



Department of
Environmental
Conservation

New York State Solid Waste Management Plan

**BUILDING THE CIRCULAR ECONOMY
THROUGH SUSTAINABLE MATERIALS MANAGEMENT**

DECEMBER 2023

Kathy Hochul, Governor | Basil Seggos, Commissioner



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FRONT COVER

Photo 1: Postconsumer paint collection (credit: PaintCare)

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List of Abbreviations

AOC	Alternative operating cover	NYCRR . . .	New York Codes, Rules and Regulations
AGM	New York State Department of Agriculture and Markets	NYSCC . . .	New York State College of Ceramics at Alfred University
BUD	Beneficial use determination	NYSP2I . . .	New York State Pollution Prevention Institute
C&D	Construction and demolition	OGS	New York State Office of General Services
CJWG	Climate Justice Working Group	OSC	Office of the New York State Comptroller
CSMM	New York State Center for Sustainable Materials Management	OPRHP . . .	New York State Office of Parks, Recreation and Historic Preservation
CLCPA	New York State Climate Leadership and Community Protection Act	PEJA	Potential Environmental Justice Area
DAC	Disadvantaged Community	PFAS	Per- and polyfluoroalkyl substances
DEC	New York State Department of Environmental Conservation	PFOA	Perfluorooctanoic acid
DOCCS	New York State Department of Corrections and Community Supervision	PFOS	Perfluorooctane sulfonic acid
SED	New York State Education Department	RHRF	Recyclables handling and recovery facility
DOB	New York State Division of the Budget	SWMF	Solid waste management facility
DOH	New York State Department of Health	SUNY	State University of New York
DOL	New York State Department of Labor	WRRF	Water resource recovery facility
DOS	New York State Department of State		
DOT	New York State Department of Transportation		
DTF	New York State Department of Taxation and Finance		
ECL	New York State Environmental Conservation Law		
ESD	New York State Empire State Development		
ESF	SUNY College of Environmental Science and Forestry		
EPA	United States Environmental Protection Agency		
EPR	Extended Producer Responsibility		
GHG	Greenhouse gas		
HHW	Household hazardous waste		
LSWMP	Local Solid Waste Management Plan		
MSW	Municipal solid waste		
MWC	Municipal waste combustor		
MWRR	Municipal waste reduction and recycling		

Glossary of Terms

Note: the definitions used here are for the ease of the reader and may not be equivalent to the regulatory definitions found in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 360. Readers may find definitions for additional terms not listed here in Section 360.2 of 6 NYCRR Part 360.

Biosolids: the accumulated semi-solids or solids resulting from the treatment of wastewaters at sewage treatment plants.

Construction and Demolition (C&D) Debris: all waste and recyclables resulting from construction, remodeling, repair, and demolition of structures, buildings, and roads, including excavated materials used as fill.

Disadvantaged Communities (DACs): communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high concentrations of low- and moderate-income households (ECL § 75-0101(5)).

Extended Producer Responsibility (EPR): a mandatory or legislated form of product stewardship (see term below) that places the primary financial and managerial obligation for the environmentally responsible end-of-life management of a product on its producer/manufacturer. EPR shifts the financial burden away from municipalities and taxpayers, and often provides incentives to producers to incorporate environmental considerations into the design of their products.

Leachate: any solid waste in the form of a liquid, including any suspended components, that results from contact with waste.

Municipal Solid Waste (MSW): all waste and recyclables from single-family and multifamily homes (often referred to as “residential waste”); commercial establishments, including all offices, stores, shops, restaurants, or businesses of any nature (often referred to as “commercial waste”); and waste generated by institutions, including any schools, government buildings, prisons, nursing homes, hospitals, or other similar facilities (often referred to as “institutional waste”).

Industrial Waste: non-hazardous waste and recyclables generated by manufacturing or industrial processes.

Planning Unit: a county; two or more counties acting jointly; a local government agency or authority established pursuant to State Law for the purposes of managing solid waste; any city in the county of Nassau; any of the above in combination with one or more neighboring cities, towns, or villages; or two or more cities, towns, or villages, or any combination of them, that DEC determines to be capable of implementing a regional waste management program. For a county to be a planning unit, it must include all cities, towns, and villages within its borders.

Potential Environmental Justice Areas (PEJAs): minority or low-income communities that may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Product Stewardship: the act of minimizing the environmental, health, safety, and social impacts of a product throughout its life cycle through a shared responsibility approach. While the producer of the product may have the greatest ability to minimize adverse impacts, other stakeholders, such as distributors, retailers, and consumers, also play an important role. Product stewardship can be either voluntary or required by law.

Throughput: the amount of waste processed by a solid waste management facility (SWMF).

Total Waste Stream: all solid waste (including materials that are recycled) as defined in New York State regulations, which excludes hazardous waste. It includes MSW, C&D debris, non-hazardous industrial waste, and biosolids.

Message from Commissioner Basil Seggos

New York State is aggressively advancing the implementation of the nation-leading Climate Leadership and Community Protection Act (CLCPA). In New York State, waste is the fourth-largest contributing sector when considering greenhouse gas (GHG) emissions, representing 12% of annual emissions—only slightly less than the electricity sector, at 13%.

To address climate change in the waste sector, New York State is encouraging a culture that advances sustainable materials management and supports a continuous cycle of use and reuse.

The 2023 *New York State Solid Waste Management Plan* (Plan) is designed to guide collective efforts to reduce waste and the burden on communities from waste disposal, as well as to mitigate the emissions driving climate change. The Plan outlines strategies and methods to build a circular economy, a more resilient supply chain, and a less wasteful future.

From eliminating bioaccumulative toxins from products to ensuring effective reuse and recycling, a circular economy requires laws, policies, robust programs, and participation in each step along the supply chain. The implementation of New York State's *Solid Waste*

Management Plan benefits communities throughout the state by reducing pollution and creating jobs and economic opportunities.

Reducing landfilled and combusted waste is a critical strategy to help meet New York State's climate goals. To achieve New York State's waste-reduction target, bold action is required, including advancing comprehensive Extended Producer Responsibility (EPR) laws and expanding New York State's successful Food Donation and Food Scraps Recycling Law.

Building a circular economy includes encouraging the design of products for durability, reuse, remanufacturing, and recycling, as well as utilizing renewable resources and supporting a more sustainable food system. A circular economy helps conserve natural resources, reduce energy consumption, prevent pollution, reduce GHG emissions, and protect the health of our communities, with a concerted focus on addressing unacceptable disproportionate burdens on Disadvantaged Communities (DACs) and Potential Environmental Justice Areas (PEJAs).

Basil Seggos
Commissioner
December 2023



Commissioner Seggos announcing NYS Compost Awareness Week.

1. Executive Summary

To protect communities and mitigate the worst effects of climate change, the 2023 *New York State Solid Waste Management Plan* (Plan) builds upon sustained efforts to reduce waste and advance the New York State's transition to the circular economy, helping to change New Yorkers' understanding of waste and their relationship to it. A circular economy carefully divests from disposal and instead supports processes, activities, and systems that make effective use of materials and prevent environmental degradation and economic loss by keeping valuable materials circulating in the economy. This Plan is intended to guide actions over the next decade, from the beginning of 2023 to the end of 2032, and builds upon New York State's 2010 *Beyond Waste* Plan.

Circular economy strategies include designing for durability, reuse, remanufacturing, repairing, and recycling, as well as utilizing renewable resources and supporting a more sustainable food system. Circular economy solutions conserve natural resources, reduce energy consumption, prevent pollution, reduce GHG emissions, and protect human health and the environment. In addition to resource conservation, a circular economy benefits industry by creating new job opportunities through a new business model and ensuring materials with value stay in the economy, continuing to provide value instead of being disposed.

The New York State Department of Environmental Conservation (DEC) estimates at least 80% of the material currently sent to landfills or combustion facilities has monetary value, either directly as material that could be used to produce goods or has other beneficial uses, or indirectly through the creation of recycling sector jobs.

This Plan takes a statewide view of the complex materials management practices and trends occurring today and provides direction for New York State's waste reduction, reuse, recycling, collection, transportation, and disposal investments, policy, and practices. The Plan also includes a summary of the data relating to the current impacts of waste management on DACs and PEJAs throughout New York State to help identify disproportionate burdens and allow for meaningful analysis and policy options to address these circumstances.

A circular economy is a model of production and consumption that involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products for as long as possible.

This Plan sets forth six major Focus Areas:

- Waste Reduction and Reuse
- Recycling and Recycling Market Development and Resiliency
- Product Stewardship and Extended Producer Responsibility
- Organics Reduction and Recycling
- Toxics Reduction in Products
- Advanced Design and Operation of Solid Waste Management Facilities and Related Activities

Each Focus Area has a set of 2–10 identified Goals, for a total of 31.

Each Goal has a set of 1–17 identified Action Items, for a total of 175.

Together, these Action Items are designed to move New York State to an 85% total waste stream recycling rate by 2050.

Characterizing Waste in New York State

The Plan discusses the total waste stream in New York State, which includes all solid waste except hazardous waste. The total waste stream includes MSW (waste from homes, offices, businesses, restaurants, stores, schools, etc., commonly referred to as residential, commercial, and institutional waste); C&D debris (including all construction materials from new building construction, demolition, road construction, and construction excavation materials); non-hazardous industrial waste; and biosolids. Compilation of the data to perform the analyses in this Plan takes a significant amount of time and effort to ensure the accuracy of the data. Therefore, data from 2018 is the latest available data and was used to provide the basis for planning and projections for this Plan.

Since 2008, the state's recycling rate has grown from approximately 36% to 43% of the total waste stream; however, when only MSW is evaluated, it has remained relatively flat, decreasing by 1% from 2008 to 2018. However, the total recycling rate increased because of the significant increase in the recycling rate for C&D debris over that same period, increasing from 55% in 2008 to 64% in 2018.

Recycling Rate for the Total Waste Stream Generated in New York

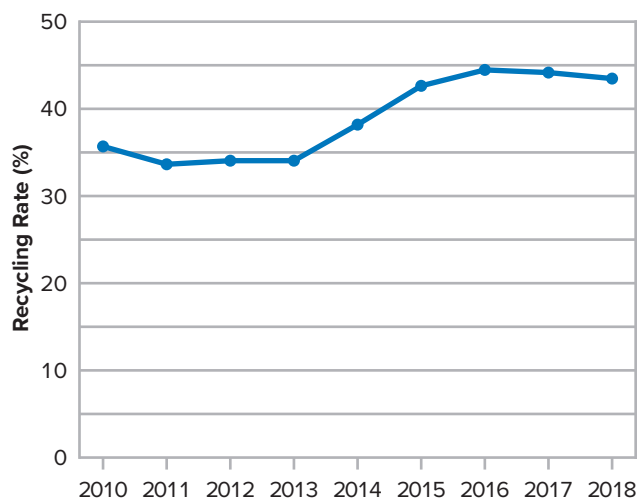


Figure 1.1. Recycling rate for the total waste stream generated in New York State 2010–2018

Recycling Rates for Waste Generated in New York by Waste Type

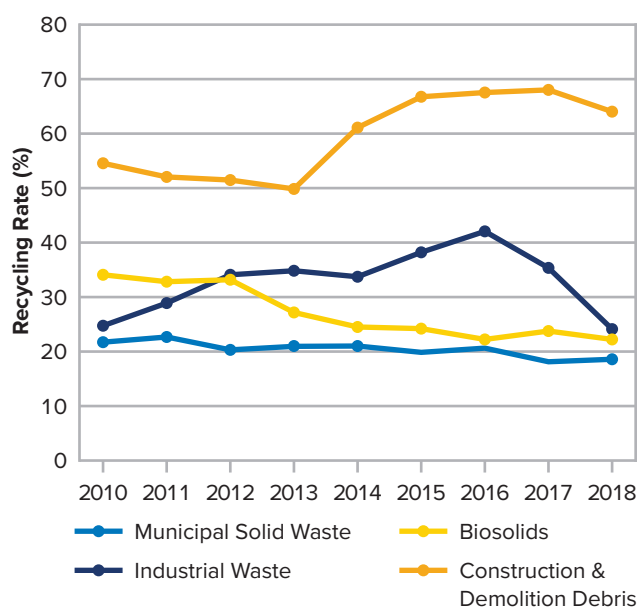


Figure 1.2. Recycling rates for waste generated in New York State by waste type 2010–2018

For MSW, management practices used and the disposal rate per person in 2018 are depicted in the following figures. The Plan discusses the multiple reasons for stagnation in disposal rates for MSW, including the increase in consumer consumption, reduced lifespan of consumer goods, market volatility, weak markets for some materials, and more.

2018 Management of Total Waste Stream Generated in New York

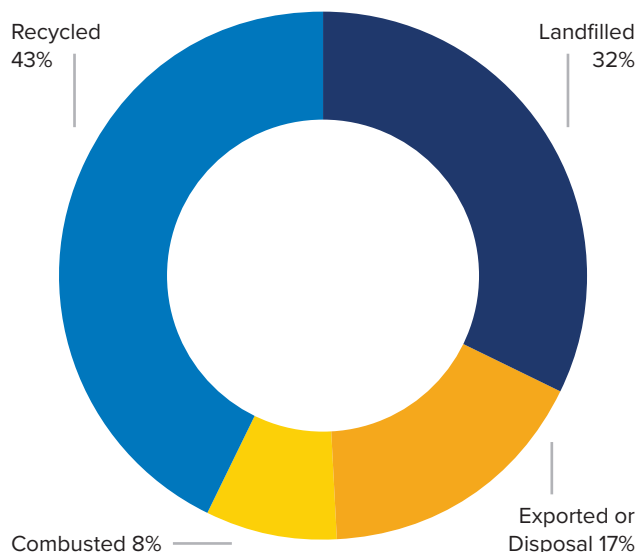


Figure 1.3. 2018 Management of total waste stream generated in New York State

MSW Disposal Rate (lbs/person/day)

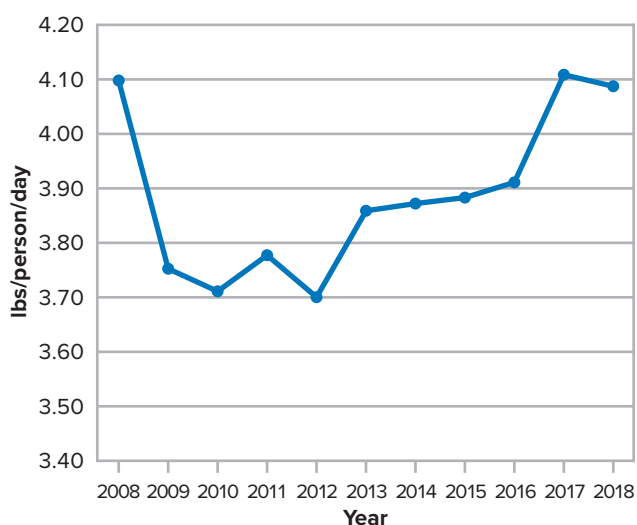


Figure 1.4. MSW Disposal rate (lbs/person/day) 2008–2018

Key Accomplishments since 2010:

- “Recycle Right NY” campaign;
- \$131.9 million in State grants under the Municipal Waste Reduction and Recycling (MWRR) program;
- 89 new green-procurement specifications established under the GreenNY initiative;
- \$20 million invested by DEC to establish materials management research centers at SUNY College of Environmental Science and Forestry (ESF), University at Buffalo (UB), New York State College of Ceramics at Alfred University (NYSCC), and Stony Brook University;
- Increase in the redemption rate under the Returnable Container Act, commonly known as the Bottle Bill, from 61% to 70% in 2021;
- Passage of restrictions on plastic bags and expansion of film plastic recycling requirements: Bag Waste Reduction Act and Plastic Bag Reduction, Reuse, and Recycling Act;
- Passage of the [Expanded Polystyrene Foam Container and Polystyrene Loose Fill Packaging Ban](#);
- Passage of product stewardship and EPR laws: Electronic Equipment Recycling and Reuse Act; Rechargeable Battery Law; Mercury Thermostat Collection Act; Postconsumer Paint Collection Program; Drug Take Back Act; and Carpet Collection Program Law;
- Passage of the [Food Donation and Food Scraps Recycling](#) Law;
- More than \$11 million in DEC funding for food donation and food scraps recycling;
- Passage of Consumer Protection Laws:
 - Restricting the amount of 1,4-Dioxane in cleaning products, cosmetics, and personal care products
 - Child Safe Products Act
 - Restricting PFAS in food packaging
 - Restricting aqueous film-forming foam (AFFF) containing PFAS
 - Restricting PFAS in apparel
 - Restricting the sale of furniture, mattresses, and electronic displays containing flame retardants
 - Requiring disclosure of flame retardants used in electronic displays;
- Comprehensive revisions to New York State’s solid waste regulations (Part 360 series);
- 1,921 inactive landfills identified, 1,884 inspected and ranked, and 899 with groundwater investigations identified; and
- During 2017 and 2018, and again in the spring of 2022, C&D debris enforcement initiatives resulted in over 550 violations found.



Vision

NEW YORK'S WASTE MANAGEMENT VISION FOR 2050:



- Landfilling and Combustion is reduced by 85% by 2050.



- The circular economy is realized.



- Collaboration and innovation are commonplace.



- “Waste” is a concept of the past.



- Climate change mitigation is fully implemented.



- Shared responsibility is a given.



- Equitable, inclusive, and accessible waste reduction and reuse efforts are widespread.



- Responsible and resilient markets thrive.



Red Hook community compost site in Brooklyn, NY

Recommendations

The Plan outlines Action Items necessary to achieve the reduction in waste disposal needed and the other components of the vision. Although all actions are important, the most impactful new initiatives will require legislative changes. To achieve the vision outlined in this Plan, there will need to be a combination of bold new legislation to help provide the framework for transformational change, and consistent commitment from everyone—State and local governments, planning units, the private sector, product manufacturers, distributors, retailers, educators, and all New Yorkers. Partnership is key to achieving the vision for 2050.

Of the legislative recommendations, the following are priorities:

- Developing EPR for paper and packaging, and ultimately, framework legislation that allows the addition of other products or product categories through a DEC-initiated recommendation process;
- Expanding and amending the existing Food Donation and Food Scraps Recycling Law to include additional food scraps generators, incorporate those currently excluded from the law, and eliminate the mileage limit for organics recycling facilities; and

- Requiring a per-ton disposal disincentive surcharge on all waste landfilled or combusted in New York State, and all waste generated in New York State that is sent for landfilling or combustion out of state, to provide municipalities with a new financial support program to assist their reduction, reuse, and recycling programs.

Other legislative recommendations that will assist in reduction and recycling efforts include:

- Extended Producer Responsibility/Product Stewardship for textiles, shoes, furniture, climate impacting materials, gas cylinders, e-cigarettes/vaping devices, solar panels, wind turbine blades, e-mobility batteries, electric vehicle batteries, household hazardous waste, and mattresses;
- Proposals that assist consumers to repair damaged products first instead of purchasing new products, encouraging repair, and reducing electronic waste (e-waste);
- Incentives for reusable and refillable products;
- Ban on the disposal of unsold retail goods;
- Single-use product restrictions;
- Standards for deconstruction materials and recovered aggregate;
- Minimum recycled content requirements;
- Expansion of the Rechargeable Battery Recycling Law; and
- Restrictions on harmful chemical use in consumer products.

2. Introduction

The linear “take, make, toss” model of use and consumption is unsustainable and fails to put New York State on the path to achieve its climate goals, safeguard the environment, and protect communities. If materials considered to be waste are looked at more holistically—rather than as worthless by-products of “business as usual,” the waste is valued as a resource, propelling a more circular approach to resource stewardship.

New York State’s approach to materials management aligns and supports the GHG reduction recommendations in the Scoping Plan developed to implement the CLCPA. Diverting waste from landfills and combustors and renewing a resilient and recycled supply chain is integral to achieving the State’s climate CLCPA requirements to reduce GHG emissions, while also promoting a just and equitable transition to a carbon-constrained economy.

Circular Economy

A circular economy supports processes, activities, and systems that make effective use of materials and prevent environmental degradation and economic loss by keeping valuable materials circulating within the economy.

Circular economy strategies include designing for durability, reuse, remanufacturing, and recycling, as well as utilizing renewable resources and supporting a more sustainable food system. Circular economy solutions conserve natural resources, reduce energy consumption, prevent pollution, reduce GHG emissions, and protect human health. In addition to resource conservation, the circular economy also benefits industry by creating new job opportunities through a new business model and ensuring materials with value stay within the economy, continuing to provide value instead of ending up in landfills or combustors.

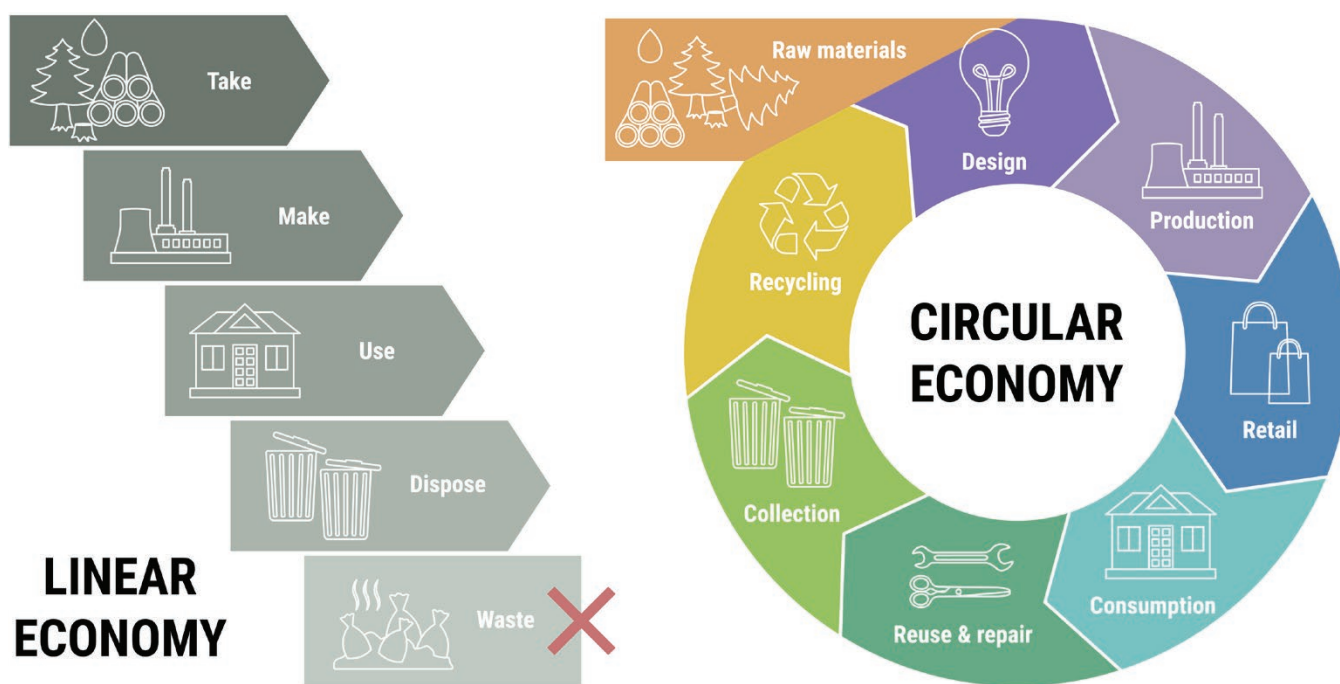


Figure 2.1. Circular economy systems diagram



A volunteer removes nails from red oak flooring as part of a deconstruction project to recover reusable materials.

The waste of valuable resources is a problem for which the solution is within society's control. The current "take, make, toss" model of use and consumption drives the single-use culture that is prevalent throughout society. From single-use items such as utensils, food wrappers, and takeout containers to containers for household items such as soaps, shampoos, and cleaning products, an enormous array of single-use packaging and single-use items exists across all areas of life. The "take, make, toss" model also applies to durable goods, which are items such as furniture, sports equipment, and tools. These types of items are typically intended to have a longer lifespan than single-use products, but currently, these types of materials do not have adequate avenues for keeping them in circulation. The first step in rethinking the management of discarded materials is to prevent materials from being discarded in the first place. Addressing the "take, make, toss" model includes replacing single-use systems with reuse systems. An example of this is reusable container systems aimed at reducing the amount of waste that comes from takeout containers. These types of programs are already being piloted in Europe, South America, and the United States, including in New York State.

The key is to view discarded materials not as problems, but as assets with value and longevity, and to prioritize reuse over the purchase and use of raw materials. Policy solutions can help accelerate this shift, valuing creativity and innovative thinking to avoid and prevent waste at the source to better utilize resources and ensure a level playing field sector-wide.

A circular economy creates new opportunities, spurs innovation, and propels New York State competitively into the future. Instead of disposal and combustion,



New Yorkers can reuse, repair, and repurpose to make a profit out of material that would be wasted otherwise, in turn, creating something to use and benefit from again. The circular economy is happening now. New York State will move forward with building a resilient future that will work for everyone in the long term.

Sustainable materials management is good for New York State, communities, the environment, and the economy. But it will take everyone—state and local governments, planning units, the private sector, product manufacturers, distributors, retailers, educators, and consumers—to make the concept of waste a thing of the past.

DEC estimates at least 80% of the material currently sent to landfills or for combustion still has monetary value either directly as material that could be used to produce goods or other beneficial uses, or indirectly through the creation of jobs in the recycling and reuse sectors. Often, the demand for these materials is misaligned within the supply chain, meaning that the supply is not readily available in the quality, condition, and location where and when it is demanded.

To protect the environment, retain opportunities for future generations, and maintain New York State's status in the global economy, the State needs to advance a more holistic concept of waste and use resources to their maximum benefit to reduce disposal burdens on communities and conserve natural resources.

This Plan provides a path to help New York State realize a circular economy and its associated benefits. This path will require legislation, outreach and education, equity considerations, funding, and programmatic improvements.

Plan Format

New York State's *Solid Waste Management Plan* takes a statewide view of the complex materials management practices and trends occurring today and provides direction for New York State's waste reduction, reuse, recycling, collection, transportation, and disposal investments, policy, and practices. Solid waste management is hyperlocal and every municipality in New York State has a slightly different practice for collection, financing, and processing. This Plan supports local solid waste management planning units continuing to lead local efforts to achieve waste reduction and recycling goals by articulating the current status of solid waste in New York State today, discussing policy changes, and identifying critical solid waste policies and infrastructure investments needed to recover and repurpose raw materials for a more resilient supply chain to power a more circular economy.

To best present this information and the interrelated complexities, the Plan is divided into several components to help readers with various areas of expertise and levels of interest to easily navigate to the most relevant information.

The body of the Plan:

- Provides background information on current solid waste management in New York State;
- Identifies a number of issues, challenges, and opportunities, including climate, throw-away culture, global markets, information sharing and technology, equity issues, ecosystem impacts, and emerging contaminants sampling and research;
- Discusses the values and visions with regards to materials management in New York State and the guiding principles that will provide the direction and structure to get there; and
- Lists six Focus Areas and a detailed roadmap of the actions that must be taken to achieve the waste disposal reduction goals through 2050.

For ease of reading and navigation, more detailed information and data are included in a series of appendices to this Plan. In this way, the body of the Plan serves as the focal point, specifically identifying where more information can be found in related appendices for interested readers. The appendices include a historical summary of waste management in New York State in Appendix A; a summary of programmatic initiatives that have been implemented since 2010 in Appendix B; detailed and comprehensive data on SWMFs and practices in Appendices C and D; summaries of the planning units and local government programs and the flow of waste across the state in Appendices D–F; data related to waste management facilities with respect to PEJAs and DACs in Appendix G; projections on waste quantities and characteristics in Appendix H; and a guide to applicable State statutes and policies in Appendix I.

3. Background on Waste Management in New York State

Developing recommendations to move the state toward a more circular economy requires an examination of the state's waste characterization and waste management so that areas of success and areas requiring improvement can be clearly identified. Waste management in New York State involves several different types of waste streams and categories of waste, which together make up the total waste stream. DEC puts significant effort into providing an analysis of these major waste streams to not only provide transparency in the numbers, but to also help guide planning and resource commitments to have the greatest impact. Compilation of the data to perform the analyses in this Plan takes a significant amount of time and effort to ensure the accuracy of the data. Therefore, data from 2018 is the latest available and was used to provide the basis for planning and projections for this Plan. We expect the data for 2019 and 2020 to show a dip in recyclables recovered and processed in 2019 due to a combination of the recycling materials market ramifications of China's National Sword policy on the global market for paper and plastic materials coupled with the effects of COVID-19 on both waste-generation patterns and recyclables processing. We also expect to see that the effects COVID-19 had on the economy reflected in a temporary reduction of waste generation in certain sectors. Additionally, we expect to see COVID-19 had an altering effect on both the waste composition and the percentages of waste decreasing in the commercial sector while increasing in the residential sector. Much of these temporary adjustments are expected to have stabilized in 2021 and 2022, but future analysis and waste composition data that is being collected through a project with SUNY Stony Brook, discussed in more detail in Appendix B, will help with the evaluation of anomalies due to COVID-19 and the lasting waste-composition trends.

Quick Facts: Total Waste Stream

The total waste stream includes MSW, C&D debris, non-hazardous industrial waste, and biosolids.

- The total waste stream generation was 42.2 million tons in 2018.
- Of the 42.2 million tons of total waste stream generation, MSW accounted for 45%, C&D debris 46%, non-hazardous industrial waste 5%, and biosolids 4%.
- The recycling rate for the total waste stream has increased from about 36% in 2008 to 43% in 2018.
- The management of the 2018 total waste stream included disposal through a combination of landfills in New York State (32%), export for disposal (17%), and combustion in New York State (8%), for a combined total of 57%, with the remaining 43% recycled.

Quick Facts: Municipal Solid Waste

MSW comprises all waste that is generated by residents, whether in single-family or multifamily residences; commercial establishments, including all offices, stores, shops, restaurants, or businesses of any nature; and waste generated by institutions, including any schools, government buildings, prisons, nursing homes, hospitals, or other similar facilities.

- The MSW stream generation prior to recycling was 17.9 million tons in 2018.
- Of the 17.9 million tons of MSW generation, residential waste accounted for 54% and commercial/institutional waste for 46%.
- The MSW portion of the total waste stream is often the only portion of waste people think of, but it is actually less than half (45%) of the total waste stream, with residential waste accounting for less than a quarter (24%) of the total waste stream.
- The state remained essentially at the same disposal rate of pounds of MSW per person per day in 2018 (4.09) as it was in 2008 (4.10).

- The MSW stream by weight in New York State comprises paper, which is the largest category (32%), followed by food scraps (17%), plastics (14%), yard trimmings (7%), metals (7%), textiles (5%), glass (4%), wood (3%), and miscellaneous (10%).
- In 2018, MSW was managed by disposal through a combination of landfills in New York State (39%), export for disposal (27%), and combustion in New York State (15%) for a combined total of 81%, with the remaining 19% recycled.

MSW STREAM BY WEIGHT IN NEW YORK STATE:

32% Paper 

17% Food Scraps 

14% Plastics 

7% Yard Trimmings 

7% Metals 

5% Textiles 

4% Glass 

3% Wood 

10% Miscellaneous 

Quick Facts: Construction and Demolition Debris

C&D debris includes all wasted construction materials from new building construction, demolition, road construction, and construction excavation materials.

- The total C&D debris waste stream generation prior to recycling was 18.4 million tons in 2018.
- DEC estimates that the largest component of C&D debris is concrete/asphalt/rock/brick (35%), followed by soil/gravel (27%), wood (15%), metal (6%), roofing (5%), drywall (2%), cardboard (2%), plastic (1%), and other (7%).
- The recycling rate for the C&D portion of the total waste stream was much higher than the MSW stream, starting at 55% in 2008 and steadily increasing to 64% in 2018.
- In 2018, the management of C&D debris included disposal through a combination of landfills in New York State (26%), export for disposal (9%), and combustion in New York State (1%), with the remaining 64% recycled.

Together, these data points, along with the comprehensive data and analyses that follow below and in Appendix C, help to highlight the current status of materials management in New York State. This comprehensive data allows for the identification of areas to improve the future of materials management in New York State and move the state toward a more circular economy.

For detailed information on SWMFs, waste quantities, waste composition, waste projections, and regional waste management, see Appendices C through H of this Plan.

Total Waste Stream

The total waste stream includes MSW (waste from homes, offices, businesses, restaurants, stores, schools, etc., commonly referred to as residential, commercial, and institutional waste); C&D debris (including all construction materials from new building construction, demolition, road construction, and construction excavation materials); non-hazardous industrial waste; and biosolids.

Total Waste Stream Generation

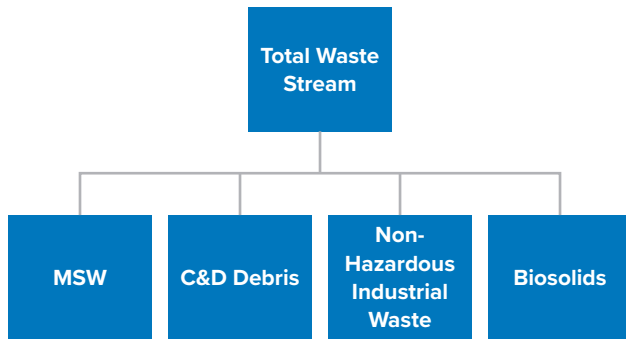


Figure 3.1. Types of waste that compose the total waste stream

In this Plan, the term “total waste stream” includes all four of the waste categories shown in Figure 3.1. The total waste stream generation was 42.2 million tons of waste in 2018. Compilation of the data to perform the analyses in this Plan takes a significant amount of time and effort to ensure the accuracy of the data. Therefore, data from 2018 is the latest available and is used as the base data for planning and projections.

The MSW portion of the waste stream is often the only portion of waste people think of, but it is less than half (45%) of the total waste stream. It is slightly less than C&D debris, which constitutes 46% of the waste stream; non-hazardous industrial waste is 5%; with biosolids constituting 4%. The breakdown of the total waste stream for New York State is found in Figure 3.2.

2018 Waste Generated by Waste Type

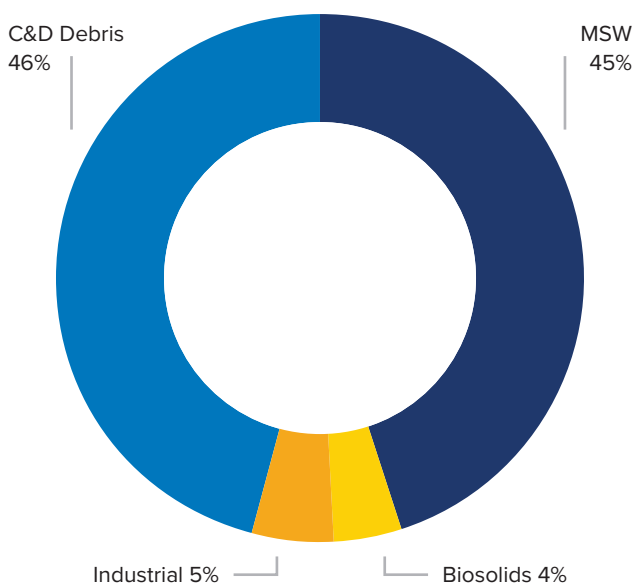


Figure 3.2. 2018 Waste generated by waste type in New York State

Total Waste Stream Recycling Rates

The recycling rate for the total waste stream increased from about 36% in 2008, to 43% in 2018.

Recycling Rate for Total Waste Stream Generated in New York State

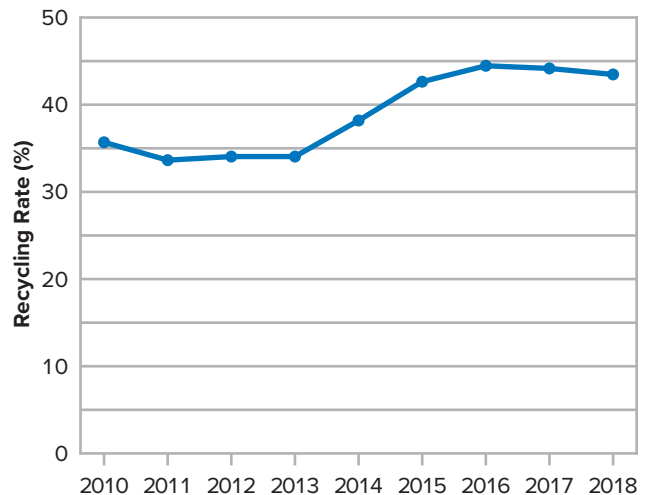


Figure 3.3. Recycling rates for the total waste stream in New York State 2010–2018

However, there is more detailed information to consider when evaluating the four primary components of the total waste stream (MSW, C&D debris, industrial waste, and biosolids) separately. While, as noted above, the total waste stream recycling increased from 2008 to 2010, the MSW recycling rate remained relatively stable and even dipped slightly in 2017 and 2018. However, during that same period, the C&D debris recycling rate rose considerably from 55% in 2008 to 64% in 2018. The significant increase in C&D debris recycling is the driver behind the increase in the overall total waste stream recycling rate.

When recycling rates for the four major waste stream components are viewed separately, the impacts of each major waste stream component on the overall recycling rate become clearer. The following figure shows the recycling rates by waste stream.

Recycling Rates for Waste Generated in New York State by Waste Type

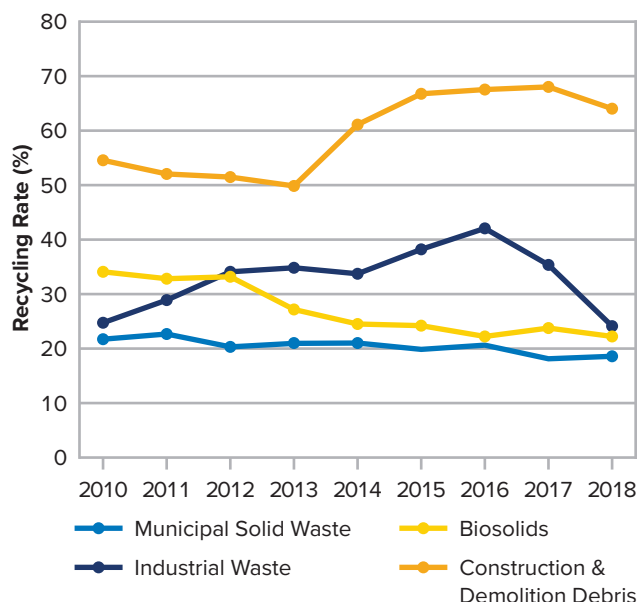


Figure 3.4. Recycling rates for waste generated in New York State by waste types 2010–2018

Overall Total Waste Stream Management Methods

As shown in Figure 3.5, the management of the 2018 total waste stream included disposal through a combination of landfills in New York State (32%), export for disposal (17%), and combustion in New York State (8%), for a combined total of 57%, with the remaining 43% recycled.

More waste is exported from New York State than is imported; however, waste generated outside of the state is consistently imported for disposal in landfills and processing in municipal waste combustors (MWCs). Between 2010 and 2018, the total waste stream imported into New York State was small but relatively consistent at about 5% compared to the waste generated in New York State, ranging from 1.9 million tons per year to 2.3 million tons per year, with the exception of 2011, with 2.7 million tons per year. This is less than one-third of the amount of the total waste stream generated in New York State exported for disposal. A more detailed presentation of the information related to waste imported into New York State is included in Appendix C.

2018 Management of Total Waste Stream Generated in New York State

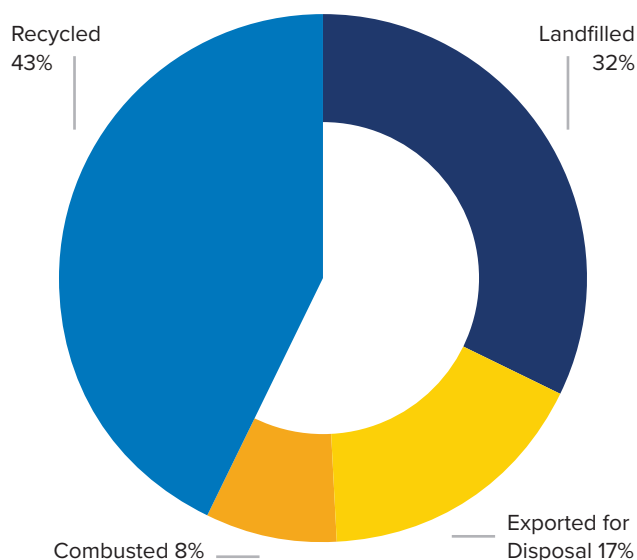


Figure 3.5. 2018 Management of total waste stream generated in New York State

Municipal Solid Waste (MSW)

MSW Generation

The MSW generated prior to recycling was 17.9 million tons in 2018. As noted previously, MSW comprises all waste generated by residents, whether in single-family or multifamily residences; commercial establishments, including all offices, stores, shops, restaurants, or businesses of any nature; and waste generated by institutions, including any schools, government buildings, prisons, nursing homes, hospitals, or other similar facilities. In New York State it is estimated that residential waste accounts for 54% of MSW and commercial/institutional waste constitutes the remaining 46%.

MSW Disposal Rate

The state remained essentially at the same disposal rate of pounds of MSW per person per day in 2018 (4.09) as it was in 2008 (4.10). After an initial decline in the disposal rate, resulting in a drop of 10% in 2012, the disposal rate for MSW steadily rose, returning to the initial rate. The following figure summarizes the disposal rates from 2008 to 2018.

Year	Disposal Rate (lbs/person/day)
2008	4.10
2009	3.75
2010	3.71
2011	3.77
2012	3.70
2013	3.86
2014	3.87
2015	3.88
2016	3.91
2017	4.11
2018	4.09

Disposal Rate (lbs/person/day)

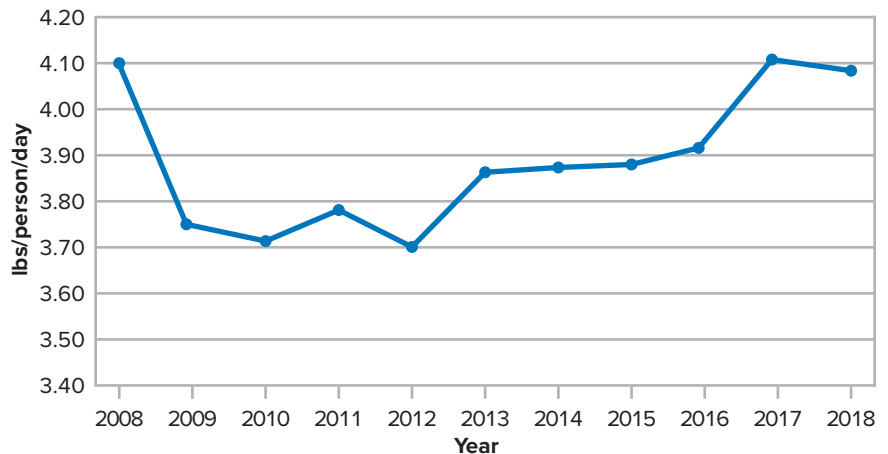


Figure 3.6. MSW disposal rate per person per day in New York State 2008–2018

Economic Effect on MSW Generation

Historically, waste generation typically tracks the economy. The state gross domestic product grew by 35% from 2008 to 2018. That growth would generally lead to a higher waste-generation rate. In New York State, the per capita MSW generation, which includes recyclables, decrease 2.5% in that same period, from 5.15 pounds per person per day in 2008 to 5.02 pounds per person per day in 2018. The generation rate has been relatively stable over that 10-year period, even during the growth in state gross domestic product. In addition to the gross domestic product, other factors apply, such as the character of the waste stream (more plastic containers instead of glass bottles, etc.) and waste reduction efforts. It's a positive sign related to true progress in reducing overall waste generation. It's also a reminder that generation rate and disposal rate should be considered when evaluating solid waste management data. Simply looking at the disposal rate over a period of time may not give a true picture of waste reduction, reuse, and recycling efforts, when due to economic circumstances, the overall generation rates would have instead been expected to have increased over that period. Waste data can be tricky to interpret in isolation and from one source to another, such as one state to another. It's important to evaluate all the data as part of any planning effort.

MSW Waste Composition

The waste composition varies between the various generating sources as well as in different areas of the state, such as rural, suburban, or urban areas. The aggregated data for all MSW in New York State provides an approximate breakdown of urban 54%, suburban 30%, and rural 16%. A detailed discussion of these differences in waste composition is included in Appendix H.

Figure 3.7 contains a breakdown of MSW by weight in New York State. The paper category is the largest (32%), followed by food scraps (17%), plastics (14%), yard trimmings (7%), metals (7%), textiles (5%), glass (4%), wood (3%), and miscellaneous (11%). These percentages may be somewhat different than data from other sources, such as the United States Environmental Protection Agency (EPA), because these percentages have been evaluated and prepared taking into consideration the demographic characteristics of New York State, including the substantial urban population. Waste composition is not static. As consumer products and lifestyles change, so will the character of MSW. Paper and paperboard use decreases as electronic mail becomes widespread and the number of newspapers that are printed drops significantly, but food packaging use increases as lifestyles lean toward increased take-out or delivery meals. Materials management systems must be nimble and must be able to adjust to these changes.

MSW Materials Composition (%)

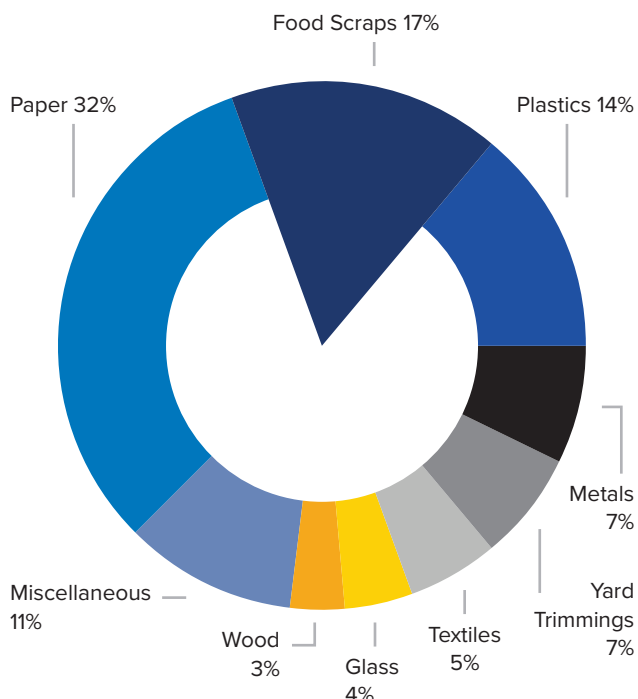


Figure 3.7. MSW composition in New York State

MSW Recycling Rate

The target metric for the Beyond Waste Plan issued in 2010 was for MSW, and the goals were for the disposal rate of pounds of MSW per person per day, and DEC will continue to use that established metric as the most accurate and meaningful metric to measure the ultimate goal of reducing waste disposed. However, for comparison purposes, using a recycling rate for MSW, the recycling rates ranged from 20% in 2008, nearing 23% in 2011, and declining to 18.5% (rounded to 19%) in 2018. This information is depicted in Figure 3.8. Both the disposal rate and the recycling rate follow a similar pattern, showing a brief improvement but a relative stagnation overall.

Recycling Rate for MSW Generated in New York State

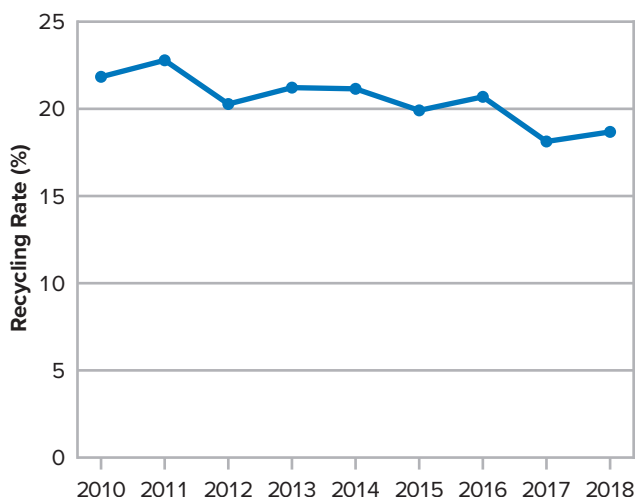


Figure 3.8. Recycling rate for MSW generated in New York State

Overall MSW Management Methods

In 2018, MSW was managed by disposal through a combination of landfills in New York State (39%), export for disposal (27%), and combustion in New York State (15%), for a combined total of 81%, with the remaining 19% recycled. This breakdown is shown in Figure 3.9.

2018 Management of MSW Generated in New York State

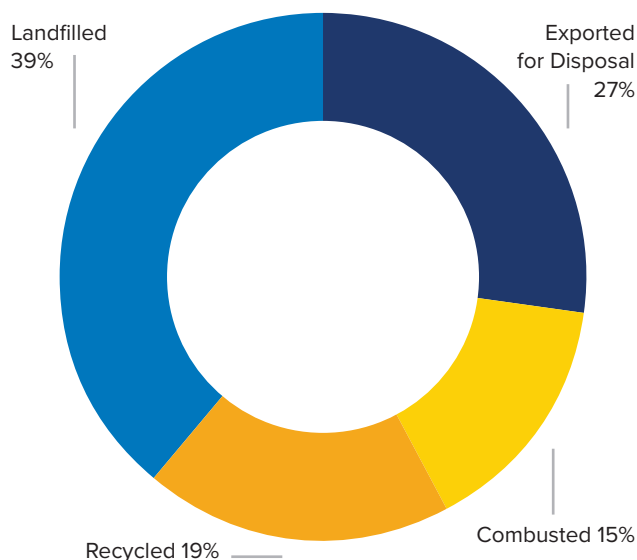


Figure 3.9. 2018 Management of MSW generated in New York State

Municipal and Private Roles in MSW

The traditional picture of the local government collecting waste and managing it at local municipal facilities has changed. In the past 30 years, operation of much of the landfill and MWC capacity in New York State has shifted from municipalities and planning units to private companies. By number, landfills owned by municipalities are still the largest, with 19 of the 25 active landfills in the state. However, the capacity of municipal landfills is dwarfed by the capacity of private landfills. Four of the larger municipally owned landfills are operated by private companies under long-term operational agreements. By capacity, the privately owned and operated landfills and the privately operated/municipally owned landfills accounted for 82% of the working MSW landfill capacity in 2018. This represents a complete reversal of the ownership and operation roles over the past 30 years. For MWCs, it is even more dramatic, with only 1 of the 10 MWCs owned and operated by a municipality. Ninety-eight percent of the working MWC capacity in 2018 was owned or operated by private companies. This information is presented in more detail in Appendix D.

Collection of waste and recyclables in most areas of the state, especially the urban and suburban areas, from multifamily residences with more than four units, such as apartment complexes, condominiums, etc., as well as essentially all commercial waste is handled by private waste companies that contract directly with the property owner. The significant exception, and an anomaly in the United States, is New York City. The New York City Department of Sanitation provides municipal collection for all single-family and multifamily residential waste, regardless of the number of units, for both waste and recyclables. As depicted in Figure 3.10, for New York State as a whole, 60% of the residents are provided direct municipal curbside collection services. The remaining 40% of residents are divided between 25% of the property owners procuring collection services directly with private waste collectors and the other 15% handled by municipalities contracting private waste collection services on behalf of residents.

Because New York City represents about 44% of the state's population and it provides a unique level of municipal service to multi-residential residences, it is useful to analyze the information without New York City. Without the New York City data, 45% of New York State's residents are covered under collection services contracted directly with private waste collectors, 29% of residents receive direct municipal curbside collection services, and the remaining 26% of the population is covered by municipalities contracting private waste collection services on behalf of residents.

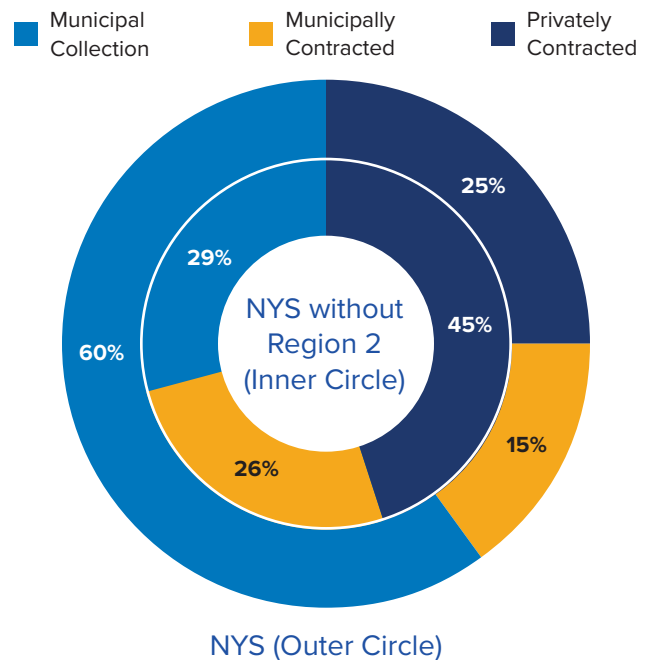


Figure 3.10. Distribution of the methods used for the collection of residential MSW for New York State and for New York State without Region 2 (NYC)

C&D Debris

C&D Debris Generation

The total C&D debris waste generated prior to recycling and beneficial use was 18.4 million tons in 2018. C&D debris is the largest component of the total waste stream, generated at 46%. C&D debris includes all wasted construction materials from new building construction, demolition, road construction, and construction excavation materials. This provides for a wide range of distinct streams of material. Of the 18.4 million tons generated, 27%, or approximately 6.6 million tons, was disposed of, making C&D debris the second largest component of discarded materials after MSW.

C&D Debris Waste Composition

DEC estimates that the largest component of C&D debris is concrete/asphalt/brick/rock (35%), followed by soil/gravel (27%), wood (15%), metal (6%), roofing (5%), drywall (2%), cardboard (2%), plastic (1%), and other (7%). Additional detailed waste characterization data is included in Appendix H.

C&D Debris Materials Composition

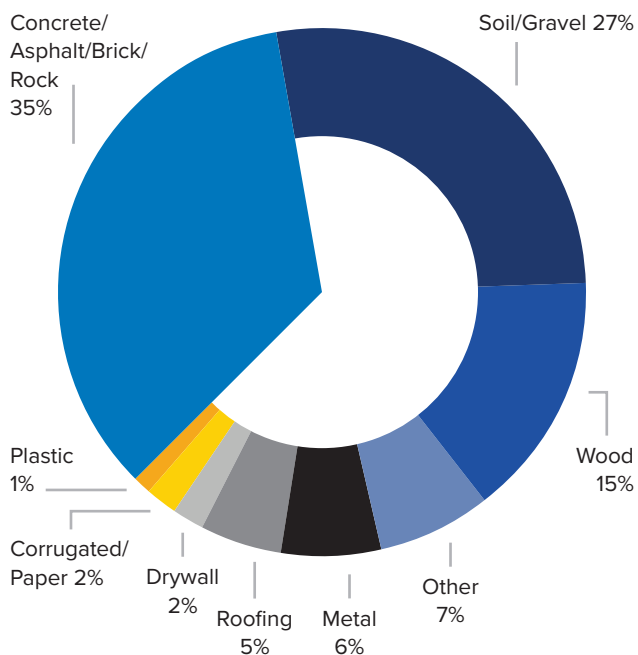


Figure 3.11. C&D debris materials composition

C&D Debris Recycling Rate

As shown in Figure 3.12, the recycling rate for C&D debris is much higher than the recycling rate for MSW, starting at 55% in 2008 and increasing to 64% in 2018.

Recycling Rate for C&D Debris Generated in New York State

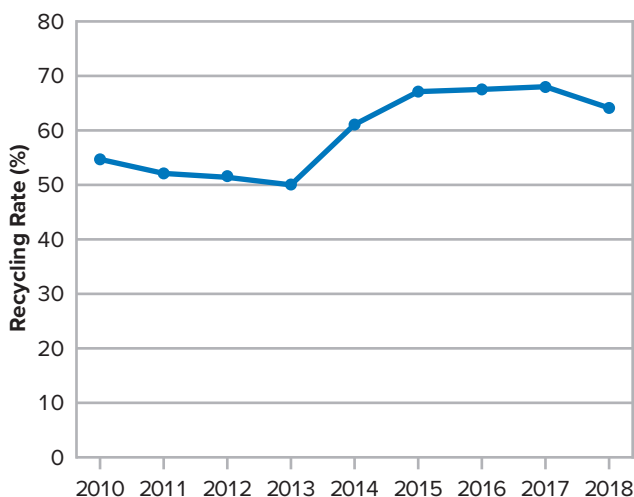


Figure 3.12. Recycling rate for C&D debris in New York State

There are likely many contributing factors to this increase in C&D debris recovery, including:

- DEC's focus on proper C&D debris management with the coordinated enforcement efforts against illegal disposal in 2016, 2017, and 2022, discussed in more detail in Appendix B;
- Enhancing Part 360 regulations, effective in late 2017, providing regulatory changes allowing for more paths to recover and recycle clean C&D debris; and
- Better data reporting from facilities on fill material, road construction material, and beneficially used materials.

It is expected that the recycling rates will continue to rise, even as the amount of material continues to increase. Further detail and discussion related to the regulatory changes and the coordinated and focused enforcement efforts are included in Appendix B. A more detailed discussion of C&D debris processing facilities is included in Appendix D. Note that beneficial use (see Industrial Waste section) plays a substantial part in the recycling and reuse of C&D debris.

Overall C&D Debris Management

As outlined in Figure 3.13, the management of C&D debris includes disposal through a combination of landfills in New York State (26%), export for disposal (9%), and combustion in New York State (1%), with the remaining 64% recycled.

2018 Management of C&D Debris Generated in New York State

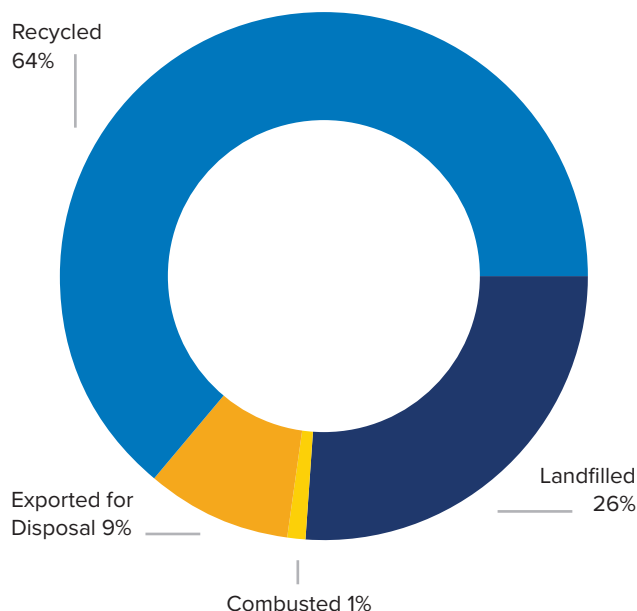


Figure 3.13. 2018 Management of C&D debris generated in New York State

Industrial Waste

Industrial Waste Generation

The industrial waste category is about 5% of the total waste stream, accounting for 1.9 million tons of waste annually, and includes discarded materials generated by manufacturing or industrial processes, such as paper mill residues, food processing waste, liquid wastes (acids, leachate, etc.), and foundry sands. It does not include hazardous waste generated from industrial processes, such as chemical manufacturing. The determination of whether a material is hazardous is outlined in the Part 370 series regulations.

Industrial Waste Recycling Rate

It is challenging to obtain recycling data on this waste stream because it may be sent directly from the generator to another industry for use as a feedstock and this data is not required to be reported to DEC. Also, if waste from an industry is transported directly out of state for disposal, without going through a transfer facility, that data is not readily available to DEC. Therefore, it is likely that the recovery and the total generation in this category is underreported in this Plan.

Recycling Rate for Industrial Waste Generated in New York State

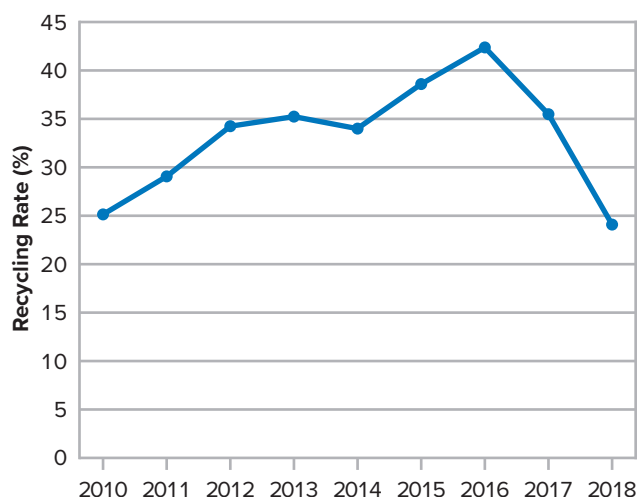


Figure 3.14. Recycling rate for industrial waste generated in New York State

Overall Industrial Waste Management

Management of the industrial waste stream includes disposal through a combination of landfills in New York State (50%), export for disposal (15%), and combustion in New York State (6%), for a combined total of 71%, with the remaining 29% recycled.

Beneficial Use of Industrial Waste

A significant portion of the case-specific Beneficial Use Determination (BUD) program allows for the use of some waste as by-products to substitute for raw materials or commercial products. These are often components of the industrial waste stream, though solid waste of every type has been approved for beneficial use, including C&D debris, organic waste, and biosolids. Beneficial use is not always considered to be recycling, but it is a preferable alternative to waste disposal or combustion. The structure of the program includes two types of approval: predetermined beneficial uses and case-specific beneficial uses. Predetermined beneficial uses are established in Subdivision 6 NYCRR Section 360.12(c) and identify the specific ways that certain wastes can be utilized.

Predetermined beneficial uses are analogous to exemptions in other program areas, in that the approval is established in regulation, and in most cases, no additional DEC authorization or reporting is required. Case-specific beneficial uses are not explicitly identified in regulation; however, the information that is required for a determination is established in Subdivision 6 NYCRR 360.12(d). Case-specific beneficial use determinations are issued for a maximum five-year term and require annual reporting of the amount of material beneficially used, analytical data (if required), and any other information required by DEC. The following figure depicts the types of materials that were included in case-specific BUDs from 2010–2022.

Case-Specific BUDs by Waste Type 2010 – 2022

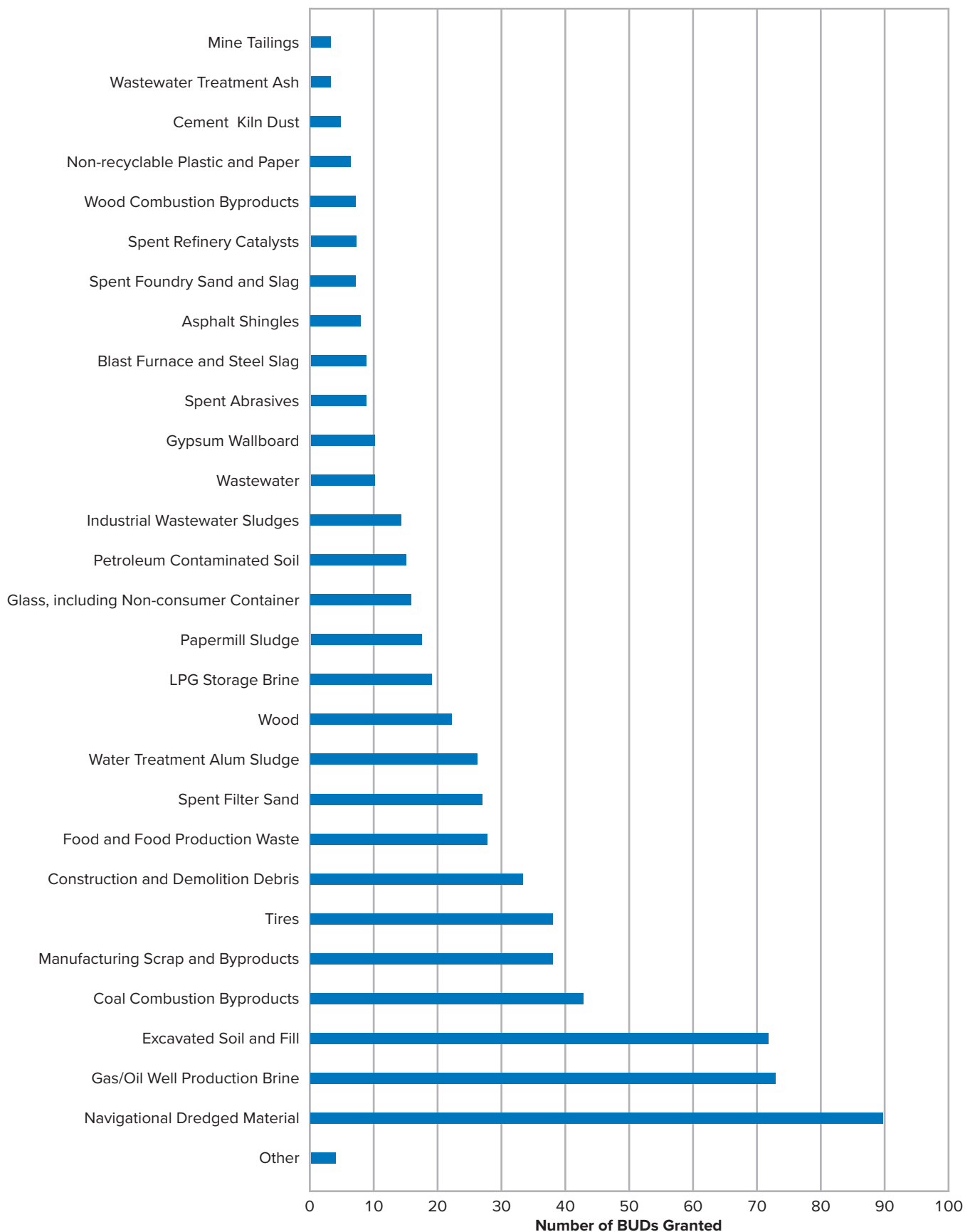


Figure 3.15. Case-specific BUDs 2010–2022

Biosolids

Biosolids Generation

New York State is served by more than 600 water resource recovery facilities (WRRFs), that treat approximately 2,400 million gallons of wastewater per day. Sometimes referred to as publicly owned treatment works (POTWs), WRRFs generate approximately 375,000 dry tons or about 1.3 million total tons of biosolids annually.

Biosolids are nutrient-rich organic materials that can be recycled and utilized as a soil amendment when properly treated and processed. Biosolids treatment and quality standards have been developed to promote the safe use of this material. Public health and the environment are protected by controlling pollutant limits and reducing the pathogenic content of the material that is beneficially used.

Biosolids Recycling Rate

DEC supports the beneficial use of biosolids; however, landfilling continues to be the most common management method for biosolids. Beneficial use, through methods such as land application, composting, and heat drying, steadily decreased since 2008 from nearly 47% to 22% in 2018.

Biosolids management practices have changed over the last 30 years. Trends show a steady increase in the use of landfills for biosolids disposal. This is primarily due to relatively low tipping fees at landfills in the state. DEC will continue to support local efforts to increase biosolids recycling as a means to provide nutrients and organic matter to soils and to reduce the landfilling of biosolids that can contribute to GHG emissions. [Learn more about how biosolids are managed in New York State.](#)

Recycling Rate for Biosolids Generated in New York State

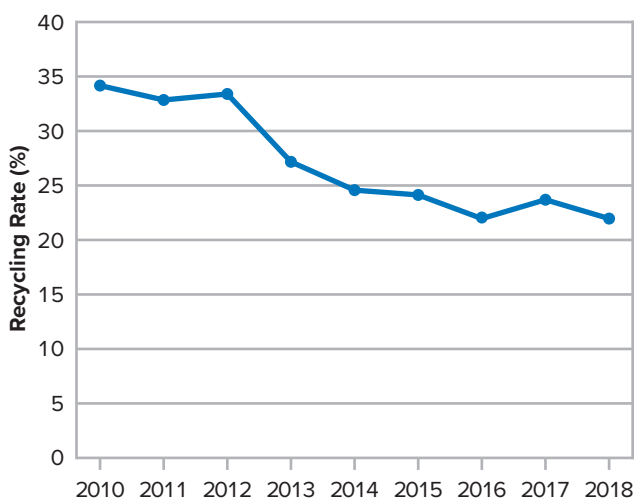


Figure 3.16. Recycling rate for biosolids generated in New York State

Overall Biosolids Management

Management of biosolids includes disposal through a combination of landfills in New York State (38%), export for disposal (19%), and combustion in New York State (21%) for a combined total of 78%, with the remaining 22% recycled.

Solid Waste Management Facilities

The regulation and oversight of SWMFs are discussed in more detail in Appendix D. The regulatory framework of exemptions, registrations, and permits for the authorization of activities at SWMFs is provided in 6 NYCRR Part 360.

Facilities Summary

The following is a summary of the Part 360 series, Solid Waste Management Facilities discussed throughout the State's Solid Waste Management Plan. The number of SWMFs in the state varies constantly as individual facilities open for business or cease operations. Table 1 and Table 2 provide a snapshot of the full list of active facilities as of June 2022.

Table 1. Type and number of permitted solid waste management facilities in New York State (June 2022)

Type of Permitted Solid Waste Management Facility	Number of Facilities
Transfer Facility	189
C&D Debris Processing and Recovery	93
Composting	66
Recyclables Handling and Recovery	40
Used Oil	26
Landfill - MSW	25
Biosolids Storage and Land Application	22
Household Hazardous Waste Collection	17
Regulated Medical Waste	15
Nonspecific Facility	14
Combustion/Thermal Treatment	11
Landfill - C&D Debris	11
Used Cooking Oil and Yellow Grease Processing	11
Waste Tire Handling and Recovery	11
Landfill - Industrial Waste Monofill	9
Mulch Processing	6
Landfill - Long Island (limited to MWC ash and C&D debris only)	5
Anaerobic Digestion	4
Research Development and Demonstration	1
Other Organics Processing	1
TOTAL	577

Table 2. Type and number of registered solid waste management facilities in New York State (June 2022)

Type of Permitted Solid Waste Management Facility	Number of Facilities
C&D Debris Handling and Recovery	464
Vehicle-Dismantling Facility	460
Transfer Facility	318
Recyclables Handling and Recovery	308
Organics Storage/Land Application	188
Composting	154
Scrap Metal Processor	126
Motor Vehicle Repair Shop	53
Mulch Processing	29
Waste Tire Handling and Recovery	26
Regulated Medical Waste	16
Mobile Vehicle Crusher	14
Combustion/Thermal Treatment	4
Land Reclamation/Grade Adjustment	2
Research Development and Demonstration	2
Source Separated Organics Processing	2
Used Cooking Oil and Yellow Grease Processing	2
Used Oil - Collection Center	2
Anaerobic Digestion	1
Animal Feed Production	1
TOTAL	2,172

MSW Landfill Disposal Capacity

While the 25 MSW landfills in the state have available permitted disposal capacity, several factors must be taken into consideration when calculating the available remaining disposal capacity. Limitations at the local municipal level may restrict the acceptance of waste from areas outside of the municipality where the landfill is located. Additionally, landfills must operate within their permit limits, limiting the amount of waste that can be disposed of on an annual basis. An analysis of existing data indicates that the 25 MSW landfills have a combined landfill capacity life of between 16 and 25 years based on several factors. If the amount of waste that was accepted in 2018 is used (instead of the amount allowed in the landfill permits), the full remaining landfill capacity life of all the MSW landfills would be used in 25 years. If the full amount allowed by permit for each landfill is used instead, the remaining landfill capacity life is 19 years. If local restrictions on waste acceptance are also included in the calculation, the remaining landfill capacity life is 16 years. This is discussed in more detail in Appendix D.

Solid Waste Facilities and Potential Environmental Justice Areas and Disadvantaged Communities

A PEJA means a minority or low-income community that may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

PEJAs are U.S. Census block groups of 250–500 households each that, in the Census, had populations that met or exceeded at least one of the following statistical thresholds:

1. At least 52.42% of the population in an urban area reported themselves to be members of minority groups; or
2. At least 26.28% of the population in a rural area reported themselves to be members of minority groups; or
3. At least 22.82% of the population in an urban or rural area had household incomes below the federal poverty level.

[Find more information and a map of PEJAs across New York State here.](#)

DACs are defined under the CLCPA as those that bear the burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high-concentrations of low- and moderate- income households (ECL § 75-0101(5)). Pursuant to the CLCPA, the Climate Justice Working Group (CJWG) established criteria to identify DACs. On March 27, 2023, the CJWG finalized the DACs criteria, which include 45 indicators of environmental burdens, climate change risks, sociodemographic characteristics, and health outcomes. In addition, 19 census tracts that are federally designated reservation territory or state-recognized Indian Nation-owned land were automatically included. Lastly, for clean energy and energy efficiency investment purposes only, individual households that report an annual income at or below 60% of the state median income were also designated as DACs.

[Find more information on the DAC criteria and a map of DACs across New York State here.](#)

DEC evaluated the locations, size, and type of SWMFs and their location in PEJAs and DACs. A more detailed presentation of the data, along with maps depicting the locations of facilities with respect to PEJAs and DACs are provided in Appendix G. While there are many differences in the size and characteristics of SWMFs and their potential long- and short-term impacts on nearby residents, the following is a summary of the information.

Statewide (in 2023)

- From a population perspective, approximately 46% of the population lives in a PEJA and approximately 36% of the population lives in a DAC.
- Based on the total number of all SWMFs, 25% of SWMFs are located in a PEJA and 30% are located in a DAC.
- Based on the facility throughput, 37% of the total waste stream was managed at facilities in a PEJA and 54% of the total waste stream was managed at facilities located in a DAC.

Evaluating the data further with respect to the influence of New York City facilities yields the following information.

New York City

- From a population perspective, approximately 72% of the city's population lives in a PEJA and 49% lives in a DAC.
- Based on the total number of SWMFs, 77% are located in a PEJA and 79% are located in a DAC.
- Based on the facility throughput, 66% of New York City's total waste stream was managed at facilities located in a PEJA and 88% was managed at facilities located in a DAC.

There are no landfills or MWCs operating in New York City. The largest contributor in New York City, for both number of facilities and total throughput, is C&D debris handling and recovery facilities. The second largest in number of facilities, but low in throughput, are vehicle dismantling facilities. Third in number of facilities and a close second in throughput are transfer facilities. Recyclables handling and recovery facilities are a distant fourth in number of facilities and a distant third in throughput.

Table 3. Number of solid waste management facilities in DACs and the quantity of waste handled by those facilities

	Statewide		Disadvantaged Communities				
	Total Number of Facilities	2018 Total Throughput in Tons (capacity)	Percentage of Population	Number of Facilities	Percentage of Total Number of Facilities	2018 Throughput in Tons (capacity)	Percentage of Total Throughput Handled by Facilities in DACs
NYC	185	13,411,377	49.1%	146	78.9%	11,766,873	87.7%
Outside NYC	2,618	41,157,630	25.1%	700	26.7%	17,666,615	42.9%
Total NYS	2,803	54, 569,007	35.7%	846	30.2%	29,433,488	53.9%

Table 4. Number of solid waste management facilities in PEJAs and the quantity of waste handled by those facilities

	Statewide		Potential Environmental Justice Areas				
	Total Number of Facilities	2018 Total Throughput in Tons (capacity)	Percentage of Population	Number of Facilities	Percentage of Total Number of Facilities	2018 Throughput in Tons (capacity)	Percentage of Total Throughput Handled by Facilities in PEJAs
NYC	185	13,411,377	71.5%	142	76.8%	8,801,808	66.0%
Outside NYC	2,618	41,157,630	25.8%	563	21.5%	11,447,172	28.0%
Total NYS	2,803	54, 569,007	45.8%	705	25.2%	20,248,980	37.0%

Regional Waste Management Variability

New York State is a large, diverse state. There are densely populated urban areas and sparsely populated, very rural areas. Waste management practices vary just as widely across the state. Appendix E contains a full description of how the four major categories of waste described above are managed in each region of the state and each planning unit, as well as the flow of waste across the state and to MSW landfills and MWCs. The following table summarizes waste management by DEC Region.

Table 5. Waste management by DEC Region

DEC Region	Population	MSW Disposal Rate (lbs./person/day)	Recycling Rate (%)			Waste Composition (%)			
			MSW	CDD	Total Waste	MSW	CDD	IND	BIO
1	2,832,331	4.50	20%	60%	43%	41%	58%	-	1%
2	8,390,081	3.54	19%	66%	43%	46%	52%	1%	1%
3	2,322,431	4.06	22%	61%	38%	57%	40%	1%	2%
4	925,618	4.02	28%	66%	40%	51%	38%	9%	2%
5	581,970	3.75	21%	4%	22%	54%	20%	15%	11%
6	537,866	3.24	20%	1%	12%	51%	34%	12%	3%
7	1,165,354	3.35	22%	25%	21%	51%	38%	6%	4%
8	1,326,787	3.61	19%	38%	26%	46%	42%	6%	6%
9	1,420,330	4.31	20%	65%	32%	49%	32%	14%	5%

MSW – municipal solid waste

CDD – construction and demolition debris

IND – non-hazardous industrial waste

BIO – biosolids

4. Issues, Challenges, and Opportunities

A growing number of issues have propelled waste management practices front and center on the world stage and into mainstream culture. New York State is uniquely situated to advance the circular economy and sustainable materials management. There are many opportunities to achieve lower disposal rates and higher recycling rates by adopting policies and funding programs that transform unwanted consumer goods and packaging into recovered raw materials for a resilient local supply chain.

Climate

In 2019, New York State passed the CLCPA with some of the most ambitious climate requirements in the country. The CLCPA became effective on January 1, 2020. Among other things, the CLCPA directs DEC to establish GHG emission limits, requiring a 40% reduction in statewide GHG emissions from 1990 levels by 2030 and an 85% reduction by 2050.

The Waste Sector is a sizable contributor to GHG emissions. Responsible for 12% of statewide GHG emissions, the Waste Sector is behind Buildings (32%), Transportation (28%), and very close to Electricity (13%).

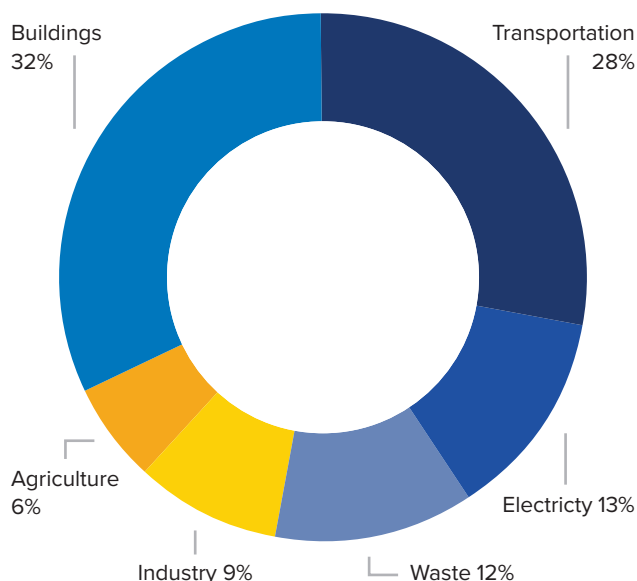


Figure 4.1. 2019 New York State GHG emissions by CLCPA Scoping Plan sector

The Waste Sector includes emissions primarily associated with landfills, waste combustion, and wastewater management. Of the total Waste Sector contribution, landfills account for 78%, waste combustion accounts for 7%, and wastewater treatment accounts for 15%. Most of these emissions represent the long-term decay of organic materials buried in a landfill, which will continue to emit methane at a significant rate for more than 30 years. Waste emissions represent

both the landfilling of waste in New York State and the exporting of waste to landfills in other states. For additional information on GHG emissions in New York State, see the [2021 Statewide GHG Emissions Report](#).

With 17% of MSW in New York State coming from food waste, sustainable materials management strategies, such as food waste reduction, food donation, and composting, can play a major role in decreasing GHG emissions and rebuilding healthy soils that decrease erosion and store carbon by preventing food waste in the first place and diverting organic material from disposal. Climate change also presents business risks, such as disruption of production, increased costs for equipment, insecurity of supply, damage to facilities and logistics, and shifting market preferences. Sustainable materials management strategies can reduce these risks by creating resilience instead of inaction. Implementing waste reduction strategies and increasing the reuse and recycling of materials will allow businesses to be less reliant on raw materials that are vulnerable to climate risks.

The Climate Action Council developed a [Scoping Plan](#) in 2022 to address how New York State will achieve the emissions reductions outlined in the CLCPA. Many of the broader initiatives to be undertaken related to waste found in the Scoping Plan are also found in this Plan. This *Solid Waste Management Plan* provides greater detail on the proposed initiatives and projected results. The initiatives laid out in this Plan are consistent with the overarching requirements and time frames established in the CLCPA.



Although the CLPCA is limited to addressing emissions that occur within the state, New York State needs to go above and beyond its goals related to emissions from waste and consider the role that all New Yorkers play in an interconnected, global system in which the emissions associated with the production of products New Yorkers utilized within the state are contributing to climate impacts elsewhere in the world. Growing waste streams from switching to renewable energies and green transportation, such as batteries, solar panels, and wind turbines, must also be addressed. Circular economy solutions, such as waste reduction, reuse, recycling, and composting, can play a vital role in fighting climate change. New York State will lead the way by focusing on

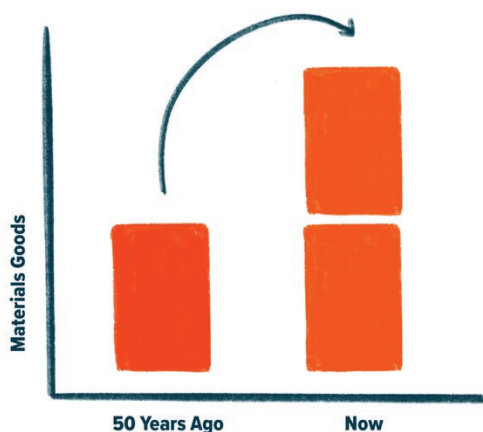
renewable energy and transforming the way products and materials are used and waste is prevented, to avoid GHG emissions within the state and around the world.

Throw-Away Culture

Throw-away and convenience cultures have risen to new heights with an uptick in online ordering, convenience packaging, and planned obsolescence. Many products and single-use packaging are designed to be used for a short time—often only once—and discarded. Products are increasingly designed without durability, reuse, or repair in mind, to perpetuate a cycle of waste and consumption. Packaging continues to evolve in shape, size, material composition, and other design features. Although these design features are considered an innovation from a product packaging point of view, new packaging features can pose challenges for recycling facilities that cannot recover and market many of these new types of packaging that have not been designed to be compatible with recycling facility infrastructure. New Yorkers, especially the younger residents, have begun to realize that these practices of the past are not sustainable or worthwhile and are pushing manufacturers to rethink these product models. For example, globally, approximately 42% of non-fiber plastics have been used for product packaging, much of which is single-use and designed to be used once and discarded. Although a lot of progress has been made to reduce waste, simultaneously, as Figure 4.2 below shows, the average U.S. person now consumes twice as much as they did 50 years ago, and in many cases, keeps material goods for a shorter amount of time before recycling or disposal.



THE AVERAGE U.S. PERSON NOW CONSUMES TWICE AS MUCH AS THEY DID 50 YEARS AGO.



Source: Taylor, Betsy and Tilford, Dave. (2000). Why Consumption Matters

Figure 4.2. U.S. consumer consumption

The [fast fashion](#) trend has continued to surge with clothing sales doubling while clothing utilization—the number of times a piece of clothing is worn—has decreased by 36%, indicating that people are buying more clothing and keeping each item for less time. The fast fashion model for textiles has negative environmental and societal impacts. [DEC estimates](#) that approximately 1.4 billion pounds of clothing and textiles are disposed of in the state each year. Globally, GHG emissions from textile production total 1.2 billion metric tons of CO2 equivalent, more than emissions from international flights and maritime shipping combined. In the United States, textile waste is one of the fastest growing waste streams with the average person throwing away 81 pounds of clothing each year. Approximately 15% of post-consumer textiles are recycled, resulting in 85% of our used clothing and other textiles being disposed of. Decreasing the amount of textiles going to landfills and MWCs can conserve natural resources; reduce toxins from pesticides, herbicides, dyes, and other chemicals used in textile production; reduce GHG emissions; and help address other environmental and social issues.

Global Markets

The recycling system across New York State and the United States now sets quality and contamination reduction as a priority, in large part due to lessons learned from global recycling market disruptions in 2018. The overall recycling system has adjusted to those circumstances, placing a higher emphasis on higher quality, cleaner materials.

The lessons learned from managing the impacts of China's National Sword policy cannot be lost, as they are a valuable reminder for recycling program management. In January 2018, China determined that many of the recyclables coming from the U.S. and other developed countries, such as the United Kingdom, Canada, and Australia, were too contaminated with non-recyclable material that decreased the value of recyclables and contributed to pollution. This policy set a contamination limit of 0.5% on incoming recyclable paper and plastic—a number unattainable by most recycling facilities. China's National Sword policy affected recycling markets across the globe, leading to initial negative consequences for recycling programs in New York State and around the world, as almost a third of collected recyclable materials in the U.S. were being exported at the time. Following China's National Sword policy, other nations followed suit and instituted restrictions on the quality or quantity of recyclables imported into their countries.



Materials being sorted at a recyclables handling and recovery facility.

Although the export of recyclables from New York State was less than in other parts of the U.S., the state was not insulated from the disruptions of recycling markets. China's National Sword policy made it clear—New York State must help reduce contamination in the recycling stream, find new outlets and uses for recyclable materials, and help find solutions to support recycling efforts on a local and regional scale for recycling to remain resilient in the face of global market disruptions. Amid the crisis, DEC met with stakeholders across the state to collect feedback about the impacts of the National Sword policy and develop possible solutions to mitigate negative impacts, improve recycling, and ensure that New York State's recycling systems would be more resilient in the future. DEC also invested over \$20 million in recycling and market research with several colleges and universities in the SUNY system to help navigate the next steps for New York State.

In addition to the disruption caused by the National Sword policy, in 2020, the world faced a global pandemic caused by the COVID-19 virus, adding another layer of complexity to the global recycling markets and further negatively affecting the movement of recyclables and other materials. Recycling markets began to adjust and improve into 2021.

Information Sharing and Technology

Global interconnectivity has never been more apparent than it is today. The exponential growth in technology used for information sharing since DEC released the New York State Solid Waste Management Plan, Beyond Waste, in 2010 has brought about significant changes in how people communicate and share ideas. The COVID-19 pandemic accelerated the use of technology for communication even further, as people around the globe were required to rapidly transition

to other means of work, which spurred an uptick in the use of and innovations in digital communications that allowed people to share ideas and information on a scale not seen before. The increased use of digital communication methods and the ability to reach a wider audience has also changed the way people think about waste management. Social media platforms, apps, and web-based organizations have played a major role in organizing citizens behind concerns around waste management, and apps allow everyone to feed into worldwide data collection about litter and waste. This increased connectivity enabled by digital means has also helped spur new opportunities for the sharing economy, which opens opportunities for improved access to the sharing of goods, services, and food that improve efficiencies and quality of life while supporting waste reduction and reuse.

However, with these changes comes the growth of electronics and portable devices, which brings waste management implications along with it. This *Solid Waste Management Plan* will address how technology can be used to increase awareness about sustainable materials management, improve outreach and education, and keep valuable materials in circulation while also ensuring that the technology that now connects us all on a global scale is managed properly at the end of its useful life and is reused, repaired, and recycled to the fullest extent possible.

Equity Issues

Waste is also an environmental justice issue, particularly for people who have been disproportionately impacted by either discriminatory waste disposal practices and siting of waste management facilities or the lack of equitable waste management services. This environmental justice issue also has potential impacts on Indian Nations. By implementing sustainable materials management strategies that reduce waste generation or prevent material from heading for disposal, impacts to communities from waste can be mitigated. Communities that have been disproportionately impacted, including Indian Nations, must be supported and able to meaningfully participate in the decision-making process about waste and sustainable materials management that will help communities thrive. Together with the Office of Environmental Justice, the Office of Indian Nation Affairs works across the DEC to bolster the commitment to meaningful government-to-government relations with Indian Nations through [Commissioner's Policy 42](#) (CP-42) which governs consultation.



City of Albany's food scraps drop-off program

Sustainable materials management is not only good for the environment, but also necessary for people, especially those in communities that are most vulnerable and historically have been disadvantaged. The ability to expand local options, such as community composting, must be explored, as these activities encourage more community engagement and potential employment opportunities, and help prevent negative impacts to the community from waste management practices. This is a critical issue for DEC, and it begins with an honest and direct evaluation of the current status of waste management in DACs and PEJAs. That evaluation becomes the basis for implementing programs and policies that can effect positive change. A discussion of the current status of SWMFs in DACs and PEJAs was included in Section 3 of the Plan; however, more detailed data and maps illustrating the relationship between SWMFs and DACs are included in Appendix G.

Ecosystems Impacts

Marine Debris

Marine debris is when materials become pollution in the marine environment. These materials can come from land-based sources and can have negative impacts to ecosystems, water quality, and the health of humans and wildlife. Plastic pollution makes up a large percentage of marine debris. In fact, the National Oceanic and Atmospheric Administration's marine debris program found that in 2019, 89%, 93%, and 96% of litter was plastic in New York State, Lake Erie, and Lake Ontario, respectively. Initiatives focused on source reduction and education, such as those found in this Plan, the [Long Island Sound Marine Debris Action Plan](#), [New York Ocean Action Plan](#), 2021 Mid-Atlantic Marine Debris Action Plan, and the [EPA's Trash Free Waters Program](#), are part of efforts to reduce plastic pollution and marine debris in New York State waters.



Debris collected from a beach cleanup in New York State.

Persistence of Plastic in the Environment

Microplastics from products and raw materials, and microfibers from textiles are being found in freshwater—including bottled drinking water—as well as in soil, the air, and the deepest parts of the oceans. Larger macro-plastics also affect New York State communities in the form of litter and negative impacts on wildlife and ecosystems. Various accounts of bird and marine animal necropsies turning up plastic in the stomach and digestive tracts, and famous images of adult albatross at Midway Atoll feeding chicks plastic pieces have captured the attention of the world. Since the release of the *Beyond Waste Plan* in 2010, New York State has led the way with new laws that seek to reduce problematic single-use plastics, such as plastic carryout bags, and expanded polystyrene foam containers and loose fill packaging, and will continue working to address emerging issues related to plastic pollution.



Microplastics disguising themselves with pebbles from a local beach in New York State.

Conservation Benefits of a Circular Economy

Circular economy strategies that reduce the need to harvest virgin natural resources, reduce waste, prevent pollution, and prevent and reduce food and agricultural waste can greatly contribute to reducing the negative impacts on the environment and communities that are associated with waste.

New York State must implement new and innovative materials management solutions to create transformative change to prevent waste and the associated pollution and resource consumption that negatively impacts people, fish, wildlife, and the environment.

Emerging Contaminants Sampling and Research

Prevention of Emerging Contaminants

Emerging contaminants such as 1,4-Dioxane and PFAS are found in many consumer products and persist in industrial discharges, and wastes. DEC is working to limit the environmental exposure of these chemicals.

Preventing these chemicals in the environment and supply chains is a specific focus for materials management.

- **Disclosure and Consumer Notification**

As required by law, DEC is implementing a program that requires the disclosure of ingredients in children's products and cleaning products.

- **Restrict**

DEC is implementing programs to restrict the concentration of 1,4-Dioxane allowable in cleaning, personal care, and cosmetic products.

- **Safely Replace**

DEC participated in an interagency effort to evaluate PFAS-free fire-fighting foams that ultimately determined that effective PFAS-free foams are currently available for use.

- **Research Alternatives**

Through its partnership with the New York State Pollution Prevention Institute (NYSP2I), DEC has advanced research to understand sources of emerging contaminants at both the consumer and industrial levels and assessed the viability of preferable alternatives.

Recycling of Biosolids

Biosolids are the residuals from WRRFs. Since emerging contaminants such as PFAS are found in household products and some industrial discharges, they are found in biosolids and effluent. Actions to reduce the content in consumer products and use in industry will also reduce the concentration of PFAS in biosolids. The recycling of biosolids through land application and other means can be a source of PFAS in the environment. The EPA is completing a comprehensive risk assessment to determine an environmentally protective limit for biosolids recycling. Also, DEC is providing funding to SUNY ESF to determine the concentration of PFAS in recycled biosolids in New York State and to identify industrial sources of PFAS so they can be addressed.

Emerging Contaminants Sampling at Solid Waste Management Facilities

Because emerging contaminants are often found in MSW and C&D debris, they will also be found in landfills and landfill leachate. To ensure that these contaminants are properly contained, the 2017 revisions to the Part 360 series regulations added requirements for active landfills to include PFAS and 1,4-Dioxane to their sampling plans for both leachate and groundwater monitoring. In 2018, DEC conducted sampling of leachate at most landfills in the state to better understand the concentrations of those contaminants. Results of this leachate sampling effort showed the following averages and ranges:

PFOS (ng/L):	229 (97–982)
PFOA (ng/L):	832 (490–3,766)
1,4-Dioxane (µg/L):	97 (0–490)
ng/L = nanograms per liter	µg/L = micrograms per liter

The ubiquitous presence of PFAS compounds in consumer and commercial products for decades, and continuing today, leads to issues in all environmental media (air, water, and land) and DEC programs. DEC continues to tackle this issue on multiple fronts, from remediation of contaminated sites to implementing laws that restrict the use of these compounds in consumer products. It is a complex issue and one that will take a concerted effort to address over the coming years.

5. Values and Vision

Values and a vision guide the principles underpinning this Plan and align with the goals and recommendations of the Plan.

Values

Values are the guiding principles that provide direction and structure for the steps taken by DEC to reach the visions for 2032 and 2050 and underlying Goals in this Plan, which are also integral to meeting CLCPA goals. The values statements for this Plan reflect the existing values of DEC and serve to guide the Division of Materials Management and the agency in embodying these values in its work in materials management in New York State.

Serve as Stewards of the Environment and Protect Public Health

- Reduce waste and its impacts on the environment through waste reduction and sustainable management practices.
- Conserve and protect the resources used to manufacture new products, including raw materials, by maximizing the use of recyclable materials.
- Mitigate the impacts of climate change through sustainable materials management strategies, such as waste reduction and recycling (including organics recycling).
- Protect public health by working to ensure that materials can be safely reused, refurbished, and recycled, and address the issue of emerging contaminants.

Strive for Full Public Participation, Fairness, and Environmental Justice

- Ensure that all New York State residents have the opportunity to meaningfully engage and participate in materials management planning in their communities.
- Eliminate the barriers some New York State residents may face in accessing information about and participating in waste reduction, reuse, repair, and recycling.
- Encourage partnerships and collaboration with community organizations, including DACs and PEJAs, in materials management planning.

- Reduce the disproportionate burdens faced by DACs and PEJAs related to waste management facilities and equitably distribute the infrastructure needed to keep materials circulating throughout communities in New York State.
- Achieve environmental justice and practice adherence and respect for Indian Nation sovereignty per Commissioner Policy-42.

Foster the Development of a Robust and Dynamic Sustainable Materials Economy

- Consider the environmental costs of production into the monetary value of materials and products.
- Capture the economic value of materials by using them for their highest and best use, and support recycling market development and viability through forward-thinking, creative, and flexible policies and strategies.
- Prioritize investment in infrastructure and innovative design to improve market resiliency and increase diversion options.
- Focus investments to support reuse, repair, and refurbishment of products and materials.

Vision

The vision represents where New York State should be in 2050. It is bold and should be bold if New York State is to achieve the transformational changes that are needed to address the global concerns today. Small improvements are no longer sufficient to make the strides necessary to protect the environment.

Landfilling and Combustion Is Reduced by 85% by 2050



Landfills and combustors are only for materials that cannot be recycled, and there are very few materials that meet that criterion for landfilling and combustion. Reduction, reuse, and recycling are the most common methods for materials management and landfills and combustors are only utilized for 15% or less of the materials generated. Products are designed and manufactured with reduction, reuse, and recycling as integrated principles of their design.

The Circular Economy Is Realized



This Plan envisions the future of sustainable materials management in New York State through 2032, with a full planning horizon through 2050. The initiatives and Goals listed in [“The Future of Materials Management in New York State”](#) chapter serve as guidance for achieving this vision.

Collaboration and Innovation Are Commonplace



New York State’s materials management system embraces and fosters partnerships between private industry, public entities, Indian Nations, and community organizations to support DEC’s efforts in fostering an environment of innovation, cooperation, and creativity to achieve environmental sustainability and economic vitality.

“Waste” Is a Concept of the Past



New York State manufacturers, businesses, and residents fully understand the social, environmental, and economic consequences of waste. The concept of waste is reimagined and waste is no longer considered inevitable. Rather, the inherent value is recognized in products and materials that are designed for reuse, repair, remanufacturing, and recycling, rather than simply disposable products. This view of waste supports a universal shift away from linear systems of consumption and disposal to more circular systems.

Climate Change Mitigation Is Fully Implemented



New York State fully recognizes and embraces the climate change mitigation benefits of sustainable materials management policies and strategies and leverages them to achieve the State’s progressive GHG emissions reduction targets. The GHG emissions reduction benefits of waste reduction, reuse, and recycling are acknowledged and reflected in materials management strategies. Organics diversion, waste reduction, reuse, and recycling dramatically reduce the amount of material that is landfilled, which will reduce the amount of the potent GHG methane leaking from landfill systems.

Shared Responsibility Is a Given



The responsibility for managing materials encompasses producers and users throughout a product’s entire life cycle. Costs of materials management are no longer externalized to taxpayers and municipalities. Producers are responsible for the entire product life cycle. A sophisticated and sustainable materials management system exists and considers waste reduction, reuse, and recycling at every stage of product design, production, and distribution. Manufacturers and producers design products for durability, reuse, and repair. Citizens are able to exhaust opportunities to reduce, reuse, repair, and recycle before disposing of materials.

Equitable, Inclusive, and Accessible Waste Reduction and Reuse Efforts Are Widespread



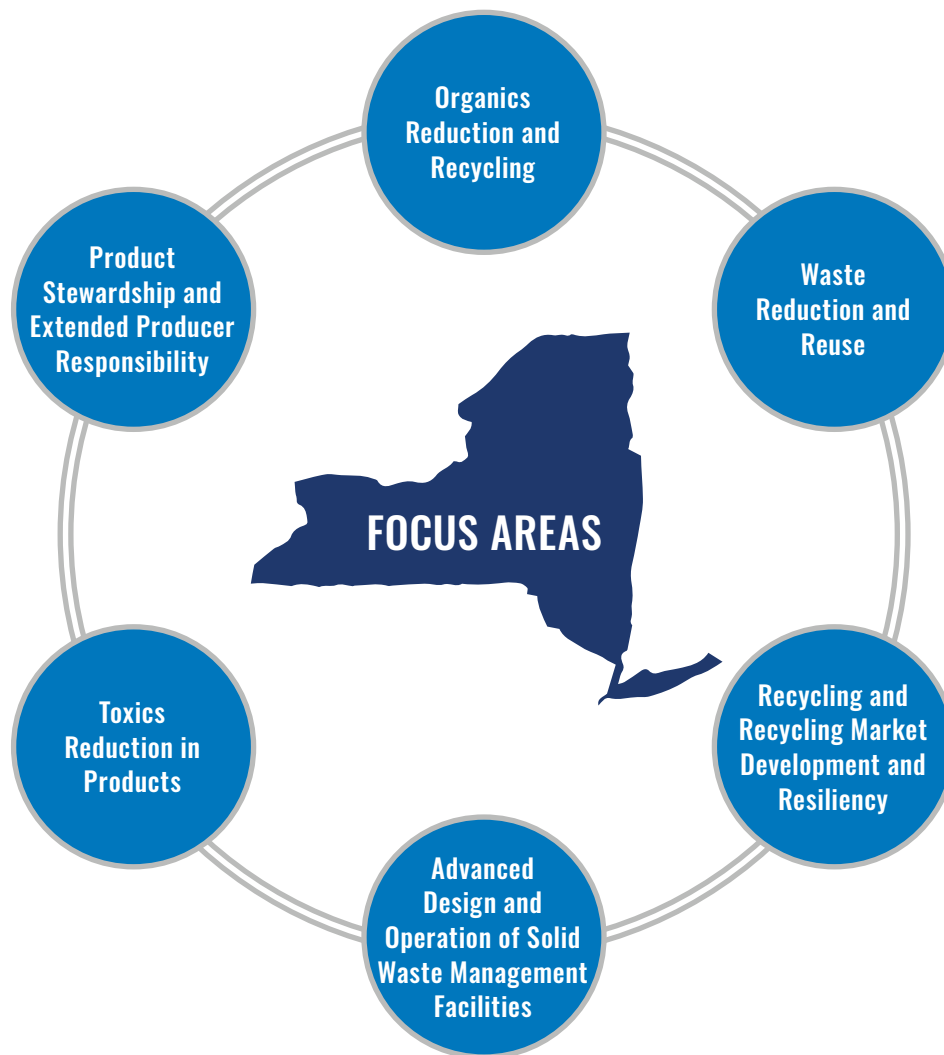
The shift to a reuse culture and a sharing economy has been characterized by equity and accessibility. All New Yorkers have access to durable, reusable goods and the tools and knowledge needed to reduce their household waste. Recovery and reuse efforts are made more inclusive and serve lower-income and disadvantaged residents of New York State.

Responsible and Resilient Markets Thrive



Policies, recommendations, research, and other strategies encouraging innovative design, market development, education, and stewardship programs have created a circular supply chain in New York State that incorporates both producer and consumer responsibility. Organics recycling and traditional recycling markets in New York State have become more resilient to pressures and swings from national and global market disruptions by developing more local and regional opportunities for materials management. Sustainable materials management policies support the creation of jobs and new opportunities for economic growth by retaining the value of materials, keeping that value within the supply chain, and presenting new business models.

6. The Future of Materials Management in New York State



Focus Areas, Goals, and Action Items

How New Yorkers utilize resources will be fundamental to a prosperous future for the environment and the economy. For New York State to remain competitive and ensure resiliency, sustainable materials management strategies must be employed. The Goals and supporting Action Items for New York State laid out in this Plan are part of a larger national and world vision for a sustainable future where the value of resources is maintained within a circular economy, GHG emissions are reduced, and the environment and its resources are preserved for future generations. This Plan seeks to achieve this vision through the following Focus Areas and their Goals and Action Items/recommendations over the 10-year planning period (2022–2032) and the full planning horizon through 2050.

Most of the Focus Areas in this plan include Goals and Action Items that will have positive climate impacts. For solid waste management, methane emissions from landfills are the largest source of GHG emissions in New York State. Methane is generated in landfills from the anaerobic degradation of organics. Reducing the amount of organics that are landfilled, as outlined in the [Organics Reduction and Recycling Focus Area](#), will reduce GHG emissions and support the State's emission reduction goals. In addition, reducing and recycling non-organic materials decreases GHG emissions through a reduction in the extraction and processing of raw materials, either in New York or elsewhere. Many of the Focus Areas in this Plan include action items addressing the reduction and recycling of these materials, further working to achieve the State's GHG emissions reduction goals. As discussed earlier, many of the broader initiatives to be undertaken related to waste

are addressed in the Climate Action Council's Scoping Plan. This Plan supports the Scoping Plan by supporting the actions needed to address GHG emissions in this sector. Both plans complement each other. However, this *Solid Waste Management Plan* provides greater detail on proposed initiatives and projected results that are consistent with the overarching requirements and time frames established in the CLCPA.

An overarching theme throughout the Focus Areas is outreach and education for materials management-related topics. Outreach and education are important strategies to ensure that all New York State residents have the information and tools they need to comply with laws and regulations pertaining to preventing and managing waste and to empower individuals to fully participate in sustainable materials management to protect their communities, their health, and the environment. Participating in sustainable materials management practices is a way for residents to make an immediate positive difference in the environment, making accessible outreach and education in this topic area even more critical.

Actions to take to ensure outreach and education efforts are equitable and accessible, and that all New York State residents have access to quality materials management education include:

- Building relationships with community-based organizations and local groups in rural and/or underserved communities;
- Identifying barriers and developing solutions related to accessing information;
- Developing necessary outreach materials in the diversity of languages spoken in New York State; and
- Ensuring that relevant diversity, equity, and access training is available to DEC staff who provide materials management outreach and education.

DACs also often host solid waste infrastructure that disproportionately impacts community health from increased truck traffic, air emissions, water discharges, nuisance odors, and other impacts. To help address these issues, DEC can improve transparency and public access to SWMF location information, documents, and public data about the environmental quality of specific sites across the state. Through outreach, education, and transparency, DEC can inspire and support residents and advance equity, access, and justice through sustainable materials management in New York State.

While this Plan will address all major components of the total waste stream (MSW, C&D debris, industrial waste, and biosolids), there is a significant focus on initiatives

targeted at the MSW stream. The MSW stream reduction in disposal rate and recycling rate have been relatively stagnant for nearly two decades despite the funding and programs implemented to target this portion of the waste stream. A substantial portion of the MSW stream is composed of recyclable material; achieving this Plan's ambitious landfill diversion goals is feasible through comprehensive programs targeting the following materials that are a part of the MSW stream:

- Organics (23% of the MSW stream/more than 4.1 million tons)
- Paper (32% of the MSW stream/more than 5.7 million tons)
- Plastics (14% of the MSW stream/more than 2.5 million tons)
- Metals (7% of the MSW stream/more than 1.25 million tons)
- Textiles (5% of the MSW stream/900,000 tons)

Coordinated programs focused on the larger components in the MSW stream, combined with technical and fiscal support to those who provide the services, will have the greatest impact. There will need to be a combination of bold new legislation to help provide the framework for transformational change and consistent commitment from everyone—state and local governments, planning units, the private sector, product manufacturers, distributors, retailers, educators, and all New Yorkers—to work together to realize the vision and Goals of the Plan and achieve circular material recovery and recycling.

Implementation of Focus Area Goals

A roadmap for the implementation of the Goals identified in this section includes a series of Goals, Action Items, time frames, and stakeholders involved. Each Focus Area is divided into specific Goals and the Action Items required to achieve those Goals. The successful implementation of the identified goals is dependent on both legislative and programmatic action. Legislative action means passing new legislation, or, in some instances, amending existing laws. Items identified under each Goal as "Legislative" means a particular action cannot be fully realized and implemented without legislative action. Items identified under each Goal as "DEC" are actions DEC can take that are not dependent upon legislative action, although in some instances, legislative action may be found to be beneficial as DEC moves through steps to implement these actions. Together the two categories of legislative and programmatic action strive to move New York State toward a more circular economy.


Focus Area 1: Waste Reduction and Reuse

Waste reduction and reuse not only keep valuable materials from being disposed of, but also minimize or eliminate materials from requiring processing or management at all. Waste reduction focuses on the prevention or reduction of solid waste generation through changes in consumer and business behavior; changes in products, packaging, and purchasing; repair; and reuse.

Reuse and recycling should be maximized when the generation of waste cannot be prevented or reduced. It is important that these materials are integrated into the circular economy and utilized in the development of new products.




Goal 1.1: Increase opportunities for New York State residents and institutions to participate in waste reduction and reuse.


Action Items	Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
Reuse and Repair			
1.1.1 Support proposals that assist consumers to repair damaged products first instead of purchasing new products, encouraging repair, and reducing e-waste.	 Legislative	3 years Propose – 2024 Begin – 2027	DEC, manufacturers, environmental organizations, environmental justice organizations, Indian Nations, retailers, municipalities, local planning units, consumers, repair organizations, and businesses
1.1.2 Increase understanding of current materials exchange and sharing industry and opportunities for growth; encourage the use of materials exchanges and sharing platforms through development of resources, and facilitate the development of avenues for material reuse and product-sharing opportunities for used goods.	DEC	5 years Begin – 2024	Municipalities, local planning units, industry, reuse/repair organizations, and educational institutions
1.1.3 Support colleges and universities within New York State in efforts associated with the reuse of materials, including durable goods and on-campus dining services, and related outreach, education, and guidance documents.	DEC	5 years Begin – 2025	Colleges and universities
1.1.4 Maintain partnerships within the SUNY system to create reduction and reuse guidance documents and tools for use by the general public, municipalities, and schools.	DEC	Ongoing	SUNY Central, SUNY ESF, New York State Center for Sustainable Materials Management (CSMM)
1.1.5 Partner with the New York State's Education Department (SED) and Department of Health (DOH) to update and promote sharing table and donation guidance for K–12 schools.	DEC	Ongoing	DOH, SED
1.1.6 Create educational guidance for the public about how to engage in reuse activities such as repair and deconstruction.	DEC	Ongoing	Donation and repair organizations and businesses, CSMM, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units


Goal 1.1: Increase opportunities for New York State residents and institutions to participate in waste reduction and reuse.



Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
Reduction and Prevention				
1.1.7	Educate students on the connections between waste, climate, communities, and the environment through a partnership with SED to develop curricula around materials management with an emphasis on waste reduction and reuse.	DEC	5 years Begin – 2024	SED, school districts, CSMM, environmental organizations, environmental justice organizations, Indian Nations
1.1.8	Encourage local planning units to partner with schools in their jurisdictions to implement integrated waste reduction and reuse programs and corresponding curricula.	DEC	Ongoing	Municipalities, local planning units, school districts, SED
1.1.9	Create guidance for the public that supports and encourages the use of reusable and refillable containers and packaging in accordance with state and federal food safety guidelines.	DEC	Ongoing	Food service operators and establishments, retailers, food stores, DOH, New York State Department of Agriculture and Markets (AGM), CSMM

Goal 1.2: Support waste reduction and reuse within the commercial and industrial sectors in New York State through education, engagement, and policy.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
Reuse and Repair				
1.2.1	Support proposals that incentivize reusable and refillable solutions across the full spectrum of the packaged goods sectors, such as reuse system options that promote and support the primary consumer-facing reuse models—refill at home, return from home, refill on the go, and return on the go. Examples that fit into these models include reuse systems for takeout containers and shipping packaging and bulk refill of household goods.	 Legislative	7 years Propose – 2024 Begin – 2029	DEC, manufacturers, producers, environmental organizations, environmental justice organizations, Indian Nations, industry organizations and associations, retailers, food service establishments, municipalities, local planning units, consumers
1.2.2	Support and promote initiatives that facilitate reuse infrastructure development for businesses and not-for-profit organizations.	DEC	5 years Begin – 2026	New York State Empire State Development (ESD), business councils, environmental organizations, environmental justice organizations, Indian Nations, donation and reuse organizations, municipalities, local planning units, industry organizations and associations, retailers, food service establishments
1.2.3	Support and promote initiatives that identify and develop opportunities for waste reduction and reuse programs in specific industrial sectors.	DEC	5 years Begin – 2025	Industrial sectors, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, NYSP2I, CSMM, ESD, donation and reuse organizations

Goal 1.2: Support waste reduction and reuse within the commercial and industrial sectors in New York State through education, engagement, and policy.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
1.2.4	Work with colleges and universities within New York State to research the viability of reusable shipping and packaging materials as a waste reduction strategy by engaging with retailers to determine interest in utilization of these options, barriers to incorporation of these products into their shipping operations, and strategies for incorporation into product shipping.	DEC	5 years Begin – 2024	Colleges and universities, shipping companies, industry, manufacturers, environmental organizations, environmental justice organizations, Indian Nations, retailers, municipalities, local planning units, consumers
1.2.5	Participate in workgroups with national organizations working toward waste reduction solutions to assist with dissemination of information and technical assistance to commercial and industrial sectors.	DEC	Ongoing	Industry, environmental organizations, environmental justice organizations, Indian Nations
1.2.6	Advance a study on different reuse models in food service and retail operations and establish guidelines or requirements for reuse in these settings.	DEC	5 years Begin – 2024	Food service operators and establishments, food stores, retailers, DOH, AGM, CSMM
1.2.7	Create guidance for food service operators, retail food stores, and other establishments to help reduce single-use containers and packaging, and support and encourage transitioning to reusable and refillable containers for both food and non- food items.	DEC	Ongoing	Food service operators and establishments, food stores, retailers, DOH, AGM, CSMM
1.2.8	Assess and explore how policy can advance circularity in furniture waste reduction through information gathering via avenues such as stakeholder and industry meetings with commercial, industrial, and not-for-profit donation and reuse sectors to understand current practices and identify policy and practices that could assist with closing the loop.	DEC	4 years Begin – 2024	Furniture manufacturers, retailers, New York State Office of General Services (OGS), environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, consumers, donation and reuse organizations
1.2.9	Support projects and programs that enhance secondary markets, donations, and exchanges for useable products, such as textiles, home goods, furniture, appliances, building materials, and industrial by-products.	DEC	Ongoing	Municipalities, local planning units, industry, donation and reuse organizations, recyclers, consumers
Reduction and Prevention				
1.2.10	Support prohibitions on the disposal of textiles that can be reused or recycled and encourage transparency in the supply chain about resource consumption, GHG emissions, and social issues relating to textile production and disposal. DEC estimates that approximately 1.4 billion pounds of clothing and textiles are disposed of in the state each year. In addition to environmental concerns, the apparel and textile industries are also known for below-standard, dangerous, and unsafe working conditions. Supporting this type of legislation will help address these issues.	 Legislative	5 years Propose – 2024 Begin – 2029	DEC, textiles industry, recycling industry, retailers, donation and reuse organizations and businesses, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, consumers




Goal 1.2: Support waste reduction and reuse within the commercial and industrial sectors in New York State through education, engagement, and policy.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
1.2.11	Support initiatives that ban or prevent unsold retail goods, including textiles, from going to disposal.	 Legislative	5 years Propose – 2024 Begin – 2029	DEC, textiles industry, manufacturers, retailers, donation and reuse organizations and businesses, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, consumers
1.2.12	Identify industrial sectors in New York State and develop targeted educational programs to support waste reduction and reuse in those areas.	DEC	5 years Begin – 2025	Industrial sectors, environmental organizations, environmental justice organizations, Indian Nations, municipalities, ESD, NYSP2I, CSMM
1.2.13	Promote the economic benefits of reduction and reuse in education and outreach efforts to encourage businesses and institutions to make choices aligned with waste reduction and reuse.	DEC	5 years Begin – 2024	Businesses, institutions, manufacturers
1.2.14	Through existing or future opportunities with colleges and universities within New York State, study the issue of unsold retail goods in New York State and develop approaches to prevent the disposal of these unsold goods. This will include researching current production practices and tracking technologies across the value chain, assessing industry and stakeholder needs, and the development of tools that will reduce waste and increase materials exchange and end uses for unsold goods.	DEC	5 years Begin – 2024	Colleges and universities, retailers, manufacturers, donation and reuse organizations
1.2.15	Engage in a “rethink waste” campaign aimed at waste generators and manufacturers in various sectors to encourage source-separation, storage, and partnering with off-site processors or reuse and donation businesses and organizations to divert beneficial and usable streams from disposal.	DEC	3 years Begin – 2024	Manufacturers, municipalities, recyclers, donation and reuse organizations, CSMM
1.2.16	Provide guidance and support to commercial and institutional entities interested in conducting waste audits.	DEC	Ongoing	Businesses, institutions, municipalities, local planning units
1.2.17	Support efforts to reduce textile shedding and migration of microfibers into the environment by conducting research with colleges and universities in New York State, evaluating policy approaches, developing best practices and educational materials to help reduce the negative impacts of these fibers, and identifying target audiences for these resources.	DEC	3 years Begin – 2024	Colleges and universities, textile industry, plastic manufacturers, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, operators of WRRFs

Goal 1.3: Foster community resiliency by developing programs, supporting communities and organizations, and supporting proposals and initiatives that prevent and reduce waste and promote reuse.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
Reuse and Repair				
1.3.1	Support proposals, to restrict, and reduce the use, sale, and distribution of certain single-use products in New York State to prevent problematic waste and motivate consumers, businesses, and institutions to purchase and use reusable products.	 Legislative	3 years Propose – 2024 Begin – 2026	Retailers, manufacturers, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, consumers
1.3.2	Support proposals enhancing implementation of and compliance with the New York State Bag Waste Reduction Act, including clarifying the definitions of plastic carryout bag and reusable bag; unifying the Act with the Plastic Bag Reduction, Reuse, and Recycling Act to clarify film plastic collection requirements for covered retailers; and supporting proposals aimed at further reducing paper carryout bag distribution.	 Legislative	3 years Propose – 2024 Begin – 2025	DEC, bag manufacturers, retailers, consumers
1.3.3	Support the advancement of community level reuse and repair programs and infrastructure across the state, such as the existing network of Repair Café initiatives, to increase product lifespan and waste reduction.	DEC	Ongoing	Municipalities, local planning units, repair services, reuse and repair organizations and businesses
1.3.4	Work with academic partners engaging stakeholders to develop priorities and strategies for removing barriers to and incentivizing deconstruction and building materials reuse for their highest use.	DEC	Ongoing Begin 2024	SUNY, other colleges and universities, New York State Department of State (DOS), New York State Department of Labor (DOL), ESD, municipalities, donation and reuse organizations, environmental organizations, environmental justice organizations, Indian Nations, recyclers
1.3.5	Establish a targeted grants funding program to support reuse and repair, with specific prioritization for projects located in DACs and PEJAs.	DEC	3 years Propose – 2024 Begin – 2026	Reuse sector, municipalities, local planning units, environmental organizations, environmental justice organizations, Indian Nations, repair organizations and businesses, community advocates
1.3.6	Support the GreenNY Council to address donation of surplus state property to not-for-profit organizations	GreenNY Council	3 years Begin 2024	OGS, DEC, other participating state agencies
Reduction and Prevention				
1.3.7	Participate in workgroups with local organizations working toward waste reduction solutions to assist with dissemination of information and technical assistance to local communities.	DEC	Ongoing	Municipalities, local planning units, environmental organizations, environmental justice organizations, Indian Nations
1.3.8	Assess and explore how to increase opportunities for furniture and home furnishing reuse for communities.	DEC	3 years Begin – 2025	Furniture manufacturers, retail, municipalities, local planning units, donation and reuse organizations, OGS
1.3.9	Partner with municipalities, transportation authorities, and community advocates to ensure reuse systems are being established in ways that best serve each community, including increasing access to reuse systems in DACs, PEJAs, and rural communities.	DEC	3 years Begin – 2024	Municipalities, local planning units, transportation authorities, community advocates, and reuse organizations and businesses


Focus Area 2: Recycling and Recycling Market Development and Resiliency

Recycling is subject to changes in markets, technology, and global policy, which can lead to challenges with business and process consistency. An effective recycling system should be designed, operated, and financed in a way that can provide stability and resiliency in the face of changes in markets, policy, and technology as well as environmental threats, such as climate change. The following Goals and Actions are intended to help support stable recycling systems.



Goal 2.1: Support residential recycling through education, outreach, and the advancement of policies.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.1.1	Support proposals, such as EPR for paper and packaging, that motivate producers to reduce the amount of paper and packaging material entering households.	 Legislative	5 years Propose – 2024 Begin – 2028–2030	DEC, producers, manufacturers, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, waste management facilities, processors, waste transporters, consumers
2.1.2	Support proposals, such as modernization and expansion of the Bottle Bill (Returnable Container Act), increased handling fees, and the development of an interagency Bottle Bill task force that will reduce fraudulent sales and redemption activities in violation of the Returnable Container Act and other state laws.	 Legislative	3 years Propose – 2024 Begin – 2025	DEC, New York State Department of Taxation and Finance (DTF), AGM, New York State Division of Budget (DOB), Office of the New York State Comptroller (OSC), deposit initiators, redemption centers, retailers, municipalities, local planning units, environmental organizations, environmental justice organizations, Indian Nations, consumers
2.1.3	Support infrastructure development to increase access to reuse and recycling opportunities for traditional and non-traditional recyclables at multifamily housing units and residential campuses through technical assistance, education, and funding.	 Legislative	5 years Propose – 2026 Begin – 2028	DEC, OGS, ESD, municipalities, local planning units
2.1.4	Increase research collaborations and expand upon existing partnerships to improve residential recycling education.	DEC	Ongoing	Municipalities, local planning units, recycling organizations, CSMM
2.1.5	Increase partnerships with community organizations to increase the public's knowledge of correct disposal and recycling practices through community education programs and social media campaigns.	DEC	Ongoing	Municipalities, local planning units, recycling organizations, businesses, CSMM
2.1.6	Continue working with the NYS Center for Sustainable Materials Management to further support and expand upon the Recycle Right NY campaign.	DEC	Ongoing	CSMM






Goal 2.1: Support residential recycling through education, outreach, and the advancement of policies.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.1.7	Increase outreach to households to improve awareness of existing product-specific recycling opportunities, for items such as electronics, batteries, paint, etc.	DEC	Ongoing	Municipalities, local planning units, recycling organizations, CSMM
2.1.8	Emphasize outreach efforts by local planning units in review of Local Solid Waste Management Plans (LSWMPs) and biennial updates.	DEC	Ongoing	Municipalities, local planning units, environmental justice organizations, Indian Nations
2.1.9	Expand funding and promotion of MWRR grant opportunities to improve municipal recycling physical infrastructure and municipal education, promotion, planning, and coordination programs. Where possible, prioritize new grant funding opportunities for projects located in DACs and/or that have positive climate change outcomes.	DEC	Funding Increase Request – 2024 Promotion efforts – Ongoing	Legislature, municipalities, local planning units, Indian Nations
2.1.10	Improve the implementation of the Returnable Container Act by creating a public data system of all the beverages where a deposit has been initiated.	DEC	3 years Funding Request – 2024 Begin – 2025	Legislature, deposit initiators, redemption centers, DTF, AGM, DOB, OSC
2.1.11	Improve the implementation of the Returnable Container Act by advancing regulations that clarify key requirements.	DEC	3 years Propose – 2024 Begin – 2026	Deposit initiators, redemption centers, DTF, AGM

Goal 2.2: Support commercial, industrial, and institutional waste generators to improve recycling practices through education and technical assistance.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.2.1	Support proposals, such as EPR for paper and packaging, that motivate producers to reduce the amount of paper and packaging material entering businesses and institutions.	 Legislative	5 years Propose – 2024 Begin – 2028–2030	DEC, producers, manufacturers, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, consumers
2.2.2	Develop and distribute technical guidance documents, resources, and tools about alternative business practices, technologies, and options related to recycling.	DEC	3 years Begin – 2025	Municipalities, local planning units, recycling organizations, CSMM
2.2.3	Encourage and educate about existing predetermined beneficial uses of materials such as glass for cement and aggregate, ash reuse, and other beneficial uses for material traditionally considered waste products which are currently authorized. Identify procedures by which generators or users can petition for case-specific beneficial use determinations.	DEC	3 years Begin – 2024	Municipalities, local planning units, recycling facilities, glass industry, construction industry
2.2.4	Support innovation in traditional waste product alternative uses to retain value and divert waste.	DEC	Ongoing	Municipalities, local planning units, recycling organizations, CSMM

Goal 2.3: Partner with K–12 schools, colleges, and universities to educate, engage, and empower students to develop better reduction, reuse, and recycling habits and enhance school recycling programs.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.3.1	Support colleges and universities, including through working with SUNY ESF and the Center for Sustainable Materials Management, in improving their reduction, reuse, and recycling programs through the development of guidance, education material, and technical support.	DEC	Ongoing	Municipalities, local planning units, colleges and universities within New York State, CSMM, recycling organizations, recyclables processors, environmental organizations, environmental justice organizations, Indian Nations
2.3.2	Encourage local planning units to partner with schools in their jurisdiction to implement integrated reduction, reuse, and recycling programs.	DEC	Ongoing	Local planning units, school districts

Goal 2.4: Reduce waste disposal through innovative policy approaches.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.4.1	Support a disposal disincentive surcharge (fee per ton) on all waste landfilled or combusted in New York State and all waste generated in New York State being sent for landfilling or combustion out of state to provide financial support for reduction, reuse, and recycling projects.	 Legislative	3 years Propose – 2025 Begin – 2028	Municipalities, local planning units, waste industry, businesses, consumers
2.4.2	Support proposals for a minimum level of recycled content in certain products and packaging to support end markets.	 Legislative	6 years Propose – 2024 Begin – 2030	Municipalities, local planning units, waste industry, businesses, consumers
2.4.3	Support policy approaches that adaptively reuse buildings, increase the capture and use of building deconstruction materials and recovered aggregate for a variety of applications, and encourage building design for deconstruction. This may include government requirements (e.g., procurement standards, bid specifications, etc.) to include recycled or reused deconstruction materials.	 Legislative, DEC	5 years Propose – 2025 Begin – 2027	OGS, ESD, DOS, municipalities, local planning units, general contractors, construction industry
2.4.4	Support policy approaches that incentivize public-private partnership for reuse and repair.	 Legislative, DEC	5 years Propose – 2025 Begin – 2030	Donation and reuse organizations, ESD, DOL, municipalities, local planning units, construction industry
2.4.5	Support policy approaches that incentivize public-private partnership for recycling facility development.	 Legislative, DEC	5 years Propose – 2025 Begin – 2030	Municipalities, local planning units, ESD, recycling facilities, construction industry
2.4.6	Promote source separation and recycling in the transportation sector (i.e., public and private paved surface construction and maintenance).	DEC	Ongoing	DOT, municipalities, local planning units, construction industry

Goal 2.4: Reduce waste disposal through innovative policy approaches.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.4.7	Partner with colleges, universities, and the recycling industry in New York State to provide technical information to product designers and manufacturers that educates them on packaging and product design that is compatible with recycling systems in North America.	DEC	3 years Begin – 2024	Colleges and universities, CSMM, product packaging manufacturers, product and packaging designers, recycling industry

Goal 2.5: Increase knowledge of and pathways for increased textile and furniture circularity.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.5.1	Support EPR for the management of clothing, shoes, other textiles, and furniture.	 Legislative	5 years Propose – 2024 Begin – 2029	DEC, textiles industry, manufacturers, retailers, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, waste management industry, consumers, donation and reuse organizations
2.5.2	Promote existing procurement guidelines and necessary updates to encourage and support sustainable textile purchasing and textile recycling by state agencies.	DEC	5 years Begin – 2024	OGS, textiles industry, textiles retailers
2.5.3	Work with colleges and universities within New York State to better understand textile donation and recycling rates and current limitations in order to create a roadmap to increase textile diversion and recycling in New York State and reduce exports and disposal.	DEC	3 years Begin – 2024	Colleges and universities, textiles industry, CSMM, textile donation, recycling, and reuse organizations

Goal 2.6: Utilize collaborative partnerships to research and promote recycling strategies and strengthen information-sharing networks for recycling.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.6.1	Maintain partnerships with colleges and universities within New York State to create guidance documents and tools to create recycling education programs informed by science for use by the general public, businesses, government, schools, and other organizations.	DEC	Ongoing	Colleges and universities, municipalities, local planning units, businesses, institutions, consumers, school districts
2.6.2	Facilitate relationships among recycling coordinators from planning units in each DEC Region by coordinating the formation of regional materials management working groups to encourage information sharing, collaboration, and problem-solving for regional materials management challenges.	DEC	Ongoing	Local planning units, municipalities, CSMM
2.6.3	Continue to work with NYSP2I to provide outreach, education, and technical assistance across all sectors to utilize raw materials more efficiently, utilize manufacturing by-products on-site, and identify reuse opportunities for manufacturing by-products.	DEC	Ongoing	NYSP2I, reuse sector

Goal 2.7: Support efforts in New York State and the Northeast to build capacity for processing secondary material commodities collected for recycling.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.7.1	Maintain partnerships with colleges and universities within New York State to create guidance documents and tools to create recycling education programs informed by science for use by the general public, businesses, government, schools, and other organizations.	DEC	Ongoing	Colleges and universities, municipalities, local planning units, businesses, institutions, consumers, school districts

Goal 2.8: Encourage the development and expansion of recycling markets by demonstrating the state's ability to "lead by example."


Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
2.8.1	Support the GreenNY Council to advance greater purchasing of products with recycled content as well as the purchase of recycled products (compost, etc.) by state agencies.	The GreenNY Council	Ongoing	DEC
2.8.2	Support the GreenNY Council in their work with individual New York State agencies on conducting waste audits and other materials management improvements.	The GreenNY Council	Ongoing	DEC
2.8.3	Support the GreenNY Council in their effort to ensure all New York State agency operations have strong reduction, reuse, recycling, and organics diversion programs.	The GreenNY Council	Ongoing	DEC



Focus Area 3: Product Stewardship and Extended Producer Responsibility

Key strategies to achieving the 2032 and 2050 vision and Goals of the Plan are product stewardship and EPR, to minimize the environmental impacts from the improper end-of-life disposal of products and packaging. Product stewardship is a shared responsibility approach that can be either voluntary or required by law. EPR is a mandatory type of product stewardship requiring the passage of legislation to ensure a manufacturer’s responsibility for its products extends to postconsumer management of those products. EPR policy shifts the financial and managerial responsibility (with government oversight) of end-of-life products upstream to the manufacturer and away from the public sector and consumers. EPR programs can also be structured to provide incentives to manufacturers to incorporate environmental considerations into the design of their products and packaging. The effects of comprehensive product stewardship and EPR can thread across waste reduction, reuse, and recycling, depending on the product or commodity. When manufacturers


are required to move away from disposal and toward recycling management, it drives future product and commodity decisions toward waste reduction and reuse ideals as part of the product or commodity design, as well as designing for better recyclability for any materials that may remain at the end of life. Accordingly, while product stewardship and EPR strategies are part of the important stand-alone Focus Area presented here, these strategies are also referenced above in the Waste Reduction and Reuse Focus Area, as well as the Recycling and Recycling Market Development and Resiliency Focus Area as the policy impacts are vital components of those Focus Areas as well.




Goal 3.1: Promote the development and passage of EPR legislation for packaging and paper products.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
3.1.1	Support broad packaging and paper product legislation to include all types of packaging and all paper products by all generators, to have the greatest effect on waste reduction, reuse, and recycling possible.	 Legislative	5 years Propose – 2024 Begin – 2029	DEC, producers, manufacturers, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, waste management facilities, waste transporters, processors, retailers, consumers
3.1.2	Initiate and fund a comprehensive needs assessment and gap analysis of New York State’s existing collection, transportation, recycling and reuse systems for residential and commercial waste streams, in anticipation of a packaging and paper products EPR program.	DEC	2 years Begin – 2023 Complete 2025	CSMM, all impacted stakeholders

Goal 3.2: Work to improve the state's existing product stewardship and EPR programs.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
Electronic Equipment Recycling and Reuse Act				
3.2.1	Support a legislative amendment for improvements to the E-waste Law, for example, to move away from a target-based performance metric to a consumer-convenience model where emphasis is placed on the establishment of an adequate network of physical collection locations where all types and brands of e-waste are accepted from consumers.	 Legislative	3 years Propose – 2025 Begin – 2028	DEC, covered electronic equipment manufacturers, collectives, e-waste recyclers, e-waste consolidation facilities, e-waste collection sites, out-of-state collectors, retailers, municipalities, local planning units, consumers
3.2.2	Provide outreach to the regulated community and consumers regarding the manufacturers' requirements of recently adopted Part 368 regulations for e-waste collection, recycling, and management and how the regulations provide for the free and convenient collection of e-waste from consumers in New York State.	DEC	Ongoing	Covered electronic equipment manufacturers, collectives, e-waste recyclers, e-waste consolidation facilities, e-waste collection sites, out-of-state collectors, retailers, municipalities, local planning units, consumers
Rechargeable Battery Recycling Law				
3.2.3	3.2.3: Support amendments to the Rechargeable Battery Law to require the collection and recycling of additional consumer battery types (e.g., alkaline, e-mobility, electric and hybrid vehicle batteries, etc.) to an already successful EPR program, recognizing that some battery types and/or conditions may require separate collection and management considerations.	 Legislative	3 years Propose – 2024 Begin – 2027	DEC, rechargeable battery manufacturers, retailers, consumers
3.2.4	3.2.4: Increase program compliance monitoring and enforcement in accordance with existing statute to improve manufacturer engagement, retailer participation, consumer convenience, and participation.	DEC	Ongoing	Producer responsibility organizations, rechargeable battery manufacturers, retailers of rechargeable batteries and rechargeable battery-containing products, consumers
Mercury Thermostat Collection Law				
3.2.5	Participate in workgroups with local organizations working toward waste reduction solutions to assist with dissemination of information and technical assistance to local communities.	DEC	Ongoing	Municipalities, local planning units, environmental organizations, environmental justice organizations, Indian Nations
Postconsumer Paint Collection Program				
3.2.6	Amend the Part 373 Universal Waste regulations and the Part 360 series regulations to help streamline the management of postconsumer paint in New York State.	DEC	Completed Effective – July 2023	Paint industry, PaintCare, municipalities, local planning units, paint retailers, environmental organizations, environmental justice organizations, Indian Nations
3.2.7	Promulgate regulations, if necessary, to implement the Postconsumer Paint Collection Program Law and to improve overall program performance.	DEC	3 years Propose – 2025 Effective – 2028	Paint industry, PaintCare, municipalities, local planning units, paint retailers, environmental organizations, environmental justice organizations, Indian Nations

Goal 3.2: Work to improve the state's existing product stewardship and EPR programs.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
3.2.8	Prioritize development of a recycled-content paint specification under Executive Order 22 to help promote and support the paint recycling infrastructure in New York State.	GreenNY Council	Completed Effective – 2023	DEC, OGS, paint manufacturers
Drug Take Back Act				
3.2.9	Continue to assist DOH in ensuring New York State's Drug Take Back program meets the requirements of the law.	DOH	Ongoing	DEC
Carpet Collection Program				
3.2.10	Work with the regulated community to develop and implement the newly enacted Carpet Collection Program, which requires carpet producers to either individually or collectively establish an acceptance program for end-of-life carpet by July 1, 2026, in a manner free and convenient to NYS consumers.	DEC	Ongoing	Carpet producers, artificial turf producers, producer responsibility organization(s), retailers, installers, consumers, municipalities, local planning units, waste transporters, waste management facilities, recyclers, carpet stewardship advisory board members

Goal 3.3: Promote the development and passage of EPR legislation for priority products, as well as EPR framework legislation.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
3.3.1	3.3.1: Support EPR requirements and systems specifically targeting products or product categories: with the greatest GHG impacts; that will drive the renewable economy to reach CLCPA emissions reduction goals; products that pose significant end-of-life management challenges due to their size, composition, or toxicity, etc., and should be prohibited from landfill disposal; and products or product categories for which there are limited opportunities available for proper end-of-life management. Potential products beyond the packaging and paper product identified above to target for EPR legislation include, but are not limited to, mattresses, tires, solar panels, wind turbine blades, vaping devices, all batteries, refrigerant-containing appliances, compressed gas cylinders, and HHW.	 Legislative	Ongoing	DEC, product manufacturers, environmental organizations, environmental justice organizations, Indian Nations, retailers, municipalities, local planning units, consumers

Goal 3.3: Promote the development and passage of EPR legislation for priority products, as well as EPR framework legislation.


Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
3.3.2	<p>3.3.2: Support creation of a consistent framework for new EPR programs for DEC-identified new products or product categories. The “framework” EPR legislative approach would establish a comprehensive process for recommending, developing, proposing, and passing new EPR laws that follow best practices (e.g., producer responsibility and engagement, sustainable program funding, sufficient consumer convenience, government compliance oversight, and comprehensive consumer education and outreach, etc.) Framework EPR legislation would allow DEC to submit a report to the Governor and Legislature with proposals for establishing additional EPR or product stewardship programs, when such a designation would be beneficial based on factors such as, but not limited to: (i) increased recovery would reduce the need for use of virgin materials; (ii) a program would reduce costs of waste management to municipalities and taxpayers; (iii) a program would mitigate climate change impacts; (iv) a program would lead to the development of new markets for recovered materials; or (v) the existing voluntary system for waste management of the product or product category is ineffective, etc. The report to be provided would specify appropriate recommendations specific to the product or product category and would be available for stakeholder review and input.</p>	 Legislative	5 years Propose – 2026 Begin – 2027	DEC, product manufacturers, environmental organizations, environmental justice organizations, Indian Nations, municipalities, local planning units, retailers, consumers



Focus Area 4: Organics Reduction and Recycling

Organic waste represents about one-third of MSW, including food scraps, soiled paper, yard trimmings, and wood. For food purveyors, such as grocery stores or restaurants, organic waste can constitute more than two-thirds of their waste. In addition to the organic waste in MSW, other organic waste materials generated include biosolids from WRRFs and food processing waste. The reduction and recycling of these materials diverts them from landfilling, where they produce methane, and produces a rich soil product for improving soils. For excess edible food, donation provides a means to assist those in need.



Attendees of a compost operator training workshop hosted by Rethink Food Waste NY and the Town of Bethlehem

Goal 4.1: Prioritize wasted food reduction, food donation, and food scraps recycling programs and initiatives in the commercial, industrial, and institutional sectors.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
4.1.1	Support expansion to the existing Food Donation and Food Scraps Recycling law to include additional food scraps generators, incorporate those currently excluded from the law, and eliminate the mileage limit for organics recycling facilities.	 Legislative	2 years Propose – 2024 Begin – 2025	DEC, food scraps generators, food donation organizations, organics recycling facilities, waste transporters, environmental groups
4.1.2	Continue to develop wasted food reduction education and outreach specific to the business sector.	DEC	Ongoing	NYSP21, food scraps generators
4.1.3	Provide additional financial assistance for food banks and emergency food relief organizations to address capacity, transportation, and other needs to capture more food for donation.	DEC	5 years Begin – 2023	Food donation providers
4.1.4	Encourage partnerships between retailers and food donation organizations.	DEC	Ongoing	Feeding NYS, food retailers
4.1.5	Provide financial assistance, education, and outreach to schools to combat wasted food and implement composting programs.	DEC	5 years Begin – 2026	School districts, DOH
4.1.6	Support wasted food reduction and education strategies for school meals.	DEC	Ongoing	DOH, school districts

Goal 4.2: Support the continued development of the organics recycling industry in New York State.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
4.2.1	Allow composting facility operation on municipal park lands.	 Legislative	2 years	DEC, food scraps generators, food donation organizations, organics recycling facilities, waste transporters, environmental groups
4.2.2	Establish a requirement for a good faith effort from all state agencies to sustainably manage organic material from their properties	 Legislative	5 years Propose – 2024 Begin – 2026	DEC, OGS, all New York State agencies
4.2.3	Promote additional recycling of all organics, including food processing waste and biosolids.	DEC	Ongoing	Food processors, WRRFs
4.2.4	Provide additional financial assistance for organics recycling infrastructure and outreach, for both public and private facilities.	DEC	3 years Begin – 2025	ESD, municipalities, local planning units, private facilities
4.2.5	Promote the recycling of food scraps at yard trimmings composting facilities by providing demonstrations, trainings, and other forms of technical assistance.	DEC	3 years Begin – 2023	Industry associations, Center for EcoTechnology, facility operators
4.2.6	Promote the recycling of food scraps at WRRFs by providing demonstrations, trainings, and other forms of technical assistance.	DEC	Ongoing	WRRFs
4.2.7	Provide guidance on starting a composting operation for source separated organics.	DEC	2 years Begin – 2024	Municipalities, local planning units, private facility operators
4.2.8	Provide guidance on starting a food scraps drop-off program that identifies regulations and best practices.	DEC	2 years Begin – 2024	Municipalities, local planning units, private facility operators
4.2.9	Provide financial assistance for local, nonprofit, and small-scale organics collection and processing operations.	DEC	4 years Begin – 2027	Municipalities, local planning units, non-for-profit groups
4.2.10	Partner with the United States Composting Council (USCC) and Compost Research and Education Foundation (CREF) to bring USCC and CREF events and trainings to New York State, such as the annual Compost Conference and the Compost Operations Training Course.	DEC	3 years Begin – 2023	USCC, CREF
4.2.11	Publish information on successful models for organics collection programs inclusive of multifamily buildings and public housing.	DEC	3 years Begin – 2023	Organizations involved with multifamily building recycling operations

Goal 4.3: Empower and educate residents of New York State to properly manage excess food, reduce wasted food, and recycle their food scraps and yard trimmings.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
4.3.1	Develop household food waste reduction materials and educate residents on how to save money while reducing wasted food.	DEC	4 years Begin – 2023	
4.3.2	Partner with Cornell Cooperative Extension and community-led organizations to facilitate master composter classes and composting workshops for residents.	DEC	4 years Begin – 2024	Cornell Cooperative Extension
4.3.3	Provide financial assistance to expand food scraps drop-off programs and local-scale processing opportunities (e.g., farmers' markets, community gardens, transfer facilities, etc.).	DEC	4 years Begin – 2026	
4.3.4	Continue to provide financial assistance to municipalities to expand residential food scraps collection programs and home composting education opportunities.	DEC	Ongoing	Municipalities, local planning units
4.3.5	Assess the accessibility of composting opportunities and resources available for residents, especially in PEJAs and DACs and promote the development of community accessible composting opportunities (community composting, food scraps drop-off programs, residential collection, etc.).	DEC	Ongoing	Affected communities

Goal 4.4: Improve and expand markets for products made from organics materials such as compost and digestate.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
4.4.1	Partner with New York State Department of Agriculture and Markets and industry associations to explore ways to increase the use of compost in the agriculture industry.	DEC	4 years Begin – 2024	AGM
4.4.2	Partner with DOT and industry associations to explore ways to increase the use of compost in large transportation and public works projects.	DEC	5 years Begin – 2024	DOT, construction contractors
4.4.3	Promote the sharing of information between municipalities concerning successful organics management models and programs.	DEC	Ongoing	Municipalities, local planning units
4.4.4	Partner with compost facility operators and other interested parties to develop guidance on biodegradable products.	DEC	5 years Begin – 2024	Biodegradable packaging producers, biodegradable certification entities, USCC, Composting Consortium
4.4.5	Explore methods to use additional products locally, such as local compost networks with food growers, municipal tree programs, local parks, stormwater resiliency projects, individuals, etc.	DEC	5 years Begin – 2025	Municipalities, local planning units
4.4.6	Fund additional research to expand markets for compost, digestate, etc.	DEC	5 years Begin – 2025	Academic institutions involved in product use

Goal 4.5: Engage the farming and agriculture community in food donation, recycling organic waste, and using waste-derived organics products.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
4.5.1	Explore methods (outreach, research, etc.) to emphasize the role waste-derived organics products, such as compost or digestate, can play in improving soil health and resiliency.	DEC	3 years Begin – 2023	AGM, Cornell University, New York Farm Bureau
4.5.2	Engage farm groups and others to find ways to increase the use of compost and other waste-derived organics products on farms.	DEC	Ongoing	AGM, Cornell, New York Farm Bureau
4.5.3	Promote the development of composting facilities on farms that accept off-site organics and the development of anaerobic digestion capacity on farms.	DEC	Ongoing	AGM, Cornell, New York Farm Bureau, Cooperative Extension, Soil and Water Conservation Districts
4.5.4	Explore the increased use of food scraps for animal feed.	DEC	3 years Begin – 2023	AGM, Cornell, New York Farm Bureau
4.5.5	Enhance current efforts to donate excess edible food from farms.	DEC	3 years Begin – 2024	AGM, Cornell, New York Farm Bureau, Feeding NYS



Focus Area 5: Toxics Reduction in Products

As new products, packaging, and services emerge, there are inevitably toxic materials and contaminants that must be addressed rapidly in order to prevent or mitigate damage or harm to people and the environment. Toxic materials are intentionally added to new products as ingredients that give the product a desired property. In addition, toxics may be found as contaminants derived from chemical reactions, residue on manufacturing equipment, or from recycled content feedstocks. The following goals focus on addressing toxic materials and contaminants in products. Steps taken to achieve the goals listed under this Goal will drive the market toward products that are safer and more appropriate for reuse, remanufacturing, and recycling.



Goal 5.1: Leverage partnerships to expand knowledge of harmful chemicals in products to promote their reduction and to enhance materials reuse and recycling.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
5.1.1	Partner with NYSP2I to identify ways toxics can be reduced in manufactured materials, broadening options for beneficial use upon the end of their useful life especially in agricultural or construction uses.	DEC	5 years Begin – 2024	NYSP2I
5.1.2	Identify and work with industry sectors to find innovative approaches to reduce hazardous chemicals use and waste generation.	DEC	5 years Begin – 2024	NYSP2I, manufacturers
5.1.3	Partner with the colleges and universities in New York State to better understand the presence of toxic materials, such as PFAS, in products and their use in production, and to enhance DEC's implementation of programs that restrict their use or require their disclosure.	DEC	5 years Begin – 2024	Colleges and universities, NYSP2I, DOH
5.1.4	Partner with colleges and universities in New York State to identify ways to reduce or eliminate toxic chemicals in products through process changes, safer chemistries or other options.	DEC	5 years Begin – 2024	Colleges and universities, NYSP2I, DOH
5.1.5	Provide outreach on and enforce the requirements of Subpart 368-2 that establishes standards for the labeling of mercury-added consumer products.	DEC	Ongoing	Manufacturers of mercury-containing products, distributors, consumers, environmental groups

Goal 5.2: Support legislation, policy, and initiatives that reduce the presence of toxic materials and contaminants in products and increase public awareness.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
5.2.1	Support initiatives that ban materials and chemicals that are a growing concern for people and the environment.	 Legislative	Ongoing	DEC, DOH, environmental organizations, environmental justice organizations, Indian Nations, manufacturers, consumers, municipalities, local planning units
5.2.2	Support implementation of chemical restrictions in a way that acknowledges scientific consensus and existing standards and better enables a circular economy.	 Legislative	5 years Propose – 2024 Begin – 2027	DEC, DOH, environmental organizations, environmental justice organizations, Indian Nations, manufacturers, consumers
5.2.3	Develop and advance regulations that require greater disclosure of toxic ingredients in products.	DEC	3 years Begin – 2024	Product manufacturers, environmental organizations, environmental justice organizations, Indian Nations, DOH, manufacturers, consumers
5.2.4	Support further efforts to restrict the presence of toxic materials and contaminants in the products New York State purchases under Executive Order 22.	GreenNY Council	Ongoing	Environmental organizations, environmental justice organizations, Indian Nations, manufacturers, consumers
5.2.5	Increase support for research and assessment of plastic pollution and microplastics/microfibers and advance the findings of this research.	DEC	5 years Begin – 2025	Plastics industry, colleges and universities, environmental organizations, environmental justice organizations, Indian Nations
5.2.6	Develop regulations to guide the disclosure of chemicals present in children's products and advance an online system to make this information available to the public.	DEC	Ongoing	Manufacturers, environmental organizations, environmental justice organizations, Indian Nations, DOH, consumers
5.2.7	Convene the Children's Product Safety Council and consider their recommendations on chemicals that should be restricted from children's products.	DEC	Ongoing	Product Safety Council, DOH
5.2.8	Develop regulations to guide the disclosure of ingredients in cleaning products and advance an online system to make this information available to the public.	DEC	Ongoing	Manufacturers, DOH, environmental organizations, environmental justice organizations, Indian Nations, consumers
5.2.9	Participate in the Interstate Toxics in Packaging Clearinghouse to ensure compliance with the restrictions on lead, cadmium, mercury, and hexavalent chromium in packaging.	DEC	Ongoing	Toxics in Packaging Clearinghouse and member states
5.2.10	Provide outreach and education material to make affected entities aware of the restrictions on PFAS in food packaging and conduct product testing to assess compliance.	DEC	Ongoing	Food and packaging industry, distributors, retailers, product testing laboratory
5.2.11	Develop regulations to guide the restriction of 1,4-Dioxane in cleaning, personal care, and cosmetic products, and implement restrictions on mercury in cosmetics and personal care products.	DEC	Ongoing	DOH, manufacturers, environmental organizations, environmental justice organizations, Indian Nations, consumers

Goal 5.2: Support legislation, policy, and initiatives that reduce the presence of toxic materials and contaminants in products and increase public awareness.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
5.2.12	Develop regulations to guide the restriction of applicable flame-retardant chemicals in upholstered furniture, mattresses, and electronic displays.	DEC	Ongoing	DOH, manufacturers, environmental organizations, environmental justice organizations, Indian Nations, consumers
5.2.13	Implement statutory restrictions on PFAS in apparel, provide guidance to affected entities to ensure industry compliance, and educate the public on the necessity for this action.	DEC	5 years Begin – 2024	Textile and apparel manufacturers, distributors, retailers, consumers, environmental organizations, environmental justice organizations, Indian Nations

Focus Area 6: Advanced Design and Operation of Solid Waste Management Facilities and Related Activities

SWMFs are critical to the proper management of waste generated in the State. A variety of facilities are needed to receive wastes, from organics recycling facilities, recyclables handling and recovery facilities, and reuse evaluation, repair, and salvage centers to landfills and combustion facilities. Others are needed to provide intermediate services such as collection and transfer. All these facilities must be operated in a way that is protective of human health and the environment. To ensure that these facilities operate in an environmentally sound manner, appropriate regulatory controls are required.



Municipal solid waste landfill in New York State

Goal 6.1: Maintain regulations governing the design and operation of solid waste management facilities to ensure that those facilities are protective of public health and environmental resources.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.1.1	Amend solid waste facility regulations based on new legislation, continuing evaluation of technical standards and criteria, and feedback from the regulated community. Updated regulations will implement new laws related to paint recovery, food scrap recovery, and improved materials management procedures at mulch and C&D debris facilities on Long Island. Amendments will also allow for greater reuse of concrete, asphalt, rock, and brick, while increasing regulatory control on contaminated soil, enhancing design requirements for solid waste landfills, and easing regulatory requirements some municipal facilities in order to encourage greater collection of recyclables.	DEC	Ongoing	Regulated community, local planning units, public, environmental groups, professional organizations, municipalities
6.1.2	Incorporate climate impact criteria and related design and operating requirements into solid waste facility regulations to facilitate achievement of GHG reduction goals.	DEC	3 years Begin – 2024	Regulated community, public, environmental groups, professional organizations, municipalities

Goal 6.2: Encourage increased reuse of C&D debris, including excavated material.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.2.1	Develop new outreach and education efforts focused on excavated material and new regulatory changes related to reuse of excavated material in order to maximize reuse of the material and reduce both legal disposal and illegal dumping.	DEC	4 years Begin – 2023	Regulated community, construction industry, municipalities
6.2.2	Establish methods for collecting data on C&D debris generation and management, including identification of regional characteristics and opportunities for increased diversion from disposal.	DEC	5 years Begin – 2024	Regulated community, construction industry, municipalities



Goal 6.3: Enforce solid waste regulations to enhance compliance.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.3.1	Increase electronic reporting to facilitate timely data reporting, data evaluation, compliance determinations, and enforcement.	DEC	3 years Begin – 2025	Regulated community
6.3.2	Increase the use of drones and other new technologies to assess facility performance.	DEC	3 years Begin – 2024	Regulated community
6.3.3	Develop policy to implement the requirement in Part 360 that mandates that SWMFs effectively control nuisance odor.	DEC	1 year Begin – 2023	Regulated community, public, environmental groups
6.3.4	Implement new policy for streamlining review of most typical case-specific beneficial use determination petitions. This policy will provide petitioners with application criteria and will speed review by establishing standard review criteria that will be implemented by regional program staff.	DEC	1 year Begin – 2023	Regulated community

Goal 6.4: Provide technical assistance to solid waste management facilities to improve operations.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.4.1	Develop guidance to help facilities remain in compliance with the regulatory criteria and to improve operations.	DEC	4 years Begin – 2024	Regulated community
6.4.2	Contact facilities and others to determine what types and means of assistance are needed.	DEC	5 years Begin – 2023	Regulated community
6.4.3	Facilitate cooperative discussions between facilities to solve common problems.	DEC	5 years Begin – 2023	Regulated community

Goal 6.5: Minimize GHG emissions from solid waste management facilities.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.5.1	Incorporate improved methane monitoring technologies into facility operations and existing monitoring programs for landfills, anaerobic digesters, etc. Identify mitigation measures that landfill operators must implement in order to eliminate fugitive emissions.	DEC	5 years Begin – 2023	Regulated community
6.5.2	Implement design and operational practices for further emissions reduction.	DEC	5 years Begin – 2024	Regulated community
6.5.3	Amend regulations as needed to enhance GHG emission monitoring and leak reduction.	DEC	5 years Begin – 2024	Regulated community, public, environmental groups
6.5.4	Implement policies, procedures, and regulatory revisions to apply the CLCPA evaluation requirements to SWMF permitting activities. Investigate mitigation methods at landfills that would reduce the impact on CLCPA goals, including identification of methane-generating wastes and pre-processing to reduce potential for GHG emissions or redirection of those wastes to alternative facilities (e.g., organics composting, MSW composting, anaerobic digestion, etc.) where GHG emissions are reduced.	DEC	Ongoing	Regulated community



Goal 6.6: Investigate innovative means of reducing environmental impacts from solid waste management activities.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.6.1	Support changes and evaluate funding mechanisms to support purchasing and use of on-site organics processing equipment (e.g., small-scale anaerobic digesters, etc.) at apartment buildings, convention centers, restaurants, schools, and other locations that generate significant amounts of food scraps and other organic wastes.	 Legislative	5 years Propose – 2025 Begin – 2027	Climate Action Council, DEC, ESD, organic waste generators, building and facility owners, regulated community
6.6.2	Support efforts to require solidification of industrial, commercial, or remedial wastes that contain PFAS compounds prior to disposal in solid waste landfills.	 Legislative, DEC	1–5 years Propose – 2024 Begin – 2028	Waste generators, DEC, solid waste landfills, regulated community
6.6.3	Investigate available technologies for solidification or treatment of landfill leachate and feasibility of requiring landfills to solidify or otherwise treat leachate for landfill disposal, which would reduce loading of contaminants, including emerging contaminants, in WRRFs and reduce contamination of downstream materials, such as biosolids.	DEC	2 years Begin – 2023	Regulated community, WRRFs


Goal 6.6: Investigate innovative means of reducing environmental impacts from solid waste management activities.



Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.6.4	Investigate alternative management methods for ash generated by MWCs, including initial separation of bottom ash from fly ash and air pollution control equipment residues, and treatment of ash, in order to maximize reuse opportunities.	DEC	3 years Begin – 2024	Regulated community, construction industry, municipal highway departments, DOT
6.6.5	Investigate opportunities for new predetermined and case-specific beneficial uses to be added to Part 360 in future rulemakings, especially for materials such as ash, slag, glass, and other materials that could provide significant waste diversion if clear reuse options and materials sources and markets could be established.	DEC	5 years Begin – 2024	Regulated community

Goal 6.7: Improved data collection and analysis processes and methodologies related to solid waste management.

Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.7.1	Identify and categorize commercial and industrial infrastructure in New York State utilizing records from other state agencies and North American Industry Classification System codes or other system classifications.	DEC	3 years Begin – 2025	
6.7.2	Investigate and utilize innovative methods and web-based tools (e.g., surveys, electronic data requests, etc.) to collect information on waste generation, reduction, reuse, and recycling from commercial and industrial generators and generators of C&D debris.	DEC	Ongoing	Regulated community
6.7.3	Identify methods of extrapolating data reported by portions of the commercial and industrial waste sectors in order to estimate total generation and diversion in each sector.	DEC	3 years Begin – 2025	
6.7.4	Implement electronic annual reporting options for SWMFs.	DEC	3 years Begin – 2025	Regulated community
6.7.5	Implement electronic annual reporting options for waste transporters.	DEC	3 years Begin – 2025	Regulated community
6.7.6	Identify discrepancies or data gaps in data collected from SWMFs and design methods to improve data collection and validation.	DEC	2 years Begin – 2024	Regulated community
6.7.7	Implement methods of differentiating and analyzing data related to recyclables handling and recovery facilities based on facility design (e.g., dual stream, single stream, drop-off, etc.).	DEC	1 year Begin – 2024	

Goal 6.8: Support improvements to grant programs for municipal waste reduction and recycling activities and municipal landfill closure and landfill gas management.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.8.1	Support new funding for municipal landfill closure and landfill gas management grant program. Existing waiting list projects require total funding of approximately \$10 million, and applications for 6 of the 10 current waiting list projects have waited more than 10 years for reimbursement. At current funding levels, it will take more than 36 years to reimburse municipalities for their investments in landfill cover and gas management systems.	 Legislative	1 year Propose – 2024 Begin – 2025	DEC, municipalities, local planning units
6.8.2	Explore opportunities to convert current program to a direct funding system if disposal disincentive surcharge legislation is enacted.	 Legislative	5 years Propose – 2025 Begin – 2028	DEC, municipalities, local planning units
6.8.3	Continue to investigate improvements and modifications to the MWRR grant programs. Significant improvements to the MWRR grant regulations were implemented in 2017, but additional streamlining and program improvements may be available that will speed up review times and reduce wait times for reimbursement to municipalities.	DEC	Ongoing	Municipalities, local planning units

Goal 6.9: Implement legislative changes related to local solid waste management planning and evaluate potential modifications and improvements to local solid waste management planning (LSWMP) processes and procedures.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.9.1	Support requirements for municipalities to develop and implement LSWMPs, or to become affiliated with planning units with approved LSWMPs.	 Legislative	5 years Propose – 2024 Begin – 2027	Municipalities, local planning units
6.9.2	Identify legislative opportunities that impact LSWMP requirements and apply them to program procedures and prepare draft rulemaking to implement changes as necessary.	DEC	5 years Begin – 2024	Municipalities, local planning units
6.9.3	Evaluate internal procedures utilized to implement program and apply adjustments to improve delivery of program and to support local planning efforts.	DEC	Ongoing	Municipalities, local planning units
6.9.4	Apply particular focus on planning units that have not pursued new or updated plans and on municipalities that are unaffiliated with a planning unit and have not completed a CRA.	DEC	3 years Begin – 2024	Municipalities, local planning units

Goal 6.10: Improve implementation of Site Investigation and Mitigation programs.				
Action Items		Implementation Lead	Time to Implement	Government Partners and Key Stakeholders
6.10.1	Support funding under Article 27, Title 12 to reimburse municipalities that have implemented mitigation and remediation at solid waste sites that have impacted drinking water sources and prepare plans for a grant program that would provide for distributing these funds.	 Legislative	5 years Propose – 2026 Begin – 2028	Municipalities, local planning units
6.10.2	Evaluate new opportunities to provide funding for municipal programs that collect and dispose of waste tires.	 Legislative	5 years Propose – 2025 Begin – 2030	Municipalities, local planning units
6.10.3	Continue to implement Inactive Landfill Investigation (ILI) program and implement revised procedures to program implementation as necessary.	DEC	Ongoing	Landfill owners
6.10.4	Issue ILI annual report every July as required by Article 27 Title 12.	DEC	Ongoing	
6.10.5	Establish policy for identifying, investigating, and mitigating illegal waste tire disposal sites, establishing standard procedures for identifying illegal disposal sites and establishing time frame for mitigation, provide options for self-mitigation by property owners, establish standard consent order language that allows site access for DEC contractors to mitigate sites if landowners fail to do so, and provide methods for documenting completion of mitigation activities.	DEC	1 year Begin – 2023	Regulated community
6.10.6	Review results from research conducted under memoranda of understanding with SUNY universities for program and regulatory adjustments that would enhance diversion and reuse of waste tires.	DEC	2 years Begin – 2023	
6.10.7	Work with New York Farm Bureau and other interested groups to investigate strategies and potential programs to reduce waste tire use on farms and for processing of waste tires currently used on farms.	DEC	3 years Begin – 2024	New York Farm Bureau, farming community

7. Waste Projections and Goals 2023–2032

The “Implementation of Focus Area Goals” section above lays out an array of 175 Action Items that must be tackled during the planning period of this Plan, from 2023–2032. These Action Items include a combination of proposed legislative actions and DEC programmatic actions. They also require strategic partnerships with key stakeholders. If those actions are completed and the programs fully implemented, the goals for reduction in landfilling of waste found in the Scoping Plan of the CLCPA can be achieved by 2050. Many of the Action Items require both an action, such as a piece of legislation, but also robust implementation of an ongoing program that will have impacts beyond 2032 and 2050. Table 6 below provides targets for waste projections and projected recycling rate goals for each of the main categories of the total waste stream until 2050. The projections for recycling rates from 2023–2050, found in Table 7, are based on time of implementation outlined for the Action Items and an assessment of how each Goal will affect waste reduction, reuse, and recycling and the reduction in disposal and combustion. By the end of 2032, it is projected that the recycling rate for the total waste stream will be 60%, and it will increase to 85% by the end of 2050.

All facilities that would be required to support the increased diversion associated with these projections must be sited, designed, and operated in compliance with all applicable statutes, rules, and regulations. Regulations and policies are routinely reviewed and updated in order to address emerging contaminants such as PFAS.

For MSW alone, New Yorkers sent 4.09 pounds of MSW per person per day, or 0.75 tons per person per year, to disposal facilities in 2018. The Plan seeks a progressive reduction in the amount of MSW disposed, to reach the ultimate goal of reducing disposal to 0.72 pounds per person per day by 2050. See Table 7 for incremental goals during the period for the reduction in disposal of MSW. The goal applies to the State as a whole; each planning unit must develop its own baseline and progressive goals and actions, and the amount achieved will vary from one planning unit to another. Additional details and supporting information for the waste projections and goals are included in Appendix H.

Table 6. New York State waste projections 2023–2050

New York State Waste Projections 2023–2050									
		2018	2023	2025	2027	2030	2032	2040	2050
MSW	Tons Generated	17,889,980	17,889,980	17,889,980	17,889,980	17,889,980	17,889,980	17,889,980	17,889,980
	Tons Diverted	3,399,096	3,935,796	4,651,395	5,724,794	7,155,992	9,123,890	11,628,487	15,206,483
	Recycling Rate (%)	19%	22%	26%	32%	40%	51%	65%	85%
CDD	Tons Generated	18,360,987	18,360,987	18,360,987	18,360,987	18,360,987	18,360,987	18,360,987	18,360,987
	Tons Diverted	11,751,032	12,301,861	13,219,911	13,770,740	14,321,570	14,688,790	15,056,009	15,606,839
	Recycling Rate (%)	64%	67%	72%	75%	78%	80%	82%	85%
Industrial	Tons Generated	1,932,296	1,932,296	1,932,296	1,932,296	1,932,296	1,932,296	1,932,296	1,932,296
	Tons Diverted	560,366	618,335	695,627	869,533	1,062,763	1,255,992	1,449,222	1,642,452
	Recycling Rate (%)	29%	32%	36%	45%	55%	65%	75%	85%
Biosolids	Tons Generated	1,372,854	1,372,854	1,372,854	1,372,854	1,372,854	1,372,854	1,372,854	1,372,854
	Tons Diverted	302,028	425,585	453,042	480,499	507,956	535,413	617,784	782,527
	Recycling Rate (%)	22%	31%	33%	35%	37%	39%	45%	57%
Bulk/ Heavy Metals	Tons Generated	2,692,161	2,692,161	2,692,161	2,692,161	2,692,161	2,692,161	2,692,161	2,692,161
	Tons Diverted	2,369,102	2,369,102	2,396,023	2,422,945	2,422,945	2,476,788	2,503,710	2,557,553
	Recycling Rate (%)	88%	88%	89%	90%	90%	92%	93%	95%
Total Waste Stream	Tons Generated	42,248,278	42,248,278	42,248,278	42,248,278	42,248,278	42,248,278	42,248,278	42,248,278
	Tons Diverted	18,381,623	19,650,678	21,415,997	23,268,511	25,471,226	28,080,873	31,255,212	35,795,853
	Recycling Rate (%)	44%	47%	51%	55%	60%	66%	74%	85%

Table 7. Projected MSW recycling rate and per capita waste disposal 2018–2050

MSW					NYS Population	
	Tons Generated	Tons Diverted	Recycling Rate (%)	Per Capita Waste Disposal (lbs/person/day)		
2018	17,889,980	3,399,096	19%	4.09	2018	19,530,351
2023	17,889,980	3,900,016	22%	3.91	2023	19,628,003
2025	17,889,980	4,561,945	26%	3.71	2025	19,667,259
2027	17,889,980	5,760,574	32%	3.37	2027	19,706,593
2030	17,889,980	7,191,772	40%	2.97	2030	19,765,713
2032	17,889,980	9,159,670	51%	2.42	2032	19,805,244
2040	17,889,980	11,664,267	65%	1.71	2040	19,963,686
2050	17,889,980	15,224,373	85%	0.72	2050	20,163,323

8. Conclusions

This latest version of the *New York State Solid Waste Management Plan* builds upon the solid waste management plans before it, learning from both the successes and the challenges of implementation. While adapting to the obstacles and frustrations that inevitably come with the implementation of a wide-ranging, far-reaching, long-term plan for comprehensive solid waste management planning, it is important to remember New York State's significant achievements over the past 35 years since the Solid Waste Management Act was passed in 1988, transforming from a solid waste management system where less than 3% of the waste stream was recycled to more than 43% of the total waste stream being recycled. There were over 1,800 individual unlined landfills across the state compared to today's system of 25 MSW landfills and 10 MWCs. There was no structural system for comprehensive solid waste management for the State; however, today's system of 69 planning units manages 42 million tons of waste annually and recovers over 43% through a combination of private and public efforts. It is an important reminder of what can be achieved—because New York State is being called upon to collectively move forward once again. Climate change presents a critical impact on the environment, and waste management plays a significant role in helping address the challenges of addressing climate change. Waste management accounts for 12% of the GHG emissions in New York State, on par with the transportation sector. New York State has the tools today to reduce emissions in the waste sector.

This Plan is a guide for legislative action, local solid waste planning decisions, industry practices, university research, and industry innovations to support systems, policies, and practices that will slash GHG emissions today from the waste sector for a more climate secure future, all while conserving valuable natural resources and building a more robust and resilient supply chain for the products used every day.

This Plan sets forth six major Focus Areas:

- Waste Reduction and Reuse
- Recycling And Recycling Market Development and Resiliency
- Product Stewardship and Extended Producer Responsibility
- Organics Reduction and Recycling
- Toxics Reduction in Products
- Advanced Design and Operation of Solid Waste Management Facilities and Related Activities

Each Focus Area has a set of 2–10 identified Goals, for a total of 31.

Each Goal has a set of 1–17 identified Action Items, for a total of 175.

Together, these Action Items are designed to move New York State to an 85% total waste stream recycling rate by 2050.

DEC cannot do this alone, and the Action Items indicate the legislative changes needed to successfully implement the Plan. One of the lessons learned from implementation of the last *State Solid Waste Management Plan* is that while projected reductions in the waste stream and increased recovery rates may theoretically be possible, the biggest and boldest actions that have the broadest and most transformative impacts require legislative action.

The three most important Action Items and transformative legislative actions needed are:

- Develop and promote broad packaging and paper product legislation to include all types of packaging and all paper products by all generators, to have the greatest effect on waste reduction, reuse, and recycling possible;
- Expand and amend the existing Food Donation and Food Scraps Recycling law to include additional food scraps generators, incorporate those currently excluded from the law, and eliminate the mileage limit for organics recycling facilities; and
- Require a per ton disposal disincentive surcharge on all waste landfilled or combusted in New York State, and all waste generated in New York State that is sent for landfilling or combustion out of state, to provide municipalities with a new financial support program to provide resources for reduction, reuse, and recycling programs.

All three of these recommendations are included in this Plan and in the Climate Action Council's Scoping Plan. Legislative action on packaging and paper EPR, expanding the Food Donation and Food Scraps Recycling Law, and enacting a surcharge on landfilled waste are critical to realize a more sustainable, climate secure, and less wasteful future.

Extended Producer Responsibility for Packaging and Paper Products

The importance of an inclusive and expansive packaging and paper product EPR law is critical to help shift the inherent system uncertainties of the existing recycling programs for MSW. Packaging and paper products account for approximately 40% of the MSW stream. A comprehensive EPR program for these materials will be transformative as it will drive a fiscal reconfiguration for the entire recycling system. That, in turn, will drive the technical collection and processing reconfigurations that are needed for the entire system. Those changes will then drive market demand and stabilization for the industry and insulate municipalities from their current unpredictable and unstable middleman status, allowing them instead to return their focus to providing municipal services. The system will lead to new practices by manufacturers and product design decisions. Being legally and fiscally responsible for the management of their products will lead manufacturers to changes in product design or composition that will reduce waste at its source and make products more readily recyclable.

Expand and Amend the Existing Food Donation and Food Scraps Recycling Law

The current law only addresses the largest commercial generators and has a very small mileage limit to an organics recycling facility for applicability. Food scraps account for approximately 17% of the MSW stream and are a disproportionate contributor to GHG if landfilled instead of reduced or diverted and recycled. The law must be amended to include additional food scraps generators, including a transition to residential generators; to incorporate those currently excluded from the law; and to eliminate the mileage limit to organics recycling facilities. The mileage limit simply does not match how waste is managed in the state now. The average transportation distance for waste management is currently close to 60 miles and will only increase as the current disposal capacity further concentrates on larger facilities. Much of this waste stream should never become waste in the first place and redirection of wholesome edible food to the food-insecure is by far the most important component of the law and to society in general. The food that cannot be redirected for consumption is readily recyclable and has the greatest impact on GHG emissions if landfilled.



Food scraps delivered to a composting facility in New York State from a local college.

There are no societal, humanitarian, or environmental downsides to this action. It is simply common sense and economics. An increase in organics diversion spurs the construction of facilities to manage this waste, lowering the economic costs of recycling and making food donation second nature to businesses and food scraps just another recyclable to manage.

Disposal Disincentive Surcharge

A per ton disposal disincentive surcharge on all waste landfilled or combusted in New York State and all waste generated in New York State being sent for landfilling or combustion out of state would have a two-fold impact on waste management. First, it would increase the cost of waste disposal, thereby incentivizing the reduction and recycling of waste. Second, it is intended for the per ton charge collected to provide direct municipal financial support by being redistributed entirely to municipalities that have approved LSWMPs for their waste reduction, reuse, and recycling costs. This surcharge, even at only a minimal \$5 per ton, could not only help disincentivize disposal, but also generate \$133 million per year in its initial years to be provided to municipalities by means of a new funding program to support their waste reduction, reuse, and recycling programs. More than 30 states already use some form of this successful fee structure. It is time for New York State to act.

While New York State faces significant challenges, this Plan will make a difference. With the support of the people of New York State and full legislative commitment, the challenges will turn into opportunities and opportunities into achievements.

Thirty years ago, most households had one trash container in the house and a few garbage cans to drag to the street each week. Today, most households separate recyclables every day and roll at least two containers out each week—one for waste and one or more for recyclables. This is a fundamental societal change that has occurred in just the last few decades, and it happened because state law mandated it and created a funding program to help initiate it. Most New Yorkers support recycling, but this fundamental societal change only happened because New York's Legislature required separation of recyclables from waste at the curbside. Around the same time, bottles and cans littered roads and streets, and those containers that did not end up on the roadside went into the trash. Today, most households separate their bottles and cans and redeem them to collect their deposits. Unforeseen new subsystems developed, from schools providing container bags that send the deposits directly to their coffers, to people in large cities sustaining themselves by collecting bottles and cans around town. Ultimately this transformation only happened because the

Legislature passed the Returnable Container Act, fundamentally changing the way bottles and cans are managed and valued in New York State. Perhaps the most amazing part of these transformations is how little disruption they caused. People recognized the progress that the changes represented, and they adapted.

New York State is taking the opportunity to build a nation-leading sophisticated sustainable materials management system. New Yorkers want to reduce, reuse, and recycle, but they need systems to be established in which they can easily do those things. The three priorities identified above provide the foundation to modernize reduction and recycling circular systems.



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