BIENNIAL SOLID WASTE REPORT

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Prepared by the New Hampshire Department of Environmental Services

NEW HAMPSHIRE
DEPARTMENT OF
Environmental
Services

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I. Introduction

This report has been prepared pursuant to NH RSA 149-M:29, II, which directs the New Hampshire Department of Environmental Services (NHDES) to prepare a report on New Hampshire's progress toward reaching the 40% solid waste diversion goal established in RSA 149-M:2, as well as proposed strategies for achieving the goal, proposed changes to the goal, and various other details, which are addressed in the body of this document.

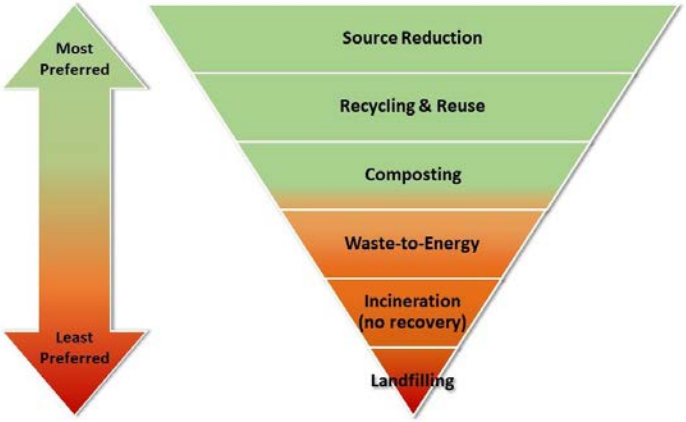
In 1990, RSA 149-M was amended to establish a Waste Reduction Goal, which has been subsequently revised over the years. The current version of this goal, established in 1999, sets a target to divert at least 40% of New Hampshire's solid waste from final disposal by the year 2000 in order to reduce the quantity of solid waste disposed in the state's landfills and incinerators, as measured on a per capita basis. As stated in RSA 149-M:2:

> *The general court declares its concern that there are environmental and economic issues pertaining to the disposal of solid waste in landfills and incinerators. It is important to reserve landfill and incinerator capacity for solid wastes which cannot be reduced, reused, recycled or composted. The general court declares that the goal of the state, by the year 2000, is to achieve a 40 percent minimum weight diversion of solid waste landfilled or incinerated on a per capita basis. Diversion shall be measured with respect to changes in waste generated and subsequently landfilled or incinerated in New Hampshire. The goal of weight diversion may be achieved through source reduction, recycling, reuse, and composting, or any combination of such methods. The general court discourages the disposal of recyclable materials in landfills or processing of recyclable materials in incinerators. (RSA 149-M:2, I. – effective July 20, 1999)*

While the terminology used to express this goal emphasizes diversion, it is evident that the intention was to reduce the overall quantity of waste generated (via source reduction) while also diverting from disposal waste that cannot be reduced (via reuse, recycling, or composting). 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.

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

Figure 1. New Hampshire's Waste Management Hierarchy



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 is at the top of the hierarchy because such practices prevent a waste from being generated, which results in less waste needing end-of-life management, conserves resources and reduces overall environmental impact. When a waste is generated, managing it via reuse, recycling or composting is preferred because these methods recover and divert materials from disposal, thereby encouraging 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, reduce volume and weight, and in some cases may produce useful by-products.

As established by the General Court, the waste management hierarchy, in conjunction with the waste reduction goal, was envisioned to support an integrated waste management system in New Hampshire, combining 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. In this way, the hierarchy serves as a guiding principle not only for NHDES and the state at large, but also for municipalities, commercial and industrial waste generators, solid waste management companies, and the general public. However, it is worth noting that since the hierarchy was established in 1990, waste management infrastructure in New Hampshire has not significantly shifted from disposal (landfilling and incineration) toward more preferred management methods.

In preparing this report, NHDES used readily-available information to address the topic areas required by statute (RSA 149-M:29, II). However, NHDES acknowledges that some of the content contained herein may not meet the robust level of detail that was likely intended by the statute. This is partly due to data and resource limitations, in addition to a lack of statutory clarity. The conclusion of this report provides suggestions on how the waste reduction goal might be revised to enable NHDES to better measure and track progress toward attainment.

II. Generation of Solid Waste in New Hampshire

The term "generation" refers to the act of producing a waste, which is something that happens every day in New Hampshire as a result of the routine activities of residents, visitors, businesses, institutions and industry. RSA 149-M generally defines "solid waste" as any abandoned or discarded material, excluding hazardous waste, nuclear waste, sludge and septage, point source discharges of certain municipal and industrial wastewater, and yard waste. Given these broad boundaries, the category of solid waste encompasses a wide variety of potential materials, including household trash, recyclable materials, food waste, commercial and industrial waste, construction and demolition debris, electronic waste, asbestos waste, non-hazardous contaminated soils, end-of-life motor vehicles, animal carcasses, infectious waste, or anything else that qualifies as abandoned or discarded material.

For the purposes of this report, the concept of generation is intended to consider the entirety of solid waste produced in the state, not only wastes disposed in a landfill or incinerator, but also wastes that are diverted (for example, reused, recycled, composted). Estimating statewide generation of solid waste is complex. There are a variety of generators across various sectors in New Hampshire, but NHDES does not specifically track solid waste from the point of generation. Instead, NHDES regulates the management of solid waste at permitted solid waste facilities within the state. This only provides NHDES with data on wastes managed at these facilities and does not capture all solid waste actually generated within the state. For example, some industrial, commercial or institutional generators may use hauling services that directly transport refuse and recycling to destinations outside of New Hampshire. Further, there is an indeterminable quantity of waste that is generated but never reaches a permitted solid waste facility because it is managed at the site of generation, such as home composting, or is diverted directly to reuse (for instance, donation).

According to 2015 data from the United States Environmental Protection Agency (EPA), U.S. consumers generate an average 4.48 pounds of municipal solid waste (MSW) per person per day.[1] It is worth noting that this figure does not include generation of construction and demolition debris (C&D), industrial wastes, end-of-life motor vehicles, and contaminated soils.

Applying EPA's generation rate to New Hampshire's 2018 population[2] would suggest that just over 1.1 million tons of MSW were generated within the state in 2018. However, as noted above, there are broad categories of solid waste not included in this estimate. Because this figure only represents an estimate of MSW generation, we know that New Hampshire's actual generation rate for all solid waste is likely considerably higher. However, NHDES does not have data to support a definitive figure.

[1] United State Environmental Protection Agency. *National Overview: Facts and Figures on Materials, Wastes and Recycling*. https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#Generation

[2] According to NH Office of Strategic Initiatives, New Hampshire's population in 2018 was 1,365,458.

III. Disposal of Solid Waste in New Hampshire

The term "disposal," defined in RSA 149-M:4, VI, generally refers to the act of depositing waste in or on land or water. The term is most commonly used to refer to "final" management methods, including deposition in a landfill or combustion in an incinerator. As noted in the introduction, disposal methods such as incineration and landfilling are least-preferred on the waste management hierarchy established by RSA 149-M:3, while source reduction (reducing the quantity of waste generated at the source) and diversion (such as, reuse, recycling, composting) are at the top of the hierarchy. However, since the hierarchy was established, New Hampshire's waste management infrastructure has not significantly shifted from a reliance on disposal. With three commercial landfills, three limited-service public landfills, and one commercial waste-to-energy facility operating in New Hampshire, the state is somewhat unique among its neighboring states in terms of active disposal capacity.

Table 1 below illustrates total quantities of waste disposed over the last four years at New Hampshire's landfills and waste-to-energy facility. The data are broken down by waste received from in-state sources, as well as out-of-state sources. The vast majority of out-of-state waste disposed in New Hampshire is received by the three commercial landfills. As the table shows, disposal tonnages have increased incrementally over the last several years, while the ratio of in-state waste compared to out-of-state waste has hovered around 50%.

Table 1. New Hampshire Disposal Figures 2015 – 2018

Year	Total Tons Disposed	Tons from In-State Sources	Tons from Out-of-State Sources	Percentage In-State Sources
2015	1,973,561	1,053,130	920,431	53%
2016	2,076,656	1,082,138	994,518	52%
2017	2,329,946	1,225,366	1,104,580	53%
2018	2,388,877	1,228,819	1,160,058	51%

Table 2. Disposal of NH-generated Waste, Normalized Per-Capita

Year	NH Population*	Total Tons Disposed From In-State Sources	Tons Disposed per Capita
2015	1,330,608	1,053,130	0.79
2016	1,334,795	1,082,138	0.81
2017	1,342,795	1,225,366	0.91
2018	1,356,458	1,228,819	0.91

* Population estimates from New Hampshire Office of Strategic Initiatives
https://www.nh.gov/osi/data-center/population-estimates.htm

Table 2 shows disposal of waste generated in New Hampshire relative to the state's population. The data show an increase in per capita disposal from 2016 to 2017, with 0.81 tons disposed per person in 2016 to 0.91 tons disposed per person in 2017. While there is not enough information to conclusively

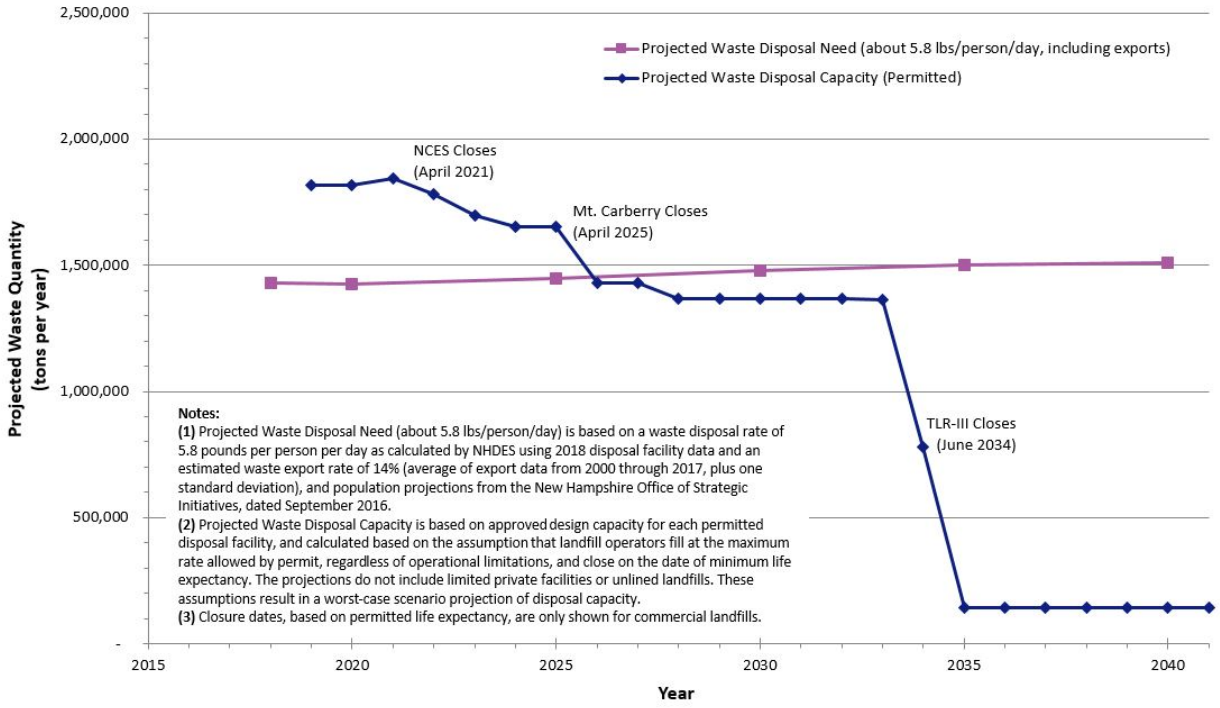
determine the cause for this increase, it is likely due to a number of factors, including increased waste generation resulting from increased economic activity. In addition, international recycling markets began to experience disruptions in the second half of 2017, and the situation worsened considerably in 2018. However, it is unclear to what degree this impacted per capita disposal rates, especially in light of the fact that the rate of 0.91 tons disposed per person did not change from 2017 to 2018, despite growing challenges for recycling markets over the same period.

Disposal is a metric that NHDES can definitively track and measure. However, relative to the hierarchy of preferred waste management methods, NHDES acknowledges that the agency has some blind spots in terms of tracking management trends higher on the hierarchy. Source reduction is something the agency does not track, and, even if it attempted to do so, it would be inherently difficult to estimate source reduction in a meaningful way. For example, source reduction is a common occurrence in today's consumer marketplace, where packaging manufacturers have been using increasingly thinner, lighter materials to produce product packaging, such as lighter weight plastic water bottles and flexible plastic pouches instead of paperboard. However, NHDES is not in a position to measure or quantify how this trend has been affecting New Hampshire's waste stream. Similarly, NHDES does not currently have reliable information on New Hampshire's recent recycling trends. Obtaining and analyzing data to produce meaningful statewide estimates is a complex task, and NHDES has been limited in terms of both its ability to obtain comprehensive data as well as the necessary program resources to allow the department to measure recycling trends, or other diversion trends, with a high degree of confidence.

IV. Projected Solid Waste Disposal Need and Disposal Capacity

Figure 2 illustrates NHDES' projections for the quantity of solid waste generated in New Hampshire needing disposal compared to available permitted disposal capacity at New Hampshire's landfills and incinerators. Further explanation of the figure and how NHDES derived these projections is provided below.

Figure 2. Projected Waste Disposal Need & Capacity for New Hampshire (2020 - 2040)



Projected Waste Disposal Need

For this report, NHDES projected New Hampshire's solid waste disposal need in accordance with RSA 149-M:11, V, which requires the department to consider disposal need over a 20-year planning period. There are numerous methods by which such disposal need projections might be made. NHDES based its projections on the following:

- Disposal tonnage reported by NH's operating landfills and incinerators in their 2018 annual facility reports (AFRs).
- Export data reported to NHDES from 2000 through 2017.
- Population projections made by the NH Office of Strategic Initiatives (NHOSI), dated September 2016, which are the most current population projections available for the 20-year planning period.
- The statutory requirement in RSA 149-M:11, V(a) that disposal projections account for all waste generated in New Hampshire (including waste exported to out-of-state disposal facilities).
- The assumption that New Hampshire's rate of disposal will remain constant over the 20-year planning period.
- The assumption that diversion rates will remain constant over the 20-year planning period.

NHDES estimated the disposal rate at New Hampshire landfills and incinerators for in-state generated solid waste in 2018 as about 5.0 pounds per person per day, and assumed this to be the baseline waste disposal need for New Hampshire. Consistent with RSA 149-M:11, NHDES attempted to account for all solid waste generated within New Hampshire destined for disposal by including the amount of solid waste generated in New Hampshire that is exported to out-of-state disposal facilities. NHDES estimates this disposal export rate at 14%, based on the average export rate from 2000 to 2017 plus one standard deviation (to account for variability and unreported exports).[3] Based on this estimate, waste exported for disposal outside of New Hampshire equates to approximately 0.8 pounds per person per day. Therefore, New Hampshire's total solid waste disposal rate, inclusive of exports, is estimated to be about 5.8 pounds per person per day. Because this estimate relates solely to disposal, it does not account for solid waste diverted from disposal by way of reuse, recycling or composting. The "Projected Waste Disposal Need" line depicted in Figure 2 represents 5.8 pounds per person per day multiplied by the population projections made on 5-year intervals by NHOSI. Changes in any of the factors and assumptions noted above may affect actual disposal need.

Projected Waste Disposal Capacity

Projected waste disposal capacity is based on a combination of factors, including specific conditions relative to operational lifespan contained in each disposal facility's permit. NHDES estimated the statewide "Projected Waste Disposal Capacity" line shown in Figure 2 based on the following:

- The total permitted capacity of New Hampshire solid waste disposal facilities, excluding unlined landfills pursuant to RSA 149-M:11, V(a) and limited private facilities, which are closed loop facilities that only serve the capacity needs of the generator who owns the facility and therefore do not provide disposal capacity for the general public.
- The assumption that landfill operators will fill at the maximum rate allowed by the facility's permit, regardless of operational limitations.
- The assumption that a facility will close on the minimum operational date required by permit, which NHDES considers the earliest anticipated closure date of a disposal facility.

These assumptions result in a slightly conservative but reasonable scenario for projected disposal capacity in New Hampshire. Note that Figure 2 shows the earliest anticipated closure dates for the state's commercial landfills, which accept the majority of New Hampshire's solid waste, and Table 3 below shows the earliest anticipated closure date of each disposal facility in New Hampshire, excluding unlined landfills and limited private facilities.

[3] The average export rate for solid waste during this 17-year period was about 10% and the standard deviation was about 4%.

Table 3. Active New Hampshire Disposal Facilities, Listed by Earliest Anticipated Closure Date

Facility Type	Facility Name	Location	Service Type / Service Area	Earliest Anticipated Closure Date
Waste-to-Energy Incinerator	Wheelabrator Concord Company L.P.	Concord, NH	Commercial / Unlimited	None
Incinerator (no resource recovery)	Hebron-Bridgewater Refuse District	Bridgewater, NH	Limited Public / Limited	None
Landfill	North Country Environmental Services, Inc.	Bethlehem, NH	Commercial / Unlimited	April 16, 2021[4]
	Four Hills Secure Landfill Expansion	Nashua, NH	Limited Public / Limited	April 15, 2023[5]
	Mount Carberry Secure Landfill	Success, NH	Commercial / Unlimited	April 29, 2025[6]
	Lebanon Regional Solid Waste Facility	Lebanon, NH	Limited Public / Limited	est. 2027[7]
	Lower Mount Washington Valley Secure Solid Waste Landfill	Conway, NH	Limited Public / Limited	est. 2033[8]
	TLR-III Refuse Disposal Facility	Rochester, NH	Commercial / Unlimited	June 30, 2034[9]

Assessment of Waste Disposal Need Relative to Waste Disposal Capacity

Based on a review of Figure 2, NHDES predicts a limited shortfall in disposal capacity between 2025 and 2034, ranging between about 20,000 and 120,000 tons per year. In 2034, assuming that TLR-III Refuse Disposal Facility in Rochester, NH closes, the Wheelabrator Concord Company L.P. waste-to-energy plant in Concord, NH remains operational, and there are no changes in current solid waste diversion rates, the state will experience a shortfall in disposal capacity of about 1.35 million tons per year thereafter. Although some landfills may have physical space to accommodate future expansions, NHDES' projections do not consider hypothetical capacity, but are based solely on permitted capacity as of the date of this report. As disposal facilities seek approvals for additional permitted capacity, the projections made herein are subject to change.

[4] North Country Environmental Services, Inc.: Condition (13)(a) of the permit modification effective August 15, 2014 stipulates that the permittee shall operate Stage V in a manner that provides 5.3 or more years of disposal capacity. The permittee began operations in Stage V on December 28, 2015.

[5] Four Hills Secure Landfill Expansion: Condition (7) of the facility's Standard Permit, effective June 26, 1995, stipulates that the permittee shall operate the facility in a manner that provides 20 or more years of disposal capacity. The permittee began operations in Phase I on April 15, 2003.

[6] Mount Carberry Secure Landfill: Condition (20)(b) of the permit modification effective February 25, 2019 stipulates that the permittee shall operate the facility through at least April 29, 2025.

[7] Lebanon Regional Solid Waste Facility: There is no minimum operating life expectancy in the facility permit. The anticipated closure date is estimated based on projected remaining capacity and life expectancy reported in the facility's 2018 Annual Facility Report.

[8] Lower Mount Washington Valley Secure Solid Waste Landfill: There is no minimum operating life expectancy in the facility permit. The anticipated closure date is estimated based on projected remaining capacity reported in the facility's 2018 Annual Facility Report, and a proposed fill rate in the initial facility permit application of 10,000 tons per year.

[9] TLR-III Refuse Disposal Facility (aka Turnkey Landfill): Condition (21)(b) of the permit modification effective June 11, 2018 stipulates that the permittee shall operate the facility through at least June 30, 2034.

V. State and Regional Trends in Solid Waste Management

Trends in New Hampshire

Landfill Expansions – Applications for landfill expansions constitute the vast majority of requests for new permitted solid waste management capacity received by NHDES. At the same time, there continues to be significant public opposition to expanding existing facilities or siting new disposal facilities.

Waste Imports – Out-of-state waste comprises roughly 50% of total waste disposed in New Hampshire facilities. Most of the out-of-state waste disposed in New Hampshire is received by three commercial landfills. Commercial disposal facilities in New Hampshire are permitted to receive waste from out-of-state sources, provided they also provide capacity for New Hampshire-generated waste. The Commerce Clause of the U.S. Constitution has commonly been interpreted to preempt a state from explicitly prohibiting or adopting protectionist policies against the acceptance and disposal of out-of-state waste.[10]

Legislative Attention to Waste Issues – There has been increased interest in issues related to solid waste within the last year, with several bills introduced during the 2019 legislative session focused on recycling and plastic waste reduction, including:

- HB 102 and HB 559 – both of these bills relate to enabling municipalities to ban or otherwise regulate the distribution of disposable, single-use plastic items such as plastic shopping bags, straws, and take-out food containers. Both of these bills were retained in committee.
- HB 558 – an act relative to restricting the distribution of plastic straws at food service businesses, unless a customer specifically requests one. The bill passed the House, but was deemed inexpedient to legislate by the Senate.
- HB 560 – initially introduced as an act relative to restricting the distribution of single-use carryout bags by retails stores and food service businesses, this bill passed the House. It was subsequently amended by the Senate, but the House did not concur with the Senate's amended version.
- HB 617 – an act establishing a committee to study recycling streams and solid waste management in New Hampshire. The bill passed the House and Senate, and was signed into law by Governor Sununu. The committee convened for the first time on August 28, 2019 and is required to produce a report of findings and recommendations by November 1, 2019.
- SB 79 – an act relative to required reporting on waste reduction. To help NHDES better assess achievement of the 40% diversion goal in RSA 149-M and further solid waste management planning efforts, the bill requires New Hampshire towns to report certain recycling and diversion information to NHDES. NHDES worked with the prime sponsor to amend the bill, which passed the Senate, but was retained in the House.

Organic Waste Diversion – In recent years, there has been rising interest among legislators, municipalities, regional organizations, commercial/institutional entities, and members of the general public in the topic of composting and organic waste diversion. Diverting organics is consistent with the hierarchy, recovers resources, reduces disposal need, and has the potential to reduce waste

[10] The 1978 Supreme Court Case, Philadelphia v. New Jersey, struck down a New Jersey law that prohibited the importation of waste into the state. For additional information, see: http://law2.umkc.edu/faculty/projects/ftrials/conlaw/statecommerce.htm

management costs. In an effort to encourage development of food waste composting infrastructure, NHDES convened a stakeholder workgroup in 2017-2018 to look at potential revisions to the New Hampshire Solid Waste Rules (see discussion of on-going efforts in Section VII. herein).

Regional Trends

Recycling Market Downturn – Regional (and international) recycling markets experienced a significant downturn starting in late 2017, spurred by China's National Sword Policy, which effectively banned that country's importation of certain recyclable commodities in response to contamination issues (such as unacceptable or non-recyclable items mixed with recyclables). Prior to this policy, China had been a leading importer of the world's secondary materials, which provided feedstock for China's manufacturing sector. The implementation of National Sword significantly lowered the value of recycled commodities worldwide. Mixed plastics and mixed paper were particularly affected, as these streams have traditionally been dependent on export markets and are commonly prone to higher contamination rates, especially when sourced from single stream recycling programs. With the world's largest consumer of secondary materials no longer available, recycling markets worsened through 2018 to present. As a result, municipal single stream recycling programs across the United States are experiencing rising costs as waste management companies that process and sort recyclables at material recovery facilities (MRFs) are facing depressed revenues and increased processing costs.[11] Municipalities that have not adopted single stream recycling have also been affected by depressed commodity revenues, but in many cases are faring slightly better overall. In response to this economic shift, some communities have decided to suspend recycling programs, either entirely or in part. Some New England states with mandatory recycling policies are reacting by temporarily lifting disposal bans for certain recycling streams that currently have no viable outlet. States like Massachusetts, Connecticut and Rhode Island are attempting to get at the root of the problem by addressing the issue of contamination and increasing outreach to educate the public about how to "recycle right." Waste management companies are investing in MRF upgrades to more effectively sort materials and meet market expectations for lower contamination. Meanwhile, the manufacturing industry in the U.S. is starting to respond by developing increased domestic capacity for use of recycled feedstocks—such as mixed paper or plastics—to produce new products and packaging.

Disposal Capacity Challenges – Over the last year, two commercial landfills in Massachusetts ceased operations. The closure of these facilities, one in Chicopee and the other in Southbridge, represents a loss in regional disposal capacity of approximately 500,000 tons per year. This development puts pressure on the region's remaining disposal infrastructure, and exports of waste from Massachusetts are expected to increase. As a result, there has been heightened interest in hauling waste by rail or truck to locations outside the Northeast that have ample disposal capacity, such as Pennsylvania or Ohio. Meanwhile, waste-to-energy facilities face economic pressures as they compete in a marketplace with

[11] A recent report published by the Northeast Recycling Council (NERC) surveyed 15 MRFs across 10 Northeast states to learn more about average value of material processed through these facilities, as well as the average composition of the recycling stream. The report indicates that, on average, roughly 12% of the material received by these facilities is considered "residue" (i.e. contaminants that can't be processed through the MRF's system). Rising contamination rates in recycling streams have been a growing challenge for MRFs in recent years (especially for those that process single stream), which in turn has affected processing costs for these facilities. The full report is available here: https://nerc.org/documents/Recycling%20Market%20Development/Blended_Commodity_Values_in_the_Northeast%20-%20August_2019.pdf

other electricity producers that use relatively inexpensive natural gas and have comparatively lower operational costs.

Organic Waste Disposal Bans – Several Northeast states have enacted laws banning the disposal of food waste in recent years. In 2014, Vermont enacted Act 148 (a.k.a. The Universal Recycling Law), which includes requirements for diversion of food scraps. Vermont Act 148 uses a phase-in approach, targeting the largest food waste generators first and incrementally decreasing the generation threshold until all generators will be required to divert food scraps, regardless of quantities generated. Vermont's approach has gained attention as the most aggressive statewide organics diversion policy. Connecticut, Massachusetts, Rhode Island and New York have taken a different approach by enacting food waste disposal bans that target large-scale generators. In most cases, these bans apply to commercial or institutional generators that produce a ton or more of food waste per week. States across the region have adopted these statutory requirements to reduce disposal need and spur development of infrastructure for composting and anaerobic digestion.

Extended Producer Responsibility – In order to encourage resource recovery and minimize the impacts to public health, safety and the environment from the use and disposal of consumer products, several Northeastern states have adopted extended producer responsibility (EPR) laws that require manufacturers to share responsibility for end-of-life management of the product(s) they produce. A long-standing example of one such policy in New Hampshire is the mercury thermostat take-back program established in 2008 (RSA 149-M:58-a). More recent examples of EPR programs in other states include:

- Paint take-back programs in Connecticut, Maine, Rhode Island, and Vermont.
- Electronic waste recycling programs in Connecticut, Maine, New York, Rhode Island, and Vermont.
- A battery recycling program in Vermont that targets single-use and rechargeable batteries.
- A recent initiative in Maine that seeks to assist municipal recycling programs by requiring manufacturers of packaging/containers to share in the costs of managing and recycling packaging products sold in the state. The Maine Legislature has charged MaineDEP with developing proposed legislation for this purpose, which is largely a response to the recent upheaval of recycling markets.

Bans on Single-use Products – in 2019, several Northeastern states passed laws restricting the distribution of single-use plastic consumer products, including:

- Connecticut, Maine and New York will restrict the distribution of plastic shopping bags.
- Maine will ban expanded polystyrene (EPS) foam food and beverage containers.
- Vermont has passed a comprehensive law targeting several single-use plastic products, including plastic bags, plastic straws, and polystyrene foam food and beverage containers.

VI. Congressional Actions and Court Rulings

NHDES is not aware of any recent federal legislation or court rulings that have affected the management of solid waste on a national level.

VII. NHDES' Solid Waste Programs and On-going Efforts

RSA 149-M grants NHDES authority to administer and enforce the provisions of RSA 149-M, and the Solid Waste Rules adopted pursuant to RSA 149-M. This work is carried out by the Solid Waste Management Bureau (Bureau) within NHDES' Waste Management Division. The Bureau ensures that management of solid waste in New Hampshire is protective of human health and the environment by regulating the facilities and practices associated with the collection, processing, treatment, recycling, re-use, and disposal of solid waste in New Hampshire. Examples of the types of facilities regulated by the Bureau include transfer stations, recycling centers, scrap yards, composting facilities, incinerators, and landfills. The Bureau oversees and assures compliance for approximately 260 active permitted solid waste facilities, 120 motor vehicle salvage yards, and 600+ closed, inactive solid waste disposal sites (consisting of inactive landfills and asbestos disposal sites).

NHDES' Solid Waste Programs

Although at one time NHDES had resources dedicated specifically to waste reduction through technical assistance, outreach and planning, those resources were incrementally lost over time due to general fund budget constraints. Unfortunately, the resultant deficiencies have not allowed the Bureau to pursue these program areas in recent years. Using its current resources, the Bureau focuses its efforts on two essential program areas:

1. *Permitting of solid waste facilities*:

   In accordance with RSA 149-M:6, III, the Bureau regulates solid waste facilities through the administration of a permit system. The Bureau's Permitting and Design Review Section is responsible for processing applications for facility permits, permit modifications, and other requests requiring approval by NHDES. The Permitting and Design Review Section also provides permitting technical assistance, inspects and monitors the operation, construction and closure of New Hampshire's active landfills and processing/treatment facilities, and reviews environmental monitoring data and proposed plans for corrective actions when problems are identified.

2. *Compliance assurance for solid waste facilities*:

   The Bureau's Compliance Assurance Section is responsible for assuring that solid waste facilities are operated and closed in compliance with permit requirements, the Solid Waste Rules (Env-Sw 100 et seq.) and RSA 149-M. This involves providing compliance technical assistance, reviewing reports, conducting facility inspections, investigating complaints, and pursuing enforcement when necessary. The Compliance Assurance Section also assures that facility owners maintain adequate funds to guarantee proper closure and post-closure care of facilities, and distributes grant money to reimburse municipalities for eligible costs for closure of old landfills and incinerators. In addition, and as required by RSA 149-M:6, XIII, the Bureau administers a training and certification program for solid waste facility operators, known as the Solid Waste Operator Training (SWOT) Program. Each year the Bureau hosts multiple 'Basic Training' SWOT workshops for new operators and also provides numerous continuing education opportunities (provided by NHDES staff and/or 3rd parties). The SWOT Program equips facility operators with an awareness of regulatory requirements, fosters a direct relationship between the Bureau and the regulated community, and promotes voluntary compliance. There are over 1,200 solid waste operators currently certified under this program.

On-going Program Efforts

On-going efforts by the Bureau include the following:

- The Permitting and Design Review Section has been working to streamline application processing procedures in response to recent changes to RSA 541-A:29 and the addition of RSA 541-A:29-a that imposed shortened application processing time limits and provisions for automatic approval should the agency fail to act within the prescribed time limits, respectively. These changes, which took effect on January 1, 2019, required the Bureau to devote intensive efforts to completing application reviews and avoiding automatic, default approvals. As a result, other program obligations could not be fulfilled. During the Spring 2019 legislative session, NHDES supported Senate Bill 163 to restore application processing time limits to those previously allowed by the Solid Waste Rules. Senate Bill 163 passed the House and Senate, was signed by Governor Sununu, and took effect September 17, 2019. Senate Bill 163 has provided some relief for application processing time limits; however, the default approval provision in RSA 541-A:29-a remains a significant concern. If program resource levels are not adequately maintained, default approvals may occur, and other important program functions will also suffer.
- The Compliance Assurance Section has put an emphasis on closed/inactive landfill monitoring and maintenance to ensure facility owners and permittees are aware of ongoing requirements. With over 300 closed landfills across the state, nearly every New Hampshire municipality is host to at least one such facility, the majority of which are unlined. Although perhaps not always considered part of the state's solid waste management infrastructure, these closed landfills continue to perform a critical function as waste containment systems. As these facilities age, it is important that they are properly monitored and maintained to minimize adverse impacts to public health, safety and the environment.

As resources allow, the Bureau has been also been working on the following:

- Updating the State's Solid Waste Management Plan, as required by RSA 149-M:29. The last plan was published in 2003.[12]
- Revising regulatory requirements for composting facilities in New Hampshire. In 2017-2018, under the direction of RSA 149-M:7, XV, NHDES convened a stakeholder workgroup to look at potential revisions to the current composting rules, which regulate the siting, design and operating requirements for composting facilities. The workgroup provided NHDES feedback on numerous aspects of the rules, especially with regard to composting of meat and dairy food scraps – an activity that is currently allowed in New Hampshire, but only under a standard permit, which involves a detailed application and review process. Stakeholders have expressed a desire to conduct meat and dairy composting under the more streamlined "permit-by-notification" provisions of the rules. NHDES intends to implement rule revisions to improve the permitting framework as soon as feasible. In the meantime, NHDES has been communicating with interested parties on potential pathways to accommodate development of meat and dairy composting operations under the current regulatory framework. Despite these efforts, NHDES has not received any applications for additional composting capacity to date.

[12] The 2003 New Hampshire Solid Waste Management Plan is available on NHDES' website: https://www.des.nh.gov/organization/commissioner/pip/publications/documents/r-wmd-03-2.pdf

- Identifying wastes that may warrant specific attention, such as street sweepings, contaminated soils and wastes containing per- and polyfluoroalkyl substances (PFAS), as well as considerations for management of landfill leachate that contains PFAS contamination.

Other Organizations Involved in Solid Waste Management

For a list of other organizations involved in solid waste issues in New Hampshire, see Appendix A. The list includes a brief description of each organization. Further details for each organization can be obtained by going to its website or contacting the organization directly.

VIII. Conclusions and Recommendations

As stated in RSA 149-M:29, II, one of the primary purposes of this report is to assess the level of achievement in reaching the 40% diversion goal established in RSA 149-M:2 (Waste Reduction Goal). Considering the information provided above, NHDES is not able to adequately assess the state's achievement of the 40% diversion goal. This is due in large part to the noted resource deficiencies within the Solid Waste Management Bureau, as well as difficulty obtaining and analyzing data. More importantly, NHDES notes that successive revisions to the Waste Reduction Goal have obscured the original intention of the goal, making it unclear what exactly the goal intends to measure or how diversion should be defined.

In light of this, and in consideration of the difficulties inherent in measuring solid waste generation, source reduction and diversion (as noted previously in this report), NHDES respectfully submits that the Waste Reduction Goal might be revised and restructured as a Disposal Reduction Goal. Because disposal tonnage is something that NHDES can definitively measure, NHDES believes it would be much more feasible to track changes in waste disposed over time than to track changes in waste generated.

It is worth noting that challenges with measuring waste generation, source reduction and diversion are not unique to New Hampshire. For example, in Massachusetts, the Department of Environmental Protection (MassDEP) has recently shifted from using a waste reduction/diversion target, to instead use a disposal reduction target as an indicator of overall waste reduction and diversion progress.[13] NHDES believes that adopting a similar practice for New Hampshire could provide a clear and measurable metric for tracking waste reduction and diversion in the state.

NHDES would suggest a Disposal Reduction Goal that defines a baseline year and sets a specific target to reduce annual tonnage disposed by X%, as compared to the baseline, within a specified time period. For example, MassDEP's 2010-2020 Solid Waste Master Plan sets 2008 as the baseline, with short- and long-term goals to reduce annual solid waste disposal 30% by 2030, and 80% by 2050. Annual disposal could also be measured on a per capita basis to account for changes in population over time.

In light of New Hampshire's continued reliance on disposal and limited progress toward advancing more preferable management methods identified in the Waste Management Hierarchy, it is clear that the Waste Reduction Goal in RSA 149-M:2 warrants reconsideration. No matter what course of action the General Court decides to take, NHDES would recommend a goal that is relevant, achievable, and measurable. Furthermore, if NHDES is directed to encourage, promote, and measure achievement of the goal, the agency will need to have clear statutory authority and the tools necessary to perform such functions.

As required by statute, the recommendations in this report are focused specifically on the Waste Reduction Goal. NHDES may provide additional recommendations related to broader solid waste management issues in other communications with the General Court. NHDES looks forward to its continuing work with the HB 617 Study Committee and the General Court at large with respect to vital solid waste policy issues, and NHDES will continue in its efforts to achieve the goals and mandates of RSA 149-M to the extent its resources allow.

[13] MassDEP, 2010-2020 Solid Waste Master Plan – p. 17, bottom: https://www.mass.gov/files/documents/2016/08/nw/swmp13f.pdf

Appendix A: Organizations Involved with Solid Waste Management

State/Local Organizations

Auto and Truck Recyclers Association of NH (ATRA)
Address: PO Box 2761, Concord, NH 03302-2761
Telephone: (603) 529-7211
Website: http://www.atranh.org/
Contact: David Wilusz, President, allied10@aol.com

The Auto and Truck Recyclers Association of New Hampshire (ATRA) promotes environmentally friendly business practices for facilities engaged in automobile and truck recycling, dismantling and salvage within the state of New Hampshire. ATRA encourages uniform commercial practices among its members and provides leadership in ensuring familiarity with local, state, and federal laws and regulations governing the conduct of such businesses. It represents the interests of its members before governing bodies, seeking to ensure recognition of the contributions of the vehicle recycling industry. ATRA seeks to work closely with regulatory bodies such as the Department of Environmental Services, the Department of Safety and the Department of Transportation, as well as organizations with similar goals, such as the New Hampshire Municipal Association, New Hampshire Auto Dealers Association, the New Hampshire Towing Association and many others.

Lakes Region Planning Commission (LRPC)
Address: Humiston Building, 103 Main Street, Suite 3, Meredith, NH 03253
Telephone: (603) 279-5341
Website: https://www.lakesrpc.org/
Contact: Dave Jeffers, Regional Planner, djeffers@lakesrpc.org

The Lakes Region Planning Commission (LRPC) is a unique association of local governments that provides comprehensive planning services to meet the diverse needs of New Hampshire's Lakes Region. Their mission is to provide effective planning, in order to achieve and sustain a quality environment, a dynamic economy, and local cultural values by supporting community efforts through leadership, education, technical assistance, information, advocacy, coordination and responsive representation. During the tenure of this report, the LRPC has developed a series of Solid Waste Roundtable events where they invite attendees to learn about solid waste issues in the region and offer solutions. Topics range from capped landfill maintenance, to disposal and use of glass, to food waste composting. In addition, they coordinate the household hazardous waste collection events for the Lakes Region.

New Hampshire the Beautiful
Address: 2101 Dover Road, Epsom, NH 03234
Telephone: 1-888-784-4442 Toll-Free in NH, (603) 736-4401
Website: http://www.nhthebeautiful.org/
Email: nhtb@nrra.net

New Hampshire the Beautiful, Inc. (NHtB) is a private, non-profit Charitable Trust established in 1983 and voluntarily funded by the soft drink distributors and bottlers, retail grocers, and the malt beverage industry. The Board of Directors of NHtB has awarded the Northeast Resource Recovery Association (NRRA) a contract to administer the grants and solid waste facility sign programs in addition to overseeing the distribution of litter bags for roadside cleanups across New Hampshire.

UNH Cooperative Extension
Address: Taylor Hall, 59 College Road, Durham, NH
Telephone: 1-800-735-2964 Toll-Free in NH, (603) 862-1520
Website: https://extension.unh.edu/

The Cooperative Extension Network provides information and outreach on a multitude of topics to the citizens of New Hampshire. For example, through their Master Gardeners Program, they provide information on backyard composting and community gardens. They also continue to provide information on the use of wood ash as an agricultural soil amendment and promote the reduction of marine debris through a project that recycles derelict fishing gear.

Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC)
Address: 10 Water Street, Suite 225, Lebanon, NH 03766
Telephone: (603) 448-1680
Website: https://www.uvlsrpc.org/
Contact:Vickie Davis, Planner, vdavis@uvlsrpc.org

The Upper Valley Lakes Sunapee Regional Planning Commission (UVLSRPC) has been providing professional planning assistance to municipal boards since 1963. UVLSRPC coordinates all aspects of planning, act as a liaison between local and state/federal governments and provide advisory technical assistance to the 27 communities and committees in its region who affect the future land use of the region. UVLSRPC has provided training to solid waste operators on implementing organics recycling at rural transfer stations, reduction of HHW in the waste stream and improper disposal of medicines. The group also worked with business owners who are small quantity generators of hazardous waste for better solutions for managing their waste.

Regional and National Organizations

Association of State and Territorial Solid Waste Management Officials (ASTSWMO)
Address: 1101 17th Street NW, Suite 707, Washington, DC 20036
Telephone: (202) 640-1060
Website: http://astswmo.org
Contact: Cathy Jamieson, Materials Management Subcommittee Chair, cathy.jamieson@vermont.gov

The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) supports the environmental agencies of the States and trust territories. ASTSWMO focusses on the needs of State hazardous waste programs; non-hazardous municipal solid waste and industrial waste programs; recycling, waste minimization, and reduction programs; Superfund and State cleanup programs; waste management and cleanup activities at federal facilities, and underground storage tank and leaking underground storage tank programs. The association's mission is: "To Enhance and Promote Effective State and Territorial Waste Management Programs, and Affect National Waste Management Policies." The organization is structured to accomplish this two-part mission through both member committees and Association staff efforts.

Northeast Recycling Council (NERC)
Address: 139 Main Street, Suite 401, Brattleboro, VT 05301
Telephone: (802) 254-3636
Web Site: https://nerc.org
Contact:Lynn Rubinstein, Executive Director, lynn@nerc.org

The Northeast Recycling Council 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. In addition to providing a forum for the exchange of information between states and state agencies, NERC undertakes research and education projects that address regional recycling, market development and waste management issues.

Northeast Resource Recovery Association (NRRA)
Address: 2101 Dover Road, Epsom, NH 03234
Telephone: (603) 736-4401 or (800) 223-0150
Web Site: https://nrra.net
Contact:Reagan Bissonnette, Executive Director, rbissonnette@nrra.net

Founded in 1981 as a private, non-profit organization, NRRA provides technical, educational, and marketing support to New Hampshire municipal recycling programs. NRRA provides marketing and brokerage services for municipalities in New Hampshire, Massachusetts, Maine and Vermont. This cooperative approach combines materials from many communities to gain economies of scale in transportation and offers access to markets which would typically be denied to individual small communities. NRRA also provides extensive outreach and technical assistance to its member communities designed to strengthen and expand recycling and waste diversion activities.

Northeast Waste Management Officials' Association (NEWMOA)
Address: 89 South Street, Suite 600, Boston, MA 02111
Telephone: (617) 367-8558
Website: http://www.newmoa.org/
Contact:Jennifer Griffith, jgriffith@newmoa.org

The Northeast Waste Management Officials' Association (NEWMOA) is a non-profit, non-partisan, interstate association established in 1986 by the governors of the New England states as an official interstate regional organization. The membership is composed of state environmental agency directors of the hazardous waste, solid waste, waste site cleanup, pollution prevention and underground storage tank programs in Connecticut, Maine, Massachusetts, New Hampshire, New York, New Jersey, Rhode Island, and Vermont. NEWMOA's mission is to help states articulate, promote, and implement economically sound regional programs for the enhancement of environmental protection. The group fulfills this mission by providing a variety of support services that facilitate communication and cooperation among member states and between the states and EPA, and promoting the efficient sharing of state and federal program resources.

Solid Waste Association of North America (SWANA)
Address: 1100 Wayne Avenue, Suite 650, Silver Spring, MD 20910
Telephone: 1-800-GO-SWANA (1-800-467-9262)
Website: https://swana.org/
Contact: Meri Beth Wojtaszek, Deputy Executive Director

The Solid Waste Association of North America (SWANA) is the largest member-based solid waste association in the world with 45 Chapters, in the U.S., Canada and the Caribbean and over 10,000 members. SWANA is

the U.S. and Canadian National Member of the International Solid Waste Association (ISWA), and participates and supports ISWA events and programs. SWANA's conferences and training programs cover all aspects of integrated municipal solid waste management, and the Association is a policy and technical representative of solid waste management practitioners, executives, companies and government organizations.

The Composting Collaborative
Email: Info@compostingcollaborative.org
Website: www.compostingcollaborative.org

The Composting Collaborative is a project of the GreenBlue, BioCycle Magazine, and the U.S. Composting Council. Their mission is to accelerate composting access and infrastructure to improve soil health and divert compostable materials from landfills. As a collaborative, they are able to provide educational support to groups looking to implement composting in their community or business. Since 2017 The Composting Collaborative has focused on projects to gather better data on organics processing capacity, provide information about pretreatment and preprocessing technologies, and establish optimized soil sampling methodologies. They are presenting at three national conferences in 2019 and 2020 and have provided numerous webinars for anyone looking for information regarding composting.

The Recycling Partnership
Address: 125 Rowell Court, Falls Church, VA 22046
Website: https://recyclingpartnership.org/

The Recycling Partnership is a national nonprofit organization that is transforming recycling in towns, cities and states all across America. Their mission is to encourage recycling by offering a different perspective on the role of recycling in our society. They have created tools to enhance recycling that can be customized to specific needs of a town, city or organization or even a business. In the last five years, they have partnered with various stakeholders on recycling enhancement projects. The Recycling Partnership tracks each of these projects to create baseline data and case studies in order to train others on how to implement the tools they have created.

Toxics in Packaging Clearinghouse (TPCH)
Address: c/o NERC, 139 Main Street, Suite 401, Brattleboro, VT 05301
Telephone: (802) 254-8911
Email: info@toxicsinpackaging.org
Website: https://toxicsinpackaging.org/
Contact: Melissa Walsh Innes, Program Manager

In 1990, New Hampshire was the second state in the nation to adopt the toxics-in-packaging model legislation developed by the Coalition of Northeastern Governors (CONEG). Nineteen states have adopted a toxics-in-packaging law based on the CONEG model and the model has been used internationally. To ensure consistent and effective implementation of the laws, the Toxics in Packaging Clearinghouse (TPCH) was created in 1992 to simplify the law's administrative procedures, promote cooperation and information sharing between participating states, minimize procedural burdens on affected industries, and promote understanding and greater awareness of the law's objectives. TPCH is assisted in its mission by technical advisers from representatives of industry and public interest organizations.

The US Composting Council (USCC)
Address: 3801 Lake Boone Trail, Suite 190, Raleigh, NC 27607
Telephone: (301) 897-2715
Email: uscc@compostingcouncil.org
Website: https://www.compostingcouncil.org

The US Composting Council (USCC) was established in 1990 and is a national member-based organization dedicated to the development and promotion of the composting industry, including the manufacturing, marketing and utilization of compost. USCC members include compost manufacturers, compost marketers, equipment manufacturers, product suppliers, academic institutions, public agencies, nonprofit groups and consulting/engineering firms.

United States Department of Agriculture Rural Development
Grants Contact: Water & Environmental Programs National Office
Telephone: (202) 720-9583
Website: https://www.rd.usda.gov/programs-services/solid-waste-management-grants

NH Contact: Anthony Linardos, State Director
Address: 87 State Street, Suite 324, PO Box 249, Montpelier, VT 05601
Telephone: (802) 828-6080
Website: https://www.rd.usda.gov/nh

The United States Department of Agriculture Rural Development provides annual solid waste management grants. The goal is to reduce or eliminate pollution of water resources by providing funding for organizations that provide technical assistance or training to improve the planning and management of solid waste sites. This grant program has helped organizations in New Hampshire provide technical assistance where NHDES has been unable to.

United States Environmental Protection Agency (U.S. EPA) – Sustainable Materials Management
Address: Office of Resource Conservation and Recovery, 1200 Pennsylvania Ave., NW (5305P), Washington, DC 20460
Website: https://www.epa.gov/smm

The United States Environmental Protection Agency – Sustainable Materials Management Program (SMM) provides information to the regulated community as well as the public on managing materials from cradle-to-grave. It is a systematic approach to using and reusing materials over the entire life cycle by highlighting changes in how society thinks about natural resources and environmental protection. EPA's SMM program provides webinars and training free of charge on all things solid waste including food waste reduction, electronics recycling, C&D recovery, and partnership opportunities for communities. The SMM program has also gathered data from the states regarding solid waste management, created a waste reduction model (WARM) and other sustainable materials management tools for users.