IDENTIFYING STRATEGIES FOR WASTE REDUCTION & DIVERSION

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INSTRUCTORS FOR THE DAY!

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TALKING POINTS

- Defining the Terms
- RSA 149-M
 - 2022 Solid Waste Management Plan
- Waste Reduction Strategies
 - Implementation Ideas
- Waste Diversion Strategies
 - Implementation Ideas
- Discussion How will we affect change in NH for managing of solid waste?





Waste Reduction: the practice of eliminating waste before it is created



Waste Diversion: managing solid waste in a way that avoids disposal

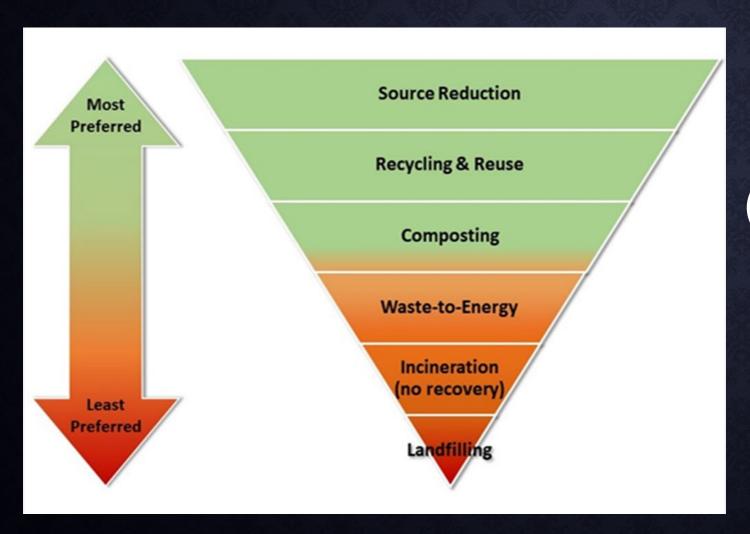


Disposal: depositing solid waste in a landfill or incinerator



Reuse: using a product more than once without significant alteration

DEFINING THE TERMS



RSA 149-M:2

Reduce the quantity
(by weight) of MSW and C&D
disposed by
25% by the year 2030,
and by
45% by the year 2050.

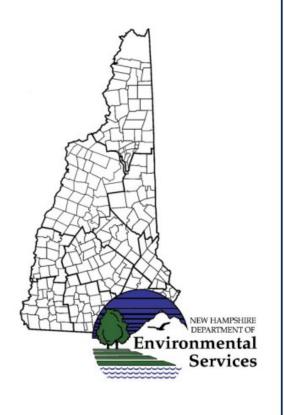
RSA 149-M:3 NH Waste Management Hierarchy

8 goals, 76 actions

Use the plan's 10-year framework to achieve statutory goal

(RSA 149-M:2)

Actions are for EVERYONE!



NEW HAMPSHIRE

SOLID WASTE MANAGEMENT PLAN

SEPTEMBER 30, 2022

Prepared by the New Hampshire Department of Environmental Services

WASTE REDUCTION

Let me count the ways















RETHINK

WASTE OR SOURCE REDUCTION







TOXICITY



REUSE



BAGGING & SMART PURCHASING

- Reusable, cloth bags (including produce bags)
- Buy non-perishables in bulk
- Beware the "Buy 1 Get 1..2..3 FREE!"

<u>Plastics Working Group</u> of NH Network – <u>10 Towns, 10 Actions Toolkit</u> to help towns reduce and rethink plastic through education, policy, and infrastructure.

STOP WASTING FOOD

- Meal prep
- Store food properly refrigerate or not?
- Understand what the date labels mean

WASTE REDUCTION

GROCERY STORE EXAMPLE

SaveTheFood.com



VOLUME/WEIGHT - WASTE AUDITS

"What's not really a waste? What can I salvage and reuse?"

Waste audits can be...

- EASY!
- SIMPLE or complex whatever works for you!
- USED BY ANYONE! (homeowners, businesses, solid waste facilities, schools, institutions)
- Identify and weigh: waste types, quantity, volume
- Target and adjust waste practices
- Track, compare before/after results, reward yourself!



TOXICS IN PACKAGING



"Innovative" marketing feature: blinking lights powered by electronic circuitry ... with lead solder





TOXIC PRODUCTS

AVOID consumer goods with PFAS – "non-stick" and waterproof

- Teflon cookware, makeup, fast food wrappers, rain gear, baby products, carpets, etc.
- List of PFAS-Free Products

AVOID creating HHW – seek low-toxic/DIY alternatives

Use takeback programs

- <u>Lead fishing tackle</u> buyback program
- Car batteries swap at local retailer for discounted price on new battery
- Prescription drug takeback programs
 - Donate unused, unexpired medications <u>State Prescription Drug and Reuse Programs</u>
 - Expired? Bring to a NH <u>drop off site</u> (anonymous)





REUSE





"ONE MAN'S TRASH IS ANOTHER MAN'S TREASURE"

- "Swap Shop"... "Goody Shack" ... "Mini Mall"
 - Communicate clear boundaries. What's accepted? Is pre-approval required?
 - Recruit reliable volunteers to monitor
- Pop-up swap events
- Community yard sales
- Fix it/repair events
- Online markets
 - (e.g., Facebook Marketplace, "Buy Nothing" Facebook Groups, <u>Freecycle.org</u>)
- Donation clothing, furniture, toys



IRN: THE REUSE NETWORK

Outlet for large generators...
Colleges, corporations, K-12 schools, healthcare facilities

Example

IRN recovered sets of dorm furniture from Southern NH University

- 1,029 pieces including 240 each of beds, desks, chairs, and wardrobes
- 3 shipping trailers filled on each of the 3 days
- Where did it go? Mongolia, Armenia, Somalia, El Salvador, Nicaragua



Repurpose your town equipment, supplies, and vehicles!

Shop DEEP DISCOUNTS for work or personal use!

REUSE:

"WHITE FARM" (CONCORD, NH)





STATE SURPLUS PROGRAM

"White Farm" redistributes municipal, state, and TSA airport property within NH.

Amy Farnum – oversees surplus program and state solid waste contracts

RETAIL STORE

• Power drills/saws, furniture, office supplies, TVs, electronics, clothing, appliances, and MORE!

LIVE AND ONLINE AUCTIONS (2x/year – May & Oct.)

- State trucks, plows, fleet vehicles
- Boats, kayaks, ATVs
- Pallet jacks, chain saws, tires, 64-gal waste bins



Store and auctions open to municipalities, state agencies, and the public









WHITE FARM
RETAIL STORE

(603) 271-3241 surplus@nh.gov





FEDERAL SURPLUS PROGRAM

White Farm also redistributes <u>federal property</u> from miliary installations, federal agencies, and government contractors.

Only 4 NH towns are signed up... but easy to do!

Access huge discounts on expensive equipment!

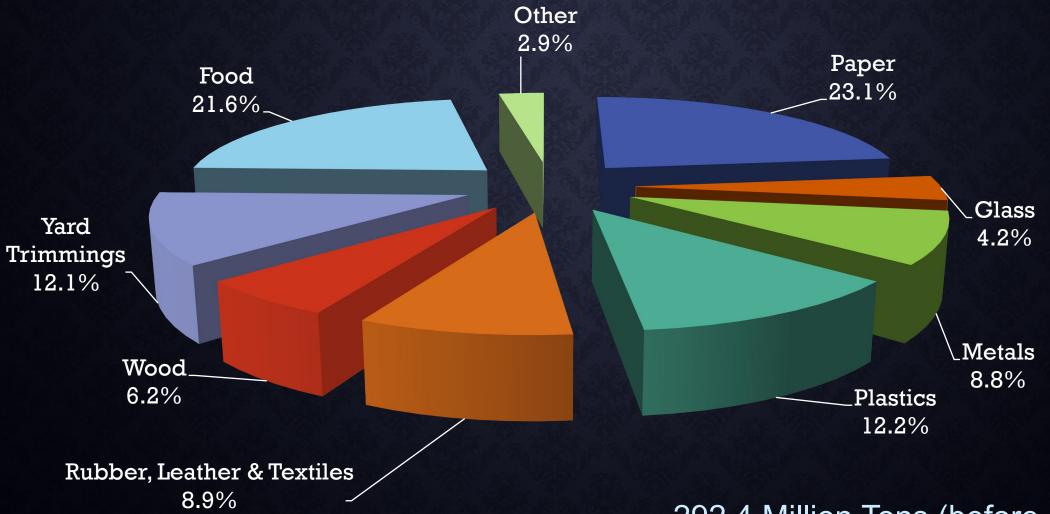
Email Amy Farnum at federal.surplus@das.nh.gov

Town of New Boston purchased a used truck from Idaho for \$28,000 to be used at their transfer station (1 month turnaround). A new truck would have cost \$60,000.

WASTE DIVERSION

Tips for How to Bring Waste to the SW Facility

MSW GENERATION IN THE US (2018)

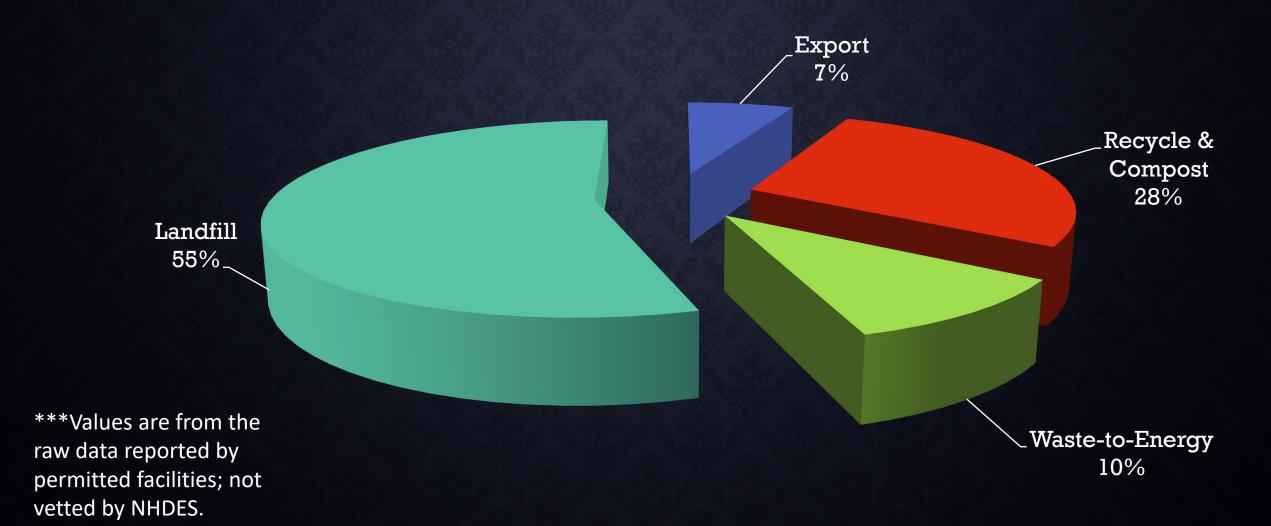


292.4 Million Tons (before recycling)

*EPA: National Overview: Facts and Figures on Materials, Wastes and Recycling

2018 NH GENERATED SW MANAGEMENT

(1.7 MILLION TONS)



DIVERSION METHODS



RECYCLING



FOOD SCRAP COLLECTION



COMPOSTING



ANAEROBIC DIGESTION



PAY AS YOU THROW



HHW

RECYCLING



Single Stream

Source Separation

Dual Stream

Curbside

Drop-Off Facilities

Mandatory Recycling Ordinance

Bag Checks

Town Solid Waste/Recycling Committees



COST? CONVENIENCE? MATERIAL RECOVERY? ENVIRONMENTAL IMPACTS?

This?...

Curbside pickup



... or this?

Transfer Station Drop-Off





COST? CONVENIENCE? MATERIAL RECOVERY? ENVIRONMENTAL IMPACTS?

This?...



... or this?

Source Separated Recycling





LOCAL ORDINANCES MANDATORY RECYCLING

Recycling is Mandatory!

Penalties: The Select Board, as enforcing officials, may utilize summons and notice of fine procedures as authorized by RSA 149-M:13 and RSA 502-A:19-b.

1st Offense: Warning plus disposal costs if any

2nd Offense: \$25.00 fine in addition to disposal costs if any

3rd Offense: Loss of facility privileges plus disposal costs if any

Failure to pay tipping fees is theft of a service and subject to fines, loss of facility privileges and/or arrest.

10.5.3 RECYCLABLES

(a) Recycling shall be <u>mandatory</u> in the Town of Gilford. A person may be deemed to be in violation of this provision if the contents of any trash container consists of five percent (5%) or more of recyclable products, as determined by a staff member.

(e) The Town reserves the right to inspect every load of recyclables that is brought to the Gilford Solid Waste Center, and to refuse acceptance if deemed to be in violation of these regulations as determined by a staff member.



Ordinance sets the violation thresholds & enforcement actions.

Town of Gilford



LOCAL ORDINANCES

BAG CHECKS

Yes, you're ALLOWED to do random bag checks to recover valuable materials!

Residents have decided...." I can't use this. I don't want this. This is trash."

Once it's dropped off, it is no longer their personal property. It's TRASH.

Pushback from community?

Write it in your operating plan!

Include safety measures – bag contents are unknown





LOCAL ORDINANCES

MUNICIPAL SOLID WASTE/RECYCLING COMMITTEE

Town-recognized committees/advisory boards in...

Bow, Bristol, Concord, Hillsborough, Hopkinton, Kingston, Lee, Loudon, Madison, New London, Pembroke, Sanbornton, Waterville Valley... and MORE!

Example responsibilities:

- Sounding board for community matters around solid waste
- Advocate for staff and facility needs
- Assist with bids/proposal reviews for contracts
- Help with public education



DON'T HAVE A MUNICIPAL COMMITTEE? RESIDENT SOLID WASTE/RECYCLING GROUPS

Ad-hoc/volunteer groups

- Sandwich Climate Action Coalition
- Tamworth Recycling Project helped secure \$493,000 grant for transfer station upgrades
- WoTu (Wolfeboro-Tuftonboro) Sustainability Cooperative received several grants for multi-camp food waste diversion program totaling ~\$40,000

Less administrative responsibilities

Useful for public education, organizing community events, volunteering, grant writing





Different types of batteries have different handling methods:

- Alkaline dispose in trash
- Lithium ion (rechargeable) and button-cell batteries bring to HHW collection event or facility
- Wet-cell batteries banned from disposal in NH

Find a <u>Call2Recycle drop-off location</u> near you! You may also obtain a box for your facility.

On-Demand SWOT Workshop: <u>Batteries and HHW</u>

Factsheets:

All About Batteries

<u>Take CHARGE of Your Batteries!</u> (Poster)

BULKY WASTE

Mattresses, couches, chairs, tables, large auto parts (non-greasy/oily parts), lawn furniture... Each facility handles it differently.

Some bulky waste contain hazardous materials or attributes that can be of concern.

• Think about furniture with electronics (e.g., automatic recliners)

Are any items still usable?

- Reupholster
- Donate to thrift store, Habitat for Humanity, reuse centers, consignment
- IRN Reuse Network (for businesses/institutions)

Dirty, stained mattresses can be used as dumpster toppers

- PDF of SWOT presentation: <u>Bulky Wastes</u>: Increasing Reuse & Recycling in Rural Areas
- NEWMOA Bulky Waste Factsheet

CARDBOARD

Corrugated cardboard vs. Paperboard (cereal & cracker boxes)

REUSE A BOX UNTIL IT BREAKS!

ONLY recycle DRY cardboard – no food residue or hazardous chemicals

Corrugated pizza boxes?

Recycle the top and sides if clean. No grease or cheese.

*If you're not sure, check with your vendor.

CONSTRUCTION & DEMOLITION (C&D)

Bricks, concrete, wood, plaster, drywall, non-asbestos insulation or roofing shingles, asphalt pavement...

C&D is expensive to dispose. Fees based on volume (eye-balled) or weight.

DO NOT BURN! It is illegal.

Deconstruction ("green demolition") – salvage materials for reuse; educate residents about their options... www.deconstructionworks.com ... https://reusewood.org

- On-Demand SWOT Workshop: <u>Introduction to C&D Debris Management</u>
- <u>C&D Quick Resources</u>
- Fact Sheet: Management of Collected Debris Following Severe Storm Events

ELECTRONICS

Laptops, computer towers, cell phones, TV's, DVD players, gaming systems...

REPAIR your technology.

DONATE used, functioning cell phones to veterans, shelters, etc. – some *Call2Recycle* locations take cell phones to refurbish or recycle.

TAKEBACK PROGRAMS are available at Best Buy and all Staples locations.

BUY REFURBISHED phones, laptops, gaming systems at www.backmarket.com

- On-Demand SWOT Workshop: <u>Electronics Management BMPs</u>
- Computer and Electronics Recycling Vendors



METAL

Microwaves... can be recycled with electronics OR scrap metal. Does it have a capacitor?

NRRA Safe-Handling of Microwaves

Propane Tanks & Aerosols

- AmeriGas & Blue Rhino exchange programs for any propane tanks; 15 lbs. or more
- Small, 1 lb. non-refillable tanks scrap metal?
- Aerosols recently added to the list of Universal Wastes (Env-Hw 1115)

Facts:

- Aluminum can be recycled indefinitely! Uses 95% less energy
- Steel/Tin "does it stick to this magnet?"

PAPER

Newspaper, mixed paper (paperboard), magazines, egg cartons, junk mail...

Animal shelters can use newspaper in kennels and crates.

U.S FTC Consumer Advice to STOP JUNK MAIL!

\$4 fee for a 10-year registration

- Less mail from marketers
- Stop credit card and insurance offers

NO-COST "Do Not Contact" registration lists* for a...

- Deceased person
- Dependent in your care

PLASTICS

PLASTICS RECYCLING A QUICK GUIDE TO \$\frac{1}{4}\$ NUMBERS







YES, RECYCLE! Items include soda and water bottles, milk and juice jugs, shampoo and cleaning bottles.







NO, TOSS IT. Items include plastic wrap and food trays, cooking oil containers, vending cups, vinyl and styrofoam products.





MAYBE, ASK? Items include yogurt containers, shopping, and dry cleaning bags

Plastic bags, film, wrap?

<u>Drop off at a retail location</u> or grocery store or with collection boxes near the entrance/exit.

...or maybe collect at your facility?

Opportunity to obtain a baler for free through <u>Next Trex</u> rebate program for collected plastic films.

STYROFOAM

Expanded Polystyrene ("Styrofoam") = #6 plastic

Did you know? Styrofoam is...

- 98% AIR
- 2% PLASTIC

Gilford Styrofoam Recycling Program

• Brochure and flyer with public drop-off instructions





STORE

SELL











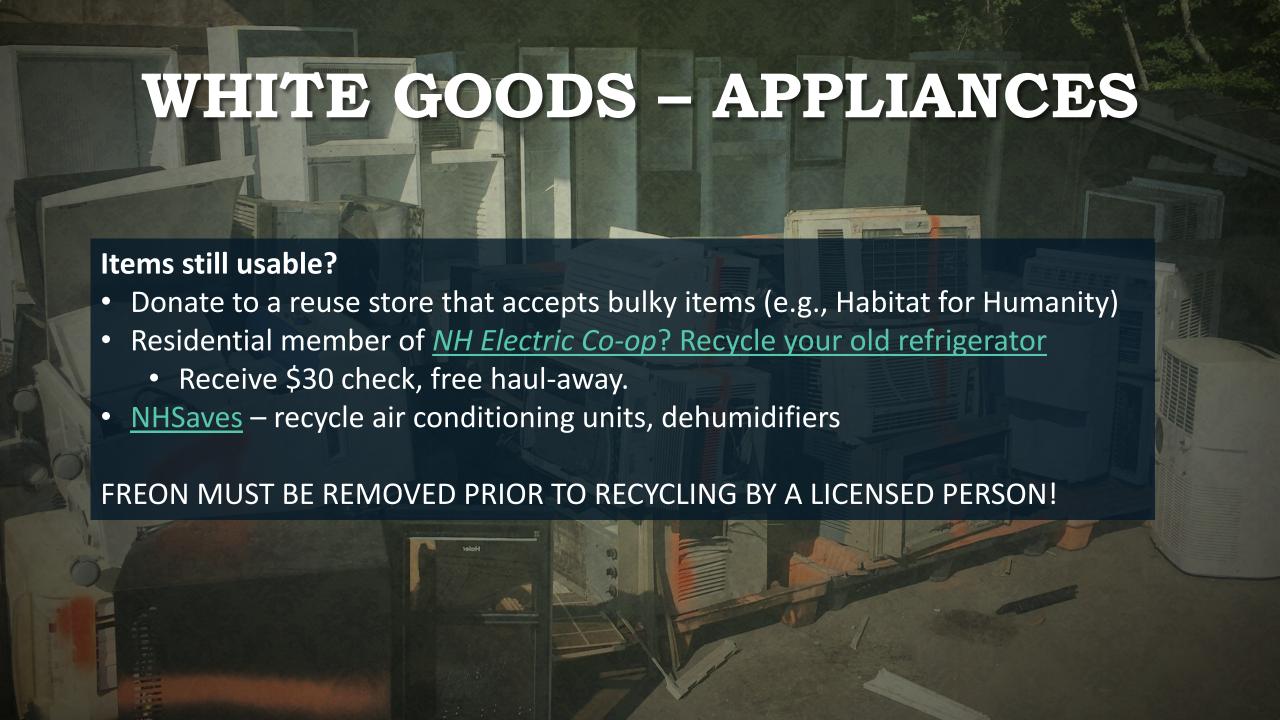
Swapping out your winter clothes with your spring clothes? Do you have old sheets, towels, footwear?

Donate to local thrift store!

Check on seasonality of accepted items.

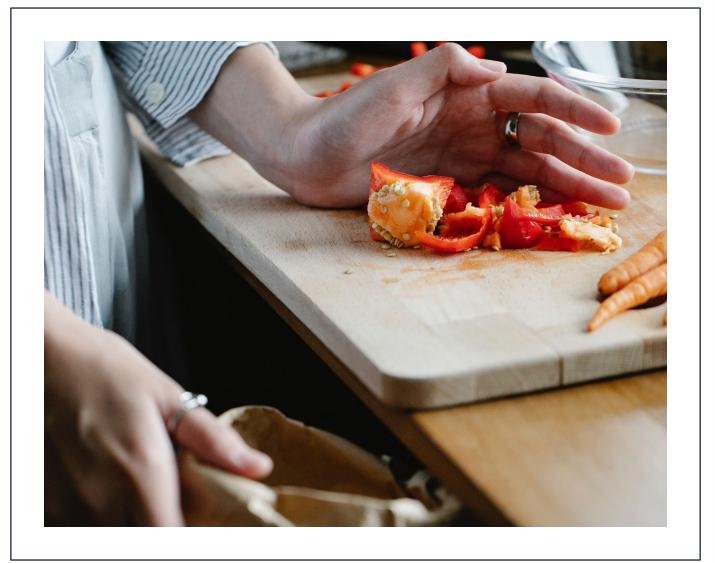
Drop-off collection bins: <u>Apparel Impact</u>, <u>Ecosmith Recyclers Inc.</u>, <u>Helpsy</u>
Check the standards for clothing conditions.

Auto shops/mechanics may use old, stained clothes as shop rags



RECYCLING EDUCATION RESOURCES

- NRRA <u>Recycle Right Campaign</u> videos, tips & tricks, recycling myths, case studies
 - Ready-to-go posts for social media and your town website
- The Recycling Partnership "What Can I Recycle?" automated chat response system
- RCap Solutions <u>Solid Waste & Recycling Resources</u> for communities and individuals



FOOD SCRAP COLLECTION





FOOD SCRAP COLLECTION

Collect source separated food scraps to be picked up for processing off site.

The Impact...

Each year, 40% of food produced is wasted.

We spend **\$218 BILLION** a year on food that is **NEVER eaten**.

Food waste is 20-30% of the solid waste stream.

Food Scrap Collection

Check your facility permit and operating plan.

Use a private hauler or partnership agreement with a farm.

Env-Sw 408.08 permit-exemption for "middle man" drop-off locations (food banks, co-ops, churches, etc.)

Education

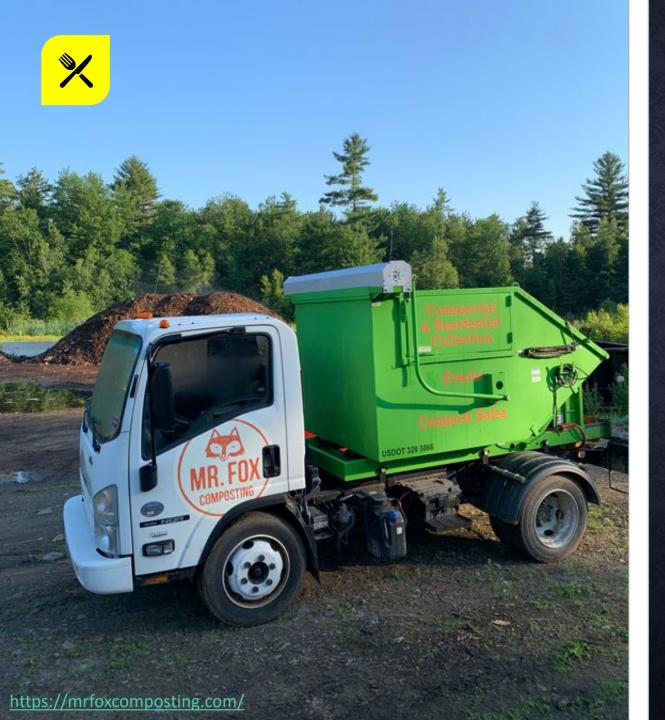
WHO can participate?

WHAT is accepted?

WHEN/WHERE should food scraps be dropped off?

HOW does it need to be prepped?

WHY does it matter?



PRIVATE HAULERS* FOR CURBSIDE FOOD SCRAP PICKUP

NEW HAMPSHIRE Providers

- Elm City Compost (Keene)
- Grow Nashua
- Mr. Fox Composting (Southeast NH)
- Renewal Garden & Compost (Greater Manchester Area)

NEW ENGLAND Providers

- AgriCycle
- City Compost
- Vanguard Renewables



EXAMPLES FOOD SCRAP DROP-OFF PROGRAMS

Residents separate food scraps at home and drop-off at the transfer station.

City of Portsmouth

Picked up by

Mr. Fox Composting

Mr. Fox also picks up from Towns of Lee and Rye, NH

Town of New London

Picked up by

Renewal Garden & Compost

Town warrant article allocated \$12,000 to expand pilot to more residents

Town of Hopkinton

Pilot (2021) with 12 households

3 month data collection project

Work Song Farm takes food scraps from farmers market, residents, CSA members.



COMPOSTING





THE BASICS

Microbes thrive in the "just right" (Goldilocks) conditions

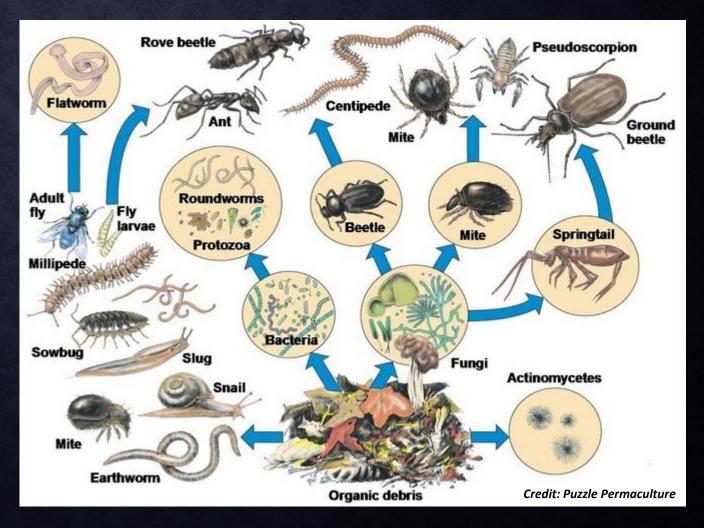
Food + Air + Water = Heat

Microbes convert organics into valuable, nutrient rich compost.

Vs.

Food in Landfills = METHANE!

Your compost pile is a mini ecosystem!



HOME COMPOSTING DEMONSTRATION AREA







WHAT GOES IN FACILITY COMPOST?

Fruit & vegetable scraps, peels	Meat & bones	
Nuts & nut shells	Dairy	
Egg shells	Oils, fats, grease	
Coffee grounds/filters	Seafood shells	
Tea bags	"Tough" food scraps & pits	
Bread, pasta, rice, beans	Weeds that have gone to seed	

Cat/dog waste or kitty litter

Fruit stickers

Staples

Trash

Wood shavings, sawdust Leaves, garden trimmings Livestock bedding Straw, hay Napkins & shredded paper

Things to consider...

- Facility vs. backyard composting
- Both need an assorted mix of "browns"
- Monitoring, record keeping, reporting



COMPOSTING OPTIONS ENV-SW 600

Permit-Exempt

Backyard composting

On-site generator composting (schools, farms, businesses)

Animal carcass composting

Municipal Transfer Stations with a:

Permit-by-Notification

Update your operating plan and describe food scrap management and notify NHDES.

Standard Permit

Apply for a...

PbN for Small Composting Facility

Public & Private businesses





EXAMPLES MUNICIPAL COMPOSTING PROGRAMS

Residents separate food scraps at home for on-site composting at transfer station.

Town of Hollis

Pilot on-site composting open to select number of residents

Town of...

Bedford

Peterborough

Dublin

composts at their transfer station under a separate permit.

City of Lebanon

Expanded to residents of authorized communities using the Lebanon landfill.

22 towns

(10 NH, 12 VT)



ANAEROBIC DIGESTION

How Does Anerobic Digestion Work?

Manure (e.g., dairy, swine, beef,

poultry)



Wastewater Biosolids

(e.g., municipal sewage sludge)



Food Waste

(e.g., household, restaurant, cafeteria, grocery, food production)



Other Organics

(e.g., energy crops, fats, oils, grease, crop residue, winery/brewery waste)

A series of biological processes where microorganisms break down biodegradable material in the absence of oxygen.



Feedstocks can be digested singularly or in combination (co-digestion)

Anaerobic Digestion

Products



Digestate



EXAMPLE

Hollis Public School uses Vanguard Renewables



Bioproduct

Feedstock

(e.g., bioplastics)



Vehicle Fuel Heat

Biogas



Renewable **Natural Gas**



Organic **Fertilizer**



Animal Bedding



Other **Products**

(e.g., building material)



Crop Irrigation

FOOD SCRAP MANAGEMENT RESOURCES

- Env-Sw 600 Composting Rules
- NRRA Food & Yard Scrap Services in NH
- NRRA <u>Municipalities with Composting Programs</u> (NH/VT)
- NEWMOA Backyard Composting Guide & Video: How to Compost At Home
- Composting Association of Vermont (CAV) On-Farm Composting Toolkit
- ILSR Community Composting BMP Guide



PAY AS YOU THROW

(PAYT)





BENEFITS OF PAYT

- Treats waste management as a utility.
- Residents only pay for what they generate.
- Reduces disposal costs for communities.
- Revenue from (bag) sales will offset disposal costs.
- Reduces or eliminates need to raise taxes or fees due to waste disposal.
- Preserves tax revenue for other uses.
- Incentive to reduce, reuse, recycle, compost.
- Saves landfill space/need for more capacity.
- PAYT systems are flexible.

<u>UNH research (2018)</u> studied 34 towns with PAYT. All saw a 42 – 54% drop in municipal waste disposal rates compared to towns without PAYT.



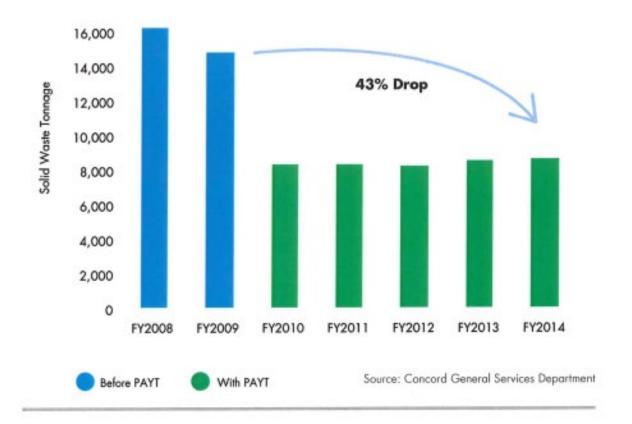
PAYT - TAILOR TO YOUR COMMUNITY

- Bag town approved waste bags in a variety of sizes purchased locally by residents.
 - Special, brightly-colored town bags
 - Clear, transparent bags
- Tag or Sticker town approved tags or stickers that can be affixed to residents' own bags.

- Punch Card residents purchase cards locally and pay for various units of waste in advance. Attendant at drop-off facility punches card, depending on weight or volume.
- PAY-for-your-EXCESS Households get one unit of waste "free" then pay for any additional waste.



CONCORD NH SOLID WASTE TONNAGE



CONCORD, NH

In the program's first 5 years:

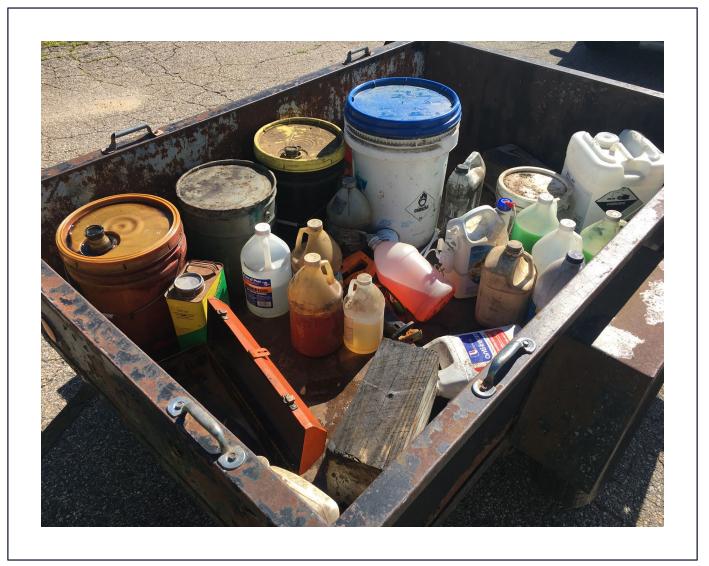
- 43% decrease in solid waste tonnage
- 36% recycling rate (13% before PAYT)
- Decrease in city's disposal costs

Other <u>PAYT Experiences</u> (NH Municipalities)



PAYT QUESTIONS, CONCERNS, ASSUMPTIONS

- "There will be more roadside litter and illegal dumping"
- "I don't want to have to pay extra for a bag"
- "It's going to be hard to teach the facility users."
- "Won't adjust."
- "Not worth the hassle."
- "It is going to cost the town more in staff hours and dealing with logistics."



HOUSEHOLD HAZARDOUS WASTE



Find a <u>HHW collection</u> event near you!



ACRYLIC/LATEX PAINT

(water-based)

REUSE

- Paint swap with your neighbor
- DONATE full or mostly full cans of paint to:
 - Habitat for Humanity for details, call 1-800-HABITAT (1-800-422-4828)
 - Local school, recreation center, child care facility for art projects

DISPOSE

"How To" Quick Guide – Leave acrylic/latex paint out to air dry

½+ can? Mix with shredded newspaper, sawdust, kitty litter, or commercial paint hardener.

OIL-BASED paint, stains, varnishes are HHW – bring to a hazardous waste facility or collection event



E-CIGARETTES/VAPES

NICOTINE IS AN ACUTE HAZARDOUS WASTE. E-liquid or "vape juice" containing nicotine must be brought to a HHW collection or hazardous waste facility. NEVER dump nicotine waste down the drain.

EMPTY containers or "pods" of e-liquid may be disposed of in the regular trash.

Some vapes are rechargeable for long-term use; others are disposable after short-term use.

Rechargeable, lithium batteries should NEVER be thrown in the regular trash.

NHDES Factsheets

- Management of Vaping Liquids, E-Cigarettes and Nicotine Waste
- Management of Vaping Liquids in Schools



SAFE STORAGE & DISPOSAL E-CIGARETTES/VAPES

NEVER throw vaping devices in the household trash!

Bring to HHW collection event or permanent facility.
 Avoid stockpiling vaping devices.

 Put swollen or damaged devices in a separate closed, watertight, storage container such as a plastic pail or bin.
 Add fire containment material (sand, kitty litter, vermiculite)



 Wear safety equipment (e.g., gloves, apron and eye protection) when handling damaged vaping devices.

NOW WHAT?

How do YOU pass this knowledge on?

THANK YOU PETERBOROUGH AND SHARON RECYCLERS, FOR MAY YOU RECYCLED TONS OF: TONS OF:

6.4 NEWSPAPER
6 CARDBOARD
13.34GLASS

FOOD WASTE

15.6 MIX PAPER 2.86 PLASTICS

5.58 IEXTILES

1.23 STEEL CANS

.57 ALUMINUM CANS

TOTAL TONS: 53.5

BY RECYCLING A TOTAL OF 53.5 TONS, YOU AVOIDED PAYING \$5831.50 IN DISPOSAL FEES (\$109/TON x53.5 RECYCLED TONS) PLUS YOU GENERATED \$ 3373.18 IN REVENUE: THANK YOU FOR DOING YOUR PART IN SAVING US \$ 92.64.68 IN TAX DOLLARS AND PRESERVING OUR NATURAL RESOURCES

"MONEY MADE FROM THE SALE OF RECYCLED PRODUCTS"

TAMWORTH RECYCLING PROJECT



- Public education
- School mural
- Grants

Pop up...

- Swap shop event
- Styrofoam collections









COMMUNITY EFFORTS

SW Facility	Residents	Town Officials
Speak up professionally!!!	Do your part!!!	Work with SW Staff!!!
Host school visits	Know the laws & rules	Proper budgets
"How to" demonstrations	Volunteer	Be proactive
Reach out & train volunteers	Ask Questions	Visit other facilities
Old Home Day		Grant opportunities

Make this an effective partnership!!!!!