February 2025

ECOS

GREEN REPORT

States and Sustainable Materials Management: Accelerating the Circular Economy

Introduction

Increasingly, state environmental agencies are embracing Sustainable Materials Management (SMM) initiatives in order to reduce environmental impacts, including greenhouse gas emissions, and promote economic growth. SMM considers the use and impacts of materials throughout their lifecycle, with the goal of deriving full value of materials by reducing consumption; promoting source reduction; and maximizing reuse through durability and repair, recycling, and composting, among other methods.

Each state has its own mix of economic, environmental, geographic, societal, and legal characteristics that offer unique opportunities and challenges, resulting in a diversity of SMM projects across the states and territories. The projects profiled in this report highlight some of these differences, while also offering best practices and lessons learned for states interested in developing similar programs.

This ECOS *Green Report* showcases seven recent and ongoing state SMM initiatives, citing their environmental and economic benefits. Programs and projects highlighted cover reuse of dredged material, universal recycling implementation, food waste reduction, electronics recycling, beneficial use of coal ash, materials exchange, and recycling market development. Each project discussed sheds light on how states are tackling waste management issues faced by all. These examples are just the tip of the iceberg; beyond the activities featured in these case studies, state environmental agencies have embarked on a multitude of SMM programs and projects to reduce the flow of materials to landfills and advance the circular economy.

Table of Contents

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement 84049501 to the Environmental Council of the States. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.

Mississippi: Reusing Dredged Materials to Fight Erosion

In 2014, the Hancock County Marsh Coastal Preserve, Mississippi's largest continuous marsh, was experiencing rapid erosion of 3-10 feet per year. Nearby, the shipping access route to Port Bienville in Bay St. Louis needed dredging. The Mississippi Department of Environmental Quality (MDEQ) viewed these challenges as an opportunity. Through a joint project with the National Oceanic and Atmospheric Administration (NOAA) and the Hancock County Port and Harbor Commission, MDEQ was able to reuse this dredged material as a nature-based solution for marsh creation and, by constructing living breakwaters, to prevent erosion in Hancock County.[1] This innovative plan reduced costs, benefited the port economy, and revitalized ecosystems.

Background

Following the 2010 Deepwater Horizon oil spill, British Petroleum (BP) signed an early restoration agreement with the Deepwater Horizon Natural Resource Damage Assessment Trustees Council for up to $1B in funding for early restoration projects to initiate the restoration of injured resources while the ongoing natural resource damage assessment continued. The Hancock County Marsh Living Shoreline Project was approved as a Mississippi early restoration project.

Project Details

MDEQ aimed to reduce erosion of and rebuild the Hancock County Marsh Coastal Preserve by constructing three main components:[2]

- Breakwaters to protect the marsh from erosion-causing wind and waves,
- New marsh creation to replace habitat lost to erosion, and
- Subtidal oyster reefs for additional habitat restoration.

From 2016 to 2018, project partners built 5.9 miles of living breakwater for shoreline protection, and in Heron Bay, created 46 acres of marsh and restored 46 acres of subtidal oyster reef habitat. Benthic organisms have begun using breakwaters and the subtidal reef as a new habitat, improving benthic secondary productivity, a measure of biomass growth and ecosystem vitality. In 2022, to combat erosion rates in vulnerable areas, Mississippi constructed 46 acres of new native marsh using dredged material. Efforts are ongoing, and in 2025 through phase six of the Shoreline project, MDEQ will construct up to 1.7 miles of additional breakwaters to minimize coastal wave energy and reduce shoreline erosion.

Ultimately, MDEQ combined the early restoration project with another needed dredging project to achieve efficiencies in environmental protection and economic growth, applying lessons learned to future projects. This project represents an anticipated $70M investment in bolstering the Mississippi Gulf Coast's economic output, by creating a healthier reef and shoreline, resulting in more fishing and crabbing and improved cargo shipping navigability and capacity.

[1] Hancock County Marsh Living Shoreline Project Phase III Project Description
[2] Video: Mississippi Restoration Summit 2023

Vermont: Implementing a Universal Recycling Law

In 2012, the Vermont General Assembly unanimously passed the Universal Recycling Law (Act 148), charging the Vermont Agency of Natural Resources (ANR) with implementation of one of the most comprehensive changes to solid waste law in decades. The law aimed to reduce the disposal of recyclables, food waste, clean wood, and leaf and yard debris.[3] This law has been changed twice, in 2018 and 2019,[4] and ANR has responded with public outreach, implementation grants, and training and technical assistance aimed at diverting waste from landfills and improving recycling and compost rates.

Background

In 2012, Vermont faced a waste disposal capacity crisis. At the time of Act 148's passage, only two landfills operated in the state, with one nearing capacity (as of 2024, one has closed and the other, now expanded, remains open). Vermont's recycling rate had stagnated at around 30-36%, on par with the national average, despite nearly half of waste in the state being recyclable or compostable,[5] including the large categories of food waste, organics, paper, and plastics. Policymakers were interested in exploring ways that the state could recycle and compost more rather than landfill these materials, creating greenhouse gas emissions and requiring ever more landfill capacity.

Statutory Provisions

Vermont's Universal Recycling Law bans recyclables, food waste, clean wood, and leaf and yard debris from landfills and incinerators. It also requires facilities that collect trash to offer recycling, leaf and yard debris, and food waste collection services. Solid waste haulers that collect trash must also offer recycling collection to all customers with a few exceptions. Originally these haulers were also required to collect leaf and yard debris and food waste. The hauler leaf and yard debris collection requirement was repealed as Vermont, a rural state, saw less of a need for this routine service. The food waste hauling requirement was amended to only apply when no other hauler was willing to offer the service to a given customer, and furthermore, to only require it be offered to commercial customers or apartment buildings of four units or more, since these customers are often not as able to compost onsite as those living in single-family residences.

The Universal Recycling law sought to provide incentives to recycle and compost by requiring all municipalities, solid waste facilities, and haulers to implement "pay-as-you-throw" systems for trash based upon volume or weight, allowing households that reduce waste, recycle, and compost to save money. The law also phased in a disposal ban on food residuals, starting by requiring large generators of 104 tons per year (2 tons per week) to separate food residuals for uses such as food donation, animal feed, composting, or anaerobic digestion if such a facility was available within 20 miles. The minimum generator size at which this requirement went into effect shrank each year. Finally, the full food waste disposal ban went into effect on July 1, 2020, helping incentivize

[3] Vermont's Universal Recycling Law (Act 148)
[4] 2018 Legislative Changes to Vermont Solid Waste & Bottle Bill Laws
[5] 2018 Vermont Waste Characterization Final Report

the expansion of food waste processing facilities and hauling services, including approximately 11 new food waste collection/management facilities (composter, digester, or transfer stations), and nearly doubling the number of food scrap haulers.

Trash collection sites must also collect recycling and food scraps, easing the transition. All trash containers in public spaces must be accompanied by adjacent recycling bins, providing convenient recycling and ensuring the state leads by example. The law also incentivizes investment in waste disposal alternatives such as composters and anaerobic digesters. As of March 2024, Vermont has certified 22 food scrap management facilities and about a hundred food scrap drop-off locations.

ANR also notes that diverting food waste and recyclable material from landfills helps to reduce greenhouse gases into the atmosphere. Additionally, recycling keeps valuable materials in the circular economy, conserving resources, creating jobs, and providing an economic benefit.

Agency Role

Vermont ANR has led the Universal Recycling Law implementation process through a variety of initiatives. Starting in 2015, ANR engaged interested parties through quarterly stakeholder group meetings, with participants including waste haulers, municipalities, composters, educational institutions, advocacy groups, food scrap generators, state agencies, solid waste districts, contractors, industry groups, and others. In addition, ANR developed separate recycling guidance documents for residents, businesses, waste haulers, and municipalities. The agency also created posters, fact sheets, videos, and other public outreach materials, and maintains a comprehensive **Universal Recycling website**.

Grants from ANR and the private sector have helped build infrastructure needed to collect and divert recyclables and food waste from landfills. Compost/recycling grants have encouraged waste reduction in homes and schools, and as of 2024, the Agency has awarded more than $1M to municipalities for organics infrastructure to process food scraps. ANR funding has also supported the annual **Vermont Organics Recycling Summit** as well as composter training and technical assistance.

In 2019, ANR composed a **Universal Recycling Status Report**, finding record levels of composting and food rescue, among other successes. The agency's **2023 Waste Composition Study** found that Vermont now has an estimated food recovery rate of 51-57%, with 43% of Vermonters reporting composting food scraps at home and 12-13% reporting each of dropping off food scraps at collection sites, setting food scraps aside to be picked up by haulers, and feeding food scraps to animals. The state has decreased the total tonnage of food waste in municipal solid waste by an estimated 13%, and the recovery rate of recyclables has remained steady since 2018 at 72%, which ranks among the highest in the nation. ANR continues to monitor solid waste efforts throughout the state through biennial solid waste reports.

Washington: Sustainably Reducing Food Waste

In 2019, the Washington State Legislature passed the **Food Waste Reduction Act**. This law established food waste reduction goals, including a statewide goal of reducing food waste to half of 2015 levels by 2030, and directed the **Washington Department of Ecology** (Ecology) to develop and adopt a plan to achieve this goal and build a more resilient food system. Ecology released its **Use Food Well Washington Plan** in 2022, recommending the creation of a **Washington Center for Sustainable Food Management** (Food Center) to coordinate statewide food waste reduction, among other measures. The state Legislature then established the Food Center within Ecology,[6] which formally launched at the start of 2024. Since its formation, the Food Center has led a wide variety of food waste reduction campaigns and initiatives.

Background

In developing the *Use Food Well Washington Plan*, Ecology engaged a diverse group of stakeholders, including Washington State Departments of Agriculture, Commerce, Health, the Office of Superintendent of Public Instruction, and over 100 experts from a wide range of fields. Together, they formed thirty food waste reduction recommendations for federal and state policy, funding, public education, and infrastructure development, and set two overarching goals:

- Goal 1: Reduce food waste generated by 50 percent by 2030, measured by total food waste generated.
- Goal 2: Reduce at least half of edible food waste (defined as food fit for human consumption, a subset of general food waste) by 2030, measured by total edible food disposed.

Ecology found that implementing these goals and recommendations would result in quantifiable economic and environmental benefits for the private sector statewide, through mechanisms including reduced disposal costs, development of new markets and waste uses, and avoided purchases of additional food. The Department calculated that full implementation would yield four dollars in return for every dollar invested. The Plan notes that reducing food waste also reduces greenhouse gas emissions, which provides an additional economic benefit through lessening climate change impacts. The following table summarizes projected economic and environmental benefits through each set of recommendations.[7]

[6] Use Food Well Washington Plan
[7] Table from Use Food Well Washington Plan, p. 21

	Cumulative Annual Costs	Cumulative Annual Gross Benefits	Cumulative Annual Net Benefits	Cumulative Annual Diversion Potential (tons)	Cumulative GHG reduction potential (MTCO2e)	Avoided Social Cost of Carbon 2022
Federal policy	$28 million	$113 million	$85 million	49,000	71,000	$6 million
State policy	$17 million	$54 million	$36 million	142,000	204,000	$16 million
Funding	$53 million	$473 million	$420 million	109,000	156,000	$12 million
Public education	$5 million	$142 million	$137 million	47,000	67,000	$5 million
Infrastructure development	$233 million	$690 million	$457 million	979,000	1,409,000	$111 million
Grand total*	**$344 million**	**$1.5 billion**	**$1.1 billion**	**1.3 million tons****	**1,907,000 MTCO2e**	**$151 million**

Implementation

To achieve these goals, Ecology's Food Center employs a wide range of reduction methods that work to reduce food waste in Washington. The Food Center aims to educate the public about food waste prevention and reduction, providing information to advance equity, drive research, and inspire learning and action to drive systemic change and shift people's relationships with food. Its **website** features an array of public-facing resources. The Food Center also ensures increased access to data and tracking to ensure accountability. This work will soon be released as a public-facing Washington Food Data Hub, supported by ongoing research and mapping of Washington's food flows.

Through local partnerships, the Food Center aims to ensure more active participation throughout the private and nonprofit sectors. Its Use Food Well Peer Network connects stakeholders to resources and to one another through regular meetings and information sharing. A food waste reduction campaign, started during the 2024 National Food Waste Prevention Week, brought together local governments, grocery stores, and other food-centered businesses.

During all of these processes, the Food Center consults with Ecology's Office of Equity and Environmental Justice to help ensure all residents have access to program benefits, including by translating materials and redirecting rescued food to those in need. The Food Center has produced several resources within a year of its formation, from a **meal planning guide** to **food storage and preservation information**, and plans to support additional measures going forward.

Indiana: Recycling Electronics

Recognizing the growing amount of electronic waste (e-waste) in Indiana's waste streams, in 2009, the General Assembly passed the Indiana Electronic Waste Law, establishing the Indiana E-Cycle program within the Indiana Department of Environmental Management (IDEM). Through this program, IDEM has expanded electronics recycling, increased residents' access to collection services, and administered an extended producer responsibility (EPR) program for certain electronic devices, as directed by legislation. The recently released Indiana E-Cycle 2024 Report highlights successes and lessons learned, and offers potential areas of improvement, which may serve as a case study for states considering implementing or altering similar programs.[8]

Implementation

Indiana E-Cycle requires video display device (VDD) manufacturers to collect and recycle e-waste from households, small businesses, and public schools. These manufacturers are required to track the total weight of VDDs sold in the state each year, and must collect and recycle electronics that weigh at least 60% of this amount. Collected e-waste may include both VDDs and other consumer electronic devices, a larger category including non-screen electronics (e.g., DVD players) that are prohibited from landfill disposal.

IDEM implemented several incentives that reduce manufacturers' recycling burden and encourage favored outcomes. For example, e-waste collected outside of metropolitan counties is counted at 1.5 times its weight to encourage recycling in rural areas where collection costs may be higher due to distance, and e-waste recycled at in-state facilities is counted at 1.1 times its weight to promote in-state recycling businesses. Additionally, manufacturers that collect and recycle more e-waste than is required earn recycling credits that can be sold to other manufacturers, building a market for further recycling efforts.

Program Outcomes

Throughout the first thirteen years of the program, manufacturers have collectively met their recycling obligations, though a few individual manufacturers have failed to collect enough e-waste for recycling in certain years. These manufacturers are fined a variable recycling fee, ranging from 40 cents per pound of shortfall for those who recycle less than 50% of their goal to 20 cents per pound of shortfall for those who recycle at least 90% of their goal. In the most recent program year, only one manufacturer was assessed a fee and paid $132, indicating widespread compliance.

Overall, Indiana's e-waste law has led to the recycling of over 375 million pounds of electronics since its enactment in 2009, while increasing residents' access to collection services, now present in 88 of Indiana's 92 counties. In addition to these permanent collection sites, single-day collection events are hosted throughout the

[8] Twenty-five states and Washington D.C. currently have some form of e-waste law, including twenty-three with EPR, and these measures vary widely in scope. A map is available here.

state. IDEM notes that the growth of the electronics recycling industry has benefited Indiana's economy.[9] New and expanded recycling businesses have created jobs, such as in e-waste collection and disassembly, and reclaimed valuable materials including steel, glass, plastic, and precious metals have been used for the manufacturing of new products, lowering costs.

Since the inception of Indiana E-Cycle, rapid changes in electronics technology have impacted program goals. New generations of VDDs are lighter than their predecessors, reducing manufacturers' weight-based e-waste collection requirements. However, since most e-waste consists of older technology, demand for electronics collection has not yet decreased in turn. An additional area of concern is the diminishing market value of cathode ray tube devices, as recyclers typically pass the resulting increased costs onto collectors. Indiana E-Cycle acknowledges these limitations and is considering updating its requirements. IDEM continues to conduct education and outreach efforts, encouraging program compliance.

[9] **Fact Sheet: Indiana E-Cycle**

Pennsylvania: Reusing Coal Ash in Mines

Coal ash, a byproduct of burning coal in coal-fired power plants, is one of the largest forms of industrial waste in the United States, with more than 75 million tons generated annually.[10] When stored improperly in landfills, ash can pollute groundwater, water bodies, and the air, and past spills in Tennessee and North Carolina have caused widespread environmental and economic damage. Researchers and regulators have attempted to find methods of beneficially reusing coal ash, rather than dispose of it. The Pennsylvania Department of Environmental Protection (DEP) has pioneered the use of coal ash in active and abandoned coal mines. DEP has found that coal ash reuse in mines avoids the environmental harms that can occur with landfill disposal, allows for the safe and efficient reclamation of mine land, and reduces the cost of coal ash disposal.[11]

Background

In 1986, the Pennsylvania General Assembly amended the existing Pennsylvania Solid Waste Management Act to allow for beneficial use of coal ash, and in 1992, DEP promulgated regulations allowing for the placement of coal ash in active and abandoned coal mine sites. These regulations were most recently updated in 2010,[12] and DEP released a supplemental guidance document, Guidelines for Beneficial Use of Coal Ash at Coal Mines, in 2016.

At the federal level, U.S. EPA regulates coal ash disposal under the Disposal of Coal Combustion Residuals from Electric Utilities Rule promulgated in 2015, last updated in November 2024. Notably, this rule does not address the placement of coal ash in mines, nor does it regulate any practices that meet the definition of beneficial use, which are defined as meeting each of four conditions:

- The coal ash must provide a functional benefit,
- The coal ash must substitute for the use of a virgin material,
- The use must meet product specifications and design standards when available,
- If unencapsulated (i.e. unbound), the coal ash must weigh under 12,400 tons or U.S. EPA approval is required.

State environmental agencies are largely responsible for regulating coal ash beneficial use, including in mine reclamation.

[10] See: ACAA Coal Combustion Products Production & Use Reports
[11] Pennsylvania DEP Response to Clean Air Task Force Report
[12] Beneficial Use of Coal Ash (Chapter 290)

Requirements

Coal-fired power plants are usually located near coal mines to reduce fuel transportation costs. Beneficial reuse of coal ash at mines is more economical than offsite disposal. Use of coal ash for mine reclamation is a two-pronged process: approval of the generator's coal ash and approval of the beneficial use site.

For a facility to use its coal ash for beneficial use, DEP must first certify the coal ash from that source. The Department evaluates the chemical properties of the coal ash and its long-term consistency to determine the coal ash's potential to cause pollution.

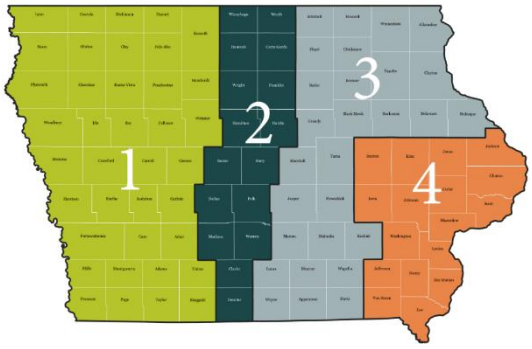
Facilities identify the potential beneficial use from one of four approved categories related to coal mine reclamation: placement for reclamation (filling pits and incorporation into coal refuse piles), alkaline addition, low permeability material, or soil additive or substitute. If the coal ash meets quality standards and shows consistency, the facility is placed on the statewide certified list. Each individual mine site operator who wishes to use a certified ash must demonstrate that its beneficial use will be accomplished in an environmentally safe manner by applying for necessary permits, obtaining landowner consent, and developing monitoring plans, before DEP makes a determination on whether the use of coal ash is appropriate. Additional information on these requirements is available in DEP's **guidance document**.

In Pennsylvania, drainage from abandoned coal mines has polluted groundwater and streams, and toxic coal ash waste piles have damaged ecosystems and water sources. By allowing the reuse of approved coal ash material in mines, DEP protects the environment while helping businesses benefit from economic efficiencies.[13]

[13] See: Coal Ash Beneficial Use in Mine Reclamation and Mine Drainage Remediation in Pennsylvania

Iowa: Building and Managing a Materials Exchange Program

In 1990, Iowa's Indian Hills Community College piloted a waste exchange program, keeping waste out of landfills by building a byproducts market. The following year, the state General Assembly expanded the program statewide as the **Iowa Waste Exchange** (IWE), and funded it through a portion of a tonnage fee paid by landfill operators.[14] Administered by the Iowa Department of Economic Development until 2006 and then by the **Iowa Department of Natural Resources** (DNR), IWE has benefited both Iowa's environment and economy, and may serve as a model for similar programs.



Background

DNR's Iowa Waste Exchange maintains an **online database** of available and wanted materials. Users can search for specific materials and then connect with one of four regional specialists, as shown on the included map,[15] to facilitate an exchange. Additionally, these specialists help Iowans find markets for materials, assist in writing waste reduction grants, and provide waste reduction educational programs, confidentially and at no cost. Exchanges vary widely in size, complexity, and amount of specialist involvement.

The IWE focuses its outreach within the industrial commercial sector, but other businesses, organizations, educational institutions, government agencies, and individuals also make use of its services. The IWE has also served an important role in disaster recovery. DNR was able to utilize the Exchange to provide medical supplies to healthcare professionals and municipalities during the COVID-19 pandemic, and to remove and reuse tens of thousands of tons of wood debris following the 2021 derecho and tornado outbreak.[16]

Successes and Lessons Learned

Since its inception, the IWE has saved over 4.5M tons of material from landfills. The program has also returned more than $138M to Iowa's economy through avoided disposal costs, avoided purchases, reduced transportation costs, and freed storage space. Its database has cataloged more than 13,000 available and wanted materials, and more than 80,000 businesses have employed the IWE to exchange materials.

The program remains successful today. In the first ten months of FY2024, the IWE served more than 5,000 clients, diverted more than 80,000 tons of material, and saved Iowa businesses and organizations more than $3.8M. DNR calculated the program's return on investment as 619%, demonstrating the IWE's effectiveness at encouraging economic growth. Users also support DNR's sustainability goals by reducing, reusing, and recycling materials, cutting greenhouse gas emissions from production and landfills.

---

[14] **Iowa Code section 455E.11 - Groundwater Protection Fund**
[15] **Map of IWE Regions**, from **https://iwe.iowadnr.gov/**
[16] **Iowa Waste Exchange Brief**

Texas: Developing the Recycling Market

In 2019, the Texas Legislature directed the Texas Commission on Environmental Quality (TCEQ) to develop a plan to stimulate the use of recycled material feedstocks in processing and manufacturing. To fulfill this statutory obligation, TCEQ developed the Recycling Market Development Plan (RMDP), released in 2021. The final plan aims to: assess the availability of recyclable material feedstocks; estimate the current economic benefits of recycling and the potential economic benefits of recycling additional materials; identify potential feedstock consumers of recyclable materials; recommend institutional, financial, administrative, and physical methods to stimulate processors' and manufacturers' use of recyclable materials; and develop a public education program that highlights findings, spotlights stakeholders, and addresses the detrimental effects of contamination. Major recommendations include the establishment of a recycling market development center and a recycling market development board, with stable funding, to direct future state efforts.

Developing the RMDP

To gather data and insight, TCEQ surveyed a broad range of recycling industry firms, asking questions about quantities of specific materials to best estimate current values. For additional in-depth stakeholder engagement, TCEQ convened a Recycling Industry Committee of governmental and trade group representatives. This group helped advertise the survey, as well as interpret the results.

The RMDP authors were then able to compare this data with results from previous studies, including the 2015 Texas Recycling Data Initiative and the 2017 Study on the Economic Impacts of Recycling. TCEQ analyzed trends in supply and demand, identified barriers to improved recycling, and assessed potential tools and opportunities to grow the Texan recycling industry. TCEQ considered the resources and expertise of public and private stakeholders, and finally developed specific and actionable recommendations.[17]

Economic Impact of Recycling in Texas

The RMDP authors found that the recycling industry in Texas has a large economic impact and impressive growth trajectory. Municipalities recycled 12.9M tons of solid waste in 2019, 3.7M tons more than in 2015, with an estimated gross value of $821M. During this period, the municipal solid waste recycling rate increased from 22.7% to 27.5%. Across all recycling types, the authors estimated the overall economic impact of recycling at over $4.8B, a 43% increase from 2015.[18] Note that these data exclude scrap metal recycling, considered a separate sector, which alone contributed $13.9B of economic output to the Texan economy.

Moreover, in 2019, the recycling industry supported 22,910 person-years direct, indirect, and induced employment, a 34% rise from 2015, and now on par with the petroleum refining industry (22,976 person-years).[19] These workers collectively earned over $1.2B in wages and benefits, a 47% increase from 2015.

[17] Recycling Market Development Plan
[18] RMDP, pp. 5-2 and 5-3
[19] RMDP, p. 1-5

However, recycling industry tax revenue has fallen in recent years, from $194M in 2015 to $166M in 2019, a 15% decrease. Most of this decrease is attributed to a 23% drop in sales tax revenue, which the authors believe was caused by a shift in employment distribution by sector, resulting in less proportional taxes paid per employee and fewer workers in high-tax sectors.

The plan details a large number of well-defined strategies and recommendations for the private sector, state and local government agencies, and legislators. To highlight two proposals, the plan recommends the establishment of a Texas Recycling Market Development Center as a 501(3)(c) nonprofit organization housed at a Texas university. The Center would serve as a lead coordinating entity, with at least two full-time staff members and access to organizational resources and human capital. Additionally, the plan recommends the state appoint a 17-member Recycling Market Development Board, including industry representation as well as that of local governments, state agencies, and universities, to engage the private sector in collaboration and partnership opportunities. The full list of strategies and recommendations is available in Sections 9 and 10 of the RMDP.

Conclusion

In recent years, states have formulated innovative solutions to waste management challenges. States have advanced SMM through a variety of new and existing programs, reducing pollution and greenhouse gas emissions and realizing economic benefits. ECOS looks forward to continuing to foster collaboration on SMM and the circular economy among states, federal agencies, communities, businesses, nongovernmental organizations, and others.

For more information about state efforts, visit the **ECOS Sustainable Materials Management Project Inventory**, which catalogues additional case studies for ECOS members to consider in their agency's land and materials programs. To learn how states are collaborating with one another and with U.S. EPA on SMM, see **ECOS Resolution 10-1: National Sustainable Materials Management**. Questions can be directed to **Connor MacCartney** and **Adam Elkins** of ECOS.