food waste recycling infrastructure investments, MassDEP and the federal government have created many funding vehicles for municipalities, nonprofits and businesses engaged in organics recycling efforts. Through MassDEP, there are one-time Organics Capacity grants of up to $250,000 for municipalities or businesses and renewable yearly grants up to $5,000. Non-profits and businesses are eligible to apply for up to $400,000 for Recycling Business Development Grants. Organics entrepreneurs can access low interest rate business loans of up to $1.5 million through MassDEP as well. In May of 2021, the USDA announced composting grants of up to $900,000. MassDEP officials have signaled that in the wake of the expanded ban, their focus will shift away from incentives to greater enforcement efforts including increasing financial penalties for non-compliance. To increase enforcement, MassDEP offers a yearly grant of up to $60,000 a year for an Education and Compliance Officer role for recycling programs.

In addition to the pressure from the state and federal government, the Steamship Authority is under increasing pressure to limit the amount of garbage trucks traveling down Woods Hole Road. The Steamship authority is examining other options for waste export including barging waste to New Bedford. They are interested in food waste diversion as one opportunity to limit garbage exports and have signaled their support for the food waste processing plan.

In May of 2021, Bruno's entered into an agreement with IGI to assume ownership of the food waste collection program. Part of Bruno's willingness to do this was the ability of the Farm HUB in-vessel composting system to integrate cardboard along with the food waste. This allows Bruno's to combine loads making it more cost efficient. In May of 2021, a grinder was purchased and operational at the farm and several test runs proved that mixed loads of up to two times the volume of cardboard than food waste could be incorporated. Because joint cardboard and food waste loads require bigger containers, the joint load program is on hold until the fall of 2021, post the summer season, to work out the kinks and order new dumpsters for some of their clients. In the interim, the farm accepts cardboard from other sources and Bruno's will continue using the toters for many clients. The agreement between IGI and Bruno's guarantees Bruno's free food waste tipping at the FARM Hub through 2023, and an $85/ton rate through 2025 (by which time an Island-wide recycling system will be in place) Bruno's has committed that it will offer a food waste collection rate below that of its solid waste collection

rate. As of June 2021, the rate for food waste collection is $14/per toter. As food waste collection is now less expensive than solid waste, we expect this will drive more food waste diversion.

PROCESSING INFRASTRUCTURE

Over the course of the last two and a half years, IGI has learned how to operate our machines and manage our food waste recycling site efficiently. In June of 2021, the food waste processing program at IGI's Farm HUB consists of 400 food waste eating chickens, a concrete mixing pad, a skid steer, a used in-vessel composting drum with a conveyor and augur loading system, a grinder for food waste and carbon material including cardboard, an aerated static pile windrow system and feedstocks of wood chips, yard waste, leaves, cardboard, and other carbon materials. We are now able to process two parts the volume of cardboard to one part volume of food waste. Because the drum is thirty years old, it requires constant maintenance in the form of welding. Twice a week, Bruno's drops food waste loads on the concrete pad which are then mixed in the grinder with carbon materials and loaded into the in-vessel composter. Material stays in the drum for three days and the output is unrecognizable as food waste, has no odor, and is no longer an attractant or a food source for vermin. This uncured compost is then windrowed in aerated static piles and the compost is cured and ready for screening and use by farmers, landscapers, and consumers in three months. Screening costs $2500/ a day due to the high cost of the machine, its operator and transportation to and from the farm. At this rate, it is most cost-effective to screen at our current volumes only once a year. In 2021, we will produce about 200 cubic yards of compost. The system at the Farm HUB has a maximum capacity of 1,000 tons of food waste. While it is theoretically possible to expand the operation at the Farm HUB by adding additional in-vessel units, the site is limited in a practical sense by the number of trucks that can drive down the long dirt road and through the residential neighborhood to the farm.

Skid steer loading the conveyor into the drum

Aerated Static Pile System

COMPOST SALES

ACTUAL COMPOST SALES 2019				
Volume	Amount	Price	Total Sales	Total Volume in cu yards
40lb. Bag	$ 151	$12.95	$1,943	2.79
Cu Yard	$ 112	$60.00	$6,743	112.00
Fill-your-own gallon	$ 139	$1.00	$139	0.68
				Total cu Yards
		Total Sales	$8,825	115.47

Based on local compost sales market research in the spring of 2019, we tested several compost sales strategies including bagged, bulk and fill-your-own small container. In all, we sold 115 cubic yards of compost for an average of $76/cubic yard. Our 2019 compost sales continue to drive demand from consumers as well as local garden centers and landscaping firms. Our 40lbs bag of compost commands a retail price of 19.99, and a wholesale price of 12.95. We could sell all our inventory of compost to a landscape firm for $60/cubic yard but could likely command a retail price of $135/ cubic yard as our is a superior product to Goodale's at $135/cu yard.

Compost Market Evaluation 2019			
common units for comparison. The actual sales units are the one highlighted in yellow per row.			
	40 lbs.	cubic foot	cubic yard
SBS		$ 10.95	$ 295.60
SBS	$ 7.95	$ 5.96	$ 161.00
Mahoney's	$ 8.21	$ 10.95	$ 295.60
Keene's	$ 1.05	$ 1.41	$ 38.00
Bridgewater	$ 1.17	$ 1.56	$ 42.00
Goodale	$ 6.67	$ 5.00	$ 135.00
Donaroma's	$ 1.25	$ 1.67	$ 45.00
Vermont Compost Company		$ 3.22	$ 87.00
Vineyard Gardens	$ 19.95		
Conversions			
40 lbs = .75 cubic feet			
27 cubic feet = 1 cubic yard = 1.5 tons			
2000 lbs+ 1 ton			
36 40lbs/bags = 1 cu yard			
NOTES			
Goodales is the highest price and the most like our product and they are said to sell out every year.			
Landscope will pay $42/ cubic yard for this compost			
Off-island, Vermont Compost is most like our product. It is $87/ cu yard			

In the Spring of 2020, we planned to sell our full compost inventory to Landscope landscaping firm but diverted the sale to IGI's Regenerative Agriculture program to support their expanding year-round food production in the wake of COVID. Landscope has assured us they will purchase compost from us in the future, but with our small volumes, it is unlikely we will have another batch until September of 2021. We budgeted $24,000 in compost sales in 2020, but because our compost was too wet to screen properly, we only had half of the volume we should have had. We closed the year at $12,150 in compost sales. In the fall of 2021, we expect to have 200 cubic yards screened and sold to IGI for $12,000. The rough number for food waste in to compost out is one ton of compost in equals one cubic yard of cured, screened compost.

THE FINANCIAL CASE FOR LOCAL FOOD WASTE RECYCLING

In 2021, **it will cost an estimated $762,125** to export and dispose of food waste from Martha's Vineyard and these costs will continue to escalate each year as tipping fees at landfills increase. In a business-as-usual scenario, it will cost **$19.4 million** to export and dispose food waste from 2025-2040. However, we hope that economic incentives because on-Island composting is a cheaper option for major food waste sources, stronger enforcement of the food waste ban, and community

pressure will continue to drive increased adoption of food waste recycling on Martha's Vineyard. We project we could capture 4,000 tons of food waste each year by 2030, if we had a system that could process that volume.

Annual export and disposal costs and dollars saved by local capture 2025-2040

Year	Tons of food waste generated	Per-ton Transportation Cost	Per-ton Disposal Costs	Total cost p	Total yearly cost to export and dispose	Tons of food waste captured	Dollars saved by capture	Total export Costs
2025	6,500	$ 54.24	$ 100.00	$ 154.24	$1,002,560.00	1,823	$281,179.52	$721,380.48
2026	6,500	$ 55.60	$ 102.50	$ 158.10	$1,027,650.00	2,735	$432,403.50	$595,246.50
2027	6,500	$ 56.99	$ 105.06	$ 162.05	$1,053,325.00	3,282	$531,848.10	$521,476.90
2028	6,500	$ 58.51	$ 107.69	$ 166.20	$1,080,300.00	3,938	$654,495.60	$425,804.40
2029	6,500	$ 59.87	$ 110.38	$ 170.25	$1,106,625.00	4,000	$681,000.00	$425,625.00
2030	6,500	$ 61.37	$ 113.13	$ 174.50	$1,134,250.00	4,000	$698,000.00	$436,250.00
2031	6,500	$ 62.90	$ 115.96	$ 178.86	$1,162,590.00	4,000	$715,440.00	$447,150.00
2032	6,500	$ 64.47	$ 118.86	$ 183.33	$1,191,645.00	4,000	$733,320.00	$458,325.00
2033	6,500	$ 66.08	$ 121.83	$ 187.91	$1,221,415.00	4,000	$751,640.00	$469,775.00
2034	6,500	$ 67.73	$ 124.88	$ 192.61	$1,251,965.00	4,000	$770,440.00	$481,525.00
2035	6,500	$ 69.42	$ 128.00	$ 197.42	$1,283,230.00	4,000	$789,680.00	$493,550.00
2036	6,500	$ 71.16	$ 131.20	$ 202.36	$1,315,340.00	4,000	$809,440.00	$505,900.00
2037	6,500	$ 72.94	$ 134.48	$ 207.42	$1,348,230.00	4,000	$829,680.00	$518,550.00
2038	6,500	$ 74.76	$ 137.64	$ 212.40	$1,380,600.00	4,000	$849,600.00	$531,000.00
2039	6,500	$ 76.63	$ 141.08	$ 217.71	$1,415,115.00	4,000	$870,840.00	$544,275.00
2040	6,500	$ 78.55	$ 144.60	$ 223.15	$1,450,475.00	4,000	$892,600.00	$557,875.00
Total 2025-2040					**$19,425,315.00**	**59,778**	**$11,291,606.72**	**$8,133,708.28**

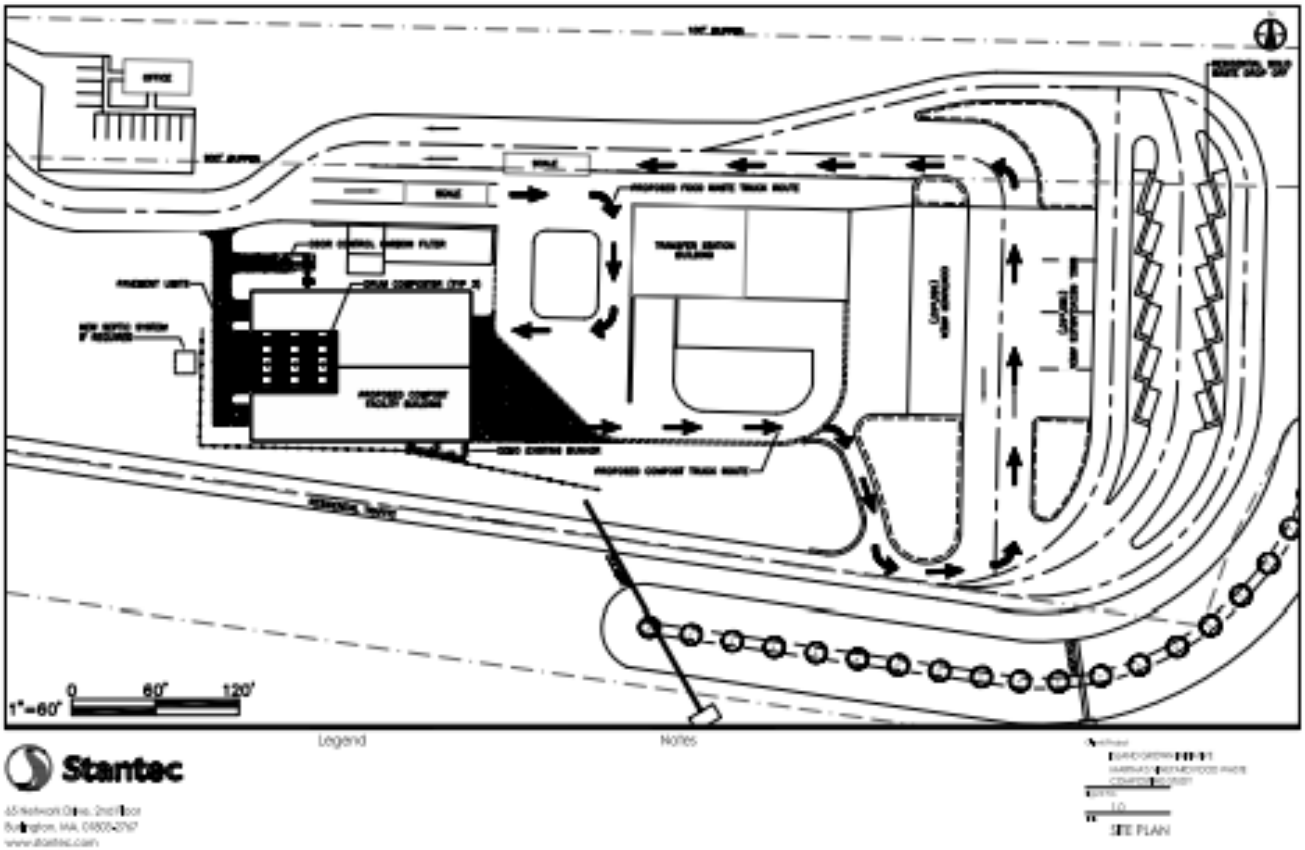
The IGI Farm Hub food waste pilot has proven there is a food waste collection market at $14/toter or $140/ton, a food waste tipping market at $85/ton, a cured compost sales market at $60/cubic yard, and an uncured compost sales market at $20/cubic yard. We know these estimates are very conservative and all the elements could command higher rates and higher revenue at scale.

INFRASTRUCTURE REQUIREMENTS TO SCALE

Limited space and proximity to residential communities, the need for a high level of odor management and vermin resistance make in-vessel drum technology the best composting solution for the Island. The final in a series of three reports examining food waste, associated infrastructure, and costs– *The MV Feasibility Draft Report* – outlined a $9.5 million capital investment at the MVRRD (including mobile equipment) and $324,100 annual operating expenses. This system includes:

- Two bunkers for receiving food waste and ground up yard waste.
- A front-loading utility tractor to load the composting system.
- A mixer with built in scale for blending the two materials in the appropriate proportions.
- A belt and screw conveyor to feed the drum composters.
- The screw conveyor was used because it is the best and cleanest method of distributing the compost mixture to the drums.
- Three drum composters.
- Discharge belt conveyor that moves the compost to the trommel screen.
- Trommel screen to remove contaminants such as packaging prior to sending the compost to a third party for windrowing.
- 30-yard containers to receive the compost and contaminant fractions from the screen. discharging directly to containers reduces labor and material handling and the means to move the containers is on site due to transfer station operation.
- A carbon filter odor control system
- An electrical room to house motor starters and controls.
- An office for record controls, record keeping and measuring solids content.
- A septic system for leachate and washdown water treatment if required.

The system at MVRRD has already won town, Martha's Vineyard Commission, and MassDEP approvals and is designed and ready to be built. The MVRRD site holds a MassDEP Large Volume Garbage Permit and is near the airport. These two things drive high levels of environmental regulation and thus increased costs. The model projects a 3% interest rate for capital expenses paid over twenty years and a 3% interest rate for mobile equipment expenses paid over ten years. The operation will generate revenue including dollars saved as early as 2028.



Site map of expanded MVRRD composting site.

MVRRD Pro-Forma

SAVINGS, COST AND REVENUE TO PROCESS FOOD WASTE AT MVRD 2025-2045									
	Tons of food waste captured locally	Dollars saved by local capture	Tipping Fee Revenue	Compost Sales Revenue	Total Revenue (including money saved)	Operating Costs	DEBT Service	Total Yearly Expenses	NET Revenue
2025	1,823	$281,000	$154,955	$24,300	$460,435	$324,000	$668,598	$992,598	($532,163)
2030	4,000	$698,000	$380,000	$90,513	$1,168,513	$366,688	$668,598	$1,035,286	$133,227
2040	4,000	$870,840	$476,000	$113,038	$1,459,878	$458,000	$660,698	$1,118,698	$341,180
Total 2025-2045	75,778	$15,090,806	$ 8,223,919	$ 1,918,526	$ 25,233,251	$8,278,982	$13,292,960	$21,571,942	$ 3,661,309

These numbers are based on $85/ton tipping fee for food waste compared to the current $100/ton tipping fee for solid waste. We calculated a 2 1/2 % yearly increase for operating costs.

PARTNERS

Space is limited at MVRRD requiring a combination of partners to haul, process, cure, and sell compost. Bruno's taking over the hauling business is a start. Keene's Excavation has agreed to pay $20/per ton for uncured compost which they will truck to their sites to cure and ultimately sell.

FINANCING OPTIONS

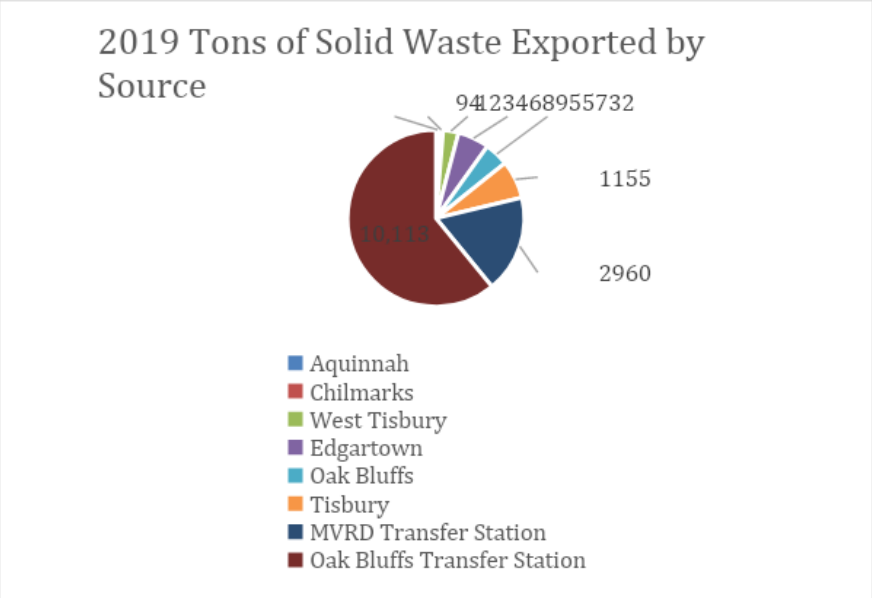
The $9.5 million price tag would ideally be financed by an equitable investment from all six Island towns. There are four models for cost-sharing agreements: population numbers, property values, the MVRRD model, and the Dukes County 50/50 model. The percentages by population numbers break out to: Aquinnah 1.8%, Chilmark 5.4%, West Tisbury 16.2%, Tisbury 23.3%, Edgartown 25.6%, Oak Bluffs 27.6%. This formula is unpopular in the dense down-Island towns of Tisbury and Oak Bluffs as they would carry most of the cost. Oak Bluffs prefers a cost-sharing agreement based on property values. Using 2018 property data, that cost-sharing breakdown would be: Aquinnah 3.6%, Chilmark 15.8%, West Tisbury 12.7%, Tisbury 13.3%, Edgartown 40%, Oak Bluffs 15%. This formula is unpopular with Edgartown as the lion's share of the cost would fall on them.

There are two cost-sharing models in use today. The first is the current MVRRD Assessment which was based on actual garbage produced in each of the four town's LDO garbage sites. That breakdown is: Aquinnah 3%, Chilmark 12%, West Tisbury 15.5%, Edgartown 69.5%. Using 2019 MassDEP by town garbage volume numbers, we can extrapolate what the cost sharing amongst the six Island towns would look like. That breakdown is Tisbury 32.7%, Edgartown 27%, Oak Bluffs 20.8%, West Tisbury 13.3%, Chilmark 3.5%, and Aquinnah 2.7%. The second current formula is Dukes County 50/50 formula for social and health services that uses town population for 50% of the equation and town property values for the other 50%. While contentious, this approach has

been approved at all six town meetings for the past ten years. Dukes County's 2022 formula resulted in the following allocations: Aquinnah 3.69%, West Tisbury 12.30%, Tisbury 13.41%, Oak Bluffs 14.83%, Chilmark 15.62%, Edgartown 40.15%.

CHALLENGES of a CENTRALIZED MVRRD PROCESSING SYSTEM

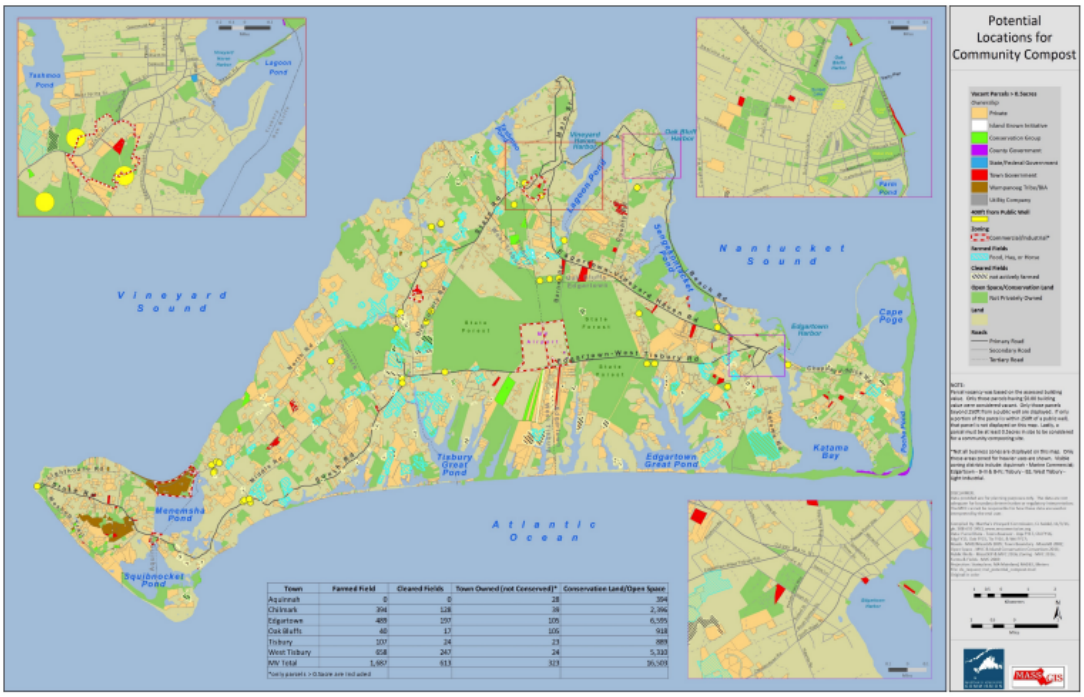
An underlying assumption of our work has been that recycling food waste on-Island would generate significant net savings for all six Island towns. This, in turn, would justify a shared six-town investment in the compositing infrastructure. After digging into all six town budgets, we realized that none of the six towns themselves will significantly benefit on paper from food waste diversion at scale. This is largely due to the small volume of all six town LDO waste which collectively totals only 3,500 tons of the 19,000 tons of solid waste we exported in 2019. MassDEP requires every Massachusetts town to declare its garbage, recycling, and other waste disposal each year in their Re-Trac system. Towns are only required to report waste produced in their town. All six Island towns collectively declared 3,500 tons of garbage in 2019. As both transfer stations on Island accept waste from any source, garbage moving through either of them does not need to be declared by any town. These transfer station numbers are absent from the Re-Trac system. In the case of the four MVRRD towns, the annual assessment fee only includes administration, recycling, hazardous waste, and debt service. The assessment does not include export and disposal costs- whether export and disposal costs go up or down has no impact on what each of the four towns pay MVRRD annually. Additionally, MVRRD, Oak Bluffs and Tisbury are generating revenue from the current system. The bulk of Island waste -15,500 tons- comes through both Island transfer stations- its export and disposal are not paid for by any of the six Island towns. The MVRRD Transfer Station export and disposal costs are paid under a separate line item and the Oak Bluffs Transfer Station costs are paid by the operator of that facility, currently Bruno's. MVRRD exports 5,920 tons of mixed construction and solid waste of which solid waste (and the food waste contained in it) represents only 2,960 tons. The Oak Bluffs Transfer Station exports about 10,133 tons of solid waste or 3,465 tons of food waste.



Based on the source volume numbers, it is the organization that runs the Oak Bluffs Transfer Station, not the six Island towns- who has the most to lose and the most to gain from on-Island food waste capture. The high cost of the MVRRD system, the absence of a financial motive for town investment combined with the historic problem of any six-town cost-sharing agreement, and an upcoming multimillion dollar municipal high school upgrade demanding a six-town investment makes a shared municipal investment funding the whole MVRRD system quite challenging.
This has led us to explore other funding models including Senate Appropriation and federal funding through the national legislature as well as funding from Stop and Shop (the top source of food waste on-Island.) The owner/operators of both Bruno's and Keene's Excavation have demonstrated an interest in investing in all or part of the composting infrastructure and municipal employees and elected officials from Tisbury and Oak Bluffs (in addition to the MVRRD site) have signaled they would welcome a project on town land.

ALTERNATIVE APPROACH

We have always considered MVRRD and other locations including the Oak Bluffs Transfer Station, Goodale's, the Tisbury LDO, Martha's Vineyard Agricultural Society land, or other farm locations for a composting system at scale. Because MVRRD holds the highest volume garbage license and is in such proximity to the airport, it requires a high level of environmental regulation which leads to much higher costs. Thus, while we are not giving up on a centralized management system with centralized processing at MVRRD, we are also exploring the options of a centralized system at another site, or a centralized management system with decentralized processing at 2-4 satellite sites. We project a maximum capacity of 4,000 tons/year of food waste which falls within the 5,460 tons/year of food waste threshold of MassDEP's General Permit, which has many fewer environmental regulations than required at MVRRD. The Martha's Vineyard Commission produced the following map identifying potential compost locations using the General Permit Guidelines and we are exploring if there are indeed any feasible and interested sites.



An alternative to processing at MVRRD could be a system modeled after the pilot site but scaled over time to process 4,000 tons/year of food waste. For a site that can process 4,000 tons per year, we estimate the total initial expense for the capital and mobile equipment costs of $1,175,000 and operating costs of $144,000/year. Another approach is a decentralized processing system with two sites, each with a 2,000-ton capacity. As each site would only require one drum and only one site would require a depackager, capital cost for each site would run $800,000 to 1,175,000. As we do not yet have a site secured, land costs are not included in this estimate, but we do not anticipate having to buy land but instead to find willing agricultural or other sites. This estimate includes concrete pads with drainage and liquid capture, two in-vessel drums with a conveyor and loading augur, a grinder, a depackaging machine, a front loader with several attachments, tractor, and an aerated static pile system. Because site preparation costs will vary by site, these estimates will likely be higher when we have a site.

CONSUMER EDUCATION/ADVOCACY

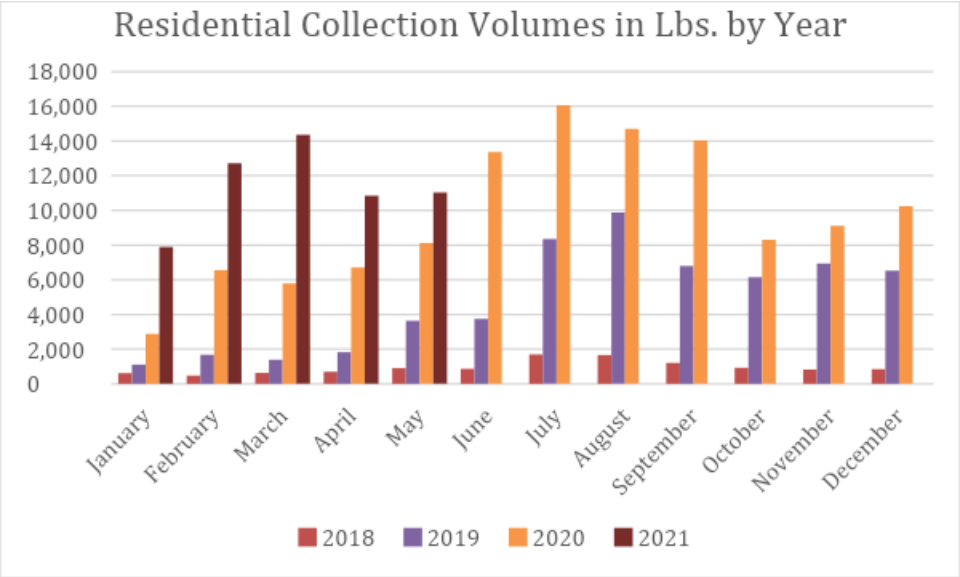
In 2019, our Consumer Education efforts focused on raising awareness on-Island that food waste is an issue of concern, and we can do something about it. After over 17 pieces in local media, drop-off locations around the Island and the big awareness push of the waste stations at the Agricultural Fair in 2019, food waste is now a widely recognized issue of concern on-Island. In 2020, our Consumer Education goal was to change behaviors, and key to that was the ability to measure change in food

waste collection volumes. In May of 2020, we launched a six-week interactive food waste reduction campaign aimed at changing behaviors. Beginning with a two-week waste audit challenge, followed by four weekly challenges, we solicited photos, anecdotes, numbers, and bestowed weekly "Brown Banana" awards. The MV Food Waste Challenge was featured in both local papers and MVY Radio and alerts went out thorough our partner organizations including Island Grown Schools, the Environmental Educators Alliance, Island Climate Action Network, and others. Twenty-seven families signed up, but we never saw the levels of social media activity we hoped for. We did learn a lot and this challenge will be the basis of a new food waste curriculum in Island schools and a few of the involved families have become excellent sources of data to track behavior change and the associated waste savings.

At 43%, homes are the single largest source of US food waste. Here on Martha's Vineyard, our seasonal population and traffic swings, and rural geography of long dirt roads make a residential collection program logistically and financially challenging. Prior to COVID, we hoped that our bins at all Island transfer stations would capture a significant portion of residential waste. Amid COVID, we knew we were not capturing meaningful volumes of residential food waste. We launched a pilot residential collection program in June of 2020 with a subset of our hauling partner's clients. After hearing from only two families, the launch of a new initiative and collection staffing challenges, we put the pilot on hold.

Prior to COVID, we often heard that the $2 fee for folks to dump food waste at the Island transfer stations was a barrier for people to use the program. Amid our incredibly low COVID volumes, we had little to lose by testing whether price was actually a driving factor. To that end, we offered free food waste collection at all Island transfer stations for the month of June 2020 and based on initial success later extended this through September 2021. We gave away compost buckets and promoted the free program at all six of the Island's garbage facilities. We also challenged the facility attendants to increase their collection volumes with a Gift Card challenge. We gave away three Stop and Shop cards to the facilities with the greatest increase. We also regularly monitored the compost bins to ensure that dropping food waste was a clean and positive experience for all users.

Now our residential drop-off program is a significant driver of our total volumes. In 2018, residential sources were only 5% of our overall volume from January through May. As of June 30, 2021, we have given away over 1,500 compost buckets along with our one-pager document at all six Island garbage facilities, town library talks, our farm office, and many other locations around the Island. The one-on-one conversation seem an important part of changing behaviors. By 2021, residential sources made up 34% of our total collection volumes January through May. We have changed behaviors!



Residential Collection Volumes in Lbs. by Year				
	2018	2019	2020	2021
January	615	1,106	2,879	7,895
February	474	1,676	6,554	12,714
March	629	1,388	5,786	14,361
April	699	1,824	6,709	10,843
May	905	3,636	8,116	11,016
June	864	3,746	13,371	
July	1,695	8,343	16,061	
August	1,661	9,881	14,707	
September	1,208	6,791	14,029	
October	925	6,144	8,313	
November	825	6,935	9,104	
December	846	6,522	10,238	
TOTAL	11,346	57,992	115,866	56,828

DRIVING SUPPORT

Beginning in 2019, we met privately with elected and appointed officials and key influencers in all six Island towns, and publicly presented our findings and recommendations at the Martha's Vineyard Commission and Edgartown Selectboard meetings. In the spring of 2020, we met with the all-Island Board of Health to share our findings and recommend the Board of Health in each Island town create a new hauler mandate requiring the separation of food waste and recyclables. Every health official agreed with the findings and recommendations but indicated their already unmanageable workloads did not allow another item to police. Working with MassDEP, we identified a grant that would cover up to $60,000 a year for an Education and Enforcement Coordinator. This would take the workload away from Island Health officials. The only caveat is

the position must exist before the funding can be approved. We created a template for the new hauler regulations and began to work on where and how that role could be housed and where the initial funds would come from. In the face of COVID, all this work was put on hold.

In January of 2021, we identified stakeholders and key influencers in each of the six Island towns to present the case for food waste recycling on-Island and to garner support for funding the infrastructure plan at MVRRD. We began outreach to elected and appointed officials in all six Island towns in February. We met with the Chilmark Conservation Commission, Board of Health, and Board of Selectman; the Edgartown Board of Selectman, the Oak Bluffs Board of Selectman and met privately with the Town Managers in Edgartown, Oak Bluffs and Tisbury, with staff at the Martha's Vineyard Commission and Dukes County along with many other stakeholders around the Island. We have attempted multiple times to connect with the Tisbury Department of Public Works and have drafted a FOIA request to send along for their garbage data.

FUNDING

Since the food waste project's inception in 2015, $1,166,000 has been raised, with $330,000 from the Betsy and Jessie Fink Family Foundation, $345,000 from the Martha's Vineyard Vision Fellowship, $43,000 from Mass DEP SMRP Grant, $44,000 in other philanthropy and $404,000 has been underwritten by IGI.

SUMMER 2021 RECOMMENDATIONS

1. Focus on mandating food waste separation through Island Boards of Health or each town's Select Board as they have done in Hamilton, MA.
2. Pursue MassDEP grant program of up to $60,000 a year for a recycling administrator who could manage compliance and enforcement.
3. Explore a centrally managed but possibly decentralized processing in-vessel composting system on-Island modeled after the system at IGI's Farm HUB. This includes:

    - Identify alternative compost sites and define the environmental regulations and related expenses for these sites.
    - Generate a line-by-line estimate for all capital and operating costs to build a new drum processing system at one or more other locations.
    - Draft a business plan and identify and solicit investors and grants for one Island food waste processing "business."
    - Explore possible "owners" of the Island composting system. It could be a nonprofit like Island Grown or the Agricultural Society. It could be a local business-like Bruno's or Keene's, or it could be municipal owner like MVRRD or Oak Bluffs.

4. Continue to help Bruno's grow its food waste collection program with a goal of 360 tons collected in 2021 and 540 tons collected in 2022. This includes:
    - Work with CET and market food recovery and food waste collection at all five Island grocery stores by June 30, 2022
    - Actively market Bruno's collection service to restaurants and other organizations in all six Island towns.
    - Identify and place more community collection points to expand residential collection.
    - Work with MassDEP and CET to build compliance with the Organics ban. Including an event in the fall for restaurants.

5. Continue our advocacy/consumer education work around food waste reduction and recycling, and food recovery efforts in each Island town and beyond. This includes:
    - Community talks
    - Compost bucket giveaways
    - Press coverage
    - Food waste challenges
    - Ag Fair

APPENDIX

A.

Price List for MVRRD

EFFECTIVE January 1, 2020

(PROOF OF DISTRICT TOWN RESIDENCY REQUIRED)
Vehicle Stickers: $30.00 Per Vehicle in District towns (Edgartown, West Tisbury, Chilmark, Aquinnah)
NON-District Town $40.00 Per Vehicle (Oak Bluffs, Tisbury)
Senior Citizen (NON – District) $40.00
Senior Citizen $10.00
One Time User Fee $5.00

By the Barrel or Large Bag: $ 5.00 (32 GAL. OR LESS)
Small Kitchen Bag: $3.00
Coupon Book: $ 50.00

NO HALF COUPONS / NO HALF BARREL OR BAGS

Mercury products can be dropped off at all of the District facilities for free. This includes, thermometers, watches and batteries.

Solid Waste: $172.00PER TON
Construction: $207.00PER TON
Metal Miscellaneous: $194.00 PER TON
Brush: $194.00 PER TON
Sheetrock: $207.00PER TON

HOUSEHOLD ARTICLES:

Washer/Dryer/Dishwasher: $22.00 EA.
Refrigerator/Air Conditioner: $55.00 EA.
TV's/Computers/CRT'S: $50.00 EA.
Tires/Automobile Size: $10.00 EA.
Tires/Truck Size: $30.00 EA.
Bicycles: $ 10.00 EA.
Batteries: $10.00 EA.
Hot Water Heaters (SMALL): $20.00 EA.
Hot Water Heaters (LARGE): $30.00 EA.
All Bulkies (SMALL& LARGE): $20.00 EA.
Motorcycle: $50.00 EA.
Lawnmower: $15.00 EA.
Riding Lawnmower: $30.00 EA.
Gas Grills: $15.00 EA.
Charcoal Grill: $10.00 EA.
Well Pump: $5.00 EA.
Bed Frames: $5.00 EA.
Fluorescent Bulbs: **Free**
Mattresses: $50.00 EA
Box springs $10.00EA

Massachusetts Regulations Restrict the Disposal of these Materials with Trash.
Please speak with the attendant at your local drop-off area for instructions on proper disposal.

- Asphalt Pavement, Brick & Concrete
- Cathode Ray Tubes
- Clean Gypsum Wallboard
- Commercial Food Waste (now excepting at ALL locations)
- Ferrous & Non-Ferrous Metals
- Glass & Metal Containers
- Lead Acid Batteries
- Leaves & Yard Waste
- Recyclable Paper, Cardboard & Paperboard
- **Single Resin Narrow-Necked Plastics**
- Treated & Untreated Wood & Wood Waste (Banned from Landfills Only)
- White Goods (Large Appliances)
- Whole Tires (Banned from Landfills Only; Shredded Tires Acceptable)

* Button batteries (Watch / Hearing aid) and Rechargeable batteries please give to attendant,

B.

MASSDEP Grant programs for Municipalities

MassDEP Sustainable Materials Recovery Program (SMRP)

Up to $250,000

MassDEP Sustainable Materials Recovery Program (SMRP) Municipal Grant funding may be used to improve local recycling, composting, reuse, and household hazardous waste diversion programs. Cities, towns, regional authorities, and certain non-profit organizations that provide solid waste-related services to them are eligible to apply. Grants are available for:

- Recycling and composting equipment.
- Mattress recycling.
- Pay-As-You-Throw programs.
- Education & Enforcement Coordinators.
- School recycling.
- Waste reduction enforcement; and
- Organics capacity development.

SMRP Recycling Dividends Program (RDP)

If your city or town has implemented specific reuse, recycling, and waste reduction programs and policies, it may qualify for payments under the Recycling Dividends Program (RDP). MassDEP uses a set of evaluation criteria to score applicants for RDP funds. These criteria apply to curbside, drop-off, and private subscription communities alike. Private subscription communities

must have adopted a comprehensive private hauler regulation to be eligible.
RDP fund allocation is based upon:
A point system indexed to various waste diversion categories.
The number of households served by the municipal trash program.
Payments range from $2,800 to $260,000, depending on households served and points earned. Since 2014, MassDEP has disbursed $7.9 million in RDP payments to Massachusetts cities and towns with exemplary recycling and waste reduction programs. Your city or town may apply for up to 80 hours of help from a MassDEP Municipal Assistance Coordinator (MAC) for a single recycling or waste reduction project. This project should address a high-priority recycling, solid waste, or Pay-As-You-Throw (PAYT) issue to which your community is willing and able to commit its own staff.

MassDEP Recycling IQ Kit

If your community is dealing with recycling contamination challenges, the Recycling IQ Kit might be for you. Contamination of the recycling stream is a continuing problem. The Recycling IQ Kit was developed to help cities and towns work with materials recycling facilities (MRFs) and haulers to:

Better target education and outreach to the public,
Give residents direct feedback at curbside or drop-off, and
Track and report the results of these efforts.
The Recycling IQ Kit is open source and available for any city or town to use at any time.

Your community may apply for funding – a maximum of $6,000 for drop-off or $40,000 for curbside – as well as up to 40 hours of help from a Municipal Assistance Coordinators (MAC) to implement the Recycling IQ Kit.

Reduce, Reuse, Repair Micro-Grants

Grants of up to $5,000 to municipalities, regional authorities, and eligible organizations for short-term waste reduction projects. Reduce, Reuse, Repair Micro-Grants are meant to complement the Waste Reduction and Organics Capacity Projects component of Sustainable Materials Recovery Program (SMRP) Municipal Grants, which provides funding for projects with higher costs (more than $10,000) and longer implementation timelines (up to two years).

Grant programs for Businesses

Recycling Business Development Grants

This program helps Massachusetts recycling processors and manufacturers create sustainable markets for eligible materials. Selected applicants receive grant awards of between $50,000 and $400,000.

Related Programs

Closed Loop Fund

A social impact fund investing $100 million in business and municipal efforts to increase the recycling of products and packaging.

Recycling Loan Fund
Provides loans of up to $500,000 to help Massachusetts businesses obtain the capital they need for recycling-related activities.

Financial & Technical Assistance for Anaerobic Digestion Projects
A matrix of grant, loan, and assistance programs available to renewable energy developers who are proposing organics processing projects.

C. UDSDA Grants

USDA Announces Cooperative Agreements for Community Compost and Food Waste Reduction

USDA's Office of Urban Agriculture and Innovative Production (Office) will accept applications on Grants.gov until 11:59 p.m. Eastern Time on July 16, 2021. Projects should span two years with a start date of September 25, 2021, and completion date of September 25, 2023.

Questions about this cooperative agreement opportunity can be sent to UrbanAgriculture@usda.gov.

Additional resources that may be of interest to urban agriculture entities include NIFA grants, FSA loans and AMS grants to improve domestic and international opportunities for U.S. growers and producers.

USDA RURAL DEVELOPMENT GRANTS

Rural Development Business Programs

- Business and Industry Loan Guarantees (B&I)
- Energy Programs
- Higher Blends Infrastructure Incentive Program
- Intermediary Relending Program (IRP)
- Rural Business Development Grants (RBDG)
- Rural Business Investment Program (RBIP)
- Rural Cooperative Development Grants (RCDG)
- Rural Economic Development Loan and Grant (REDLG)
- Rural Innovation Stronger Economy (RISE) Grants
- Rural Microentrepreneur Assistance Program (RMAP)
- Socially Disadvantaged Group Grants (SDGG)
- Value Added Producer Grants (VAPG)

Other Resources

- Small Business Information

D. Food Waste Scaling Timeline

Food Waste Collection Scaling Timeline

Year	Tons	Growth	Location	Price/to	Collection Fees	Price/Cu Yard	Compost Sales	Notes	Total Revenue	Yearly Operating Costs	Net
2018	160		IGI		$ -	$ 60	$ -	Selling cured com	$ -		$ -
2019	360	125%	IGI		$ -	$ 60	$ -	Selling cured com	$ -		$ -
2020	150	-58%	IGI		$ -	$ 60	$ -	Selling cured com	$ -		$ -
2021	200	33%	IGI	85	$ 17,000	$ 60	$ 1,020,000	Selling cured com	$ 1,037,000		$ 1,037,000
2022	360	50%	IGI	85	$ 30,600	$ 60	$ 1,836,000	Selling cured com	$ 1,866,600		$ 1,866,600
2023	540	50%	IGI	85	$ 45,900	$ 60	$ 2,754,000	Selling cured com	$ 2,799,900		$ 2,799,900
2024	810	50%	IGI	85	$ 68,850	$ 60	$ 4,131,000	Selling cured com	$ 4,199,850		$ 4,199,850
2025	1215	50%	IGI	85	$ 103,275	$ 60	$ 6,196,500	Selling cured com	$ 6,299,775		$ 6,299,775
2025	1823	50%	MVRD	85	$ 154,955	$ 20	$ 3,099,100	Selling uncured co	$ 3,254,055	$324,100	$ 2,929,955
2026	2735	50%	MVRD	85	$ 232,475	$ 20	$ 4,649,500	Selling uncured co	$ 4,881,975	$332,202	$ 4,549,773
2027	3282	20%	MVRD	85	$ 278,970	$ 20	$ 5,579,400	Selling uncured co	$ 5,858,370	$340,507	$ 5,517,863
2028	3938	20%	MVRD	85	$ 334,730	$ 20	$ 6,694,600	Selling uncured co	$ 7,029,330	$349,019	$ 6,680,311
2029	4726	20%	MVRD	85	$ 401,710	$ 20	$ 8,034,200	Selling uncured co	$ 8,435,910	$357,744	$ 8,078,166
2030	5671	20%	MVRD	85	$ 482,035	$ 20	$ 9,640,700	Selling uncured co	$ 10,122,735	$366,688	$ 9,756,047
2031	6500	15%	MVRD	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$375,855	$ 11,226,645
2032	6500	15%	85	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$385,251	$ 11,217,249
2034	6500	15%	85	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$394,882	$ 11,207,618
2035	6500	15%	85	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$404,754	$ 11,197,746
2036	6500	15%	85	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$414,873	$ 11,187,627
2037	6500	15%	85	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$425,245	$ 11,177,255
2038	6500	15%	85	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$435,876	$ 11,166,624
2039	6500	15%	85	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$446,773	$ 11,155,727
2040	6500	15%	85	85	$ 552,500	$ 20	$ 11,050,000	Selling uncured co	$ 11,602,500	$457,942	$ 11,144,558
											$ 154,396,289

Assumptions: "normal" returns in 2022, IGI can keep composting operation at Farm HUB to 2025, we can collect 6500 tons of food waste, we can get $20/cubic yard for uncured compost a 2.5 % increase in costs, we do not increase fees or sales costs to 2040.

E. Food Waste Volume and Revenue Projections MVRRD

Food Waste Volume and Revenue Projections for System at MVRD 2025-2046

Year	Tons	Growth	Locatior	Price/ton	Tipping Fees	Price/Cu Yard	Compost Sales	Notes	Dollars saved in export costs	Total Revenue and Savings	Yearly Operating Costs	Yearly Debt Service	Total Yearly Expenses	Net
2025	1823	50%	MVRD	85	$ 154,955	$ 20.0	$ 24,300	Uncured	$281,180	$ 460,435	$324,100	$668,598	$992,698	$ (532,263)
2026	2735	50%	MVRD	87	$ 237,945	$ 20.5	$ 56,068	Uncured	$432,404	$ 726,416	$332,202	$668,598	$1,000,800	$ (274,384)
2027	3282	20%	MVRD	89	$ 292,098	$ 21.0	$ 57,469	Uncured	$531,848	$ 881,415	$340,507	$668,598	$1,009,105	$ (127,690)
2028	3938	20%	MVRD	91	$ 358,358	$ 21.5	$ 70,687	Uncured	$654,496	$ 1,083,541	$349,019	$668,598	$1,017,617	$ 65,924
2029	4000	0%	MVRD	93	$ 372,000	$ 22.1	$ 86,936	Uncured	$681,000	$ 1,139,936	$357,744	$668,598	$1,026,342	$ 113,594
2030	4000	0%	MVRD	95	$ 380,000	$ 22.6	$ 90,513	Uncured	$698,000	$ 1,168,513	$366,688	$668,598	$1,035,286	$ 133,227
2031	4000	0%	MVRD	97	$ 388,000	$ 23.2	$ 92,775	Uncured	$715,440	$ 1,196,215	$375,855	$668,598	$1,044,453	$ 151,762
2032	4000	0%	MVRD	99	$ 396,000	$ 23.8	$ 95,095	Uncured	$733,320	$ 1,224,415	$385,251	$668,598	$1,053,849	$ 170,566
2034	4000	0%	MVRD	101	$ 404,000	$ 24.4	$ 97,472	Uncured	$751,640	$ 1,253,112	$394,882	$668,598	$1,063,480	$ 189,632
2035	4000	0%	MVRD	104	$ 416,000	$ 25.0	$ 99,909	Uncured	$770,440	$ 1,286,349	$404,754	$668,598	$1,073,352	$ 212,997
2036	4000	0%	MVRD	107	$ 428,000	$ 25.6	$ 102,407	Uncured	$789,680	$ 1,320,087	$414,873	$660,698	$1,075,571	$ 244,516
2037	4000	0%	MVRD	110	$ 440,000	$ 26.2	$ 104,967	Uncured	$809,440	$ 1,354,407	$425,245	$660,698	$1,085,943	$ 268,464
2038	4000	0%	MVRD	113	$ 452,000	$ 26.9	$ 107,591	Uncured	$829,680	$ 1,389,271	$435,876	$660,698	$1,096,574	$ 292,697
2039	4000	0%	MVRD	116	$ 464,000	$ 27.6	$ 110,281	Uncured	$849,600	$ 1,423,881	$446,773	$660,698	$1,107,471	$ 316,410
2040	4000	0%	MVRD	119	$ 476,000	$ 28.3	$ 113,038	Uncured	$870,840	$ 1,459,878	$457,942	$660,698	$1,118,640	$ 341,238
2041	4000	0%	MVRD	122	$ 487,900	$ 29.0	$ 115,864	Uncured	$892,600	$ 1,496,364	$469,391	$660,698	$1,130,089	$ 366,275
2042	4000	0%	MVRD	125	$ 500,098	$ 29.7	$ 118,760	Uncured	$914,915	$ 1,533,773	$481,125	$660,698	$1,141,823	$ 391,950
2043	4000	0%	MVRD	128	$ 512,600	$ 30.4	$ 121,729	Uncured	$937,788	$ 1,572,117	$493,153	$660,698	$1,153,851	$ 418,266
2044	4000	0%	MVRD	131	$ 525,415	$ 31.2	$ 124,773	Uncured	$961,233	$ 1,611,420	$505,482	$660,698	$1,166,180	$ 445,240
2045	4000	0%	MVRD	135	$ 538,550	$ 32.0	$ 127,892	Uncured	$985,263	$ 1,651,706	$518,119	$660,698	$1,178,817	$ 472,888
2046	4000	0%	MVRD	138	$ 552,014	$ 32.8	$ 131,089	Uncured	$1,009,895	$ 1,692,998	$531,072	$0	$531,072	$ 1,161,926
TOTALS	79778				$ 8,775,933		$ 2,049,616		$16,100,701	$ 26,926,249	$8,810,054	$13,292,960	$22,103,014	$ 4,823,235

F. Proposal #1 for Bill Keating

Community Project Funding Request

Provide $9,826,496 for a shared food waste processing system for the Martha's Vineyard towns of Aquinnah, Chilmark, West Tisbury, Tisbury, Oak Bluffs and Edgartown, Massachusetts. The system will limit greenhouse gas emissions, absorb carbon dioxide from the atmosphere, and store it in composted soil. It will be housed at the Martha's Vineyard Refuse Disposal and Resource Recovery District. http://www.mvrefusedistrict.com/

Background

The United States Department of Agriculture and the Environmental Protection Agency have identified food waste as an opportunity to reduce greenhouse gas emissions, conserve energy and other resources and have set the domestic goal of a 50% reduction in food waste to landfills by 2030. Massachusetts Department of Environmental Protection followed in 2014 and put our state Organics Ban in place. By October of 2021, the ban will prohibit the disposal of food waste in landfills by any organization that produces one half ton or more of food waste*any week of the year* Collectively, the six Island towns export 6,500 tons of food waste off-Island every year. The Island does not have the infrastructure to comply with the law.

Representatives from each of the six Island towns have been working on a response to the Organics Ban and have hired consultants and issued a series of reports. The first report examined the sources and volumes of food waste on Island. The second report examined three different technologies to determine which composting system would work best for our island community. The third and final

report is the plan for a composting system at scale on Island and includes detailed capital investment of $9,826,496. In 2020, it cost the Island $740,000 to export and dispose of our food waste. We know these costs will continue to rise as only 3 landfills in Massachusetts will accept other community's waste by 2022. Already, 40% of Massachusetts solid waste is exported to New Hampshire, Maine, and Ohio.

Massachusetts needs significant infrastructure investments meet MassDEP's goal of 50% reduction in food waste to landfills by 2030. One of the great things about Martha's Vineyard is we have a closed system and as such can model green innovations. If we can manage our food waste here, it would be a fantastic model for other Massachusetts communities, the United States, and the world.

G. Proposal #2 for Bill Keating

Statement of the Food Waste Problem

In September 2015, the United Nations General Assembly adopted a set of 17 Sustainable Development Goals. Among the top three goals is a 50% reduction in food waste by 2030. A few days later, the United States Department of Agriculture (USDA) and EPA announced the first ever domestic goal to reduce food loss and waste by half by the year 2030.

In the United States, forty percent of the food produced in the U.S. is wasted, which translates to $162 billion in annual waste. In a country in which nearly 50 million Americans face food insecurity, it is estimated the equivalent of 58 billion meals go to waste each year.

Waste occurs throughout the supply chain—from farms (16%), manufacturers (2%), businesses (40%) and households (43%). Food waste is about more than what goes into the trash. The U.S. spends $218 billion each year to grow, handle, deliver and dispose of uneaten food.

Food waste is also the largest component of municipal landfills. In addition to taking up space, decomposing food releases methane, a powerful greenhouse gas.

Laws in the United States

Six states—California, Connecticut, Massachusetts, New York, Rhode Island, and Vermont —have passed laws to keep food out of landfills. Two other states, Washington, and Maryland are working on food waste reduction goals.

CHALLENGES

Domestic food waste reduction goals cannot be achieved without the infrastructure in place to properly recycle food waste.

OPPORTUNITY

Urban communities across the United States have embraced entrepreneurs who have built profitable businesses around food waste collection, recycling, and compost sales. Rural communities cannot reach the economy of scale to generate significant profit and therefore cannot attract entrepreneurial investment. Rural communities are equally subject to state waste bans and will face increasing financial, and other penalties, as enforcement of the state waste bans intensify. Rural communities do not have the infrastructure to comply with state waste bans.

Funding Request

Provide $9,826,496 for a shared food waste processing system for the towns of Aquinnah, Chilmark, West Tisbury, Tisbury, Oak Bluffs and Edgartown, Massachusetts. This system will be centrally housed at the Martha's Vineyard Refuse Disposal and Resource Recovery District. http://www.mvrefusedistrict.com/

This system will process food waste locally, avoiding the costs (financial and environmental) of transportation and disposal. In addition, this system will produce a valuable compost product (pilot projects have already demonstrated the market for this product is strong). The result will be reduced greenhouse gas emissions and transportation and disposal costs, and increased productivity (and thus carbon capture) of local soils.

Background

Representatives from each of the six towns have been working for decades to address the problem of food waste disposal. The state Organics Ban created urgency to seek out solutions to address this problem. A six-town coalition hired consultants and issued a series of reports. The first report examined the sources and volumes of food waste on the Island. The second report examined three different technologies to determine which composting system would work best for our community. The third and final report is the plan for a composting system at the needed scale: this includes a detailed capital investment of $9,826,496. Sharing the investment among the municipal budgets of the six towns is not currently feasible given demands to expand and renovated schools and make environmental upgrades to antiquated infrastructure.

Since 2016, a committee of folks representing all the towns has been working on a rural six-town model for sharing collection, processing, and curing costs. A food waste pilot program provides residents free food waste drop-off and food waste collection for a fee for over 40 businesses, schools, and organizations across all six towns. We are on track to annually collect 4,000 tons of food waste from the six towns by 2030, but the pilot can process no more than a quarter of that with an aging in-vessel composter. Without additional infrastructure, the towns will have no way to enforce the state law or process what is collected.

The United States needs to make significant infrastructure investments if it is to meet the EPA/USDA goal of a 50% reduction in food waste to landfills by 2030. Our six towns can be a model for green innovation in this space. As an island, we can closely track what is regularly shipped on- and off-Island, we have solid data and have studied the problem and potential solutions extensively. We can demonstrate that it is possible for rural communities to regionally manage food waste, it would be a fantastic blueprint for other communities in the United States, and potentially the world.

For additional information, please email or call

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mvrefuse@comcast.net; (508) 627-4501

H. Proposal for Stop and Shop

Martha's Vineyard Food Waste Initiative

The Martha's Vineyard Food Waste Initiative is a coalition of Islanders committed to creating the infrastructure to recycle 4,000 tons of food waste by 2030. Our members include: The Martha's Vineyard Vision Fellowship, Island Grown Initiative, Vineyard Conservation Society, Island Food Equity Network, SailMV, Martha's Vineyard Commission, Bruno's Rolloff, the Martha's Vineyard Regional Refuse District, and the founders of ReFED, the Fink Family Foundation.

OVERVIEW

The number one export of Martha's Vineyard is garbage. Every year, 19,000 tons of solid waste are shipped off-island to facilities in New Bedford and Rochester, Massachusetts. Of that, an estimated 6,500 tons is food that has been grown, processed, and transported to or around the island only to be shipped back off-island as waste. A little less than half of this represents food waste that is subject to the Massachusetts Department of Environmental Protection (MassDEP) Food Waste Ban and is currently disposed of illegally. In October of 2021, MassDEP will expand their Food Waste Ban to half ton producers and expect that will double the volume of Massachusetts food waste subject to the ban. We do not have the infrastructure on Island to comply with the law today.

HISTORY In 2015, the Martha's Vineyard Vision Fellowship (MVVF) assembled a group of Islanders to examine what the ban would mean for the Island. The group - the Island-Wide Organics Waste Committee (the Committee) hired a project manager and outside consultant to study Island food waste sources and volumes along with the costs of exporting food waste off Island. They reviewed potential island-wide solutions including Animal Extrusion, Anaerobic Digestion, In-vessel Drum, Aerated Static Pile, Turned Windrow, and off Island export. Their report, *The Island-Wide Organics Feasibility Study*, was published in 2017. The Committee then decided to proceed with round two by developing business plans for several of the priority composting technologies including windrow, in-vessel, and extrusion. A consultant was hired and a report, *Business Plan for Recycling Food Waste on Martha's Vineyard*, was issued in 2018.

Following those studies, the Committee recommended an in-vessel aerobic drum as the best technology for use on Island based on the balance of volume, cost, odor, and vermin management. In 2020, the Committee commissioned Stantec Environmental Consulting to estimate all in Capital costs for an In-Vessel Rotary Drum system to process 6500 tons of food waste at the Martha's Vineyard Refuse District in Edgartown. The report – *The MV Feasibility Draft Report* - showed $9,826,496 all-in capital cost for a fully operational composting system at MVRRD.

Island Grown Initiative (IGI) has been engaged in food recovery efforts since the launch of their gleaning program to collect and redistribute edible food from Island farmers in 2009. Their commitment expanded several years ago through their relationship with the Committee. In 2016, IGI hired the project manager of the original feasibility study, and IGI's Executive Director, became a member of the Committee. IGI's commitment to food waste prevention, rescue and recovery is now codified in its five - year strategic plan which was developed and published in 2018.

Beginning in 2016, IGI initiated several new efforts to address food waste and food security on Island. These included: a food recovery program to collect edible food from Island grocers, a mobile market selling discounted vegetables to communities around the Island, a prepared foods program to transform recovered food into meals for food insecure Islanders, and the Island Food Rescue (IFR) food waste collection pilot.

Launched in 2016 with a borrowed truck and partnerships with local farmers, IFR collected 17 tons of food waste from seven Island restaurants in the first year. In 2019, a used food waste truck and a second-hand in-vessel drum were purchased and operational at IGI's Farm Hub. In 2019, IFR collected 360 tons of food waste from 40 Island organizations and sold 160 cubic yards of compost and proved the business case for a food waste collection and compost sales business on island. At the same time, IFR launched a series of consumer education campaigns to raise awareness around food waste.

In 2020, IFR was recognized by the Environmental Protection Agency (EPA) as a New England organization keeping food waste out of landfills.

In May of 2021, local Island hauler Bruno's Roll-off assumed the food waste collection business.

FINANCIAL CONCERNS As an island, we pay *export* and disposal costs for solid waste. In 2020, The Martha's Vineyard Regional Refuse District (MVRRD) paid a tipping fee of $62/per ton plus $33.72 in transportation costs for a total cost of $95.72 per ton of solid waste disposal. The MVRRRD waste contract must be renewed in 2025 and we know waste costs will go up. Massachusetts already exports 40% of our trash out of state. By 2022, Massachusetts will have only 3 remaining landfills accepting others municipal waste. In the past, revenue from recycling helped to underwrite disposal costs. Currently it costs more to dispose of recyclables than solid waste - $35 more per ton - and there is no reason to expect this to improve in the near-term.

The export and disposal of food waste alone cost the Island $740,000 in 2020. If we do nothing, the Island will spend $19.4 million to export food waste between 2025 and 2040.

ENVIRONMENTAL CONCERNS

Food that is wasted emits 8% of global greenhouse gas emissions per year. In the US in 2014, landfill gas from food waste emitted the equivalent of 163 million tons of carbon dioxide, that is about the yearly emissions of **31 million cars**. Over half is methane gas, which is 28 times more potent than carbon dioxide but has a fraction of the atmospheric life - 12 years - meaning if methane release can be minimized, the climate impacts will be mitigated on a time scale of decades versus the centuries required by carbon dioxide.

Recycling food waste into compost has another climate benefit. Composted soils sequester 27,000 lbs. more carbon dioxide per acre than untreated soils. Composted soils are richer in nutrients and soil microbes and require less watering resulting in more sustainable and bountiful crops.

CHALLENGES

Our assumption all along has been that we can demonstrate a significant savings and additional revenue for all six Island towns which would justify the $9.8 million expense of a composting system. After digging into the town budgets, we realized that none of the six towns will significantly benefit on paper from food waste diversion at scale as "municipal waste" is only 3,500 of the 19,000 tons of waste we export annually.

OPPORTUNITY

Historically, MassDEP offered financial carrots to communities to create the infrastructure to comply with the state Organics Ban. MassDEP plans to lower the ban to half ton food waste producers this fall and have signaled a shift from incentives to financial penalties to force compliance in 2022. Additionally, the Steamship Authority is under mounting pressure to limit the number of garbage trucks on the Steamship which may result in higher costs for all trucks on the Steamship. These two forces will drive demand for food waste processing at scale to 4,000 tons by 2030.

There are three paths to processing food waste at scale on island.

Option 1: Upgrade the system at IGI

Most of the equipment at IGI is used and require constant maintenance. The addition of a brand new in-vessel drum, grinder, tractor, and an expanded concrete pad would make the system most more efficient and dependable

Capital Cost: $530,000

Operating Costs: $90,000/year

Pros: Lower costs and substantially less maintenance than the current system. The system at this site only requires MassDEP's General Permit and the minimal guidelines associated with this permit.

Cons: No redundancy in system, and the site is limited to a maximum capacity of 1000 tons

Option 2: Build a second system modeled after IGI and including a screener and a depackaging machine at an alternative site.

The IGI site is limited, and a second site is required to process 4,000 tons. The addition of a depackaging machine and the space to add additional drums would add capacity over time to process 4,000 tons of food waste.

Capital Cost for initial drum: $1,175,000

Operating Costs: $144,000/year

Pros: The system only requires MassDEP's General Permit and the minimal guidelines associated with this permit. Creates redundancy to always insure operational system. Additional drums could be added over time at $363,000 each.

Cons: The addition of a depackager creates a disposal cost and may trigger additional environmental regulations.

Option 3: Build the system to process 4,000 tons of food waste at MVRRRD
MVRRRD has already won town, commission, and MassDEP approvals to host a scaled composting system. And the system is designed and ready to be built.
Capital Cost: $9,800,000
Operating Costs: $425,032
Pros: Whole system to process all Island food waste could be up and running within two years. As a garbage facility, disposal costs for depackaging waste would be minimized.
Cons: This site holds a MassDEP Large Volume Garbage Permit and is near the airport. These two things drive high levels of environmental regulation which results in the price tag.

BENEFITS to a Martha's Vineyard Investment

The Island attracts world leaders, global executives, celebrities, and financiers which draws the attention of the world to our small island. An investment here is an opportunity for Ahold Delhaize to model community, corporate responsibility, and sustainability. And this message will be amplified across the world.

Island residents and the founders of the domestic think tank devoted to food waste, ReFED were the original investors in the IGI food recovery program and continue to fund the Martha's Vineyard Food Waste work. Their goal is to take the learnings and recommendations of ReFED and apply them in real time here on Martha's Vineyard. A key deliverable of their investment is to create system that is replicable and scale able for other communities. A partnership with Ahold Delhaize would make that possible.

There are two Stop and Shop locations on Island. We capture a fraction of the Vineyard Haven location's food waste and none at the Edgartown location. We conservatively estimate that Stop and Shop exports about 9 tons of mixed food and solid waste a week. At least half of that is food. We estimate that Stop and Shop spends about $140/ton for mixed waste export and disposal - that is $294,000 a year just for food waste, and those costs will continue to rise every year. Capturing and recycling food waste here could save Stop and Shop $276,000/ year.

IMassDEP Genral Permit Guidelines

310 CMR 16.04 – General Permits

Owner & Operators shall:

- ensure the operation and its products do not result in an unpermitted discharge of pollutants to air, water or other natural resources, create a public nuisance, or present a significant threat to public health, safety or the environment;
- ensure that the operation is located at least 250 feet from and existing water supply at time of commencement.
- ensure that the operation incorporates best management practices, including but not limited to:

J. Food Waste Handouts

BRIEF: Food Waste Martha's Vineyard

Following the EPA and the USDA goal to reduce US food waste by 50% by 2030, MassDEP **banned the disposal of commercial organic waste** by businesses and institutions that dispose of one ton or more of these materials *any week of the year*. There are an estimated 20 businesses or institutions on Island that are currently subject to this ban with a collective tonnage of food waste per week of roughly 43 tons or 2,240 tons of food waste a year that's about **173 garbage trucks full of food waste**- that cannot legally be disposed of in landfills. All signs indicate that an expansion of this ban to smaller scale producers is imminent.

Enforcement of the ban has been spotty due to the lack of infrastructure in place to manage food waste. In an effort to create infrastructure, MassDEP has allocated one-time Organics Capacity grants of up to $250,000 for municipalities or businesses and renewable yearly grants up to $5000. Collectively, the six towns of Martha's Vineyard could be eligible for up to $1.5 million in capacity grants.

Fast Facts about Food Waste on Martha's Vineyard

- **6,500 tons of food** that has been grown, processed, and transported to or around the island is shipped back off-island as waste.
- It costs islanders **$622,180** a year, to transport and dispose of this food waste in landfills off-island each year. (This does not include residential tipping fees, pick-up costs or the tax dollars that help to underwrite waste removal.)
- This wasted food represents **261 trucks on the steamship** each way every year.
- **5,400 cubic yards of bulk compost** are shipped to Martha's Vineyard each year- that's about 5,400 pick-up trucks full.

Recognizing the great expense of exporting waste off island, the Martha's Vineyard Commission's 2009 Island Plan, recommended converting waste into useful resources with an integrated, Island-wide program of waste management. Their recommendations included a large-scale composting facility to transform wasted food into a needed island commodity.

What has been done on Martha's Vineyard so far?

- In 2015, a group of concerned islanders, with support and funding from the Martha's Vineyard Vision Fellowship, convened the Organics Committee to identify an island-wide solution to the Massachusetts Organics ban.
- Following the recommendations of the committee, a food waste pick-up and composting pilot was launched in 2016 resulting in 17 tons of food waste recycled into compost.
- In 2019, an in-vessel composter and a food waste truck were acquired, and 360 tons of food waste are expected to be processed in 2019.

The Challenge – The food waste composting pilot has a current capacity to process 360 tons of food waste a year. There is six times that tonnage produced on the island today that cannot legally be disposed of in a landfill. Martha's Vineyard does not have the capacity to process the amount of food waste to comply with the current organics ban, which is expected to expand.

Recommendations

1. **Raise awareness that islanders and visitors can bring food waste to all Island "dumps."**
2. **Increase the utilization of food waste programs by more island businesses, residents and visitors.**
3. **Have Martha's Vineyard Refuse District and town officials from Oak Bluffs and Tisbury sign on to the goal of a 50% reduction in food waste by 2030.**
4. **Create a plan and a budget to put infrastructure in place on Island to process 6500 tons of food waste.**

The financial case for implementing a food waste program – The Martha's Vineyard Refuse District (MVRD) - In 2018, the MVRD contracted with IGI to collect and dispose of food waste at the Chilmark, West Tisbury and Edgartown locations. MVRD charged $2/bucket to dump food waste, collected $1,810 and paid IGI $2,308 to recycle it, resulting in a deficit of $498 in 2018. However, this same volume of waste would have cost MVRD $650 to transport and dispose of off island. Diverting food waste to IGI saved MVRD $170 in 2018. At the same time, MVRD applied for and received $1,200 from the MassDEP grant Recycling Dividends Program (RDP), and the towns of Edgartown, West Tisbury and Chilmark also received RDP funds.

Diverting food waste from off island landfills generated over $20,300 in grant funding.

Why care about food waste?

Climate Change - There are few things individuals and municipalities can do to really move the needle on greenhouse gas emissions to affect the climate trajectory in the short term. Managing food waste can impact emissions on a decade scale and change emissions rates and their affects in our own lifetime.

- Food waste emits **8% of US greenhouse gas emissions** per year.
- In the US in 2014, landfill gas from food waste emitted the equivalent of 163 million tons of carbon dioxide, that's about the **yearly emissions of 31 million cars**.
- Over half is methane gas, which is 28 times more potent than carbon dioxide but has a fraction of the atmospheric life - 12 years - meaning if methane release can be minimized, **the climate impacts will be mitigated on a time scale of decades versus the centuries required by carbon dioxide.**
- When food waste is composted and applied to soil, **it sequesters 27,000 lbs. more carbon dioxide per acre** than untreated soil.

A secure and equitable US food system - 40% of all food produced in US is thrown away at a cost of **$165 billion** and represents the largest component **(21%)** of municipal solid waste. Much of this wasted food is still edible and could be redirected to the **40 million Americans, 12 million of them children, who are food insecure.**

Why food waste matters on Martha's Vineyard

Food security is a major issue on Martha's Vineyard where **40% of Island students qualify for free or reduced lunch programs** and many of our seniors continue to struggle with access to healthy food.

Each year we import fertilizer to Martha's Vineyard which contributes to ongoing water quality issues in our ponds.

To learn more about food waste, email or call Eunice Youmans eunice@igimv.org 508-221-4847

Food Waste on Martha's Vineyard

Why care about food waste?

Climate Change - There are few things individuals and municipalities can do to really move the needle on greenhouse gas emissions that will affect the climate trajectory in the short term. Managing food waste can impact emissions on a decade's scale and change emissions and their impacts in our own lifetime.

In the US in 2014, landfill gas from food waste emitted the equivalent of 163 million tons of carbon dioxide, that's about the **yearly emissions of 31 million cars**.

- Food waste emits **8% of US greenhouse gas emissions** per year.
- In the US in 2014, landfill gas from food waste emitted the equivalent of 163 million tons of carbon dioxide, that's about the **yearly emissions of 31 million cars**.
- Over half is methane gas, which is 28 times more potent than carbon dioxide but has a fraction of the atmospheric life - 12 years - meaning if methane release can be minimized, **the climate impacts will be mitigated on a time scale of decades versus the centuries required by carbon dioxide.**
- When food waste is composted and applied to the soil, **they sequester 27,000 lbs. more carbon dioxide per acre** than untreated soils.

A secure and equitable US food system – 40% of all food produced in US is thrown away at a cost of **$165 billion.** This represents the largest component **(21%)** of municipal solid waste. Much of this wasted food is still edible and could be redirected to the **40 million Americans, 12 million of them children, who are food insecure**.

Food Waste is an issue of national and regional concern – Following the EPA and the USDA goal to reduce US food waste by 50% by 2030, the Massachusetts Department of Environmental Protection MassDEP **banned the disposal of commercial organic waste** by businesses and institutions that dispose of one ton or more of these materials *any week of the year.*

Why food waste matters on Martha's Vineyard

Food security is a major issue on Martha's Vineyard where **40% of Island students qualify for free or reduced lunch programs** and many of our seniors continue to struggle with access to healthy food.

Each year **5,400 cubic yards of bulk compost are shipped to Martha's Vineyard** - that's about 5,400 pick-up trucks full.

Recognizing the great expense of exporting waste off island, the Martha's Vineyard Commission's **2009 Island Plan** recommended converting waste into useful resources with an integrated, Island-wide program of waste management. Their recommendations included a large-scale composting facility to transform wasted food into a needed island commodity.

Fast Facts about Food Waste on Martha's Vineyard

6,500 tons of food that has been grown, processed, and transported to or around the island is shipped back off-island as waste.

It costs islanders **$622,180** a year, to transport and dispose of this food waste in landfills off-island each year. (This does not include residential tipping fees, pick-up costs or the tax dollars that help to underwrite waste removal.)

This wasted food represent **261 trucks on the steamship** each way every year.

What has been done on Martha's Vineyard so far?

- In 2015, a group of concerned islanders, with support and funding from the Martha's Vineyard Vision Fellowship, convened the Organics Committee to identify an island-wide solution to the Massachusetts Organics ban.
- Following the recommendations of the committee, a food waste pick-up and composting pilot was launched in 2016 resulting in 17 tons of food waste recycled into compost.
- In 2019, an in-vessel composter and a food waste truck were acquired, and 360 tons of food waste are expected to be processed in 2019.
- Island Grown Initiative launched a food recovery program with island farms in 2005 which has expanded to include Cronig's and Stop and Shop markets. Over 34,000 lbs. of food were recovered for food insecure islanders in 2018.

The Challenge – While we have made progress on food waste, Martha's Vineyard has not made the commitment to reduce food waste on island by 50% by 2030.

Recommendations

1. **Prevention** – There are many strategies to reduce food waste before it happens, a consumer education campaign should be launched which would raise awareness that food waste is a problem and educate consumers about how to make smarter food choices to limit waste.
2. **Recovery** – Much of the food that is thrown away healthy and edible and should be redirected to food insecure islanders.
3. **Recycling**

- **Provide access for all islanders to dispose of food waste** - Add food waste bins to Tisbury and Aquinnah garbage facilities.
- **Increase adoption of food waste programs by more residents, businesses and visitors.**

What you can do today – Sign the pledge to reduce your food waste by 50% by 2030. Be a food waste warrior and raise awareness that food waste is a problem and there are solutions.

For more information about food waste on Martha's Vineyard or to get involved, contact Eunice Youmans eunice@igimv.org 508-221-4847

NO TIME TO WASTE

JOIN THE ISLAND-WIDE CAMPAIGN TO REDUCE FOOD WASTE BY 50% BY 2030.

40% OF THE FOOD WE GROW OR BUY IS NEVER EATEN BUT HAULED TO LANDFILLS AND DUMPED AS FOOD SCRAPS.

It's like buying 5 bags of groceries and throwing 2 away in the trash.[1]

Did you know...
The average family of four spends
$1,800
every year on food they never eat.[2]

13 MILLION POUNDS of Island food waste is shipped to mainland landfills and incinerators every year.

FOOD WASTE IS THE THIRD LARGEST GREENHOUSE GAS EMITTER ON THE PLANET.[3]

Here's what you can do...

Let's create nutrient-rich, local compost for our food waste here on the Island.

Put leftover fruits, vegetables, nuts, seeds, grains, pasta, bread, dairy, meat, seafood, coffee, filters, tea bags, napkins, paper towels, egg and lobster shells into a food waste bucket for composting.

Drop your bucket at any town "dump" for only $2 per 5-gallon bucket.

See the Island map on the reverse side for food waste drop-off locations.

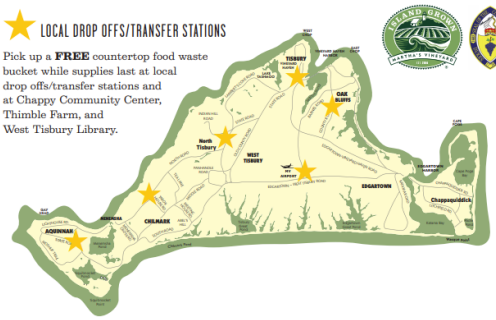
TAKE THE PLEDGE TO REDUCE FOOD WASTE. VISIT IGIMV.ORG

[1,2] Dana Gunders, Natural Resources Defense Council
[3] Food and Agriculture Organization of the United Nations

From Aquinnah to West Tisbury, from Chilmark to Oak Bluffs, from Edgartown to Vineyard Haven, together we're building a regenerative, equitable food system on Martha's Vineyard that engages, informs, and integrates the community.

LOCAL DROP OFFS/TRANSFER STATIONS

Pick up a **FREE** countertop food waste bucket while supplies last at local drop offs/transfer stations and at Chappy Community Center, Thimble Farm, and West Tisbury Library.



Although the information in this document has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement 00A00490 to, Island Grown Initiative, it has not been subjected to the Agency's publications review process and therefore, may not reflect the views of the Agency and no official endorsement should be inferred.

RULES AND REGULATIONS
FOR
PERMITTING AND OPERATION
OF
COMMERCIAL, RESIDENTIAL AND MUNICIPAL
SOLID WASTE/RECYCLING COLLECTION

AUTHORITY

In accordance with the authority vested in the Town of Tisbury Board of Health by M.G.L. Chapter 111, Section 31A and 31B and every other power thereto enabling, the regulations set forth hereinafter are promulgated.

DEFINITIONS

a. **FACILITY** shall mean a licensed solid-waste disposal or handling facility approved or licensed by Department of Environmental Protection (DEP).

b. **PERMITTEE** shall mean any person(s) or company, which has applied for and obtained the appropriate permit to collect refuse within the corporate limits of Tisbury, Massachusetts.

c. **RECYCLABLES** shall mean those recyclable items listed in DEP Waste Ban List, 310 CMR 19.017. (See attached DEP Waste Ban List).

d. **REFUSE COLLECTION VEHICLE** shall mean any vehicle used for the transport of SOLID WASTE.

e. **SOLID WASTE** shall mean useless, unwanted or discarded solid, liquid or contained gaseous material resulting from commercial, industrial, municipal or household activities that is abandoned by being disposed of, incinerated or is stored, treated or transferred pending such disposal, incineration or other treatment, but does not include:

(1) Hazardous wastes or regulated recyclable materials as defined and regulated pursuant to 310 CMR 30.000;

(2) Sludge or septage which is land applied in compliance with 310 CMR 32.00;

(3) Wastewater treatment plant residuals or sludge ash from publicly or privately-owned wastewater treatment plants which is treated and disposed at a site regulated pursuant to 314 CMR 12.00;

(4) Septage, as defined and regulated pursuant to M.G.L. c.111, s. 31D;

(5) Sewage;

(6) Ash produced from the combustion of coal when reused as prescribed pursuant to M.G.L. c. 111, s. 150A;

(7) Solid or dissolved materials in irrigation return flows;

(8) Solid or dissolved materials in domestic sewage;

(9) Source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, as amended;

(10) Those materials and by-products generated from and commonly reused within an original manufacturing process; and,

(11) Compostable or recyclable materials when composted or recycled in a facility or operation not required to be assigned pursuant to 310 CMR 16.05(2)-(4).

f. **COMMERCIAL WASTE** means non-hazardous solid waste generated by businesses, such as office buildings, retail and wholesale establishments and restaurants. It does not include solid waste generated by single or multifamily homes or waste generated by large industry.

GENERAL

a. Any persons engaged in the collection of SOLID WASTE in the Town of Tisbury shall remove the same to an approved location or FACILITY in accordance with these rules and regulations, as well as all other applicable rules and regulations.

b. The PERMITTEE shall provide recycling and food waste collection service inclusive with solid waste collection service, to all residential and commercial customers in the Town of Tisbury to allow compliance with the Commonwealth of Massachusetts Department of Environmental Protection (DEP) Solid Waste Bans, 310 CMR 19.017, and any other item deemed feasible by the Board of Health. Items required by the DEP to be recycled are set forth in the attached DEP Waste Ban List. This Waste Ban List is subject to amendment and revision by the Board of Health and the Commonwealth as additional rules and regulations may be promulgated.

c. All residential and commercial generators of solid waste in the Town of Tisbury shall separate from their rubbish all food waste recyclables for separate collection and disposal by their rubbish/recycling hauler. All residents and businesses shall be responsible for ensuring that they do not contract for the indiscriminate disposal of recyclables or restricted materials with their rubbish.

PERMITTING PROCEDURE

a. All persons collecting SOLID WASTE in the Town of Tisbury shall obtain a permit from the Board of Health prior to commencing with collection.

b. At the time of application or as otherwise specified, the applicant shall submit to the Board of Health, the following:

(1) A non-refundable permit fee of One Hundred ($100.00) dollars per vehicle together with proof of property/liability insurance as required in Section 4;

(2) A description of the REFUSE COLLECTION VEHICLE(s) to be used, including the company name, make, model, year, type, registration number and the capacity of the vehicle(s);

c. The Board of Health will review applications for permits and will respond to applicants within thirty (30) days.

d. Applicants have the right to appear before the Tisbury Board of Health at a hearing to discuss their application by filing such hearing request in writing with the Board.

INSURANCE

a. Each applicant shall furnish to the Board of Health certificates from an insurance company licensed to do business in the Commonwealth of Massachusetts showing the applicant carries Public Liability Insurance in an amount not less than Five Hundred Thousand ($500,000.00) up to One Million ($1,000,000.00) dollars for the injury or death of one or more persons, and Two Hundred Fifty Thousand ($250,000.00) dollars for damage to property. Certificates of Insurance shall be furnished each year upon renewal of permit.

b. The applicant shall make certain that the above insurance policy is not canceled prior to notification of the Board of Health. This notification shall be not less than thirty (30) days prior to such cancellation.

OPERATIONAL PROCEDURES

a. The permit will be valid for a period of not more than one (1) year, renewable annually on the first day of January, subject to review and approval by the Board of Health.

b. No permit shall be transferable except with the written approval of the Board of Health.

c. The PERMITTEE shall provide recycling service to allow compliance with the Commonwealth of Massachusetts Department of Environmental Protection Solid Waste Bans, 310 CMR 19.017, see attached. Recycling service, using separate and adequate containers and no less often than biweekly, shall be included with solid waste service to all residential and commercial customers, at bundled pricing.

d. The PERMITTEE shall provide tonnage of refuse and recyclables or a reasonable estimation on a yearly basis to include location of disposal facilities and recycling facilities.

e. The PERMITTEE shall take all reasonable care in SOLID WASTE collection. SOLID WASTE shall not be scattered about the streets or onto private property. SOLID WASTE, which is spilled, shall be immediately picked up by the PERMITTEE and removed with other wastes.

f. The Board of Health reserves the right to inspect collection vehicles and loads at reasonable times to ensure that they comply with all applicable state and local laws, by-laws and regulations.

g. Any violation of these regulations or any other applicable laws or regulations by the PERMITTEE will be grounds for issuance of fines, suspension, modification or revocation of said permit.

h. The PERMITTEE shall provide, as needed by the customer, for the collection of bulk items such as, but not limited to, couches, chairs, mattresses, etc. Customers will be charged at specified rates provided by the hauler customer contract.

i. The individuals empowered to enforce the provision of these regulations are any authorized Agent of the Board of Health, any member of the Board of Health or any Police Officer of the Town of Tisbury.

j. PERMITTEES shall provide their customer with a list of acceptable waste types and recyclables according to section 2 of these regulations, the DEP Waste Ban List, and with a list or description of proper packaging or bundling methods of same. This will ensure fewer incidents of refusal by PERMITTEE to collect wastes, and will provide for a more efficient and economic system of waste collection/disposal and recycling.

k. The PERMITTEE may offer collection of compostable yard waste. Customers will be charged specified rates provided in the customer contract.

INDEMNIFICATION

a. PERMITTEES shall enter into arrangements for the collection of refuse and recyclables with individual residents, the municipality and commercial/industrial customers of the Town, in which the PERMITTEE will be paid directly by the customer.

b. The PERMITTEE agrees to indemnify the Town from any loss that may arise from the improper treatment, storage or disposal of hazardous wastes collected within the Town.

ENFORCEMENT

Enforcement of this regulation shall be by criminal complaint in the district court and/or noncriminal disposition ticket per MGL Chapter 40, Section 21D. Agents of the Board of Health or its designee shall have the power to enforce the provisions of this regulation.

a. In the event that a PERMITTEE fails to follow these regulations, the Board of Health shall impose reasonable fines:

1st Offense- written warning
2nd Offense - $100
3rd Offense- $300
4th Offense -$500
5th Offense – revocation of permit

Each day of failure to comply with the regulations shall constitute a separate violation.

b. Any SOLID WASTE/RECYCLABLES collection permit may be suspended, modified or revoked by the Board of Health upon receipt of evidence satisfactory to the Board that the PERMITTEE has not conformed to the requirements of these regulations or such further regulations as may be adopted or to any applicable state or federal statute, regulation, rule or order regarding transportation or disposal of solid waste concerning the collection and disposal of rubbish. Appeals of such suspensions, modification or revocations may be directed to the
Board of Health within ten (10) business days of said suspensions, modification or revocation.

SEVERABILITY

a. Each of these regulations shall be construed as separate to the end that if any regulations, clause or phase thereof, should be held invalid for any reason, the remainder of the regulation and all other regulations shall continue to be in force.

PHASE – IN OF REGULATIONS

All Permittees shall provide recycling service in accordance with these regulations, for Recyclable items outlined in the DEP Waste Ban List, beginning on the following date(s):

All PERMITTEES shall include recycling service with solid waste collection service at a bundled price in accordance with these regulations beginning on April 15, 2018.

_____,
Chairperson
_____, Member

_____,
Member

Revised: September 26, 2017

Optional Table: List of Waste Ban Materials: 310 CMR 19.017

MATERIAL	DATE OF BAN
Lead Batteries	December 31, 1990
Leaves	December 31, 1991
Tires	December 31, 1991
White Goods	December 31, 1991
Other Yard Waste	December 31, 1992

Aluminum Containers	December 31, 1992
Metal / Glass Containers	December 31, 1992
Single Polymer Plastics	December 31, 1994
Recyclable Paper	December 31, 1994
Cathode Ray Tubes (CRT)	April 1, 2000
Asphalt Pavement, Brick and Concrete	July 1, 2006
Metal	July 1, 2006
Wood	July 1, 2006
Clean Gypsum Wallboard	July 1, 2011
Commercial Organic Material (1)	October 1, 2014

(1) Applies to entities that generate more than one ton of those materials for Solid Waste disposal per week.