The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

September 30, 2022

Dear Solid Waste Stakeholders:

The New Hampshire Department of Environmental Services (NHDES) is pleased to present the 2022 update of the New Hampshire Solid Waste Management Plan. The plan, which has been prepared pursuant to RSA 149-M:29, sets out goals, strategies and actions for improving solid waste management in the state over the coming ten years. How we manage solid waste affects every citizen and vistor to our state, and is a topic of keen interest. With the publication of this plan, we are excited to get to work implementing the strategies and actions that it sets forth.

In preparing the plan, NHDES obtained input from the Solid Waste Working Group established under RSA 149-M:61 and made the draft plan available for public comment. The public comment period began on August 2, 2022 and concluded August 26, 2022. We received comments from 74 individuals and organizations. NHDES appreciates the high level of interest and attention given to the draft plan, which confirms that the public is engaged and concerned about solid waste management in New Hampshire. NHDES staff carefully read and considered each comment with the goal of incorporating as many of the suggestions as appropriate into the finalized plan. The resulting edits significantly strengthened the plan.

We did not incorporate certain categories of suggestions into the plan. We did not modify the plan to address comments urging NHDES to take a more direct role in advancing specific legislation and commit to implementing new policies that are not yet authorized in law. NHDES does play an active role in the legislative process, including requesting specific legislation, providing technical support and information to the legislature on proposed legislation, and where appropriate, testifying in support of or opposition to specific bills. However, the agency does not act in this regard unilaterally, or without consideration of changing circumstances and new data. Therefore, it would be imprudent to commit to specific law changes, or policies not currently authorized by law.

A number of comments called for more specificity in the plan, but in many cases, specificity will only be possible after completing other actions included in the plan. For example, completion of waste characterization and generation studies, Action 4.5 of the plan, are foundational to many of the other actions in the plan. Only after analyzing the data from these studies can details be provided for actions such as identifying which waste types should be prioritized for waste reduction and diversion, and what facility infrastructure will be necessary to facilitate diversion.

Commenters also requested that the document be modified to describe how the plan will be implemented, including detailing tasks, assignments, deadlines and metrics. It would not be prudent or useful to predict the details of ten years of implementation, because the actions in the plan are dependent on each other and a multitude of changes affecting implementation will take place over the ten-year period. In lieu of providing details of implementation, the plan establishes a framework to guide New

Hampshire's solid waste management for the next ten years. Under this framework, NHDES will use short-term implementation plans to prioritize actions, measure progress, and track timeframes for completion. As activities are completed, the results will be documented and evaluated to inform new short-term implementation plans. Only through this process of adaptive management can our work be responsive to information obtained, actions taken, and changing circumstances in the solid waste management industry over the ten-year period. Every two years, the Biennial Solid Waste Report will document our progress on employing the strategies of the plan to complete actions that advance the plan's goals.

NHDES appreciates the engagement that the public has shown through the public comments on the plan. Although we did not incorporate edits to address every suggestion we received, we are confident that the plan, as published, provides an essential framework for the next ten years of solid waste management planning activities in the state. The level of attention and concern demonstrated through these comments bodes well for New Hampshire's success in achieving the plan's goals, because success will depend upon active participation from everyone. Thanks to all who have participated in this process – we look forward to working with you toward a better, more sustainable solid waste management system for New Hampshire!

Sincerely,

Robert R. Scott
Commissioner

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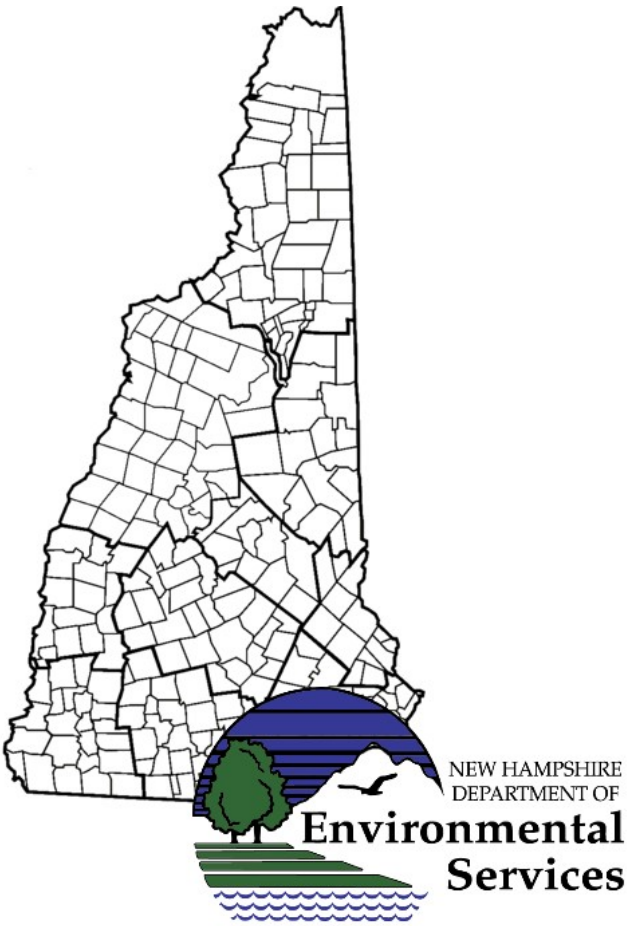

NEW HAMPSHIRE

SOLID WASTE MANAGEMENT PLAN

SEPTEMBER 30, 2022

Prepared by the New Hampshire Department of Environmental Services

State of New Hampshire
Department of Environmental Services

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Table of Contents

Executive Summary

This Solid Waste Management Plan provides a framework for reducing and managing solid waste that is generated, reused, recycled, or disposed in New Hampshire. This 2022 plan outlines eight goals:

1. Reduce the quantity of solid waste generated.
2. Reduce the toxicity of the solid waste stream.
3. Maximize the diversion of residential, commercial and industrial solid waste from disposal.
4. Ensure adequate capacity for management of New Hampshire-generated waste.
5. Develop local markets for waste diversion.
6. Encourage solid waste infrastructure and practices that support State and Federal climate change initiatives.
7. Ensure that solid waste policies and regulations support State and Federal environmental justice initiatives.
8. Ensure sustainable funding source(s) to support solid waste management initiatives.

The plan provides strategies for achieving each of these goals. Supporting actions are then described and grouped by strategy type. This is a ten-year plan to be carried out by the New Hampshire Department of Environmental Services (NHDES), public and private stakeholders, as well as the general public.

The majority of goals and actions in this plan are intended to achieve the state's overarching disposal reduction goal established in RSA 149-M:2 – which aims to reduce disposal of municipal solid waste (MSW) and construction and demolition debris (C&D) by 25% by 2030 and by 45% by 2050. This overarching goal applies to all MSW and C&D disposed in New Hampshire's landfills and incinerators, regardless of the source or state of origin. Reducing disposal rates requires investments in source reduction and diversion methods consistent with the New Hampshire Waste Management Hierarchy as established in RSA 149-M:3. Source reduction, also known as "waste reduction," involves preventing waste from being generated. Diversion involves recycling, composting, anerobic digestion, and other methods that avoid disposal of waste in landfills or incinerators.

Reaching our state's disposal reduction goal requires a collective effort from residents, businesses, and other stakeholders engaged in solid waste management. While it will be necessary to maintain safe disposal options for wastes that cannot be reduced or diverted, significant financial investments are required from the public and private sectors to build infrastructure that expands capacity for reuse, recycling, composting, and other diversion methods across New Hampshire. Additionally, statewide waste characterization and generation studies are needed to inform what waste types should be prioritized for waste reduction and diversion, as well as what facility infrastructure will be necessary to facilitate diversion.

Achieving these goals will also require public and private partners to engage in more regional, cooperative efforts. Stakeholders should explore partnerships in their neighboring areas to find ways to share resources/information and collaborate on mutual objectives. Efforts that help improve public access to more waste reduction, reuse, and diversion opportunities will have both local and widespread benefits. Those benefits include conserving limited resources, protecting public health, fostering a "greener" economy, and mitigating climate change.

As it executes this plan, NHDES will use an adaptive management approach to assess, adjust and focus the plan's implementation based on new or developing information and lessons learned. This will provide flexibility to adapt as circumstances change over the ten-year period.

The appendices at the end of this document provide additional resources and context for this plan.

I. Introduction

The New Hampshire Department of Environmental Services (NHDES) prepared this plan in accordance with the Solid Waste Management Act, RSA 149-M[1], which was established to protect human health, preserve the natural environment, and conserve precious and dwindling natural resources through the proper and integrated management of solid waste. Solid waste management is a topic that touches every person and every aspect of society. The way that we manage solid waste has implications for public health, safety, the environment, natural resource consumption, energy use and greenhouse gas emissions. Given this context, it is critical that we manage our waste to minimize negative consequences while reducing, recycling and recovering to the greatest extent practicable. To date, solid waste management in New Hampshire has heavily relied on disposal in landfills as the primary management method and has lacked consistent state-level guidance and planning. This plan establishes a framework to guide New Hampshire's solid waste management for the next ten years. The goals, strategies and actions contained in this plan are intended to inform actions and decision-making by NHDES as well as the regulated solid waste industry, municipalities, the New Hampshire General Court, businesses, non-governmental organizations and the general public.

As mandated under RSA 149-M:29, the purpose of this plan is to set out goals, strategies and actions to:

- Reduce generation of solid waste through source reduction.
- Increase diversion of waste from disposal.
- Achieve the state's solid waste disposal reduction goal established in RSA 149-M:2.
- Support the state's solid waste management hierarchy established in RSA 149-M:3.
- Maintain and ensure adequate disposal capacity for management of waste generated in New Hampshire.

II. Current Status of Solid Waste Management in New Hampshire

Waste Reduction Goal and Waste Management Hierarchy

In 1990, the General Court amended RSA 149-M to establish a waste reduction goal, which has been subsequently revised over the years. The current version of this goal, codified in RSA 149-M:2, establishes a goal to reduce disposal of municipal solid waste (MSW) and construction and demolition debris (C&D) by 25% by 2030 and by 45% by 2050. These reduction targets are to be measured on a combined basis against baseline quantities of these waste types disposed in 2018. This goal applies to all MSW and C&D disposed in New Hampshire, regardless of the source; meaning it applies to both in- and out-of-state waste.

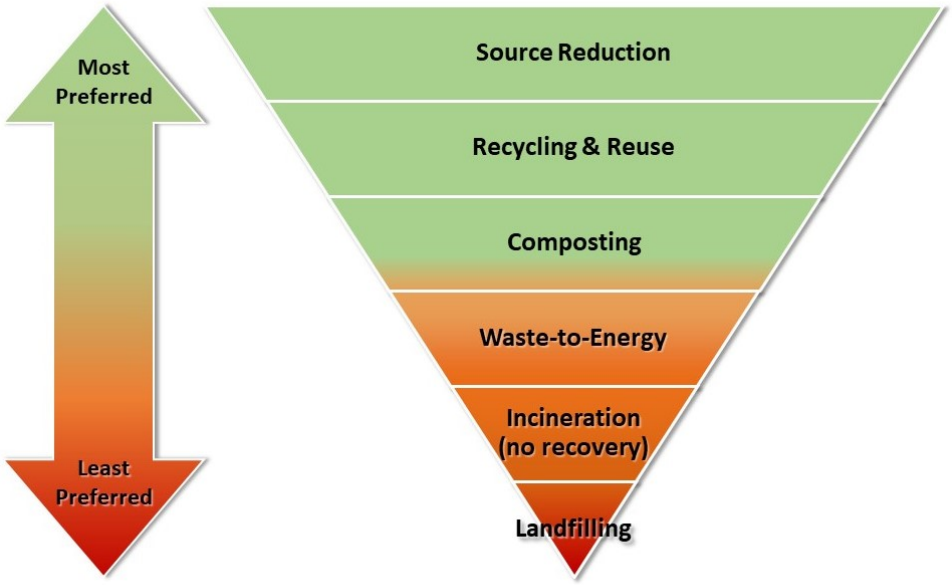
In 2018, a total of 1,500,668 tons of MSW and C&D were disposed in New Hampshire's landfills and incinerators (1,202,916 tons of MSW and 297,751 tons of C&D). The disposal reduction goal aims to cut this baseline total by approximately 375,000 tons by 2030 (25% reduction), and by approximately 675,000 tons by 2050 (45% reduction). Achieving these targets will require robust efforts to simultaneously reduce the quantities of waste generated while also maximizing diversion from disposal through reuse, recycling, composting, or other means. Although RSA 149-M:2 discourages the disposal of recyclable materials, it does not establish recycling, composting, or other forms of waste diversion as mandatory. Meeting plan goals will require the voluntary participation of New Hampshire citizens, public and private entities, and other stakeholders.

To promote achievement of the disposal reduction goal, the General Court also established a hierarchy of waste management methods to be used in New Hampshire (see Figure 1). Codified in RSA 149-M:3,

[1] New Hampshire RSA 149-M

this hierarchy provides a standard of preference for management of solid waste in the state, with priority placed on methods that reduce the generation of waste or divert recoverable materials from disposal. Source reduction, also known as "waste reduction," is at the top of the hierarchy because it prevents waste from being generated. Waste reduction has multiple benefits, including conserving resources, reducing environmental impacts, and reducing the amount of waste needing end-of-life management. When we generate waste, reuse, recycling, or composting are preferred management methods because they recover and divert materials from disposal and encourage circular use of resources. Waste-to-energy technologies include incineration with energy recovery, anaerobic digestion, and emerging conversion processes that turn waste into fuel. These technologies are preferable to outright disposal in a traditional incinerator or a landfill because they recover energy and reduce volume and weight.

Figure 1. New Hampshire's Waste Management Hierarchy



As established by the General Court, the waste management hierarchy and the disposal reduction goal are intended to encourage an integrated waste management system in New Hampshire. An integrated system combines a variety of approaches to reduce the quantity of waste generated while managing the waste that is generated in the most environmentally responsible manner available. The hierarchy serves as a guiding principle not only for NHDES and the state at large, but also for municipal, commercial, and industrial waste generators, solid waste management companies, and the general public. However, since the hierarchy was established in 1990, waste management infrastructure in New Hampshire has not significantly shifted from disposal toward more preferred management methods. While recognizing that disposal via landfilling and incineration is a necessary component of New Hampshire's waste management infrastructure, this plan also anticipates that achievement of the disposal reduction goal will ultimately require development and strengthening of diversion infrastructure within the state. In addition, although landfills and incinerators do not have the practical or legal ability to fulfill, or require others to fulfill, all of the goals in this plan, such facilities need to integrate source reduction and

diversion methods into their waste management system to the extent practicable to reach the disposal reduction goal.

What is Solid Waste?

For the purposes of this plan, it is important to understand what is regulated as "solid waste" in New Hampshire. The term solid waste is defined in RSA 149-M:4, XXII, and encompasses any discarded or abandoned material, including "solid, liquid, semisolid or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities." As such, the category of solid waste covers a broad range of discarded or abandoned materials, including:

- Refuse generated at residential, institutional, commercial, and industrial establishments.
- Recyclable materials.
- Construction and demolition debris (C&D).
- Bulky waste (e.g., furniture, mattresses).
- White goods (e.g., household appliances such as clothes washers/dryers, stoves, refrigerators).
- Electronics (except for items considered universal waste, such as cathode ray tubes, which are subject to regulation as a hazardous waste).
- Vehicles, tires, and associated parts.
- Food waste.
- Agricultural wastes including manure and animal carcasses.
- Asbestos-containing wastes.
- Ash from utility-scale fuel combustion.
- Contaminated soils excavated during remedial projects, property development, street sweepings, catch basin cleanouts, and roadway construction.
- Infectious wastes.
- Other unique commercial and industrial wastes such as foundry sand, grease and grit.

When discussing the regulatory scope of solid waste in New Hampshire, it is perhaps just as important to understand what does not fall under the State's definition of solid waste. While the following items may be classified as "wastes," they are not regulated as solid waste in New Hampshire:

- Hazardous waste.
- Leaf and yard waste – including buried stumps, provided they are not located within 75 feet of any drinking water supply well.
- Solid or dissolved materials in irrigation return flows.
- Point-source discharges subject to Federal pollution control regulation.
- Nuclear material subject to regulation under the Atomic Energy Act.
- Septage or sludge not disposed at solid waste facilities permitted under RSA 149-M.
- Bodies of deceased persons.
- Waste-derived products certified for distribution and use (e.g., finished compost, processed glass aggregate, consumer goods with recycled content).

NHDES' Role in Regulating Solid Waste

Under RSA 149-M, NHDES is charged with regulating the facilities and practices associated with the collection, processing, treatment, recycling and disposal of solid waste in New Hampshire. As directed by the statute, NHDES regulates solid waste facilities through a permit system, and oversees the management of solid waste through a combination of training and compliance assurance programs. To help the department fulfill its various responsibilities under RSA 149-M, NHDES has adopted a set of

Solid Waste Rules (Env-Sw 100 et seq.), which are administered and enforced by NHDES' Solid Waste Management Bureau.

Overview of New Hampshire's Solid Waste Management Infrastructure

Under NHDES' solid waste permitting and regulatory system, solid waste facilities are grouped into three main categories:

- Collection, storage, and transfer facilities (e.g., transfer stations, recycling centers, scrap yards).
- Processing and treatment facilities (e.g., incinerators, anaerobic digesters, composting facilities).
- Landfills (e.g., active and closed landfills, inactive asbestos disposal sites).

Collection, storage, and transfer (C/S/T) facilities form the majority of New Hampshire's solid waste management infrastructure. As of the publication of this document, there are 239 active C/S/T facilities in New Hampshire, 174 of which are publicly-owned municipal transfer stations that function as drop off centers for generators of trash and recycling within the facility's service area. The other 65 are primarily privately-owned commercial transfer stations or scrap metal recycling facilities. In addition to the above-noted C/S/Ts, there are also approximately 150 motor vehicle recycling facilities in New Hampshire, which help to divert automotive waste to recycling and reuse. New Hampshire does not have any materials recovery facilities (MRFs) equipped to sort single-stream recycling, although some C/S/T facilities do sort certain commingled recyclables on a limited scale.

New Hampshire has 17 active processing and treatment (P/T) facilities. This includes nine operating composting facilities holding solid waste permits. Facilities dedicated to the composting of leaf and yard waste do not require a solid waste permit; therefore, NHDES lacks definitive data on how many leaf and yard waste composting operations exist in the state. The other P/T facilities in New Hampshire include one large-scale commercial waste-to-energy facility with an unlimited service area, and one small-scale municipal incinerator with a limited service area. In addition, there is one contaminated soils treatment facility and four C&D/wood processing facilities. Currently, there are no permitted solid waste anaerobic digesters in New Hampshire.

There are six operating double-lined MSW landfills in New Hampshire. Three of these landfills have limited service areas: the Lebanon Regional Solid Waste Facility in Lebanon, the Lower Mount Washington Valley Secure Landfill in Conway, and the Four Hills Secure Landfill Expansion in Nashua. The other three landfills are commercial facilities authorized to receive waste from an unlimited service area: North Country Environmental Services (NCES) in Bethlehem, the Mount Carberry Secure Landfill in Success, and the TLR-III Refuse Disposal Facility (aka Turnkey Landfill) in Rochester. There are also three operating non-MSW landfills: the Merrimack Station Coal Ash Landfill in Bow, the Corn Hill Road C&D Landfill in Boscawen, and the Epping Bulky Waste Disposal Area in Epping. Even though landfilling represents the least preferred method on the waste management hierarchy, landfills comprise a significant portion of New Hampshire's overall waste management capacity.

New Hampshire also has more than 300 closed/inactive landfills, the majority of which are unlined former municipal "dumps." Although perhaps not always considered part of the state's solid waste management infrastructure, these facilities perform a critical function as waste containment systems. As such, these landfills require ongoing monitoring and maintenance to assure protection of human health and the environment. In addition to these inactive landfills, there are approximately 360 documented asbestos disposal sites in New Hampshire. Most of these sites are in the Nashua/Hudson area where, up until the late 1970s, many properties were filled with material containing asbestos waste distributed by the Johns-Manville Corporation. The sites include residential, commercial, industrial, and public lands, both developed and undeveloped, as well as areas beneath roads and along riverbanks.

Disposal and Diversion Figures

In 2020, 1,956,789 tons of solid waste were disposed of in New Hampshire's landfills and incinerators. Of this total, 1,042,957 tons (about 53%) were generated within New Hampshire. The other 913,833 tons (about 47%) were generated in other states. Legislators and members of the public have expressed significant concern about the receipt and disposal of out-of-state waste in New Hampshire. Table 1 below shows total quantities of solid waste disposed from 2018 through 2020, based on data reported by New Hampshire's disposal facilities. The vast majority of the out-of-state waste disposed in New Hampshire is received by the three commercial landfills. Commercial disposal facilities in New Hampshire are permitted to receive waste from both in-state and out-of-state sources. The Commerce Clause of the U.S. Constitution has commonly been interpreted to preempt a state from explicitly prohibiting or adopting policies that would restrict a commercial solid waste facility from accepting and disposing of out-of-state waste.[2]

Table 1. Solid Waste Disposed in New Hampshire 2018 – 2020

Year	Total Tons Disposed	Tons from In-State Sources	Tons from Out-of-State Sources	Percentage In-State Sources
2018	1,980,328	1,091,510	888,818	55%
2019	2,002,947	1,119,118	883,830	56%
2020	1,956,789	1,042,957	913,833	53%

Of the 1,956,789 total tons disposed in 2020, 1,181,749 tons (60%) were MSW, and 264,777 tons (14%) were C&D. The remainder consisted of non-hazardous contaminated soils (11%), wastes from industrial processes (6%), asbestos-containing waste (5%), and sludge from wastewater treatment facilities (3%).[3] MSW and C&D collectively comprise the biggest proportion of total waste disposed in NH (roughly 75%), and are also the categories targeted by the disposal reduction goal.

Compared to disposal figures, recycling and other types of diversion have been harder to measure due to gaps and limitations in existing data. For the purposes of estimating a statewide recycling rate, NHDES used recycling data reported by municipal transfer stations as a general indicator of statewide recycling activities. For 2020, NHDES estimated an average municipal recycling rate of 26%. NHDES acknowledges that recycling data reported by municipal facilities only represents a subset of all recycling activities across the state. However, in the absence of more refined data, NHDES presumed the municipal data to be a suitable proxy for statewide recycling.

[2] The 1978 Supreme Court Case, Philadelphia v. New Jersey, struck down a New Jersey law that prohibited the importation of waste into the state.

[3] The sum of the percentages presented here do not equal 100% due to rounding.

III. Overarching Themes in This Plan

NHDES has identified several overarching themes that will be key to achieving the goals of this plan and contribute to a sustainable solid waste management system that balances social, economic and environmental factors:

- **Reducing and diverting waste.** Efforts should focus on high-volume and weight materials, as well as single-use products and packaging. The U.S. Environmental Protection Agency (EPA) estimates that in 2018 the largest components of MSW disposed in landfills nationwide were: food waste (24.14%), plastics (18.46%), paper and paperboard (11.78%), metals (9.53%), wood (8.32%) and textiles (7.73%).[4] While these figures are not New Hampshire-specific, they serve as general points of reference.
- **Developing infrastructure.** Additional infrastructure and more efficient waste management practices in accordance with the waste management hierarchy will support waste reduction and diversion for New Hampshire-generated wastes.
- **Developing and improving local recycling markets.** In many cases, whether something is "recyclable" depends on whether there is an economically viable market for the item. In turn, markets are highly dependent on available infrastructure capable of diverting, processing and recovering materials. Keeping markets as local as possible will also minimize transportation costs and associated greenhouse gas emissions.
- **Conducting robust outreach and education** will ensure that messages are broadly disseminated to build public awareness and equip stakeholders with the best-available information to guide actions and decision-making.
- **Compiling comprehensive data** will be necessary to make informed decisions and plan next steps. For example, conducting a statewide waste characterization study would help establish New Hampshire-specific baseline data and identify which waste streams should be prioritized for waste reduction/diversion efforts. Additionally, it will be important for solid waste facilities, haulers and generators to have standardized tracking tools to document their progress and identify areas for improvement.
- **Exploring opportunities for regional cooperation/improved planning.** Municipalities and other stakeholders with mutual program objectives are encouraged to build partnerships to reduce duplicative efforts, maximize economies of scale and ensure best use of limited funding/resources. Cooperative efforts may include sharing information, personnel, funding and equipment/infrastructure.
- **Addressing climate change and environmental justice.** Solid waste management programs and policies implemented by state, local and private entities should align with state and federal climate change and environmental justice initiatives. This will help ensure that New Hampshire's solid waste management system mitigates and adapts to worsening impacts from climate change and addresses environmental justice issues.
- **Establishing reliable funding sources**. Funding is an underlying issue that will determine success in achieving almost all of the goals identified in this plan. For many years, NHDES' solid waste management program has faced resource constraints that have challenged the department's ability to engage in many of the issues central to this plan. The same is true for many New

[4]See EPA 2018 Facts and Figures. It is worth noting that the figure cited here for disposal of plastic includes a wide variety of plastic items, including durable items (e.g., plastic furniture, toys, building materials) that do not have consistent recycling markets.

Hampshire municipalities and solid waste management districts. Therefore, identifying additional funding sources will be important to ensure meaningful progress can be achieved.

IV. Goals, Strategies & Actions

RSA 149-M:29, I requires that the state's solid waste plan contain, at a minimum, the following elements:

> *(a) Goals, strategies, and actions to reduce solid waste generation through source reduction, to increase diversion through methods such as reuse, recycling, and composting, and to achieve the state's solid waste disposal reduction goal, with such efforts incorporating the principles of the solid waste management hierarchy established in RSA 149-M:3.*
>
> *(b) Discussion of opportunities to reduce solid waste generation through source reduction and increase diversion through methods such as recycling and composting.*
>
> *(c) Goals, strategies, and actions necessary to maintain and ensure adequate disposal capacity for management of waste generated in New Hampshire.*

In consideration of the above elements, this plan incorporates the following goals:

1) Reduce the quantity of solid waste generated.
2) Reduce the toxicity of the solid waste stream.
3) Maximize the diversion of residential, commercial, and industrial solid waste from disposal.
4) Ensure adequate capacity for management of New Hampshire-generated waste.
5) Develop local markets for waste diversion.
6) Encourage solid waste infrastructure and practices that support State and Federal climate change initiatives.
7) Ensure that solid waste policies and regulations support State and Federal environmental justice initiatives.
8) Ensure sustainable funding source(s) to support solid waste management initiatives.

Achievement of the goals outlined above will help address the state's overarching disposal reduction goal in RSA 149-M:2 and support other important statewide environmental initiatives. To achieve these goals, NHDES and other partners will execute a series of specific actions which employ a set of five key strategies.

The five strategies are:

1) Public Outreach, Education and Technical Assistance.
2) Incentive Programs (e.g., grants, tax write-offs, public recognition, "green" certification).
3) Data Collection and Research.
4) Regulations and Permitting (by NHDES or other state agencies).
5) Legislation.

The remainder of this section describes the eight goals of this plan in further detail with the actions that will be taken toward achieving each goal. Each action employs one of the five strategies listed above. The actions also incorporate recommendations from the New Hampshire Solid Waste Working Group established in 2021,[5] and the final report published by the 2019 Committee to Study Recycling Streams

[5] New Hampshire Solid Waste Working Group

and Solid Waste Management in New Hampshire.[6] The goals described in this plan are intended to be addressed concurrently over the ten-year period with multiple strategies and actions occurring at the same time.

GOAL 1: REDUCE THE QUANTITY OF SOLID WASTE GENERATED

Source reduction, also known as "waste reduction," involves "upstream" approaches that prevent waste from being generated in the first place. Reducing waste at the source leads to social, environmental, and economic benefits by decreasing the quantity of waste needing end-of-life management, which conserves resources, avoids costs and relieves pressure on waste management infrastructure. Waste reduction often includes reducing or eliminating use of certain products and materials. For example, a manufacturer may change the way it makes products or packaging to use less material. Likewise, an individual consumer can practice waste reduction by changing their purchasing habits, or by using reusable products in place of single-use items. Reuse though donation and repair can also play an important role in reducing waste, and can also help with community building, skill-building, and increased access to affordable goods.

Strategy - Public Outreach, Education and Technical Assistance

Action 1.1 – Develop educational materials, including online resources, to educate residents, municipalities, and businesses about the waste management hierarchy and source reduction. Topics may include:

- Modifying consumer practices to promote waste reduction and reuse, including proper food storage, buying in bulk, purchase planning, avoiding single-use items, and purchasing used items.
- Encouraging reuse of consumer goods and packaging such as use of refillable beverage containers and reusable shopping bags.
- Providing information about community-wide actions to encourage source reduction and reuse through yard sales, swap events and repair clinics.
- Providing information about reuse and donation of textiles, tools, equipment, bulky wastes, and other durable goods.

Action 1.2 – Use the EPA Food Recovery Hierarchy[7] to promote food rescue and donation to address food insecurity, support local farmers, and reduce food waste. Put quality, edible food to its highest and best use. Promotion may involve using the Harvard Food Law & Policy Clinic fact sheets[8] about food donation, date labels, feeding food scraps to animals, and tax incentives.

Action 1.3 – Coordinate with the New Hampshire Department of Health and Human Services to evaluate food safety regulations to support more food recovery and reduce food waste (for example, to enable wider use of school "share tables" for edible but uneaten cafeteria foods).

Action 1.4 – Collaborate with the New Hampshire Department of Administrative Services Procurement and Support Services team to increase awareness and use of the State Surplus Program[9] available to state agencies, municipalities and the public (in support of RSA 9-C[10]).

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[6] 2019 Final Report from HB617 Study Committee

[7] EPA Food Recovery Hierarchy

[8] Harvard Law State Food Waste Fact Sheets

[9] NHDAS coordinates the State Surplus Program located at "White Farm"

[10] New Hampshire RSA 9-C relates to state government waste reduction, recycling and purchase of recycled products

Action 1.5 – Research and compile a directory of organizations that facilitate reuse of surplus items generated by businesses and institutions, such as IRN: The Reuse Network, Habitat for Humanity, etc.

Action 1.6 – Assist schools, universities, businesses, and manufacturing facilities with waste audits to help identify possible opportunities for waste reduction and cost savings. Audits may be conducted by a procured consultant, service provider, or the NHDES Solid Waste, Pollution Prevention (P2), and Small Business Technical Assistance programs.

Action 1.7 – Use resources published by the EPA on sustainable management of construction and demolition materials[11] to share best practices, promote reuse, and encourage "deconstruction" of structures as a way to reduce generation of construction and demolition debris (C&D).

Strategy – Regulations and Permitting

Action 1.8 – Include in disposal facility permits provision for permittees to assist and educate their customers and the general public in maximizing waste reduction.

Strategy - Legislation

Action 1.9 – Explore legislation, including extended producer responsibility (EPR) programs, that would require product brands and manufacturers to enhance the recyclability of their products and packaging, and minimize the use of unnecessary materials and single-use plastics.

GOAL 2: REDUCE THE TOXICITY OF THE SOLID WASTE STREAM

Reducing the toxicity of the solid waste stream requires source reduction and diversion of household hazardous wastes (HHW) and materials containing toxic chemicals, such as per- and polyfluoroalkyl substances (PFAS). Approaches may include implementing producer responsibility policies and ensuring that end-of-life management options are convenient and protective of public health, safety and the environment.

Strategy - Public Outreach, Education and Technical Assistance

Action 2.1 – Coordinate with the NHDES HHW program to develop public outreach and education about HHW, including household-generated universal wastes, that addresses:

- Safe and proper storage.
- Safe reuse, recycling and disposal options.
- Alternative non-hazardous products and Do-It-Yourself (DIY) options.

Action 2.2 - Develop educational resources about toxic chemicals, such as PFAS, in common consumer goods to facilitate informed purchasing decisions.

Action 2.3 – Increase options for safe disposal of sharps and unwanted pharmaceuticals by promoting the safest, most cost-effective and most convenient collection systems. This action may be accomplished through collaboration between state agencies and other stakeholders such as Regional Planning Commissions, police departments and healthcare facilities.

Strategy - Incentives

Action 2.4 – Explore incentive programs to support efforts by municipalities and organizations that engage in direct outreach and education to limit the use and disposal of toxic household

[11] EPA Sustainable Materials Management C&D Resources

products. Mitigating the use of toxic household products may reduce the likelihood of illegal dumping where the costs then fall to the municipality.

Action 2.5 – Identify funding options to support regional HHW collections and the establishment of more permanent regional HHW drop-off facilities.

Strategy - Data Collection and Research

Action 2.6 – Identify collection strategies for household-generated hazardous items including batteries, paint, antifreeze, small gas cylinders, mercury-containing devices, and e-cigarettes/vaporizers. Assess how these items are currently being collected (for example, drop-off events, year-round collections at a facility or retail location, manufacturer take-back programs), identify who is involved, how collections are funded, and gaps in collection options and service areas.

Strategy – Regulations and Permitting

Action 2.7 – Identify regulatory barriers that pose challenges for safe disposal of sharps and unused pharmaceuticals for the public, schools and non-traditional healthcare facilities such as group homes. Consider regulatory changes as needed.

Action 2.8 – Pursue rulemaking to require permitted disposal facilities (incinerators and landfills) to host or sponsor at least one annual HHW collection day for New Hampshire households within the facility's service area.

Action 2.9 - Include in disposal facility permits provision for permittees to assist and educate their customers and the general public in reducing the toxicity of their wastes.

Strategy - Legislation

Action 2.10 – Explore legislation that would establish waste disposal bans and EPR for items such as rechargeable batteries, electronic devices, paint and sharps.

Action 2.11 – Explore legislation addressing the use of toxic chemicals in products, such as use of PFAS in carpeting, clothing, upholstery and food packaging.

GOAL 3: MAXIMIZE THE DIVERSION OF RESIDENTIAL, COMMERCIAL AND INDUSTRIAL SOLID WASTE FROM DISPOSAL

When waste is generated, it should be diverted from disposal whenever possible. Diversion involves "downstream" approaches such as recycling, composting, or other methods that avoid disposal in landfills and incinerators. Investments should be directed towards new and existing facility infrastructure that supports diversion in accordance with the Waste Management Hierarchy. In addition, municipalities, solid waste districts, solid waste facilities and haulers should provide clear information about available diversion programs and what is acceptable or not acceptable in those programs.

Strategy - Public Outreach, Education and Technical Assistance

Action 3.1 – Increase composting of organic wastes (food scraps, leaf/yard waste, manures, clean wood) through technical assistance, educational workshops, facts sheets and guidance documents to ensure stakeholders are equipped with the latest information.

Action 3.2 – Develop outreach and education materials, including fact sheets and online resources, about New Hampshire's current waste disposal bans.

Action 3.3 – Develop best management practices for negotiating municipal recycling contracts with case study examples of effective contract strategies that support transparency and informed decision-making about projected costs/revenue.

Action 3.4 – Develop uniform educational resources and provide technical assistance to citizens, businesses and municipalities to support best practices for recycling and increase local awareness about what is recyclable in their area.

- All solid waste management entities, including public/private solid waste facilities, haulers and large waste generators, will be encouraged to share these educational resources on their websites to ensure consistent messaging about waste reduction, reuse, recycling, and other methods of diversion.
- Messaging should include information about the negative impacts of "wish-cycling," which occurs when misinformed recyclers put items in the wrong waste stream resulting in increased processing expenses and less diversion overall.
- Technical assistance may be provided through site visits, trainings and sharing informational resources.

Action 3.5 – Assist schools, universities, businesses and manufacturing facilities with recycling programs, food scrap diversion and waste audits.

Action 3.6 – Promote unit-based pricing (also commonly called Pay-as-You-Throw, or PAYT) and "bag checks" as methods for increasing participation in municipal recycling programs. This may be accomplished through the NHDES Solid Waste Operator Training (SWOT) program, technical assistance to municipalities, and/or partnering with the New Hampshire Municipal Association and the Northeast Resource Recovery Association to reach local decision makers.

Action 3.7 – Integrate additional waste reduction and diversion topics into NHDES SWOT workshops.

Action 3.8 – Increase education and training for solid waste operators and local decision makers about how to regionalize waste management practices.

Strategy - Incentives

Action 3.9 – Explore incentives for municipalities that enact regional waste management strategies to increase diversion (such as cooperative hauling/marketing, sharing equipment, building regional facilities, forming solid waste districts per RSA 53-A[12] or RSA 53-B[13]) as well as projects targeting diversion of specific materials/waste types (for example, developing programs for recycling polypropylene, film plastics, and diverting food waste).

Action 3.10 – Explore incentive/recognition programs for businesses and institutions that make significant efforts to divert their own solid waste (similar to Maine's Green Business/Environmental Leader Certification Program).

Strategy - Data Collection and Research

Action 3.11 – Determine reoccurring issues and challenges with contamination (that is, unwanted or nonconforming items) in recycling and composting waste streams. Explore educational campaigns and/or regulatory changes as needed.

[12] New Hampshire RSA 53-A

[13] New Hampshire RSA 53-B

Action 3.12 – Establish guidance for uniform measurement and tracking of waste diversion data for public/private generators, solid waste management facilities and haulers. Consider existing measurement models and tools from the EPA and other entities.

Action 3.13 – Evaluate and identify waste disposal bans, mandatory recycling laws, and/or EPR programs that have potential to significantly improve diversion in New Hampshire. Prospective bans should be prioritized based on potential to reduce overall disposal (as indicated by data from waste characterizations – described in Goal 4). Depending on availability of processing infrastructure and/or end-markets, certain disposal bans and/or recycling requirements may need to be phased in over time using generation rate and/or proximity to receiving facilities to establish compliance thresholds. For example, some states have implemented food waste disposal bans that target large commercial food waste generators first, with smaller generators becoming subject to the ban over time. Such approaches help to build demand incrementally, allowing markets/infrastructure time to develop.

Strategy – Regulations and Permitting

Action 3.14 – Review the list of waste-derived products that are certified by rule in Env-Sw 1503 and pursue updates if warranted.

Action 3.15 - Consider regulatory changes to make it easier for communities to share facilities, equipment and other solid waste management resources.

Action 3.16 - Include in disposal facility permits provision for permittees to assist and educate their customers and the general public in maximizing waste diversion.

Strategy - Legislation

Action 3.17 – Based on the results of Action 3.13, explore legislation to implement disposal bans and/or mandatory recycling requirements for wastes such as food waste, clean wood, mattresses, textiles and/or select recyclables such as paper, cardboard, and plastic and metal containers.

Action 3.18 – Based on the results of Action 3.13, explore Product Stewardship and EPR programs to encourage recycling of certain items, including plastics, rechargeable batteries, electronic devices, paint, difficult-to-recycle packaging materials, bulky wastes such as mattresses, and beverage containers (e.g., a beverage container deposit law).

Action 3.19 – Explore legislation requiring a certain percentage of C&D by weight to be diverted from disposal if a C&D processing facility is located within a certain distance to where the waste is generated/collected.

Action 3.20 – Explore legislation requiring haulers to provide recycling collection for businesses and residents in their service area.

GOAL 4: ENSURE ADEQUATE CAPACITY FOR MANAGEMENT OF NEW HAMPSHIRE-GENERATED WASTE

Maintaining adequate capacity for management of New Hampshire's waste will necessitate an integrated solid waste management system with facility infrastructure encompassing all levels of the waste management hierarchy. This integrated system needs to prioritize capacity for diversion as much as possible, reserving disposal capacity for wastes that have limited or no other management options. Achieving a truly integrated system will require development of new and expanded solid waste management infrastructure, with capital investments from public and private waste management

entities at all levels. It is vitally important to shift away from New Hampshire's reliance on landfills and bolster capacity for recycling and other forms of diversion. It will also be critical to compile comprehensive data to ensure that waste management infrastructure is developed to meet New Hampshire's projected solid waste management needs while supporting the goals of this plan. A waste characterization study will be a foundational step to inform the implementation of this plan.

Strategy - Public Outreach, Education and Technical Assistance

Action 4.1 – Engage with public and private entities to explore options for developing alternative technologies and centralized processing facilities that increase waste management capacity consistent with preferred methods in the New Hampshire Waste Management Hierarchy. This may include exploring options for:

- A state-of-the-art materials recovery facility (MRF) for processing single-stream recycling.
- Composting and anaerobic digestion facilities for processing organic solid wastes.
- C&D processing facilities for separating and diverting components of C&D.
- Systems that employ a variety of novel technologies enabling wastes to be locally and efficiently sorted, processed, reused, recycled or formed into new products.

Action 4.2 – Engage with the New Hampshire Solid Waste Working Group as they review and make recommendations regarding New Hampshire's solid waste management policies, programs, goals and initiatives, including the following topics assigned to the group by SB 380 (2022):

- Consideration of municipal solid waste management plans and implementing a prohibition on New Hampshire landfills from accepting waste from a municipality that does not have such a plan; and
- Consideration of the development of a solid waste disposal site evaluation committee or defining requirements for "alternative site analysis" in RSA 149-M:9.

Action 4.3 – Provide regulatory and permitting guidance to facility applicants, as needed.

Strategy - Data Collection and Research

Action 4.4 – Explore additional data collection methods in addition to annual facility and hauler reports. This may include voluntary surveys and sourcing solid waste data from industry partners.

Action 4.5 – Conduct statewide waste studies to better understand New Hampshire's waste stream and identify priorities for action. Studies may include:

- A waste characterization study to determine the average composition of waste streams disposed and recycled in New Hampshire.
- A waste generation study to estimate the total quantity and types of waste being generated statewide.

Action 4.6 - Using waste characterization and generation data from Action 4.5, identify the types and distribution of facility infrastructure needed to advance the RSA 149-M:2 disposal reduction goal.

Strategy – Regulations and Permitting

Action 4.7 – Evaluate annual reporting requirements for solid waste facilities and haulers and identify what data is necessary to inform statewide solid waste management planning. Adjust annual reporting requirements, as necessary.

Action 4.8 – Review current permitting requirements for research and development projects and make rule changes as necessary to encourage more solid waste management entities to engage in thoughtful experimentation that spurs innovative technologies for management of solid waste.

Action 4.9 - Ensure that permit decisions for all types of facilities consider a facility's ability to provide capacity for management of NH-generated waste, and, to the extent practicable and allowed under law, that facility permits include provision for assuring capacity for New Hampshire-generated waste.

Strategy – Legislation

Action 4.10 – Review RSA 149-M:23-25 relative to local solid waste management planning and formation of solid waste districts to evaluate whether amendments are necessary to assure that local planning efforts are relevant to local solid waste management needs and consistent with the state Solid Waste Management Plan.

GOAL 5: DEVELOP LOCAL MARKETS FOR WASTE DIVERSION

Markets for recycling and diversion should be developed and bolstered across New Hampshire and New England to minimize disposal need and ensure a more circular economy. Such activities not only benefit the overall waste management system, but also present economic opportunities that will benefit New Hampshire's economy at large, such as job creation. NHDES will collaborate with public and private stakeholders to explore opportunities for expanding local and regional diversion markets. Because markets are highly dependent on available infrastructure, achievement of this goal will track closely with Goal 4 to ensure that facilities are developed to provide adequate capacity for diversion. Markets also rely on clear sorting guidelines and quality specifications to help waste generators and solid waste facilities understand what and how to recycle. More participation and conscious recycling efforts by consumers consistent with Goal 3 will result in higher recovery rates and ensure that recycling markets have a consistent, high-quality supply of recyclable feedstocks.

Strategy - Public Outreach, Education and Technical Assistance

Action 5.1 – Participate in local, regional and national discussions about materials management and share pertinent information with stakeholders to help improve recycling markets.

Action 5.2 – Work with other state agencies to update state procurement and Request for Proposal (RFP) policies to give preference to use of recycled content and certified waste-derived products (CWDPs) for certain activities or projects (for example, compost, crushed glass). CWDPs should be used if it is economically and logistically feasible for the specific application.

Action 5.3 – Compile and share educational materials to create awareness about how recyclables are used/what products they are commonly turned into, the benefits of buying recycled-content products, as well as the greater economic impacts of recycling.

Action 5.4 – Compile information on reuse businesses and solid waste facilities that provide diversion outlets; and develop online resources, such as interactive maps, to visualize opportunities for reuse, recycling, donation, repair, etc.

Action 5.5 – Explore the reestablishment of the State Recycling Market Development Coordinator position to facilitate efforts to develop and strengthen recycling markets in New Hampshire.

Strategy - Incentives

Action 5.6 – Develop incentives for New Hampshire businesses that produce products with post-consumer recycled content and compostable packaging to build demand for recycled materials.

Strategy - Data Collection and Research

Action 5.7 – Work with multi-state organizations such as the Northeast Resource Recovery Association (NRRA), Northeast Recycling Council (NERC), Northeast Waste Management Officials Association (NEWMOA), as well as the University System of New Hampshire, and the Department of Business and Economic Affairs (DBEA) to research business opportunities with entrepreneurs to develop regional market strategies that support diversion.

Action 5.8 – Develop a Recycling Market Development stakeholder committee to explore options for diversion of difficult-to-recycle materials including C&D, bulky waste (furniture, carpeting, mattresses), glass, plastic film and emerging consumer products/packaging that currently have limited diversion options.

Strategy – Regulations and Permitting

Action 5.9 – Evaluate barriers to the use of crushed glass in construction projects. Consider regulatory updates to codify acceptable uses in low risk, low impact applications including underlayment for parking lots, walkways, and sidewalks, and as backfill for pipes and culverts.

Action 5.10 – Ensure that facility permit decisions and facility permits, to the extent practicable and allowed under law, consider and support development of local and regional recycling and diversion markets.

Strategy - Legislation

Action 5.11 – Explore legislation requiring updates to State agency procurement policies to reduce solid waste and increase demand for recycled content. Policies should require product purchases with high post-consumer recycled content to drive market development.

GOAL 6: ENCOURAGE SOLID WASTE INFRASTRUCTURE AND PRACTICES THAT SUPPORT STATE AND FEDERAL CLIMATE CHANGE INITIATIVES

Concerns and measures to address climate change will continue to increase in coming years. This plan has included the measures in this section to ensure that it accounts for climate change and, thereby, remains viable and effective during the plan's ten-year period.

All stakeholders involved in solid waste management should consider climate change in planning and decision-making, emphasizing strategies that mitigate climate impacts and facilitate adaptation. According to the EPA, landfills are the third-largest source of methane emissions in the U.S., after agriculture and the oil and gas industry. Although methane only accounts for 11% of all U.S. greenhouse gas (GHG) emissions from human activities, it traps 25 times more heat in the atmosphere than carbon dioxide does.[14] As New Hampshire works toward achieving many of the other goals outlined in this plan, there will be direct and indirect benefits related to water and resource conservation, improved energy efficiency, and a reduction in GHG emissions. For example, increasing recycling practices reduces the

[14] EPA Overview of Greenhouse Gases

need to extract virgin materials, thus avoiding energy use and associated GHG emissions. Similarly, diverting organic wastes like food, wood, paper, and leaf litter, can help reduce methane emissions that would otherwise result from decomposition of these materials in landfills. Additionally, development of more local diversion markets can minimize transportation costs and reduce emissions by eliminating the need to transport waste long distances. Below are additional actions that can further help to address the impacts of climate change.

Strategy - Public Outreach, Education and Technical Assistance

Action 6.1 – Develop guidance for installation of solar photovoltaic panels on closed, inactive landfills. Consider whether adjustments to solid waste permitting requirements may encourage such installations.

Action 6.2 – Collaborate with New Hampshire Department of Transportation and other stakeholders to update the State's disaster debris management plan. Consider whether regulatory updates are needed.

Action 6.3 – Share case studies and information about opportunities for landfill reclamation to recover resources from closed, inactive landfills.

Strategy - Data Collection and Research

Action 6.4 – Explore options to generate energy from waste using landfill gas, as well as alternative technologies such as anaerobic digestion and pyrolysis.

Strategy – Regulations and Permitting

Action 6.5 - Ensure that facility permit decisions and facility permits, to the extent practicable and allowed under law, support state and federal climate change initiatives.

GOAL 7: ENSURE THAT SOLID WASTE POLICIES AND REGULATIONS SUPPORT STATE AND FEDERAL ENVIRONMENTAL JUSTICE INITIATIVES

The EPA's principles of Environmental Justice (EJ) promote fair treatment and meaningful involvement of all people regardless of race, color, national origin, education, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EJ typically centers on communities that have historically been marginalized and/or adversely impacted by application of environmental laws, regulations and policies. In New Hampshire, both urban and rural communities can experience negative impacts associated with solid waste management. To align with state and federal efforts, NHDES will work to ensure fair and equitable treatment of, and engagement with, individuals impacted by solid waste management activities in the state.

Concerns and measures to address environmental justice will continue to increase in coming years. This plan has included the measures in this section to ensure that it accounts for and addresses environmental justice concerns and, thereby, remains viable and effective during the plan's ten-year period.

Strategy - Public Outreach, Education, and Technical Assistance

Action 7.1 – Align solid waste program efforts with NHDES' environmental justice plans and policies.[15]

[15] The NHDES Civil Rights and Nondiscrimination Implementation Plan is in draft at the time of this document's release and is anticipated to be published before December 31, 2022

Action 7.2 – Identify resources to help with translating outreach materials, program information and workshop presentations, to ensure equitable access for all people.

Action 7.3 – Work with solid waste management facilities, haulers and local governments to promote equitable access to reuse and diversion opportunities.

Strategy - Incentives

Action 7.4 – Explore grant funding opportunities to support diversion programs that meet the needs of communities with EJ concerns.

Strategy – Regulations and Permitting

Action 7.5 - Ensure that facility permit decisions and facility permits, to the extent practicable and allowed under law, support state and federal environmental justice initiatives.

GOAL 8: ENSURE SUSTAINABLE FUNDING SOURCE(S) TO SUPPORT SOLID WASTE MANAGEMENT INITIATIVES

NHDES and stakeholders across the solid waste management system need sufficient resources, staffing and oversight to carry out the actions presented in this plan. As such, sustainable funding is a foundational piece to its successful implementation. In New Hampshire, funding to support NHDES' solid waste management program has historically been limited and insufficient to support state grant or loan programs that could incentivize the efforts of local governments and the private sector to advance statutory goals. To ensure that adequate funding is available to support implementation of this plan, it will be important to consider opportunities for additional funding to bolster existing resources.

Strategy - Public Outreach, Education and Technical Assistance

Action 8.1 – Compile information about federal and state grant and loan programs that support solid waste management practices and share this information with interested public and private entities.

Action 8.2 – Assist non-profits and municipalities in seeking funding opportunities that help meet the goals of this plan. Assistance may involve writing letters of support and reviewing proposals.

Strategy - Incentives

Action 8.3 – Pursue opportunities for funding to establish a grant program as authorized by RSA 149-R[16] to support waste reduction and diversion efforts by New Hampshire businesses and municipalities. Grant programs may be used to support infrastructure, as well as outreach and technical assistance programs.

Action 8.4 – Apply for federal Bipartisan Infrastructure Law[17] funding to support implementation of the goals and actions in this plan.

Strategy - Legislation

Action 8.5 – Explore legislative opportunities for establishing a dedicated funding source to support state, local and private sector solid waste initiatives that advance the goals of this plan.

[16] RSA 149-R was established by SB379 during the 2022 legislative session

[17] Preliminary information about solid waste funding opportunities through the Bipartisan Infrastructure Law

V. Ongoing Plan Implementation and Evaluation

As required by RSA 149-M:29, this is a ten-year plan, and its goals, strategies and actions will be addressed over that period of time. To implement the plan, NHDES will use an adaptive management approach which involves an iterative process including creation of short-term implementation plans. NHDES will use these short-term implementation plans to prioritize actions, measure progress, and track timeframes for completion. As activities are completed, their results will be documented and evaluated to inform the creation of new short-term implementation plans. This process will allow implementation to be responsive to information obtained, actions taken, and changing circumstances in the solid waste management industry over the ten-year period.

Achieving the goals in this plan will require a collaborative effort. While NHDES will be involved in carrying out all the actions within this plan, the department may not always be the primary, lead entity. For instance, enacting new laws and legislative mandates will require action by the New Hampshire General Court. While some actions in this plan mention specific entities, NHDES recognizes that other partners can help achieve many of the actions. Examples of relevant stakeholders to help implement this plan are provided in Appendix A.

NHDES will track progress in achieving the goals of this plan using a variety of data and information sources including, but not limited to, annual solid waste facility and hauler reports, workshop participation, legislative hearings, published outreach materials, and examples of technical assistance provided. NHDES staff will seek information from municipalities, solid waste districts, regional organizations, and other stakeholders to learn about successful initiatives and challenges encountered. Additionally, NHDES' Biennial Solid Waste Reports will provide opportunities to report on progress toward achieving the State's disposal reduction goal and the goals in this Plan.

VI. Summary

A more sustainable waste management system requires systemic changes in how we produce, distribute, and use products and services in New Hampshire. These changes will require New Hampshire to move toward policies and practices that support higher diversion rates for wastes that are reusable, recyclable, or compostable, while also reducing waste generation by minimizing or eliminating the use of unnecessary, toxic and difficult to manage materials. With such outcomes in mind, this plan sets out eight key goals:

1) Reduce the quantity of solid waste generated.
2) Reduce the toxicity of the solid waste stream.
3) Maximize the diversion of residential, commercial and industrial solid waste from disposal.
4) Ensure adequate capacity for management of New Hampshire-generated waste.
5) Develop local markets for waste diversion.
6) Encourage solid waste infrastructure and practices that support State and Federal climate change initiatives.
7) Ensure that solid waste policies and regulations support State and Federal environmental justice initiatives.
8) Ensure sustainable funding sources to support solid waste management initiatives.

As outlined in this plan, a variety of strategies will need to be employed to support these goals, including education and outreach, incentives, data collection and research, regulations and permitting, and legislation. Advancing this plan and achieving the disposal reduction goal established in RSA 149-M:2 will require active participation from everyone who uses and is involved in New Hampshire's solid waste management system. NHDES, the regulated solid waste industry, municipalities, the New Hampshire General Court, businesses, non-governmental organizations, and the general public must work together to uphold the goals and hierarchy in RSA 149-M:2-3 and support the statute's vision for proper and integrated management of solid waste.

Appendix A: Potential Partners and Other Resources

POTENTIAL PARTNERS

Implementing and achieving the goals in this plan will require a collaborative effort. While NHDES will be involved in carrying out all the actions within this plan, the department may not always be the primary, lead entity. There are many partners and stakeholder groups who can help accomplish the actions in this plan including, but not limited to:

FOOD RESCUE NETWORKS

New Hampshire Food Bank – assists with hunger relief and food insecurity by soliciting and distributing grocery products and perishable foods to more than 400 partner agencies including food pantries, homeless shelters, children's programs, senior centers and more.

New Hampshire Gleans – a network of regional organizations that recover fresh produce from farms, gardens, and orchards and distribute it through community agencies to conserve resources, avoid waste, and increase access to healthy food.

FUNDING ORGANIZATIONS

***New Hampshire Community Development Finance Authority* (CDFA)** – offers funding opportunities to non-profits, municipalities, businesses, and microenterprises in order to build the social, economic, and environmental capacity of New Hampshire communities.

U.S Environmental Protection Agency (EPA) – the EPA is charged with disbursing funding allocated by the Bipartisan Infrastructure Law to support waste prevention, reuse, and recycling programs.

U.S Department of Agriculture (USDA) **–** the USDA provides Solid Waste Management Grants for governments and organizations to provide technical assistance and training to improve the planning and management of solid waste in rural areas.

LEGISLATORS AND STATUTORY COMMITTEES

New Hampshire Solid Waste Working Group – a statutory committee formed by HB 413 (2021) to assist NHDES with planning and policy initiatives related to solid waste management.

MUNICIPAL ORGANIZATIONS

New Hampshire Municipal Association (NHMA) – a non-profit association that works to strengthen New Hampshire cities and towns and enhance their ability to serve the public. NHMA promotes effective municipal government by providing education, training, advocacy, and legal services.

NEW HAMPSHIRE REGIONAL PLANNING COMMISSIONS (RPC)

New Hampshire Association of Regional Planning Commissions **–** the affiliation that coordinates the activities of the nine RPCs on a statewide basis.

1) Central New Hampshire RPC
2) Lakes Region Planning Commission
3) Nashua RPC
4) North Country Council
5) Rockingham Planning Commission

6) Southern New Hampshire Planning Commission
7) Southwest RPC
8) Strafford RPC
9) Upper Valley Lake Sunapee RPC

NEW HAMPSHIRE STATE AGENCIES

Department of Administrative Services (NHDAS) – NHDAS' mission is to provide leadership and quality statewide management services and support for efficient and cost-effective state government. NHDAS coordinates the State Surplus program housed at "***White Farm***," which serves as a repurposing center for state and federal surplus property.

Department of Business and Economic Affairs (NHDBEA) – the Division of Economic Development and Division of Travel and Tourism Development are dedicated to enhancing the economic vitality of New Hampshire and promoting it as a destination for domestic and international visitors.

Department of Health and Human Services (NHDHHS) – helps support and protect the health and welfare of New Hampshire citizens by administering programs and services related to mental health, developmental disability, substance misuse, and public health.

Department of Transportation (NHDOT) – assists in planning, developing, and maintaining the state transportation network for safe and convenient movement of people and goods throughout the state by means of air service, highways, railroads, bicycle/pedestrian paths, and other public transportation modes.

Office of Strategic Initiatives (NHOSI) – provides information, data, and guidance to assist decision-makers on issues pertaining to development, land protection, energy use and community planning.

REGIONAL SOLID WASTE ORGANIZATIONS

Northeast Recycling Council (NERC) – provides technical assistance, information access, research, and networking opportunities on recycling market development for state and regional programs in the six New England states as well as New York, New Jersey, Pennsylvania, and Delaware. NERC undertakes research and education projects that address regional recycling, market development and waste management issues.

Northeast Resource Recovery Association (NRRA) – a non-profit organization that provides technical, educational, and marketing support to municipal recycling programs. NRRA provides material marketing and brokerage services for municipalities in New Hampshire, Massachusetts, Maine, and Vermont.

Northeast Waste Management Officials Association (NEWMOA) – a regional non-profit, non-partisan, interstate association that works to address environmental challenges in Connecticut, Maine, Massachusetts, New Hampshire, New York, New Jersey, Rhode Island, and Vermont. NEWMOA provides a variety of support services to help states articulate, promote, and implement economically sound regional programs to enhance environmental protection.

REUSE/SURPLUS NETWORKS

Habitat for Humanity – Habitat ReStores accept donations and sell high-quality merchandise to the public at a fraction of the retail price, while diverting reusable household items and building

materials from landfills. Sales of donated items help Habitat for Humanity partner with local facilities to build, rehabilitate, and repair safe and affordable homes.

IRN: The Reuse Network – IRN works with a network of non-profits to match unneeded furniture and equipment from schools, universities, corporations, and healthcare facilities around the U.S., with communities in need around the world.

SCHOOLS AND EDUCATIONAL INSTITUTIONS

University System of New Hampshire – includes six institutions in New Hampshire offering postsecondary educational opportunities.

UNH Cooperative Extension – provides information and outreach on a multitude of topics to the citizens of New Hampshire including agriculture and gardening, economic development, health and well-being, and natural resource management.

OTHER POTENTIAL PARTNERS

The above list is not all-inclusive. Additional partners may be identified during ongoing implementation of the plan, including:

- Advocacy groups, ad-hoc community groups, and grassroots organizations
- Businesses, institutions, manufacturers, and hospitality/food service providers
- Medical/healthcare facilities
- Municipalities, including municipal officials and committees
- Schools and educational institutions
- Thrift stores and consignment shops
- Solid waste management entities, including facilities, haulers, and districts

ADDITIONAL RESOURCES

2019 Report from HB617 Study Committee – Final Report of the statutory Committee to Study Recycling Streams and Solid Waste Management in New Hampshire.

EPA 2018 Facts and Figures – EPA data that looks at generation, recycling, composting, combustion with energy recovery, and landfilling for a variety of materials and products found in municipal solid waste.

EPA Food Recovery Hierarchy – prioritizes actions that organizations can take to prevent and divert food waste. Each tier focuses on different management strategies for wasted food.

EPA Overview of U.S Greenhouse Gas Emissions

EPA Sustainable Materials Management (SMM) Program – a systematic approach to using and reusing materials more productively over their entire life cycles.

Harvard Food Law and Policy Clinic Food Waste Fact Sheets – state specific, legal fact sheets created by the Harvard Law School's Food Law and Policy Clinic about tax incentives, date labels, liability protections, and feeding food scraps to animals.

NHDES Household Hazardous Waste (HHW) Program – provides resources and education for New Hampshire residents on the purchase, use and disposal of hazardous products and also by helping municipalities to fund HHW collection events across the state.

NHDES Planning Prevention and Assistance, Pollution Prevention (P2) Program – assists businesses, municipalities, public agencies, organizations and residents with reducing or eliminating waste at the source.

NHDES Solid Waste Operator Training (SWOT) Program – state law requires operators of permitted solid waste facilities in New Hampshire to be certified through NHDES.

New Hampshire Solid Waste Rules (Env-Sw 100 et seq.) - all of NHDES' administrative rules for regulating solid waste management in New Hampshire are housed in this searchable library.

New Hampshire RSA 9-C – State Government Waste Reduction, Recycling, and Recycled Products Purchasing Law.

New Hampshire RSA 53-A – enables towns, cities, village districts, and unincorporated places to establish inter-municipal cooperative agreements.

New Hampshire RSA 53-B – specific to forming solid waste management districts in towns, cities, village districts, and unincorporated places.

New Hampshire RSA 149-M – Solid Waste Management Act

New Hampshire RSA 149-R – Solid Waste Management Fund established by SB 379 (2022). Although established without an initial appropriation or other funding source, this fund is intended to receive monies that may be identified in the future. Once funded, it will enable the Department of Environmental Services to provide grants to advance waste reduction and diversion in New Hampshire.

Appendix B: Considerations for Municipal Management of Solid Waste

This appendix was developed in collaboration with the Northeast Resource Recovery Association (NRRA) to provide a snapshot of typical costs, revenues, and logistical considerations that New Hampshire municipalities must consider when managing our solid waste. These considerations are associated with separating, collecting, processing, and marketing or disposing of municipal solid waste (MSW). The term 'MSW' technically includes solid waste sent for disposal in landfills or incinerators, as well as waste separated for recycling. However, in common usage, 'MSW' is typically used to refer to waste sent for disposal, while 'recyclables' is used to refer to materials diverted from disposal. Use of these terms in this document is intended to reflect their common usage. This document does not specifically address management of construction and demolition debris (C&D), although many of the same considerations discussed below would apply.

RSA 146-M:17, I states that "each town shall either provide a facility or assure access to another approved solid waste facility for its residents." Many New Hampshire municipalities fulfill this provision by operating their own solid waste facilities. In some cases, a municipality may rely on a facility owned by another municipality, a solid waste district, or a private solid waste management company. *Figure 5* at the end of this document provides a visual of potential pathways for diverting and disposing of solid waste in New Hampshire. Regardless of the specific arrangement, there are costs associated with management of solid waste produced by the municipality and its residents.

The overall cost is determined by a number of factors, including the amount of waste generated, collection costs, facility operational costs, transportation fees, disposal fees, and the cost or revenue associated with recycled materials. Several of these factors are influenced by local, regional and global market forces that cause costs and revenues to fluctuate over time. In many cases, municipalities can avoid high disposal costs through recycling and composting.

COLLECTION & OPERATIONS

MSW and recyclables are collected from residents and businesses in a variety of ways, including:

- Drop-off facilities,
- Curbside collection by private haulers contracted by a household or municipality, and
- Municipally-provided curbside collection.

Use of these collection methods may vary from community to community. Typically, more rural municipalities will rely on drop-off facilities (for example, transfer stations) where residents deliver their MSW, while more densely populated communities will provide curbside collection. Some municipalities will provide a drop-off facility in addition to curbside collection to facilitate collection of other wastes not typically collected via curbside.

Running a drop-off facility involves costs for operation and maintenance. This includes staff time spent on sorting and baling recyclables, coordinating pickups for outbound loads of recyclables/MSW, as well as costs for equipment and facility upkeep. There are also cost variables with curbside programs, including frequency of pickups, route density, truck maintenance, and collection bins.

TRANSPORTATION

Transportation costs are influenced by several factors, including the terms of contracts with waste haulers (as applicable), the distance between facilities, fluctuations in fuel prices, and the type of waste

and how it is being transported. For municipalities with drop-off facilities, hauling fees are typically a separate expense item, while with curbside collection, the cost to haul collected wastes to a facility may be included in the total costs of collection. Because hauling fees are commonly charged per trip regardless of load weight, facilities will often attempt to load as much MSW or recyclables as possible in one shipment to minimize the number of loads and associated hauling fees. *Table 1* below, in the section on disposal, shows average hauling fees for a sample of New Hampshire communities related to disposal of MSW.

RECYCLING

Recycling programs vary by municipality, but operate using similar components: separation, collection, processing, and marketing. Recycling programs can be categorized into three main types:

1) Source separation – residents sort recyclables individually at a local drop-off location (e.g., town transfer station),
2) Dual stream – fibers (paper products) are separated from recyclable plastic, metal & glass containers, and
3) Single stream – fibers and recyclable containers are mixed into one bin.

Most municipal recycling programs in New Hampshire currently use either source separation or single stream. In 2019, NRRA estimated that 71% of communities in New Hampshire used source separation – however, those communities only encompassed 43% of the population at that time. This is because single stream recycling is widely used in larger communities with higher populations. Dual stream has become a less common practice in recent years due to wider adoption of single stream programs. The mechanics of source separated recycling and single stream recycling vary considerably. A municipality with a source separation program needs space (containers or bunkers) to hold collected materials and, ideally, machinery (balers) to compact commodities into rectangular bales and secure them with wire or strapping. Covered storage space is also needed to keep baled commodities clean and dry until they can be sold in the market. Communities using single stream recycling typically do not need the same space and equipment as a source separating community. Single stream programs rely on regional, Materials Recovery Facilities (MRF) to separate co-mingled recyclables. Currently, all single stream MRFs are located out-of-state.

Any recycling program is subject to risk of contamination from "wish-cycling," inadequate preparation of recyclables, and misinformation about what items are accepted. The issue of contamination has been especially challenging for single stream programs because more contamination results in higher costs to sort the mixed recyclables and yields lower value commodities for market. As a result, many municipalities and waste management companies that provide single stream programs have recently made efforts to educate the public about what items are acceptable and how to prepare and sort recyclables.

While RSA 149:M-2 discourages the disposal of recyclable materials in landfills and incinerators, New Hampshire does not a have statewide mandatory recycling requirement. According to a 2018 update to NERC's Disposal Bans & Mandatory Recycling report[18], 117 of New Hampshire's 234 municipalities have voluntarily adopted some type of mandatory recycling ordinance. Many recyclables (e.g., aluminum, cardboard, some plastics) are valued commodities that can be sold into market to generate revenue for a municipality. Revenue from the sale of recyclables can help offset transportation and processing expenses. Source separation programs tend to have lower processing costs, as compared to single

[18] NERC Disposal Bans & Mandatory Recycling in the United States

stream programs, because sorting is largely accomplished by individual generators. Single stream processing is outsourced to waste management companies, which adds additional cost to the municipality. Oftentimes, waste diversion helps avoid higher costs of MSW disposal, because landfilled waste does not have any value.

It is important to note that recycling markets constantly change with product supply and demand. Municipalities make program decisions based on what is logistically and economically feasible given current market conditions. By weight, over half of the municipal recycling stream typically consists of fibers (cardboard and paper), which means that fibers pricing strongly influences the overall value of the average ton of municipal recycling. Commodities separated into distinct subcategories typically have a higher value at market than the subcategories being mixed together. For example, mixed paper is different types of paper mixed together (e.g., newspaper, magazines, junk mail, office paper). If a community separates out office paper or newspaper separately from its mixed paper, it can receive much higher value for those commodities versus just mixed paper.

The graphs below provide an overview of historic market variability for different recyclable commodities. Specifically, the graphs depict the annual average market pricing[19] over a ten-year period, from August 2013 to August 2022, for:

- #1 PET & #2 HDPE plastics,
- Aluminum cans (used beverage containers),
- Mixed paper & corrugated cardboard (OCC), and
- Scrap metal & steel cans

Most of the pricing shown in the graphs below represent prices paid for full truckloads of baled commodities shipped to vendors that NRRA works with across the Northeastern United States and Canada.

[19] The pricing presented is based on annualized averages of monthly material market values from various NRRA vendors.

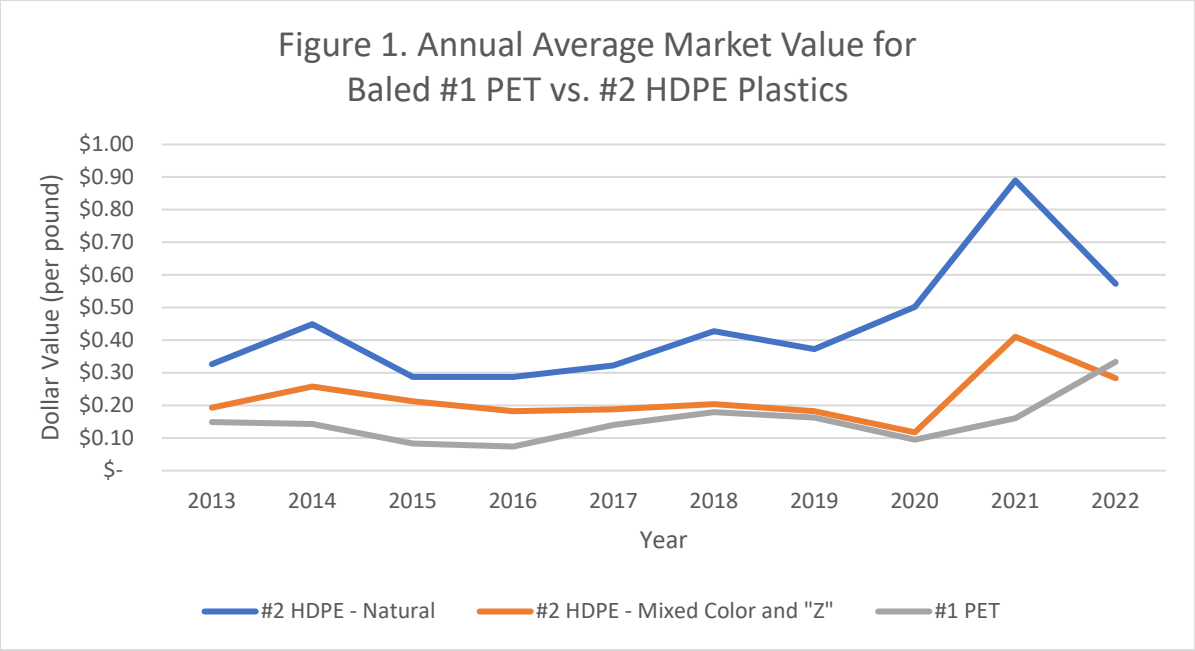

Figure 1. Plastics – Historically, #1 PET (polyethylene terephthalate) and #2HDPE (high density polyethylene) plastics have the most reliable recycling markets because of their wide use in the consumer marketplace. PET is commonly used for soda and water bottles. HDPE comes in two primary forms: "natural" (translucent HDPE commonly used for milk and juice jugs), and "colored" (opaque, pigmented HDPE typically used for shampoo and detergent bottles). While it is common for natural and colored HDPE to be baled separately, sometimes natural and colored HDPE are baled together – also known as "Z" bales.

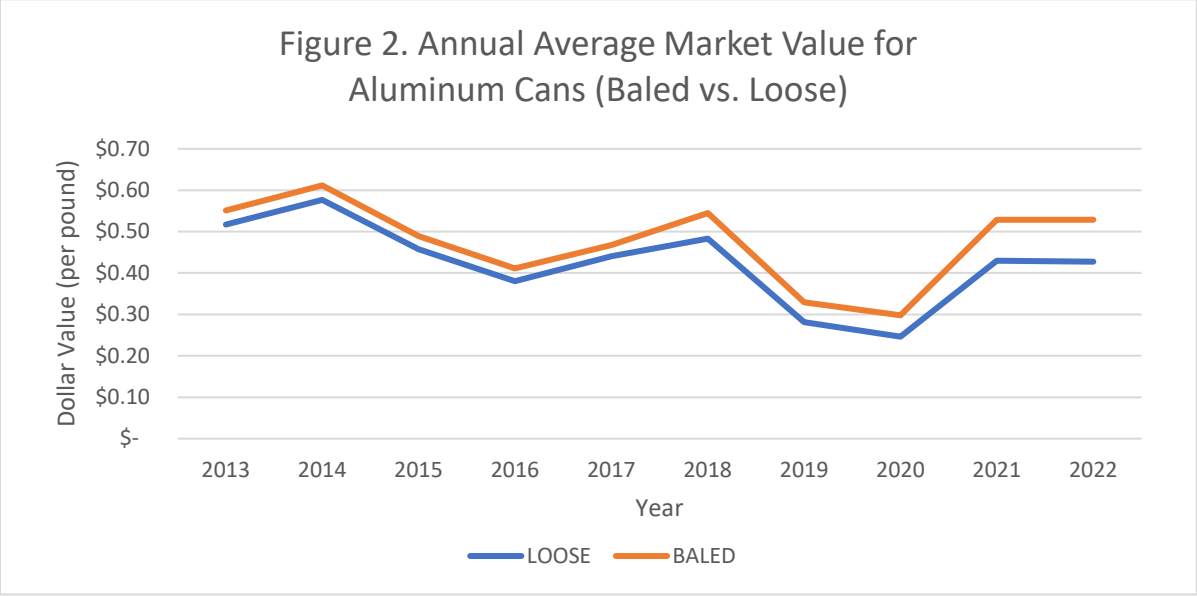

Figure 2. Aluminum Cans – The dollar value for aluminum cans depends on whether the material is condensed into large, rectangular bales or shipped loose in roll-off containers to be baled at another location. Historically, aluminum cans that are baled and ready for market have a higher value.

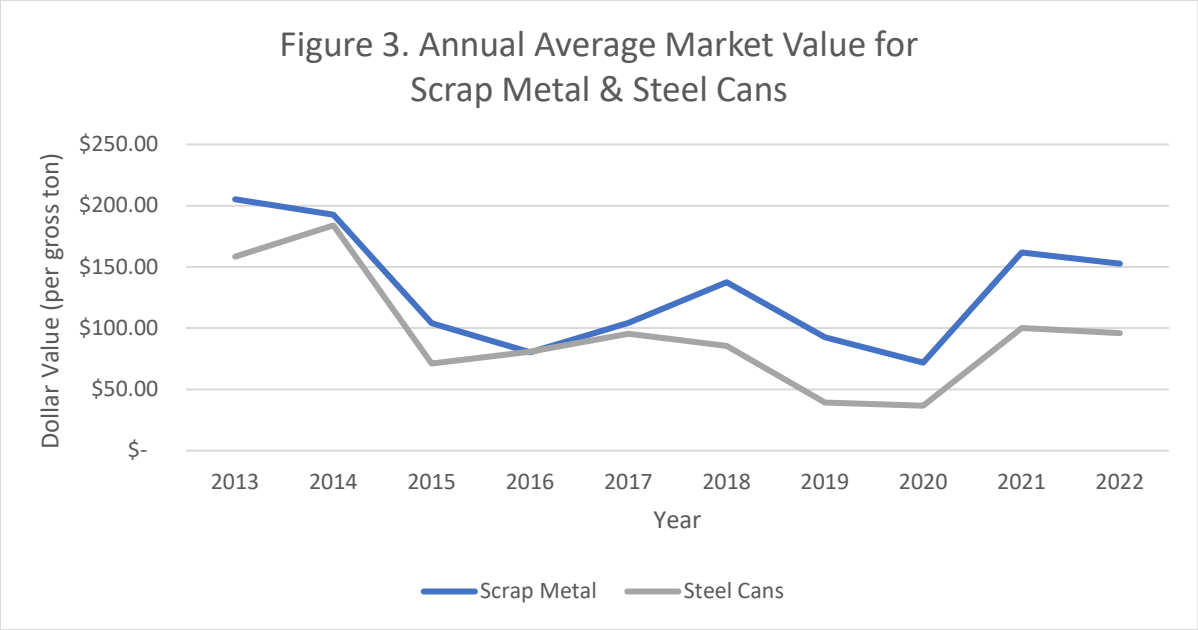

Figure 3. Scrap Metal & Steel Cans – As with aluminum cans, the value of steel cans depends on whether the material is baled or loose. Scrap metal, however, is commonly shipped loose in roll-off containers. Scrap metal is often a significant source of revenue for New Hampshire municipalities.

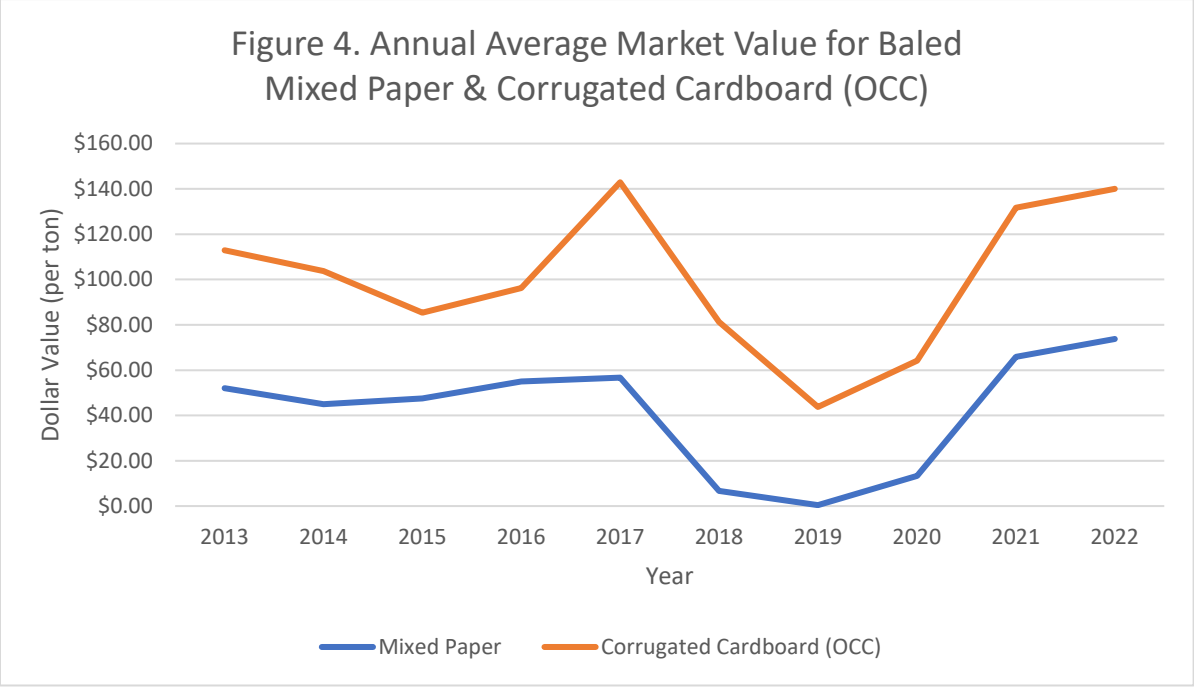

Figure 4. Mixed Paper & Corrugated Cardboard (OCC) – Mixed paper includes newspaper, magazines, junk mail, paperboard, catalogs, and office paper. Historically, pricing for baled mixed paper will track closely with pricing for baled corrugated carboard (also known as "old corrugated containers," or OCC), although OCC typically has a higher market value than baled mixed paper.

Recycling and Available Markets

Whether or not something actually gets recycled depends on whether there is a market for the item. Since markets vary by location, it may not be economically feasible for a municipality to recycle a certain item, even if that item may be recyclable in other areas. Economic feasibility depends on distance to a buyer, transportation costs, and whether a town or facility has the necessary storage space, equipment, and personnel to collect and process the material. It also depends on whether the material is generated in sufficient quantities and has high enough value to offset processing or transportation costs or the cost of disposal. Therefore, in some cases, just because an item is labelled "recyclable," does not mean it is locally "processable." The staff at your municipal transfer station can answer any questions about what is processed at the facility.

ORGANICS DIVERSION

Across New England, organic materials (food scraps, leaf and yard waste, paper products) are often diverted through composting or anerobic digestion. As of the date of this document's publication, there are currently no anerobic digestion facilities in New Hampshire permitted to process solid wastes, such as food scraps. New Hampshire does have nine (9) operating composting facilities permitted to compost food scraps. Composting is a diversion method that turns organic material into a soil amendment that can be used to improve soil structure, plant health, and water retention. Diverting food and yard waste through composting can save landfill space and municipal disposal costs. For example, the City of Lebanon reported a 30% cost savings from composting over landfilling food scraps.[20] There are many logistical components that influence the overall cost of running a municipal composting program. To start, a municipality must determine if it is more economically feasible to operate their own composting facility, or contract with a hauler to pick up the food scraps and transport them to a separate facility for processing. Other considerations include:

- Establishing a feasible collection method,
- Purchasing any necessary equipment or collection bins,
- Educating the public about the program,
- Training staff,
- Identifying markets to process raw organics or purchase the finished compost product, and
- Complying with local ordinances and state regulations.

Currently, only a few New Hampshire municipalities have food scrap composting programs in place[21]. Some are composting food scraps at their own municipally-owned composting facility, while others collect food scraps and transfer them to a third-party facility for processing.

It is more common for municipalities to compost leaf and yard waste because New Hampshire state law bans the disposal of such items in landfills and incinerators. Many municipalities operate their own yard waste composting facility, while others may send their yard waste to a third-party composting facility (yet others may manage yard waste by chipping or burning as authorized by the local Fire Department). It is worth noting that facilities solely dedicated to composting of leaf and yard waste do not require a solid waste permit.

[20] NRRA news post: Municipal Compost Conversation Stirs Interest

[21] Sample of NRRA Municipalities with Composting Programs (NH, VT)

DISPOSAL

Disposal in landfills and incinerators without energy recovery have the lowest preference on the New Hampshire Waste Management Hierarchy. These methods should be reserved for wastes that have limited-to-no recycling options and therefore need to be disposed in a landfill or incinerated.

Disposal facilities typically charge disposal (tipping) fees for the waste that they receive. These fees are commonly charged per ton, unlike hauling fees as discussed above. This means that the more MSW a municipality sends for disposal, the more it will pay to the disposal facility. Tipping fees are largely market-driven and a disposal facility may set different rates for long-term contracts versus uncontracted loads (also known as "spot market"). According to Waste Business Journal[22], the U.S Northeast has some of the highest tipping fees in the country, compared to the National average. This is, in part, due to our dwindling capacity of existing landfills and limited space to build new landfills. Table 1 below compares the average tipping fees, hauling fees, and total cost per ton for five New Hampshire communities with a population under 4,000.

Table 1. Average MSW Disposal Costs for 2020-2022[23]

Year	Average Tipping Fee (per ton)	Average Hauling Fee (per truckload)	Average Total Cost Per Ton (tipping & hauling fees)
2020	$79.70	$260.00	$105.54
2021	$85.00	$270.00	$109.30
2022	$104.30	$285.00	$133.58

Cost Recovery by Municipalities

Oftentimes, municipal facilities will charge residents a fee to help recover the costs associated with disposing or recycling specialized wastes including tires, propane tanks, electronics, refrigerant-containing appliances, C&D, etc. Municipalities will typically structure such fees based on what they pay for disposing or recycling a given waste type, including staff time involved in managing the waste. In many cases, fees will be a fixed price per item. However, for some wastes, such as C&D and electronics, facilities may use a truck or floor scale to weigh incoming waste and charge a weight-based fee. Facilities without a scale may set volume-based fees based on truck-bed dimensions or rely on a staff member to estimate incoming load sizes. Scales provide an advantage where municipalities can charge a precise cost that covers most of the actual disposal costs. For example, after completing a cost assessment in 2020, the Town of Gilford found that only 55% of their costs for C&D disposal were covered by their volume-based fees.[24] The town was spending nearly $40,000 annually beyond the fees received. The town used this data to support purchasing a truck scale to move to a weight-based fee system to enable more precise cost recovery.

Pay-As-You-Throw (PAYT), or unit-based pricing, is another fee mechanism that allows municipalities to recover some, or all of their costs associated with MSW disposal. Traditionally, a town or city will pay for

[22] Waste Business Journal
[23] Based on annual data from a sample of five NRRA member communities with a population under 4,000
[24] NRRA "Increasing Waste Diversion" presentation

disposal of municipal solid waste through local property taxes. Residents can throw away as much as they like, and the entire cost is covered by taxpayers regardless of how much waste they generate. This means residents who throw away less trash subsidize those who throw away greater amounts of trash. PAYT is an alternative system by which individuals and businesses pay only for the trash they discard, not that of others. This is a similar model to how public utilities charge users based on how much they use the service. PAYT programs commonly use special collection bags or bag tags that residents purchase for their own waste. PAYT bags or tags will typically be required for disposal of wastes, but not for recycling. This provides an economic incentive for individuals to separate out recyclables and reduce the amount of trash they dispose of. Municipalities can use proceeds from bag sales to cover disposal costs and invest in their local waste management infrastructure without affecting property taxes.

Out of the 234 municipalities in New Hampshire, 39 are participating in some form of a PAYT system[25]. Many of these municipalities have reported a decrease in their total disposal tonnage after instituting PAYT. For example, the City of Concord has reported that their total MSW tonnage has decreased by 40% since introducing PAYT in 2009.[26]

[25] Pay-As-You-Throw programs in New Hampshire
[26] City of Concord Trash Disposal Information

Figure 5. Solid Waste Flow Schematic

Prepared by NHDES per Waste Management Council Request

May 1, 2019

This flow chart shows potential pathways for managing solid waste. Not all municipal programs use each management method.