

Waste on Nantucket: Study & Outreach

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Nantucket DPW
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WPI



Town & County of
NANTUCKET, MA







Objective

Perform a waste characterization and create strategies to reduce the waste entering the landfill.

What is a Waste Characterization Study?

Planning Phase



Action Phase



Analysis Phase



During the planning phase, we spent seven weeks becoming trash experts.



- Researched the history, economics, politics, and science of waste
- Looked into different methodologies from other waste characterizations
- Compared findings with Nantucket specific considerations

Determining Details of the Sort

Sample Preparation

Sort Roles

Categories

Scheduling



200 bags to be sorted
100 from drop off
100 from commercial hauler



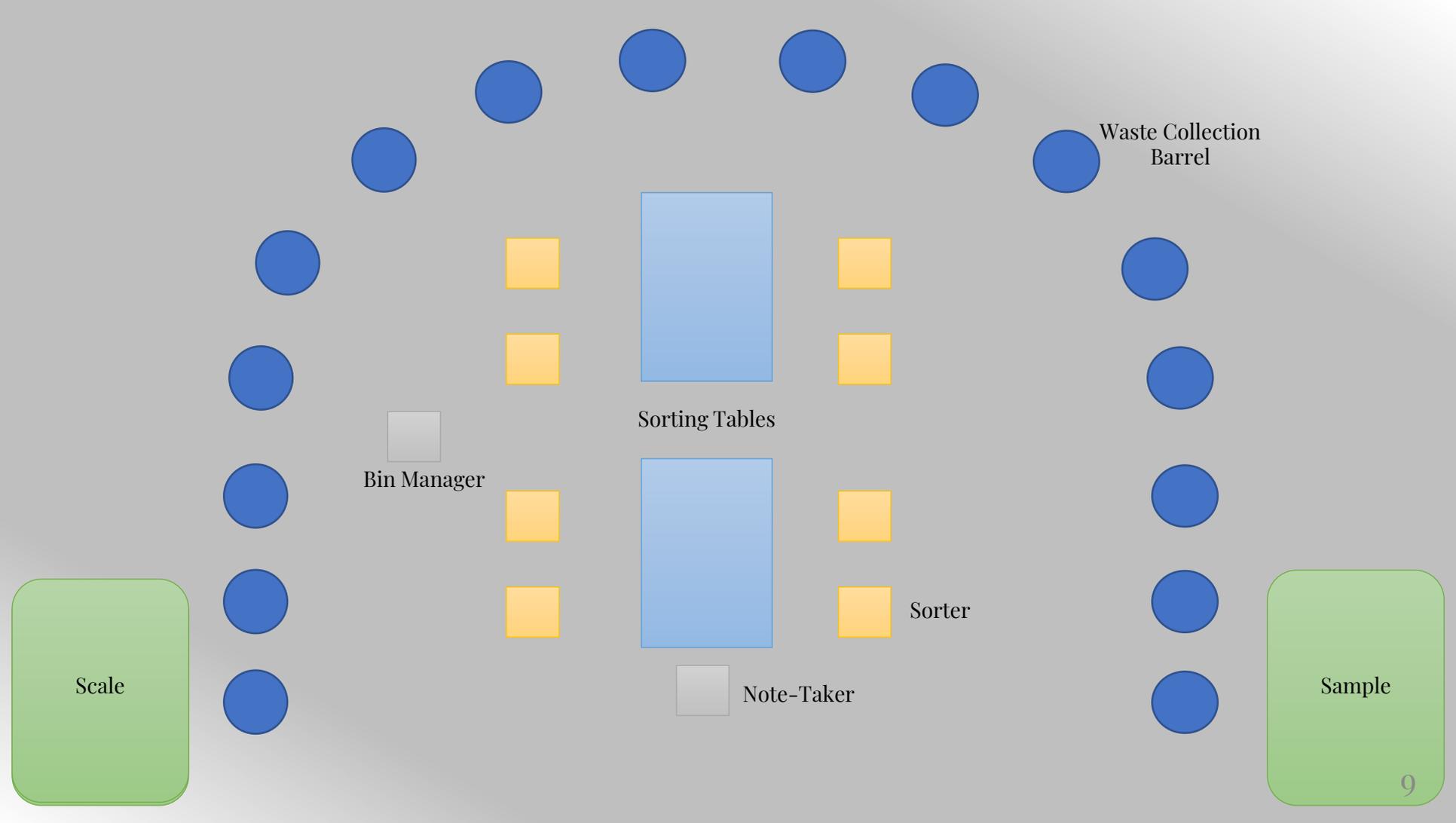
Job list used to manage tasks
Sorters, Recorders,
Weighers, Cleaners, etc.



8 categories and
18 sub-categories
Examples: Glass,
Plastic, Organics,
Paper, Metal



The sort would take
place on October 29rd
Arrive at 7, work till
3:30





Materials Recovery Facility

Requires items to be sorted into plastics, tin/aluminum, glass, corrugated cardboard and Household waste.



Commercial Hauler

Requires items to be sorted into plastics and tin/aluminum recyclables, Glass, and Household Waste.



**Household
Waste**

Waste Characterization

Plastic



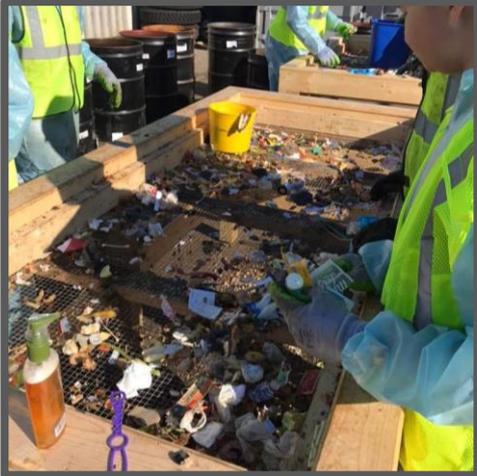
**Corrugated
Cardboard**



Tin/Aluminum



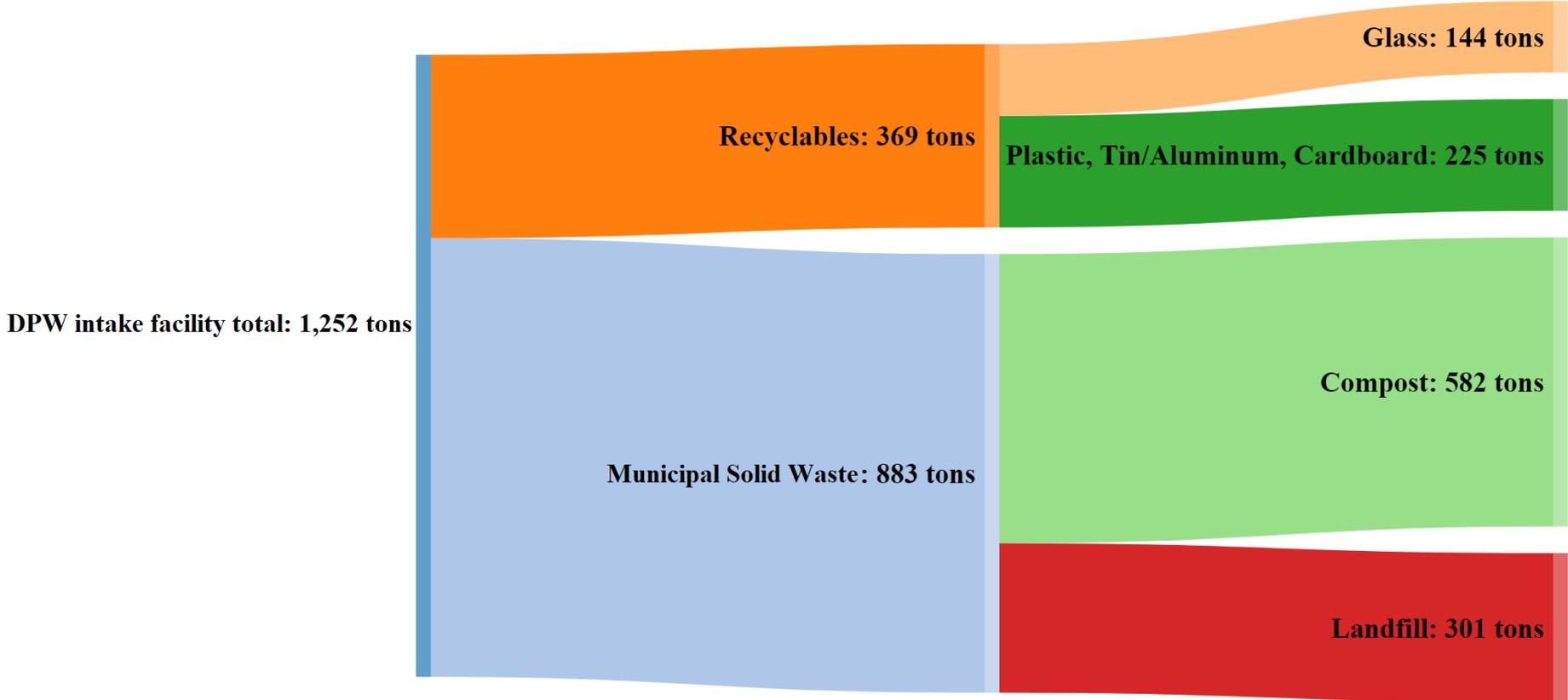
The action phase was an unforgettable experience.



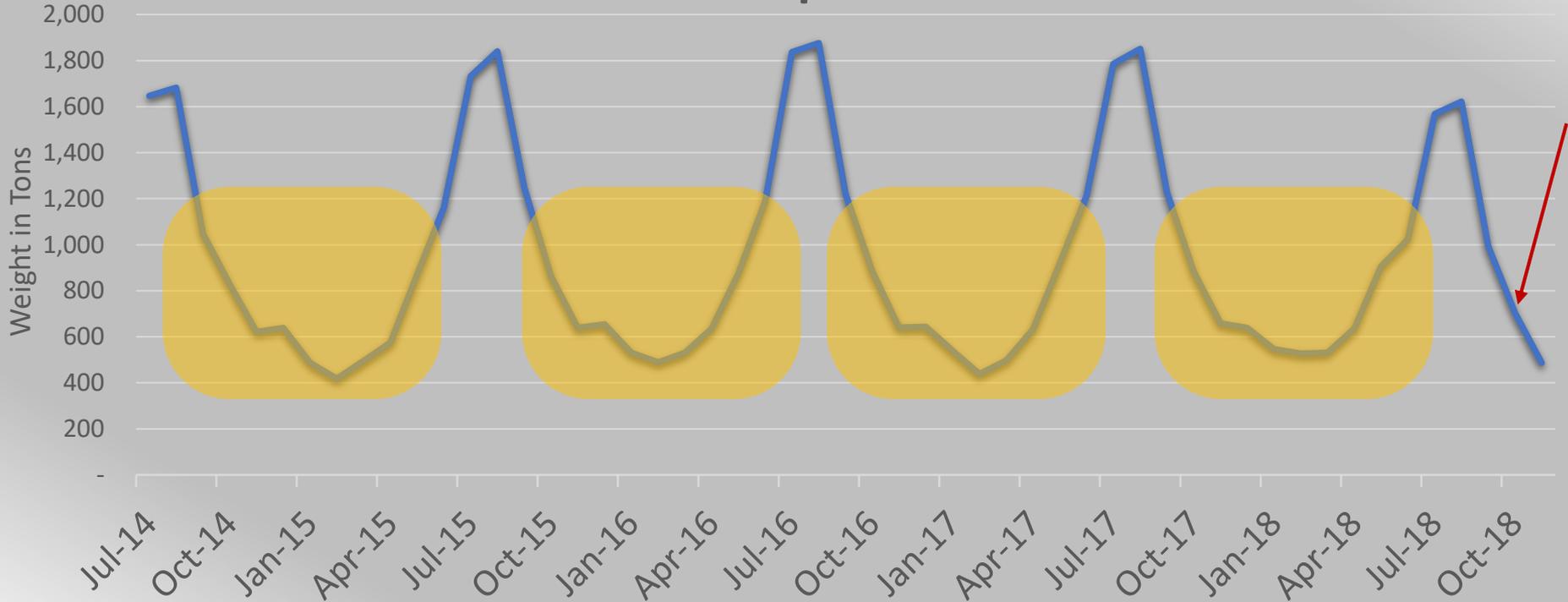




The Nantucket waste system is complex.



MSW Tons per Month



Our raw data contained many nuances.

General Category	Sub-Category	Total Wt (lb)	Wt % of Total	Total Month Oct 2018 (tons)
Paper	Paper and Cardboard	429	24%	169
Paper	Waxed Paper	30	2%	12
Paper	Corrugated Cardboard	79	4%	31
Organics	Compostable Organics	668	37%	263
Organics	Non-Compostable Organics	55	3%	21
Plastic	Non-recyclable plastics	158	9%	62
Plastic	Recyclable plastics	43	2%	17
Plastic	2020-Ban plastics	12	1%	5
Plastic	Films	93	5%	37
Plastic	Styrofoam	22	1%	9
Other Waste	Textiles	49	3%	19
Other Waste	Other materials	-	0%	-
Metal	Tin/alluminum	64	4%	25
Metal	Other metals	14	1%	5
Glass	Bottles/Jars	53	3%	21
Glass	Other Glass	4	0%	2
Electronics	Electronics	11	1%	4
Bulky Materials	Bulky Materials	-	0%	-
Total Samples		1,781	100%	702

1,781 lbs

of trash have been sorted in our waste characterization

That's about 400 people's daily trash output!

702 tons

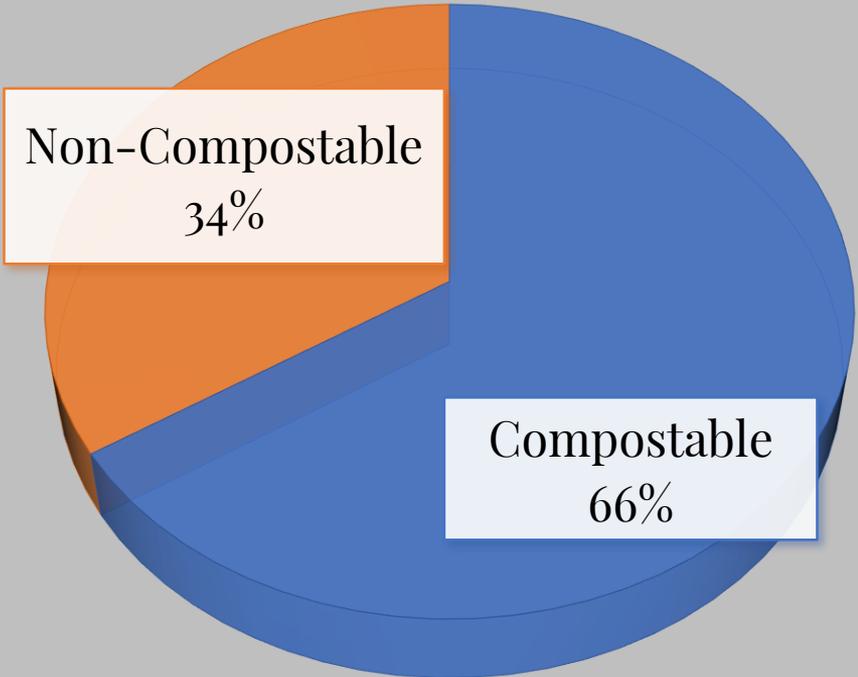
of waste was generated during October 2018
(that's about as heavy as 6 blue whales)



DIVERTIBLE

WASTE
Waste that can be diverted from the landfill
by being recycled or composted.

COMPOSTABLE VS. NON-COMPOSTABLE



Compostable | **Non-Compostable**

Paper

Everything else

Food waste



Non-Divertible Waste



Non-Recyclable
Plastics
9%



Films
5%



Non-Compostable
Organics
3%

Divertible Waste

Tin/Aluminum
4%



Textiles
3%



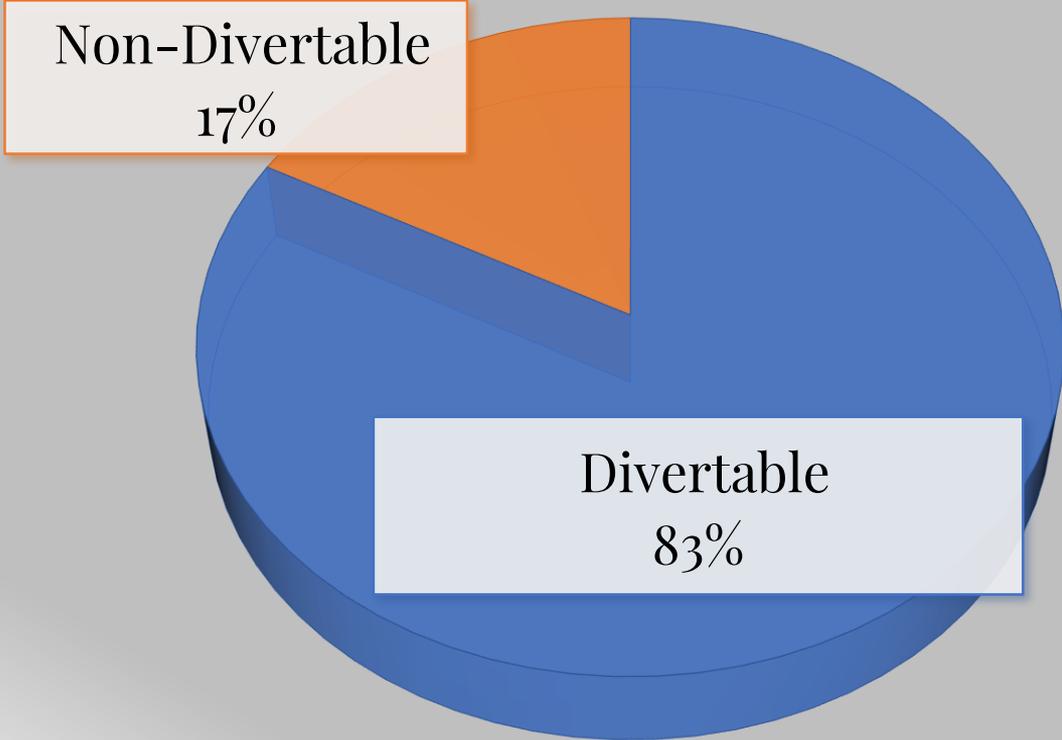
Bottles/Jars
3%



Recyclable Plastics
2%



DIVERTIBLE VS NON-DIVERTIBLE WASTE



Non-Divertible

Non-Compostable
Organics

Films

Non-Recyclable
Plastics

Divertible

Recyclables

Textiles

Compostable
Material



Conveying this kind of information takes some trial and error.



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NANTUCKET: WE RECYCLE LIKE NOBODY ELSE.

Trash	Glass	Plastics	Tin/Aluminum
Food, paper, and non-recyclables go in here. Everything in the trash gets composted.	Glass containers go into this bin. Any items that have non-glass parts go into regular trash.	Recyclable plastics should be collected and placed into this bin.	Aluminum and tin cans and objects can go into these bins. If there isn't a specific bin for this category, they can also go into the plastics.



Conveying this kind of information takes some trial and error.

NANTUCKET: WE RECYCLE LIKE NOBODY ELSE.

1 PLASTICS
ALL plastics go into the plastic bin; if it looks like plastic, put it here. This includes plastic bags and films!

2 TIN/ALUMINUM
Aluminum and tin containers such as cans go in here. This may sometimes be mixed with plastic.

3 GLASS
Glass containers such as bottles and jars go in here.

4 CORRUGATED CARDBOARD
Items such as shipping boxes belong here.

5 COMPOST
This is what makes Nantucket unique. A biodigester runs 24/7 breaking down anything compostable and ultimately diverting it from the landfill. Food waste and paper products go here.

The infographic features a yellow brushstroke background at the top. Below the title, five vertical columns of items are shown, each with a downward arrow pointing to a green bin labeled with a number. The items in each column are: 1. Various plastic bottles, bags, and containers. 2. Aluminum and tin cans. 3. Glass bottles and jars. 4. Corrugated cardboard boxes and pieces. 5. Food waste including a banana peel, a bone, and other scraps.

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It's very important to Nantucket as a unique island community to maintain the island's health and beauty. Here on the island, we use a special biodigester to break down organics from household waste and turn them into reusable soil. We all love Nantucket, so we recycle and use our biodigester as much as possible!

AT THE LANDFILL: WHERE DOES IT GO?



1 PLASTICS
ALL PLASTICS including common recyclables, bottle caps, plastic bags, and films.

2 TIN/ALUMINUM
Tin and aluminum items including beverage cans, soup cans, lids, and bottle caps.

3 GLASS
Glass containers such as bottles and jars of all colors.

4 CORRUGATED CARDBOARD
ONLY double-walled, corrugated cardboard; shipping boxes, for example.

5 ORGANICS
Food waste and paper products including non-corrugated cardboard and pizza boxes.

REMEMBER!

- ★ If it's going in the recycling, it needs to be clean and free of food waste or other contaminants. Otherwise, it may not actually be recycled.
- ★ Using clear garbage bags is a requirement on the island.
- ★ YOU can make a difference!

OTHER MATERIALS



Yard Waste and Brush

Yard waste such as leaves and trimmings can be disposed of at the landfill for free. Brush, such as logs and tree branches, can be disposed of at the landfill for a fee.



Bulky Items

Items such as appliances, mattresses, smoke detectors, and alkaline batteries can be disposed of at the landfill.



Hazardous Waste

There are six (6) Household & Commercial Hazardous Waste collection events per year. Items that may be collected during these events include:

NANTUCKET HOUSEHOLD & COMMERCIAL HAZARDOUS WASTE COLLECTION DAY

- AUTOMOTIVE PRODUCTS:** Antifreeze, Brake Fluids, Motor Oil, Oil Filters, Transmission Fluid, Solvents.
- CLEANING PRODUCTS:** Bathroom Cleaner, Drain Opener, Furniture Polish, Metal Polish, Oven Cleaner.
- PAINT & PAINT PRODUCTS:** Adhesives, Aerosol Cans (not empty), Epoxies, Paint, Paint Thinner, Paint Remover, Stains, Varnishes. NO LATEX PAINT.
- PESTICIDES:** Fertilizer (with Weed Killer), Fungicides, Herbicides, Insecticides, Rat Poisons, Weed Killer.
- OTHER PRODUCTS:** Asbestos*, Batteries (Mercury and Lithium), Driveway Sealer, Gasoline, Mercury (Flourescent Bulbs), Pool Chemicals, Photography (Chemicals), Fire Extinguishers and Aerosol Cans that are not completely empty (empty and clean aerosols are accepted in the metal bin).

Not collected at the landfill:

- SYRINGES and other sharps can be taken into to the Nantucket Fire Department. Please contact them at (508) 228-2323.
- MEDICATION can be disposed of at local retail pharmacies during sanctioned and scheduled "Take-Back Days."
- Harbor Fuel takes HOME HEATING OIL TANKS for a fee. Please contact them at (508) 228-2950.
- PROPANE TANKS for grills can be taken to Yates Gas. Please contact them at (508) 228-0725.
- For AMMUNITION and EXPLOSIVES please contact the Nantucket Public Safety Facility at (508) 228-1212
- LATEX PAINT is non-hazardous and will not be accepted. Mix the can of latex paint with kitty litter, let harden and dispose of cans at the landfill in the metal bin.

For more information, visit www.nantucket-ma.gov/242/5olid-Waste-or-call-Waste-Options at (508) 228-4283. The Nantucket Landfill is located at 184 Madaket Rd.

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AT THE LANDFILL, WHERE

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1 PLASTICS
ALL PLASTICS including common recyclables, bottle caps, plastic bags, and films.

2 TIN/ALUMINUM
Tin and aluminum items including beverage cans, soup cans, lids, and bottle caps.

3 GLASS
Glass containers such as bottles and jars of all colors.

4 CORRUGATED CARDBOARD
ONLY double-walled, corrugated cardboard; shipping boxes, for example.

5 ORGANICS
Food waste and paper products including non-corrugated cardboard and pizza boxes.

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Tin and aluminum items including beverage cans, soup cans, lids, and bottle caps.

Glass containers such as bottles and jars of all colors.

CARDBOARD ONLY double-walled, corrugated cardboard; shipping boxes, for example.

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Conducting a Waste Characterization on Nantucket

A How-to Guide



The guide provides a structure for conducting a waste characterization study for any place interested.

Planning

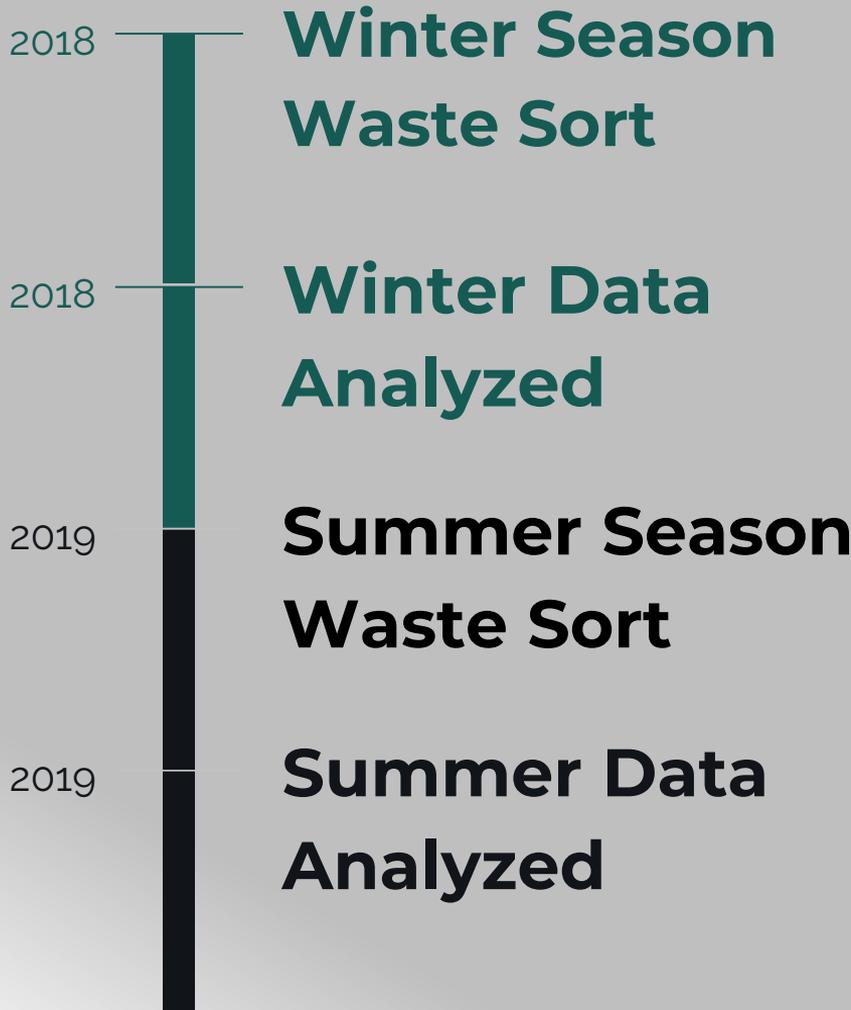
- **Categories**
- **Planning the Details**
- **Choosing the Location**

Action

- **Conducting the Sort**
- **Data Collecting**
- **Reflections**

Analysis

- **Spreadsheets**
- **Messaging**
- **Outreach**



The guide will ensure a baseline for the waste characterization process, while allowing the process to evolve for future needs.

Acknowledgements

- Advisors Scott Jiusto and Fred Looft
- Nantucket DPW
- Graeme Durovich
- Robert McNeil
- J.P. Caron
- Young's Bike Shop
- **Stubby's**
- Remain Nantucket
- The Shipwreck Museum Folks
- **Nantucket Yacht Club**
- Harvey, Vin and Peter

Thank you!

