

DRAFT GENERIC

ENVIRONMENTAL IMPACT

STATEMENT

SUPPORTING

BEYOND WASTE: A SUSTAINABLE
MATERIALS MANAGEMENT STRATEGY
FOR NEW YORK STATE

NEW YORK STATE'S DRAFT

SOLID WASTE MANAGEMENT PLAN

***DRAFT GENERIC
ENVIRONMENTAL IMPACT STATEMENT***

by the

**NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

as Lead Agency

concerning

***BEYOND WASTE: A SUSTAINABLE MATERIALS MANAGEMENT STRATEGY
FOR NEW YORK STATE***

NEW YORK STATE'S DRAFT
SOLID WASTE MANAGEMENT PLAN

- STATEWIDE ACTION -

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Comments must be submitted to
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ENVIRONMENTAL IMPACT STATEMENT
TABLE OF CONTENTS

1.0	SCOPE OF REQUIRED GENERIC ENVIRONMENTAL IMPACT STATEMENT	5
2.0	DESCRIPTION OF THE PROPOSED ACTION	6
3.0	ENVIRONMENTAL SETTING	11
4.0	POTENTIAL SIGNIFICANT ADVERSE ENVIRONMENTAL IMPACTS.....	24
5.0	MITIGATION MEASURES TO MINIMIZE ENVIRONMENTAL IMPACT	30
6.0	ALTERNATIVES TO THE PROPOSED ACTION.....	31
7.0	UNDERLYING STUDIES, REPORTS AND OTHER INFORMATION OBTAINED AND CONSIDERED IN PREPARING THE STATEMENT	38

1.0 SCOPE OF REQUIRED GENERIC ENVIRONMENTAL IMPACT STATEMENT

The development of any major planning document is subject to the requirements of the New York State Environmental Quality Review Act (SEQR). The SEQR process introduces the consideration of environmental factors into the early planning stages of actions directly undertaken, funded, or approved by local, regional, and state agencies. The primary tool of the SEQR process for activities such as this New York State Solid Waste Management Plan (Plan) is the Generic Environmental Impact Statement (GEIS). A GEIS is an assessment of a broad-based action or a group of related actions and is more conceptual in nature than a site-specific EIS.

This section describes the scope of this GEIS.

The major topics of a GEIS include a:

- description of the proposed action;
- description of the environmental setting;
- statement and evaluation of the potential significant adverse environmental impacts;
- description of the mitigation measures;
- description and evaluation of the range of reasonable alternatives to the action that are feasible; and
- list of any underlying studies, reports and other information obtained and considered in preparing the statement.

Information for each of these topics is provided in this draft GEIS. Additional details are found in the draft plan, which should be read in conjunction with the GEIS.

This GEIS does not replace the need for a separate and distinct site-specific EIS for any solid waste management facility that is proposed to be sited or expanded in New York State in the future. The Plan does not commit any agency, board, commission, authority or private entity to a definite course for specific future decisions. Accordingly, each specific solid waste facility siting action by any agency, commission, authority or private authority is independently subject to SEQR review.

2.0 DESCRIPTION OF THE PROPOSED ACTION

The proposed action is to adopt *BEYOND WASTE: A SUSTAINABLE MATERIALS MANAGEMENT STRATEGY FOR NEW YORK STATE*, New York State’s Solid Waste Management Plan, which is required by Section 27-0103 of the Environmental Conservation Law (ECL). The New York State Department of Environmental Conservation (DEC) is responsible for the preparation and updating of this Plan, which is intended to provide direction, guidance and information on managing solid waste in New York, including policy recommendations for updating state and local laws and regulatory initiatives. The update process dictated in the ECL makes the Plan a “living” document that will change as new information becomes available and as local planning units identify obstacles and opportunities through implementation of local solid waste management programs.

New York State’s *BEYOND WASTE* Plan sets forward a new approach for New York—a shift from focusing on “end-of-pipe” waste management techniques to looking more comprehensively “upstream” at how materials that would otherwise become waste can be more sustainability managed. Reducing the amount of material wasted, from the point of its manufacture through its consumption, will enhance the state’s ability to adapt to an age of growing pressure to reduce demand for energy, minimize emission of greenhouse gases and create green jobs.

Accomplishing this change necessitates increased attention to influencing product and packaging design to foster a system that minimizes waste and maximizes the use of recyclable materials. This will require the involvement of all players in the production and supply chain—product manufacturers, distributors, retailers, consumers, and government. It will also require increased investment in our recycling and distribution/reverse distribution infrastructure. Ultimately, it will result in decreased reliance on waste disposal facilities.

The materials management system envisioned in the Plan would capture the economic value of our materials, conserve their imbedded energy, and minimize the generation of greenhouse gases and pollution. DEC projects that implementing the Plan could reduce 23 million metric tons of CO₂-equivalent greenhouse gas emissions annually, conserve more than 250 trillion BTUs of energy each year—as much energy as is consumed by more than 2.5 million U.S. homes—and create 74,000 jobs and economic opportunities in the process.

This vision can only be fully realized if the state and local governments obtain and dedicate the staff and resources needed to implement the Plan, if manufacturers take financial or physical responsibility for the reuse and recycling of the products and packaging they put into the marketplace, and if private entities embrace their responsibility for proper materials management. To these ends, the Plan recommends a number of potential revenue streams to offset costs to the public sector, as well as legislative recommendations to engage the private sector more fully in moving New York State *beyond waste*.

The quantitative goal of the Plan is to reduce the amount of waste New Yorkers dispose by preventing waste generation and increasing reuse, recycling, composting and other organics recycling methods. Currently, New Yorkers throw away 4.1 pounds of municipal solid waste (MSW) per person per day, or 0.75 tons per person per year. The Plan seeks to reduce the amount of MSW destined for disposal by 15 percent every two years. Achieving this will require the engagement of manufacturers through product and packaging stewardship and the development of additional reuse and recycling infrastructure, as well as a strong partnership with other states and the United States Environmental Protection Agency (EPA).

The qualitative goals of the Plan are to:

- minimize waste generation
- maximize reuse
- maximize recycling
- maximize composting and organics recycling
- advance product and packaging stewardship
- create green jobs
- maximize the energy value of materials management
- minimize the climate impacts of materials management
- reemphasize the importance of comprehensive local materials management planning
- minimize the need for export of residual waste
- engage all New Yorkers—government, business, industry, and the public—in sustainable materials management
- strive for full public participation, fairness, and environmental justice
- prioritize investment in reduction, reuse, recycling, and composting over disposal
- maximize efficiency in infrastructure development
- foster technological innovation
- continue to ensure that solid waste management facilities are sited, designed, and operated in an environmentally sound manner

The recommendations summarized below and discussed more fully in Section 10 of the Plan are intended to accomplish these goals.

Legislative Recommendations

Moving *beyond waste* will require a new statutory framework for sustainable materials management. The Solid Waste Management Act (SWMA) of 1988 envisioned municipalities working within planning units, acting either as self-contained entities or through public/private partnerships, to implement integrated solid waste management programs. For a variety of economic and legal reasons, that vision has only been partially realized. With continued growth in the amount of solid waste generated, an evolved understanding of the environmental impacts of waste disposal and the emergence of new materials management options, there is a clear need for new priorities. Moving forward requires an

updated statutory framework that sets the stage for growth and supports the paradigm shift needed to move *beyond waste*. That framework should include:

- *An Updated Solid Waste Management Act* that will set recycling and waste reduction goals; specify what materials must be recycled, where and by whom; enhance DEC's authority to enforce recycling requirements; allocate additional resources for planning, education and enforcement; update procurement and recycling requirements for state agencies and authorities; require incentive programs (e.g., Pay as You Throw or Save Money and Reduce Trash [PAYT/SMART]), and enable DEC to account for MSW transport and enforce transporter violations of source separation requirements.
- *Product and Packaging Stewardship Programs* to extend the role and responsibility of the manufacturer of a product or package to include the entire life cycle, from its manufacture to its ultimate disposition at the end of its useful life. Product Stewardship, also known as Extended Producer Responsibility, encourages manufacturers to embrace materials efficiency and design for recyclability concepts and helps local recycling programs capture more materials. Through stewardship legislation, manufacturers (also known as producers or brand owners) are required to take either physical or financial responsibility for the recycling or proper disposal of products or packages. Instead of requiring local governments to fund collection and recycling programs for discarded products, stewardship programs incorporate the cost of end-of-life management into the cost of the product, so those costs are borne jointly by the manufacturer and the consumer, not by local government and taxpayers. Possible initial product targets for stewardship programs include: packaging, printed products, electronic waste, pharmaceuticals, household hazardous wastes, and mercury-containing products. The product stewardship framework approach maximizes efficiency by consistently structuring stewardship programs in the same manner for different products, based on tested models, so that all parties know what is expected as new products are included.
- *Revenue-Generating Programs*. Achieving the goals of the Plan—reducing waste generation, increasing reuse, recycling and composting and reducing disposal—will require a significant commitment of resources and greater flexibility in allocating those resources to respond to emerging issues and critical needs. Revenue-generating programs could include: an increase in state funds dedicated to reduction, reuse and recycling; solid waste disposal fees, or solid waste facility permit fees.

Regulatory Recommendations

The regulatory changes suggested below support implementation of the Plan, and achievement of its goals can be made within DEC's existing statutory authority:

- Revision of the Part 360 Solid Waste Management Facility Regulations to:
 - update requirements for construction and operation of solid waste management facilities to better protect human health and the environment;
 - update the beneficial use determination program regulations;
 - set new requirements for managing the "historic fill" found on many urban redevelopment sites; and
 - restrict the disposal of recyclable materials for which alternative infrastructure or product stewardship programs exist.
- Enactment of a new Part 374-5 regulation to oversee the collection, handling and recycling of electronic waste.

Programmatic Recommendations

The following recommendations fall within the state's current statutory and regulatory authority. The state's ability to implement these initiatives and achieve the goals of the Plan will depend on its ability to increase the staff and financial resources available to the program. A comprehensive program should include the following key elements:

- *Leading by Example.* Agencies and authorities should demonstrate comprehensive waste reduction and recycling programs by: working aggressively to implement Governor Paterson's Executive Order 4 on State Agency Sustainability and Green Purchasing; consistently implementing recycling programs at all state facilities and events, and promoting and demonstrating organic materials composting and recycling.
- *Public Education.* Public participation in waste prevention, reuse and recycling is key to achieving sustainable materials management in New York State. To improve participation, the state will: launch an aggressive public education campaign to promote waste prevention, reuse, recycling and composting; develop templates for local governments to use in educational efforts, and publicize innovative reuse, recycling, composting and other model programs.
- *Outreach and Technical Assistance.* Municipalities, businesses, institutions and agencies in the state will need guidance and assistance to develop sustainable materials management programs. To meet this need, the state will: develop written guidance on waste prevention for specific commercial generating sectors; encourage the use of food banks and other reuse networks; facilitate forums on construction and demolition debris management and recycling opportunities; help entities (private and public) interested in developing organics recycling

systems, and provide tools to local governments to better plan and implement sustainable materials management programs.

- *Comprehensive Materials Management Planning.* The state must allocate additional funding and resources to plan for and implement sustainable materials management programs. The state must refocus on materials management planning by: seeking staff and resources to implement the state Plan; issuing a technical guidance document to assist local decision-making, and working with planning units to craft a new generation of local solid waste management plans that reflect the broader concepts of materials management, embody new approaches and technologies to reduce waste, achieve higher levels of recycling and reflect current market and regulatory conditions.
- *Greenhouse Gas Reduction.* To minimize climate change impacts of waste management, DEC will: maximize waste prevention, reuse and recycling and minimize waste disposal; assess the emissions and operations of landfills in New York to ensure they pursue every possible mechanism for achieving greenhouse gas reductions, and work with other state agencies and entities to enable landfill gas-to-energy projects to connect to the electrical grid in a cost-effective and technically effective manner.
- *Infrastructure and Market Development.* Expanding the universe of materials diverted from disposal will require additional processing, reuse and recycling infrastructure and new or stronger markets for the materials processed. DEC will evaluate, and implement where appropriate, strategies to promote the addition of recycling and composting facilities in the context of the environmental quality review and regulatory processes for solid waste management facilities, particularly disposal facilities. Further, the state will allocate resources to: develop critical recycling and manufacturing infrastructure for key recovered materials, including glass, plastics, and organic materials; expand market development initiatives to target glass, plastic film, plastics #3-#7, compost and construction and demolition materials; establish a New York State Center for Construction and Demolition Debris Recycling; encourage and facilitate food scrap recycling demonstration projects, and expand beneficial use applications for mixed-color recovered glass.

3.0 ENVIRONMENTAL SETTING

The following description contains an overview of the history and current state of solid waste management in New York State. Significant additional details can be found in Sections 3, 7, 8 and 9 of the Plan.

Historical Perspective

DEC issued the first State Solid Waste Management Plan in 1987, which was aggressive for its time. It set a goal of reducing, reusing or recycling 50 percent of the state's waste stream in ten years and set forth a solid waste management hierarchy, adopted into law in 1988, that placed a priority on waste prevention, reuse and recycling, followed by municipal waste combustion (MWC) with energy recovery and, finally, landfilling as the lowest priority. Twenty-two years later, most waste is managed by the lowest priority method, and the state is still striving to achieve its recycling goals.

Implementation of the 1987 Plan, the Solid Waste Management Act of 1988, and local solid waste management plans established by municipal planning units have yielded significant progress. The state's recycling rate has grown from approximately 3 percent to 36 percent of the entire materials stream and 20 percent when only MSW is evaluated¹. Many of the state's communities have implemented exemplary integrated materials management systems that have yielded recycling rates well beyond the statewide average. However, progress for the state as a whole appears to be stagnating at levels well below the national average MSW recycling rate of 33 percent as reported by EPA.

The 1987 Plan sought to phase out MSW incineration without energy recovery and replace landfills in the state with a network of 37 municipal waste combustors (MWCs) with energy recovery for treating the waste remaining after reduction, reuse and recycling. While at one point, 13 MWCs were operational in New York State, only 10 combustion facilities remain in operation in 2010. The goal of phasing out MSW incineration was accomplished, though some biosolids (i.e., sewage sludge) are still incinerated without energy recovery.

The 1987 Plan prescribed phasing out landfilling of unprocessed MSW and using landfills only for discreet streams (i.e., MWC residues, some biosolids and some construction and demolition debris). Though the number of active MSW landfills has been drastically reduced from 348 mostly unlined landfills in 1987 to the currently operating 27 lined landfills, landfilling—whether in or out of state—remains the predominant waste management method. And, while the 1987 Plan anticipated that

¹ MSW refers to the materials included in the waste composition analysis provided in section 7.1 of the Plan generated in the residential, commercial and institutional sectors. The entire materials stream refers to MSW, as well as to construction and demolition debris, biosolids, and industrial waste.

waste would be managed by municipally owned and operated systems, in recent years, 75 percent of the landfill capacity in the state has shifted to private companies. Twenty years after the 1987 Plan and the Legislature's enactment of the Solid Waste Management Act of 1988, New York State finds itself relying on a mix of different solid waste management systems. Due to a number of factors, including a period of uncertainty regarding a local government's ability to institute waste flow control, some municipalities that had planned or developed their own integrated systems of solid waste facilities no longer have any involvement in the management of significant portions of the MSW generated within their borders.

The current network of recycling and solid waste collection, transfer and disposal operations is partially comprised of local government-owned and operated facilities and programs, which were typical in the 1980s, and also includes significant privately controlled waste collection, transportation and handling infrastructure.

Also important from a public policy and long-term planning perspective is New York State's significant dependence on privately owned facilities in other states for the disposal of more than 16,500 tons of MSW every day (six million tons per year), including virtually all of the solid waste disposed from the City of New York and much of Long Island's waste. While the environmental impact of export has been reduced in recent years because of the movement of waste exports by rail instead of truck, exports have increased fivefold during the past 20 years—a trend that runs counter to the self-sufficiency envisioned in the 1987 Plan.

Waste Composition

The estimated composition of materials generated by the residential and commercial/institutional sector in New York State is presented in Figure 1. A comparison of the results of DEC's analysis with EPA's "Characterization of MSW in the United States," which is commonly used as a baseline by state and local governments, indicates notable differences in the rates of generation of yard trimmings, food scraps, and some containers and paper products. These differences are likely related to differences in methodology or the demographic characteristics of New York State, such as the substantial urban population.

Figure 1 - Estimated MSW Generation in New York State

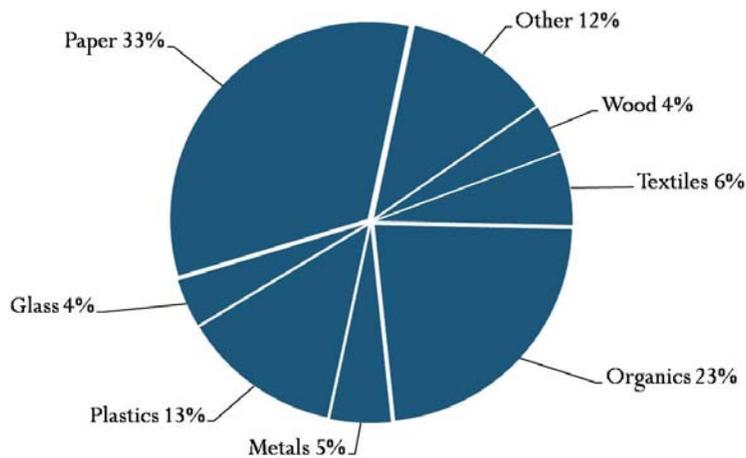
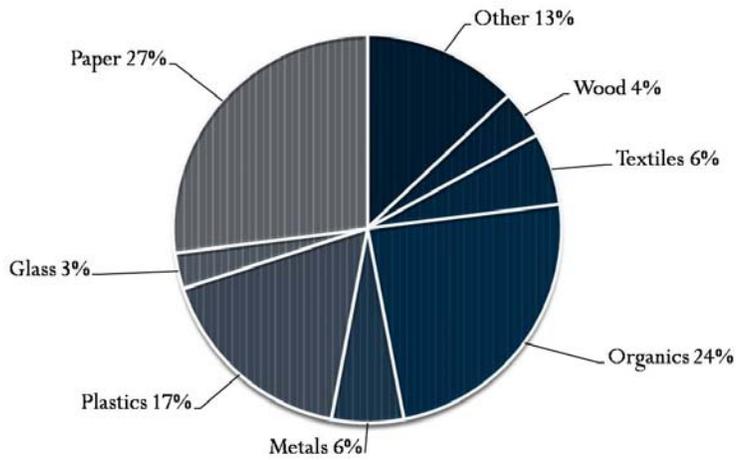


Figure 2 depicts DEC's estimates of the composition of the materials disposed in New York State. These estimates are particularly useful in developing programmatic, legislative, and regulatory priorities to minimize disposal and move *beyond waste*. Disposal data can inform program managers regarding how well their programs are capturing targeted materials and can help identify targets to maximize diversion.

For example, approximately 20 percent of the material disposed of in New York State is paper that is commonly recycled in many of the state's municipal programs. Clearly, those programs are not achieving their optimal capture rates. More than 30 percent of the materials currently discarded are organics (food scraps and yard trimmings) and compostable paper.

Figure 2 - Estimated MSW Disposed of in New York State



Additional details related to waste composition can be found in Section 7 of the Plan.

Waste Generation

While significant strides have been made by the state and its communities, businesses and residents to increase recycling and reduce waste, the data indicate that there is still much room for improvement. Twenty years after the state adopted a solid waste management hierarchy that places waste prevention, reuse and recycling ahead of disposal, nearly 65 percent of waste managed in the state and approximately 80 percent of MSW ends up in disposal facilities. (See Table 1)

Table 1 Materials and Waste Management in NYS, 2008

	MSW		Industrial		C&D		Biosolids		Total	
	Million Tons	%								
Recycle/ Compost	3.7	20	1.4	39	7.2	55	0.9	47	13.1	36
Landfill	6.0	33	2.1	60	4.1	32	0.3	17	12.5	34
Combustion	2.5	14	<0.1	1	<0.1	0	0.4	24	3.0	8
Export for Disposal	6.1	33	<0.1	0	1.7	13	0.2	12	8.0	22
<i>Total</i>	<i>18.3</i>	<i>100</i>	<i>3.5</i>	<i>100</i>	<i>13.0</i>	<i>100</i>	<i>1.8</i>	<i>100</i>	<i>36.6</i>	<i>100</i>

Additional details related to materials and waste generation and management can be found in Sections 7, 8 and 9 of the Plan.

Waste Prevention

In April 2008, Governor Paterson signed Executive Order 4 (EO4) which established an InterAgency Committee on Sustainability and Green Procurement (Committee), co-chaired by the commissioners of DEC and OGS, to implement its many provisions of EO4, including the establishment of waste prevention and paper use reduction goals for agencies and authorities.

Volume-based pricing programs for waste, known as PAYT/SMART, have taken hold in thousands of communities throughout the country, including many in New York State. These programs create a financial incentive for consumers to waste less and reduce and recycle more. In fact, according to the EPA, communities with PAYT/SMART programs reduce the amount of waste destined for disposal by 40 percent, with one-third of that reduction attributable to waste prevention.

Also according to EPA, the amount of MSW generated on a *per capita* basis has remained relatively constant at between 4.5 and 4.65 pounds per person per day nationally since 1990. Therefore, as the population has increased, the total amount of waste generation has increased accordingly. As a result, even though waste prevention and recycling have increased, the volume of waste going to disposal has not decreased since 1990. EPA estimates *per capita* generation of MSW nationally at 4.6 pounds.

By comparison, DEC estimates *per capita* waste generation in New York State in 2008 was 5.15 pounds per day.

Additional details related to waste prevention can be found in Section 8.1 of the Plan.

Reuse

Across New York State and the nation, there is a significant and growing infrastructure for reuse, particularly through nonprofit organizations. On a commercial scale, New York State is home to the Rochester Institute of Technology's National Center for Remanufacturing and Resource Recovery (Center). The Center fosters reuse of components and equipment through applied research and development of tools and technologies for efficient remanufacturing and environmentally benign product design. With funding from New York State's Empire State Development Corporation (ESD), the Center has done valuable work to advance reuse (e.g., rebuilding of small engines, remanufacturing of toner cartridges, etc.).

New York State also hosts a statewide chapter of the Reuse Alliance—a professional association that connects, supports, and promotes reuse organizations. Reuse Alliance hosts a variety of programs and services to sector members, including a web-based certificate program, online resources, and annual conferences and meetings. A copy of the New York State Reuse Directory created by the Reuse Alliance is included as Appendix 8.3 of the Plan. The directory profiles more than 200 organizations that provide reuse and remanufacturing services. Nonetheless, reuse opportunities are not fully used or consistently available to all regions of the state, and quantities of readily reusable material still go to waste in New York State.

Additional details related to reuse can be found in Section 8.2 and Appendix 8.3 of the Plan.

Recycling

Recycling involves the recovery, processing, sale and use of materials that otherwise would be destined for disposal. While waste prevention provides more significant environmental benefits, recycling shares the second tier of New York State's solid waste management hierarchy with reuse because it conserves natural resources and energy, reduces air and water pollution, and can save money. Reuse offers greater overall environmental benefit because it generally retains the embedded energy and material value with minimal processing. Recycling, on the other hand, generally consumes more energy and fuel in the processing and transportation of materials than reuse—though usually far less than the original manufacturing process.

For materials that have already been produced and are not readily reusable, recycling is the best strategy from an environmental perspective, because it conserves natural resources by keeping valuable materials in circulation and, in turn, reduces the volume of waste destined for disposal. By offsetting the use of virgin materials, recycling avoids the environmental impacts of mining,

extracting, transporting and using those materials in production and provides significant GHG reductions.

In 2008, there were more than 250 recyclables handling and recovery facilities (RHRFs) in New York State, including material recovery facilities (MRFs) and convenience and transfer stations that aggregate recyclables for further processing at MRFs. Half of these facilities are privately owned, and half are in public ownership, though some of the publicly owned facilities are privately operated. Collectively, these facilities received and processed more than 2.3 million tons of materials in 2008.

Utilizing facility reporting data and EPA methodology as the basis for estimating both the total recovery rate and the MSW recycling rate in the state—supplemented with data from other sources, including Beneficial Use Determination (BUD) reports and, where available, export data collected by the states that import New York State's waste—DEC found that New York State's MSW recycling rate was 20 percent in 2008, and the total recycling rate was 36 percent. The 20 percent MSW recycling rate is well below both the EPA's estimated national recycling rate of 33 percent and the *Biocycle* Magazine "State of Garbage In America Survey" estimate of 29 percent.

The development of programs and infrastructure and, by extension, progress in recycling has varied dramatically by planning unit and municipality. While some of this variation may be related to reporting anomalies, there are clearly significant differences in recycling performance. Recovery rates by planning unit in New York State for MSW paper and containers range from a low of 17 pounds per person to a high of 764 pounds per person per year.

In 2008, New Yorkers recycled and composted about 382 pounds of MSW per person per year and disposed of 1,497 pounds of MSW. EPA estimates that nationally, the average American recycles and composts 562 pounds of MSW per person per year and disposes 1,336 pounds of MSW.

Additional details related to recycling can be found in Section 8.3 of the Plan.

Composting and Organic Materials Recycling

Composting is an effective method for recycling many organic wastes. Organic materials, including yard trimmings, food scraps, and non-recyclable papers, typically make up 30 percent of New York State's MSW. The biodegradable portion of the waste stream is in fact much higher—a full 60 percent—but the additional 30 percent is comprised of nonputrescible materials that can be recycled into cardboard and other paper products, a higher and better end use from both an economic and environmental perspective. As discussed in the Plan, composting is the most common organic recycling method in the state, although other methods, such as anaerobic digestion and direct land application, are also used.

In New York State and nationally, recycling of organics has grown phenomenally since the 1987 Plan. EPA estimates that yard trimmings composting has grown from diverting 12 percent in 1990 to 64 percent in 2007. Few composting operations existed in New York State in the late 1980s, while more than 300 facilities exist today. The facilities vary in size, with smaller ones handling a few hundred

cubic yards per year and larger facilities handling more than 100,000 cubic yards per year. In total, DEC estimates that more than 600,000 tons of yard trimmings are composted annually in New York State, which represents 67 percent of the total estimated generation.

One significant factor that helped promote development of yard trimmings composting sites was inclusion of special conditions in solid waste facility permits prohibiting the acceptance of yard trimmings for disposal. Four of the five largest landfills in the state and all MWCs have special permit conditions that include this prohibition.

Additional details related to composting and organic materials recycling can be found in Section 8.4 of the Plan.

Beneficial Use

A Beneficial Use Determination (BUD) is a jurisdictional determination made by DEC in regard to a material that has been used and is no longer usable for its original purpose but can be directed to an alternative use considered to be beneficial compared to disposal. While BUDs are not specifically identified in the solid waste management hierarchy, DEC generally considers them preferable to waste disposal from an overall environmental perspective because the materials generally offset use of virgin material. Not all BUD uses are considered recycling, particularly when they do not represent the highest and best use of material. Some BUDs are granted for fuel-related uses or for low-value end uses, such as landfill daily cover, and the GHG and overall environmental benefits of these BUDs are not as significant as reusing or recycling a material into a new product that can, in turn, be recycled or reused for its original purpose.

According to DEC's annual survey, more than two million tons of material was beneficially used in 2008. Only 3 percent of the two million tons of BUD materials reported originated from MSW sources; the vast majority was from industrial sources (58 percent) or construction, demolition, remediation, or dredging projects (38 percent). Approximately 53 percent of the BUD materials reported were used in some form of soil or soil-like application, and 26 percent of BUD materials were used as alternative fuel. Only 36 percent of BUD materials represent recycling-related uses, while 8 percent of BUD materials were used in a landfill setting.

Additional details related to beneficial use can be found in Section 8.5 of the Plan.

Combustion

Ten municipal waste combustion (MWC) facilities operate in the state. These MWC facilities received about 3.9 million tons of solid waste in 2008, about 434,000 tons of which (or 11 percent of the total combusted) were imported from out of state. MSW represented about 97 percent of the waste combusted at these facilities, with the remaining 3 percent made up primarily of industrial waste with a small amount of C&D debris. About 95,470 tons (about 2.4 percent) represented scrap metal that was recovered for recycling. In 2008, MWCs supplied approximately 1.8 million megawatt hours of

electricity to the state's electrical grid—almost 1.5 percent of the state's electricity needs, or enough electricity to provide power to more than 175,000 households for one year.

Additional details related to combustion can be found in Section 9.3 of the Plan.

Landfilling

Approximately 34 percent of the total waste disposed in New York State (12.5 million tons) and 33 percent of the MSW disposed in New York State (6.0 million tons) is landfilled within the state. There are 27 active MSW landfills located in the state, many of which accept C&D debris and industrial waste as well as MSW. About 78 percent of the MSW that was land disposed went to landfills in DEC Regions 8 and 9—the western portion of the state, where all 6 private MSW landfills are located. There are no active MSW landfills in DEC Region 2 (New York City) since the 2001 closure of the Fresh Kills Landfill. There are also no active MSW landfills in DEC Region 1 (Long Island) due to enactment of the Long Island Landfill Law in 1983, which essentially prohibits direct landfilling of MSW in Nassau and Suffolk counties.

Six of the 27 active MSW landfills operating in the state are privately owned and operated. The remaining 21 are publicly owned. Of these 21, four are owned by county agencies and operated on their behalf by private waste management firms, while the remaining 17 are owned and operated by municipalities (counties, cities, towns, or public authorities).

Despite their smaller number, privately operated landfills play a dominant role in MSW landfilling in New York State. The six privately owned and operated landfills received about 4.5 million tons of waste, or 56 percent of the waste disposed of at MSW landfills in 2008. The four publicly owned, privately operated landfills received about 1.5 million tons of waste in 2008. Altogether, the privately operated MSW landfills (six privately owned and four publicly owned) received about six million tons, or about 75 percent of the total waste disposed of at MSW landfills in the state.

Twenty MSW landfills and one Long Island Landfill currently have gas-to-energy production systems. Of the 21 landfills, 7 are closed for waste disposal, and 14 are still operational. Altogether, they collected a total of approximately 14 billion cubic feet of gas and produced almost 564,000 megawatt-hours of electricity.

Additional details related to landfilling can be found in Section 9.4 of the Plan.

Export for Disposal

Approximately 22 percent (8.0 million tons) of the total New York waste disposed is exported from the state and 33 percent (6.1 million tons) of New York's MSW is exported for disposal. Figures 3 and 4 demonstrate trends in the total amount of solid waste transported out of the state during the past 20 years and into the state during the past 10 years. New York State continues to be a significant net exporter to disposal facilities in other states, as the figures show, with both exports and imports generally rising with time. It should be noted that older data is not as comprehensive as that from

recent years, and import data was not collected prior to 1998. The newer data is more reliable due to enhanced reporting requirements and improved data management methods employed by solid waste management facilities and by DEC, although further improvements are still needed.

Figure 3

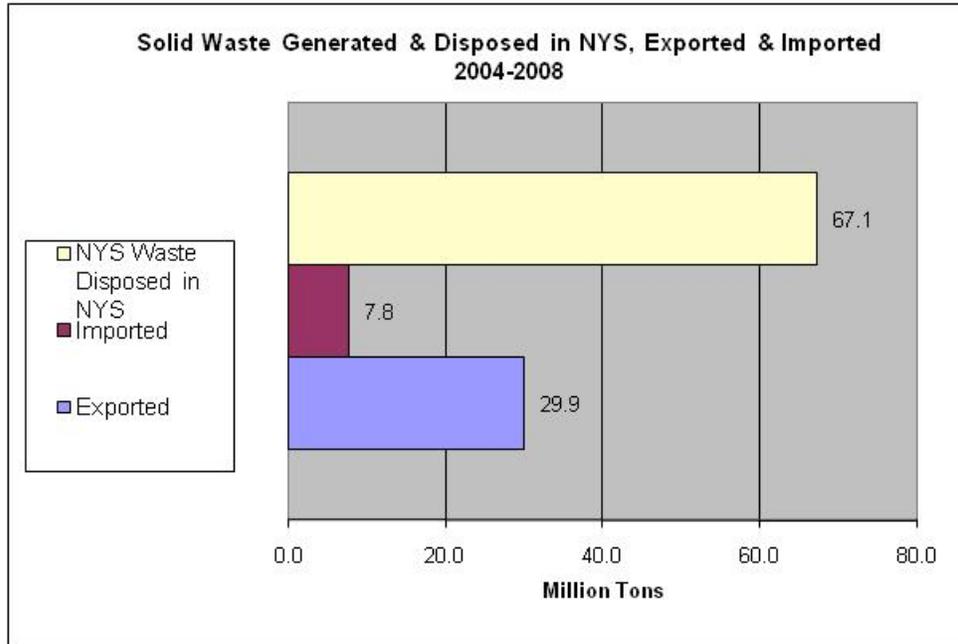
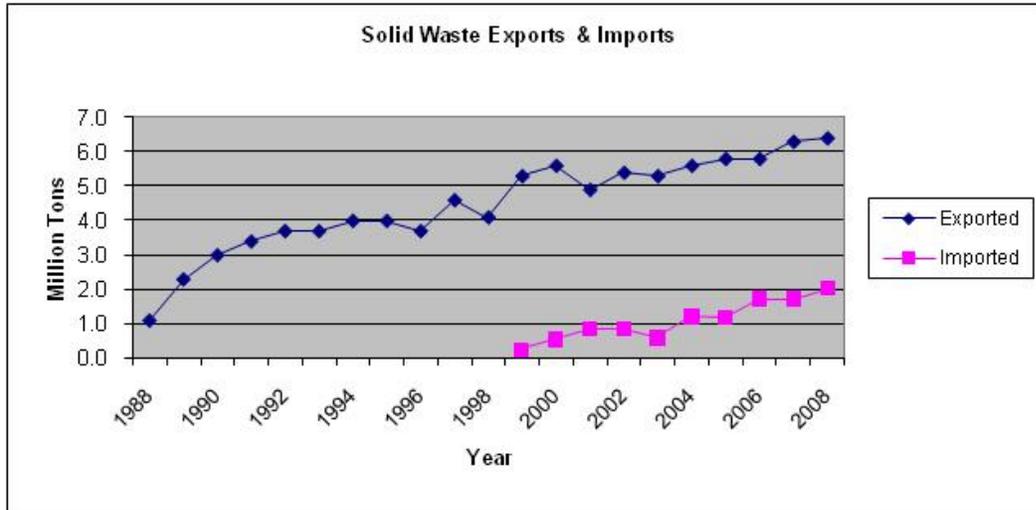


Figure 4



As Figure 3 demonstrates, during the past decade, more than a quarter of all solid waste generated and destined for disposal in New York State has been exported. Exports appear to have increased significantly in the past 20 years, and Figure 4 suggests they are still rising. Perhaps the most significant reason for the increase since 2000 is that the immense Fresh Kills Landfill on Staten Island ceased receiving waste at that time. New York City began gradually decreasing the amount of waste disposed at Fresh Kills and increasing out-of-state exports several years prior to the landfill's closure.

Much of the waste exported from New York State is generated in New York City (DEC Region 2). Since 2005, almost 75 percent of the state's exported waste originated there. Most of the rest was exported from the neighboring downstate areas of Long Island (DEC Region 1) and the lower Hudson Valley (DEC Region 3). Altogether, waste exports from these three DEC regions account for about 99 percent of the state's export total.

Additional details related to export for disposal can be found in Section 9.5 of the Plan.

Key Findings

Through the planning process, DEC has taken stock of the current state of materials and waste management in New York State. Key findings are provided below.

- Twenty years after the state adopted a solid waste management hierarchy that places waste prevention, reuse and recycling ahead of disposal, nearly 65 percent of the total waste materials managed in the state and approximately 80 percent of MSW end up in MWCs and landfills.
- Although landfilling should be the management method of last resort, landfills—in or out of state—handle the largest proportion of waste disposed.

- While there have been waste prevention successes, they have been offset by negative trends—such as planned obsolescence, the growth of convenience products and advancing technology—and, therefore, have yielded little or no reduction in the amount of waste generated in the last two decades.
- New York State and its communities have made significant progress in establishing successful recycling programs, as evidenced by the rise in recycling rates between 1987 and 1997, but progress in the last decade has stalled.
- Implementation of source separated recycling programs has been inconsistent, not only from one community to the next, but also in different settings such as schools, businesses, and public spaces.
- The state’s increasing reliance on waste export from its most densely populated areas is problematic and potentially unreliable. Principles of sustainability and responsibility dictate that materials be managed in the most efficient and environmentally sensitive manner, with consideration of the risks and impacts of out-of-state transportation.
- Materials management can play a significant role in combating climate change; landfill gas is four percent of the state’s GHG inventory, while EPA estimates that 37 percent of national GHG emissions are influenced by the lifecycle impacts of products and packaging that become waste.
- The continuing reliance on waste disposal—at landfills in particular—comes at a significant environmental and economic cost. Continuing to dispose of materials that could be reused or recycled squanders opportunities to create jobs, conserve both energy and natural resources, and reduce air and water pollution and landfill gas contributes to climate change.
- Reuse provides multiple environmental, economic and social benefits. There is potential to expand reuse, particularly in key sectors, such as building deconstruction.
- Redistributing consumable food through food banks or as animal feed provides social and economic benefits while reducing waste.
- As with any commodity, recycling markets vary; however, on average, market values for conventional recyclables (metal, plastic containers and many grades of paper) have been consistently strong for the past two decades.
- Organic materials represent 30 percent of both the materials generated and the waste disposed. Recycling organics has multiple benefits, including reducing the generation of greenhouse gases, creating valuable soil amendments, creating jobs and reducing reliance on waste disposal.
- Product and packaging stewardship programs create incentives to reduce waste in product and package design and to increase recycling.

- PAYT/SMART programs create a financial incentive for consumers to waste less and recycle more. Based on EPA estimated reductions, implementation of PAYT/SMART in New York would reduce MSW disposal by nearly three million tons annually and save municipalities money.
- Public education and enforcement are critical tools to prevent waste and increase reuse, recycling and composting.
- Market development attention is still needed for emerging or problematic recyclables, including organics, plastics, glass and construction and demolition (C&D) debris.
- C&D debris recycling has been inhibited by a lack of markets for inherently valuable materials, a lack of information on material composition, origin and destination, and concerns about asbestos contamination.

4.0 POTENTIAL SIGNIFICANT ADVERSE ENVIRONMENTAL IMPACTS

This draft GEIS is for the proposed Plan, which is a guidance document. The document itself does not prescribe that certain actions must be taken or that certain facilities must be sited. Instead, the Plan lays a foundation for the next chapter in solid waste management in New York State. It identifies critical areas for local, state and individual action and provides a menu of options that can help communities on the path toward sustainable materials management. It presents a strategy to engage product manufacturers to make end-of-life management costs a part of their economic equation.

Through product stewardship, the Plan seeks to fundamentally change the way discarded materials are managed in New York State by progressively reducing the amount of materials that go to disposal over the ten-year planning period. As such, there are no anticipated, significant, adverse environmental impacts from adopting and implementing the Plan. Each recommendation in the Plan will be evaluated individually on its own merits, and any solid waste management facility application that may result from implementation of a recommendation is subject to a site-specific SEQR review.

Recommendations in the Plan are divided into three categories—legislative, regulatory, and programmatic. A summary of the recommendations is provided in Section 2.0 of the GEIS and Section 10 of the Plan.

None of the proposed actions will have a potential significant adverse environmental impact. To the contrary, these actions will have the following positive impacts:

- Waste prevention, waste reduction and reuse activities, as well as increased recovery of materials through reuse and recycling will reduce the need for new disposal infrastructure and the associated construction and operational impacts such as noise, odors, visual impacts and increased truck traffic.
- Increasing materials recycling and composting will create jobs.
- Increasing recycling and reducing waste generation will reduce GHG emissions from landfills and product and packaging manufacturing while conserving energy.

To the extent that negative impacts may result from implementation of the Plan, they are expected to be less significant than alternative waste disposal impacts.

- Increasing organics recovery, while environmentally preferable to disposal methods, will require increased organics recovery infrastructure.
- Increasing recovery of other recyclables, while also environmentally preferable to disposal methods, will lead to an increase in recyclables processing and manufacturing capacity for those recyclables.

While specific issues related to construction and operation of new infrastructure may differ somewhat from those of disposal facilities, the impacts are likely to be similar, including noise, odors, visual impacts and increased truck traffic. Mitigation measures are currently available for all of the impacts from these facilities, and the department is confident that through proper construction, management and operational practices, environmental impacts resulting from full implementation of the Plan as recommended can be both mitigated and minimized. Significant environmental benefits related to decreasing disposal and increasing reuse and recycling of materials are discussed in detail in Sections 4 and 8 of the Plan.

Regulatory changes are subject to SEQR, and each of the proposed regulatory changes will be evaluated at the time of proposal. Regulatory revisions will ensure that through proper construction management and operational practices, any related environmental impacts from the infrastructure needs resulting from full implementation of the Plan as recommended will be both mitigated and minimized.

Adverse Environmental Effects that Cannot be Avoided or Adequately Mitigated if the Plan is Finalized

There are no unavoidable, adverse impacts resulting from the Plan itself. As discussed in the previous section, any specific issues related to construction and operation of any new or enhanced recycling-related infrastructure that may result from these efforts—such as noise, odors, visual impacts and increased truck traffic—must be evaluated and addressed individually on their own merits and are subject to SEQR for the specifics of the facility itself. Mitigation measures are currently available for all potential impacts from these facilities, and DEC is confident that through proper construction, management and operational practices, environmental impacts resulting from full implementation of the Plan as recommended can be both mitigated and minimized.

Irreversible and Irrecoverable Commitments of Resources

The Plan does not mandate the irreversible or irretrievable commitment of resources. By setting a path to greater waste prevention, reuse, and recycling, implementation of the recommendations in the Plan will save resources and energy and reduce GHG emissions. There will be:

- less land dedicated to disposal;
- reduced long-term environmental contamination liabilities from disposal facilities;
- enriched soil quality from increased composting efforts;
- less demand for energy in manufacturing; and
- less demand for virgin materials and natural resources, minimizing associated land-use impacts.

Growth-Inducing Aspects

Beyond Waste is a plan to create a more sustainable materials economy. This will require fostering a system where products and packaging are designed to minimize waste and maximize use of recyclable materials, and where there is infrastructure in place to recover and use those materials. This system would capture the economic value of our materials, conserve their imbedded energy, and minimize generation of greenhouse gases and pollution. In addition to reducing our reliance on disposal, DEC projects that implementing the Plan could stimulate economic growth and generate more than 74,000 jobs.

Effects on the Use and Conservation of Energy Resources and Climate Change

The most obvious and well-documented contribution to GHG from the management of waste is from uncaptured emissions of methane from landfills—as organic materials break down in a landfill’s anaerobic environment, they generate methane, a GHG 23 times more potent than CO₂. EPA estimates that, nationally, landfill methane emissions represent 1.8 percent of GHG emissions. The New York State Energy Research and Development Authority’s (NYSERDA) statewide GHG Inventory for 2006 estimates that MSW contributes 9.8 million tons of CO₂ equivalent (CO₂E) to Earth’s atmosphere. This represents 3.8 percent of the state’s GHG emissions, second only to fuel consumption as a single source of emissions.

In addition to direct emissions, transportation and handling of solid waste also generates GHGs. And the GHG implications of waste go beyond waste handling considerations. More than 70 percent of MSW comprises products and packaging, the production, distribution and disposition of which generates GHGs. Every step of the process—mining, harvesting, manufacturing, and distribution—consumes energy and generates pollution. In fact, for every ton of MSW, 71 tons of industrial discards are produced.

According to EPA, on a life-cycle basis, 37 percent of the national GHG inventory is influenced by energy and fuel consumed in the production, use and management of materials that become waste. Avoiding production of a product or package or reusing it in its original form, and thereby preventing waste altogether, offers the most significant GHG reductions in that they eliminate the need to extract resources, turn them into products and materials, transport them to market, and dispose of them as waste. After prevention and reuse, recycling offers the next, greatest, positive impact from a GHG emissions perspective. Recycling has significant advantages compared to landfilling and combustion techniques by avoiding emissions related to energy consumption and manufacturing associated with extraction, production and transportation of virgin materials used in original production. Further, recycling avoids production of GHG emissions associated with handling and disposing of these materials through conventional waste management practices.

Of all the materials readily amenable to recycling, metals offer the most significant potential for GHG emission reductions, in large part due to the energy-intensive process of mining and preparing virgin metals for production. Recycling paper is also particularly important from a climate perspective

because of the energy-intensive virgin production process and the benefits of reducing demand for pulp and, in some cases, leaving trees standing to absorb carbon.

Climate change is fully discussed in Section 4 of the Plan. Findings in the Plan with regard to climate change are:

- Waste contributes to climate change in a number of ways, including direct emissions of GHGs from solid waste management facilities, most notably methane emissions from landfills and, more significantly, life-cycle impacts of products and packaging that become waste, including their production, distribution and use.
- Mitigating and avoiding the impacts of methane generation at landfills can play a strategic role in stabilization and reduction of atmospheric GHG concentrations and must be a priority for New York State.
- An analysis of the climate impacts of waste management supports the existing solid waste management hierarchy, which places a priority on waste prevention, reuse and recycling compared to disposal and states a preference for treatment through MWC with energy recovery compared to disposal in a landfill.
- Waste reduction, reuse, recycling and composting provide significant benefits in combating climate change by eliminating or diverting materials that may generate methane in a landfill and by providing valuable materials for industrial feedstocks that will help manufacturers reduce demand for energy and reduce pollution in the production process.
- Diverting food scraps from landfills to composting or anaerobic digestion is the most reliable method of methane abatement from landfills. While landfill gas capture and destruction systems are important and necessary tools for controlling emissions, even the best performing systems do not completely capture landfill gas. Thus, a preventative approach that focuses on minimizing the generation of methane via composting, or more efficiently capturing methane for energy via anaerobic digestion will provide a greater impact on GHG emissions.
- Advanced landfill gas collection systems are critical elements of good environmental management. These systems help to mitigate the contribution of landfills to climate change and also help to control odors, capture VOCs and prevent other hazardous chemical releases to the air. Most active landfills in NYS have such systems in place.
- Capturing landfill gas to generate energy is an important strategy to help reduce reliance on fossil fuels for electricity generation.

Recommendations

The overall goals of moving *beyond waste* require materials management strategies that serve to combat climate change. As such, the recommendations summarized below are discussed in more detail in other sections of the Plan and in Sections 10 and 11 (Agenda for Action and Implementation Schedule).

- Maximize waste reduction, reuse and recycling: Sections 8.1, 8.2, and 8.3 of the Plan detail a host of legislative, regulatory and programmatic recommendations that collectively will maximize reduction, reuse and recycling.
- Implement product and packaging stewardship programs: As further discussed in Section 6 of the Plan, product and packaging stewardship are important policy tools to reduce materials use, increase recycling, and reduce disposal. Their implementation will help to reduce GHGs to combat climate change.
- Divert organics from landfills to composting or recycling: Section 8.4 of the Plan includes detailed recommendations to maximize recycling of organics and thereby avoid the generation of methane in landfills.
- Ensure that landfills in New York State pursue every possible mechanism for achieving GHG reductions: DEC's Part 208 and 360 regulations and the financial incentives provided by the carbon market have resulted in the installation of landfill gas collection and destruction systems at most active MSW landfills. DEC will continue to assess the emissions and operations of facilities and markets in New York State to ensure that landfills maximize gas collection and destruction.
- Maximize conversion of landfill gas to energy: DEC will continue to work with other state agencies and entities involved in the electrical grid system's governance and operation to minimize the costs to connect, while still ensuring sound engineering.

Impacts from the Plan

Using the best available data, including facility reports on tonnage and the NERC Environmental Benefits Calculator (EBC) model to estimate GHG emissions, estimated GHG reductions from the state's existing MSW management system are represented in Table 4, as are projections of the impacts of implementing the Plan to reduce reliance on disposal. These estimates are based on MSW materials only, which collectively represent approximately one-half of the total materials stream in New York State. It does not include construction and demolition debris, biosolids, or industrial wastes.

Table 4 - Annual GHG Reductions and Energy Savings of Various Scenarios

MSW Recycling Rate	Pounds/Person Per day Disposed	GHG Reduction (Million MTCO₂E)	Energy Savings (Trillion BTUs)
Current	4.1	9.2	85
30%	3.5	14.3	156
50%	2.4	21.7	234
75%	1.2	28.4	294
90%	.60	32.0	344

5.0 MITIGATION MEASURES TO MINIMIZE ENVIRONMENTAL IMPACT

The Plan itself is a guidance document and has no direct environmental impacts. As discussed above, there are no anticipated significant adverse environmental impacts from adopting and implementing the Plan, and there are no unavoidable adverse impacts resulting from the Plan itself. As enumerated in this document and the Plan, the recommendations in the Plan, if implemented, would have a positive impact on the environment of New York State, continuing the environmental gains that have been realized since the first Solid Waste Management Plan was issued by DEC more than 20 years ago. Each recommendation in the Plan is a starting point for discussion and debate, which will lead to refinement of the recommendations and possible new ideas for moving *beyond waste* in New York State.

6.0 ALTERNATIVES TO THE PROPOSED ACTION

This section identifies alternatives to the proposed action. In the simplest sense, the alternatives are to either write and adopt a plan or choose the no action alternative, which would be to not adopt a plan. From a legal perspective, the latter option is unacceptable because the preparation and updating of the New York State Solid Waste Management Plan is required by Section 27-0103 of the Environmental Conservation Law (ECL). DEC is responsible for the preparation and updating of this Plan, and, therefore, writing and adopting a plan is mandatory.

In addition to this basic assessment of the need to write and adopt a plan, this section will examine major impacts associated with alternatives considered during plan development and the reasons for not choosing those alternatives. This draft GEIS looks at the following four general alternatives to the Plan selected:

- The state minimizes involvement in solid waste management.
- The state assumes management of all solid waste within the state.
- The state continues the status quo or no action alternative.
- The state adopts a zero waste plan intended to eliminate disposal of all waste.

There is a myriad of alternatives and different scales of action and implementation within and between each of these general alternatives and the selected alternative. However, this evaluation is intended to review these alternatives as guideposts leading to eventual selection of the preferred alternative.

The State Minimizes Involvement in Solid Waste Management

A possible alternative for the state to pursue in the Plan would be to minimize its involvement in solid waste management by reducing activities to the minimum federal requirements. In evaluating this alternative, the history of solid waste management planning in the state must be considered to understand the current legal and functional role of the state. A full discussion of the state's role in solid waste management is provided in Section 3.2 of the Plan.

The value of solid waste management planning was acknowledged by both the federal and state governments more than 30 years ago. The federal Resource Conservation and Recovery Act (RCRA) of 1976 required states to develop solid waste management plans. The New York State Legislature responded with Chapter 425 of the laws of 1977, which required DEC to prepare a draft "comprehensive resource recovery plan." DEC prepared and submitted a plan in 1978. Chapter 552 of the laws of 1980 recognized the need for solid waste management planning and made DEC responsible for preparing a solid waste management plan and mandated that all solid waste management projects be in accord with the plan, once completed.

Through the Solid Waste Management Act of 1988, the legislature affirmed the primacy of local and regional governments in solid waste management, while clearly articulating the state's role. The state was to ensure environmentally, economically and technically viable solid waste management programs by:

- encouraging waste reduction and expansion of materials recovery programs;
- establishing clearly articulated, responsive and consistently applied regulatory oversight; and
- providing a full range of technical assistance to local governments.

The state fulfills these responsibilities through the following specific functions:

- Policy direction
- Technical assistance
- Public education/information
- Financial assistance
- Statewide planning
- Regulatory oversight

For the state to minimize its role, it would have to amend the ECL to eliminate the requirements established in the Solid Waste Management Act. Policy direction; technical assistance to municipalities by DEC and businesses by ESD and NYSERDA; statewide planning efforts, and regulatory oversight would be eliminated, leaving municipalities to manage solid waste without state assistance and direction. This would likely result in significant changes related to management of solid waste throughout the state with varying levels of protection for the environment, depending on the environmental management expertise, environmental commitment and financial resources of individual local governments. With varying management and regulatory approaches across the state, and with the loss of benefits that comes from the economies of scale for program delivery, financial assistance, technical assistance and uniform regulatory oversight currently provided by the state, this alternative is unacceptable from a practical, environmental and legal perspective.

The State Assumes Management of All Solid Waste within the State

Another alternative would be for the state to assume management of all solid waste within New York. In addition to the state's historic role in solid waste management planning, the role of local government and that of the private sector must also be considered in reviewing this alternative.

Implementation of solid waste management programs in New York State has historically been the responsibility of local government. The day-to-day activities at the core of materials and waste management (e.g., separation, collection, recycling, transport, storage, transfer, and disposal) occur at the local level, either by local governments themselves, through contracts or agreements with private entities, or directly by the private sector.

Incorporated municipal governments in New York State have been granted broad home rule powers, enabling them to provide services to their residents and to regulate the quality of life within their jurisdictions. They do so while adhering to the United States Constitution and the Constitution of the State of New York. Articles IX and VIII of the State Constitution establish the rights and responsibilities of municipal governments. In addition, local responsibility is specifically assigned under state law. In the area of solid waste management, the State Legislature has affirmed the primacy of local and regional governments in solid waste management. The Solid Waste Management Act (Act) of 1988 specifically directs “[a] state-local partnership, in which the basic responsibility for the planning and operation of solid waste management facilities remains with local governments and the state provides necessary guidance and assistance...” In furtherance of this approach, the Act requires localities in the state to have mandatory source separation laws or ordinances in place and to develop and maintain Local Solid Waste Management Plans (LSWMPs) if they seek permits for solid waste management facilities. Under the Act (through amendments to General Municipal Law 120-aa), municipalities were to require source separation of recyclables in all generating sectors (e.g., residential, commercial, institutional and industrial) no later than September 1, 1992.

As anticipated and encouraged in the ECL, the private sector has played an increasingly significant role in providing solid waste management services to planning units. Implementation of integrated solid waste management systems has also created enhanced opportunities for increased involvement of the private sector in various aspects of materials and waste management. Local government interaction with and oversight of private sector collectors, processors and facility operators varies throughout the state. Some communities heavily regulate the activity of the private waste industry, using tools such as flow control, contracts, registration, permitting, and enforcement, while others provide little oversight.

For the state to take over the management of solid waste in New York, it would have to amend the State Constitution and ECL to alter the roles of local government and the state.

The combined municipal and private infrastructure that has been established to manage solid waste in the state is quite intertwined, extensive and effective from a delivery-of-services perspective. The solid waste management infrastructure in the state includes more than 70 disposal facilities, 535 transfer stations, 250 recyclables handling and recovery facilities, and 350 composting facilities. Taking control of this system would be a significant management burden for the state.

While it might be easier for New York, as the sole manager of solid waste facilities throughout the state, to incorporate and advance new environmentally progressive technologies, the cost—in terms of staffing, management training and the creation and maintenance of infrastructure—would simply be prohibitive. And the many advantages of local control, such as experimentation with new management strategies, ability to address local cultural and geographic differences, and speedier decision- and policy-making to respond to new opportunities, would all be lost. For these reasons, in addition to the extensive legal amendments and change from the historical state philosophy of governing that would be required, this alternative is unacceptable.

The Status Quo or No Action Alternative

A possible alternative for New York to pursue in the Plan would be for the state to accept the current circumstances and conditions and adopt a plan continuing all activities and policies in their current form and method. In doing so, the state would not address advances in technology or act on new understanding of the impacts of GHG on climate and would forego the significant environmental benefits available by decreasing generation of waste and the amount of waste destined for disposal.

The 1987 Plan contained important goals, including a goal to reduce, reuse, or recycle 50 percent of the waste stream (using 1988 as a base year) and a recommended hierarchy of preferred solid waste management methods. The 1987 Plan set what was seen at that time as visionary and aggressive, yet achievable, goals for a ten-year planning period, with the intent of using annual updates to adjust policies, programs, plans and goals to ensure continued progress. The purpose of the Act was to ensure that both the state and local governments would work actively toward establishing environmentally sound solid waste management systems that integrate the hierarchy of solid waste management methods and emphasize waste reduction and recycling, using landfills only for materials that could not be managed in a more productive way.

Continuing reliance on waste disposal—landfills in particular—comes at a significant environmental and economic cost. The state’s preference for waste prevention, reuse, recycling and composting reflects the fact that these strategies offer greater energy conservation, GHG reduction and other environmental benefits.

While significant strides have been made by New York and its communities, businesses and residents to increase recycling and reduce waste, we find that 20 years after the state adopted a solid waste management hierarchy that places waste prevention, reuse and recycling ahead of disposal, nearly 65 percent of waste managed in the state and approximately 80 percent of MSW ends up in disposal facilities. DEC estimates that in 2008, approximately 11.5 million tons of solid waste were landfilled [an additional 2.3 million tons were used as alternate daily cover (ADC) at landfills], 3.3 million tons were combusted, and 8 million tons were exported for disposal, for a total of about 22.7 million tons disposed. Nationally, recycling rates have been static or only increased in small increments in recent years, even for the materials considered most recyclable—newspapers, steel, aluminum and PET plastic containers. Communities in New York State report recovery rates that are stagnant at best and may be dropping.

Although landfilling should be the management method of last resort, given the state policy goals expressed in the solid waste management hierarchy, landfills—either in state or out of state—handle the largest proportion of New York State waste sent for disposal. Approximately 53 percent of the total waste disposed by New York State generators is landfilled within the state, while about 13 percent is processed in MWCs (with the residual ash land disposed), and 34 percent is exported, primarily to out-of-state landfills. When only MSW is considered, more of the waste disposed is exported than landfilled within the state (42 and 41 percent, respectively). The no action alternative would continue the state’s reliance on management methods considered to be the lowest preference

in the hierarchy of solid waste management because they have the greatest negative environmental impacts.

Even as the advances proposed in the Act have either waned or failed to emerge, the waste generated by New Yorkers continues to grow. The combination of “planned obsolescence” and the rapid commercial introduction of new technologies have created waste streams that were not anticipated two decades ago. Products like computers, cell phones, other electronics and appliances are constantly upgraded and designed with shorter and shorter useful lives. This is compounded by the fact that related components such as batteries and chargers are not standardized and, like the electronics they augment, rapidly become obsolete. The result is that more waste is generated and generated more quickly, with volumes expanding as these products increase in popularity and affordability.

Much of the material sent to disposal facilities has a significant value in terms of both direct market value and in broader economic and environmental terms. Though markets have periodically experienced downturns, markets for traditional recyclables, including paper, metals and some plastics, have been strong overall and have achieved consistently high values in the last decade. Recycling creates jobs in collection and processing, in addition to manufacturing jobs associated with creating new products. And using recovered materials in place of virgin materials saves significant amounts of energy, conserves water, and reduces pollution. In 2008, the 3.7 million tons of MSW materials recycled in New York State helped to avoid more than 9 million metric tons of CO₂ equivalent (MTCO₂E) and conserve 85 trillion BTUs of energy. The no action alternative would cap positive impacts at this level and eliminate opportunities for prevention of waste and increases in reuse and recycling that would foster even greater environmental gains.

The commercial and institutional waste stream often contains significant quantities of valuable material. However, many companies do not have the time or expertise to identify the value in their materials or to design programs and systems to source separate those materials. Many recycling companies and consulting services specialize in auditing a company’s waste stream and designing recycling programs with an eye toward maximizing disposal cost savings and secondary materials revenues. These types of technical assistance efforts are critical to ensuring program implementation and capturing the economic and environmental value of recycling for the commercial and institutional sectors. Under the no action alternative, these efforts would not be expanded to their maximum potential.

DEC estimates that in 2008, only one percent of food waste is being composted or otherwise recycled. Organics recycling plays an important role in combating climate change. Once in a landfill, organic residuals degrade and generate methane—a potent GHG. Because some of these materials start to create methane within days of disposal, methane can escape before it can be captured by a landfill gas collection and destruction system. By contrast, a well-operated composting system will generate little if any methane.

When used to enrich soil, the application of compost increases soil's carbon storage capacity by increasing the formation of stable carbon compounds that remain bound in the soil for long periods. This storage also provides a GHG benefit according to the European Commission's Working Group on Organic Matter:

"Applying composted EOM [exogenous organic matter] to soils should be recommended because it is one of the effective ways to divert carbon dioxide from the atmosphere and convert it to organic carbon in soils, contributing to combating greenhouse gas effect."

Large quantities of organics, especially food scraps and soiled paper, end up in landfills instead of being used to improve the physical, chemical and biological properties of New York State's soils. Under the no action alternative, the value of these materials will continue to be lost, and their disposal would continue to contribute to climate change.

Waste disposal facilities contribute to climate change and related environmental degradation, while waste prevention and the use of recovered materials in manufacturing reduces energy consumption, greenhouse gas generation and air, water and land pollution and creates green jobs. It is critical to expand understanding of the role sustainable materials management can play in improving the environment, locally as well as globally.

At the dawn of the 21st century, society is confronted by broad and inter-related social and environmental challenges topped by global climate change and increased energy demands. In this context, it is not enough to ensure environmentally sound disposal. Capturing the economic value and imbedded energy in our materials, minimizing greenhouse gas impacts of our actions, and maximizing materials and energy efficiency in our systems must be key drivers.

For these reasons, as elaborated elsewhere in the Plan, the status quo—the no action alternative—was rejected as unacceptable.

A Zero Waste Plan Intended to Eliminate Disposal of All Waste

Another alternative would be for the state to pursue a zero waste plan.

In the context of a solid waste management plan, zero waste means many things. It is a goal, a vision, a philosophy, a process and a design principle. It is a way of thinking that profoundly changes the approach to resources and production. Zero waste is not only about recycling and diversion from combustors and landfills, but it also restructures production and distribution systems to prevent waste, beginning from the process of manufacturing products in the first place. Materials still required in these redesigned, resource-efficient systems will be recycled back into production.

Zero waste is a much broader vision than the mere phasing out of combustors and landfills. It goes beyond recycling by taking a whole-system approach to the flow of resources. Zero waste maximizes reuse and recycling, minimizes waste, reduces consumption and ensures that products are made to be reused, repaired or recycled back into nature or the marketplace. It incorporates the principals of

conserving resources, minimizing pollution, maximizing employment opportunities, and providing the greatest degree of local economic self-reliance.

A critical component of a zero waste system is the principle that corporations share responsibility for waste and recycling. Without producer responsibility for waste, there is inadequate incentive to internalize costs and eliminate waste. A zero waste plan asks business and industry to redesign products for zero waste and to develop reverse distribution systems to take products back into production, rather than transferring these materials ultimately to local government for management. It establishes a legal and regulatory system that rewards resource-conserving behavior and penalizes resource-wasting behavior. Attention is shifted from quantity to quality by recognizing all the social and environmental impacts of a product's life cycle. The full cost of the product's production, including environmental damage, lost habitat, actual costs of resource extraction, and proper disposal through reuse, recycling, and composting, is included in its pricing.

Although the environmental benefits of adopting a zero waste plan are enormous and strongly supported by DEC, this alternative was determined to be infeasible within the ten-year planning period of the Plan, given the steps necessary to achieve a shift of this magnitude, complexity and degree of societal change.

Selected Alternative

The selected alternative is described in detail throughout the GEIS and the Plan itself. It is a hybrid of strategies that incorporates many of the concepts of a zero waste approach scaled to fit the ten-year planning period. The Plan lays a foundation for the next chapter in solid waste management in New York State, which includes the initial structural components of a zero waste vision. It identifies critical areas for local, state and individual action and provides a menu of options that can help communities on the path toward sustainable materials management during the course of the next ten years. On the state, regional or national level, it presents a strategy to engage product manufacturers to make end-of-life management costs a part of their economic equation.

The Plan recommendations, as identified throughout the Plan and summarized in Chapter 10, the Agenda for Action, are divided into three categories—programmatic recommendations, regulatory recommendations, and legislative recommendations. The programmatic recommendations are initiatives that the state can pursue within current statutory and regulatory authority. The regulatory recommendations are changes that can be made within existing statutory authority, and the legislative recommendations include the critical elements of a new legal structure.

Through the Plan development process, it was determined that these three sets of recommendations are necessary to compliment and support one another in advancing an updated state solid waste management policy. While each of the recommendations in and of itself is valuable, DEC has determined that the balanced set of recommendations articulated in the Plan are required to provide the necessary elements of a comprehensive, sustainable, materials management strategy.

7.0 UNDERLYING STUDIES, REPORTS AND OTHER INFORMATION OBTAINED AND CONSIDERED IN PREPARING THE STATEMENT

All information obtained and considered in preparing the draft GEIS is in the Plan, its appendices, or its referenced source material.