



# 2013 SOLID WASTE PROGRESS REPORT

## 2013 固体废物 工作进度报告

A GREENER, GREATER NEW YORK  
一个更绿色, 更为伟大的 纽约市



The City of New York  
Mayor Michael R. Bloomberg

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## Solid Waste

Every year, New York City generates more than 14 million tons of waste and recyclables. The Department of Sanitation (DSNY) collects approximately a quarter of this load, servicing residential homes and not-for-profit organizations with a fleet of 2,000 trucks, while 4,000 private trucks haul the remainder from businesses, office buildings, and construction sites. In addition to costing City taxpayers more than \$300 million for residential waste disposal alone, the solid waste system generates substantial greenhouse gas and air quality impacts. All told, the collection, processing, disposal, and decomposition of New York City's solid waste generates approximately 2.2 million metric tons CO<sub>2</sub>e each year, or 4% of the citywide total. For these and other reasons, PlaNYC added solid waste as a key focal

area in 2011 and introduced a robust target of diverting 75% of solid waste from landfills by 2030.

Over the past two years, we have made remarkable progress toward achieving our goal to divert 75% of the city's solid waste from landfills by 2030. We have laid the groundwork for implementation of a three-part Waste Reduction Plan that will increase recycling through investment in new infrastructure; expand programs to encourage diversion through reuse, recycling, and composting; and engage the public in new campaigns to increase waste diversion. This plan builds on the City's Comprehensive Solid Waste Management Plan (SWMP), approved by the City Council in 2006.





## 固体废物

纽约市每年要产生 1,400 万吨垃圾和可回收物品。纽约市卫生局会收集将近四分之一的垃圾，为住户和非营利组织出动 2,000 辆卡车。同时 4,000 辆私用卡车清理余下的由商业，办公楼以及建筑工地产生的垃圾。除了城市缴税者单单为垃圾处理缴纳的多于 3 亿的费用成本，固体废物系统会产生大量的温室气体以及空气污染。纽约市固体废物的收集，处理，废弃和降解每年总共会产生 220 万吨二氧化碳，也就是全市的 4% 的二氧化碳排放。因此，2011 年，纽约城市规划将固体废物列

纽约城市规划将固体废物列为重点项目并提出了至 2030 年，从垃圾填埋堆转移 75% 的固体废物的有力目标。

在过去的两年中，我们已经面向实现 2030 年的目标取得了重要进步。我们已经为实施固体废物计划三步走奠定了基础。这三步计划将通过投资新基础设施增加循环利用；通过再利用，循环利用和合成堆肥拓展我们的项目以鼓励垃圾转移；通过加强公众参与增加废物转移。这项计划是建立在于 2006 年市政府通过的纽约市综合固体废物管理规划上的。

在过去的十年中，由于缺少足够的地方处理基础设施，纽约市多样化循环利用项目受到了限制。为了克服这一困难，纽约是正与西姆斯金属管理公司合作，在南布鲁克林海洋总站建立先进的回收设施。



GreenNYC 告别垃圾邮件

Credit: GreenNYC

Over the past decade, a lack of sufficient local processing infrastructure has limited New York City's ability to diversify its recycling program. To overcome this challenge, the City is currently constructing a state-of-the-art recycling facility at the South Brooklyn Marine Terminal in partnership with Sims Metal Management. The Sims facility will process metal, glass, and an expanded variety of plastics, which will allow the City to expand its curbside recycling program for the first time in more than 20 years. The facility will help to eliminate more than 260,000 miles of in-city truck travel by shifting transportation primarily to barges; it will also create 100 new jobs.

The City announced in April of 2013 that it will allow recycling of all rigid plastics and deploy more than 1,000 new recycling containers in the public realm by the end of the year. New Yorkers will no longer have to sort through their rigid plastics to determine whether they are the correct number to be recycled. The City's expanded recycling program ends an era of confusion about recycling and it should vastly increase diversion over the coming years.

Organic waste makes up about 35% of the city's waste stream, with discarded food accounting for 1.2 million tons of organic waste landfilled by the City each year. With more than one million students, teachers, and administrators, New York City schools produce hundreds of thousands of tons of solid waste every year, much of it discarded food. In September 2012, DSNY began a pilot program in 68 schools to separate organic waste for composting, and are planning to expand this program to all city schools. To date, the program has led to a diversion rate of 34% from

Manhattan schools and 38% from Brooklyn schools participating in the pilot. The weekly collection through this program of more than 20 tons of organic waste will soon be processed into sludge at a Waste Management-operated facility on Varick Street, and co-digested with city wastewater at Newtown Creek wastewater treatment plant. This is part of a pilot anaerobic digestion program, in conjunction with the Newtown Creek wastewater treatment plant (WWTP).

The Newtown Creek WWTP has excess capacity to codigest pre-processed organic waste. The pilot underway is treating roughly 60 tons of bioslurry from the Varick Street facility per week, with plans to scale up to 250 tons per day over a three-year period. The original plan was to test for a year before scaling up, but the pilot is likely to accelerate the scaling process, and begin increasing intake once the three-month testing period finishes this summer. Eventually, the Varick Street facility may be able to take as many as 500 tons per day, with other city WWTPs potentially utilizing their excess capacity to accept the bioslurry, though the permitting process for the Varick Street scale-up has just commenced. As of now, there is not adequate tonnage being fed into the Newtown Creek WWTP to quantify the possible increased costs and additional gas production associated with the codigestion, but there are plans to take these measurements eventually. If and when the Varick Street facility augments its operations, commercial waste haulers would find their options for locally tipping source separated organic waste widen, and could bring down the cost and processing obstacles of organic waste currently hindering more robust organics collection in the commercial waste sector.

西姆斯的设备将处理金属, 玻璃以及各种塑料。这将是 20 多年来第一次使纽约市的便利回收项目实现扩张。西姆斯设备将通过把主要运输工具转为驳船帮助消除多达 260,000 英里的市内卡车行驶, 它也将创造 100 个新就业机会。

纽约市在 2013 年 4 月宣布将允许回收全部的硬质塑料并在年底在公共场所配置多于 1,000 的新回收容器。纽约市民将不再需要整理出硬质塑料以确保它们是否已正确的数量被回收。纽约市的回收扩大项目结束了关于回收困惑的时代, 也将在未来几年显著地提高垃圾转移量。

有机废物占了城市废物的大约 35%。在被填埋的有机废物中, 纽约市每年的废弃食物占了 120 万吨。纽约市的学校有多于 100 万的学生、老师和工作人员, 它们每年会产生成千上万吨的固体废物, 大部分都是废弃的食物。2012 年 9 月, 纽约卫生局在 68 所学校开启了分离有机废物做合成肥料的实验项目, 并几乎将此项目扩展到城市的所有学校。截至目前, 此项目已转移了参与此项目的曼哈顿区学校 34% 的垃圾和布鲁克林区学校 38% 的垃圾。每周该项目收取的垃圾中, 多于 20 吨的有机废物将马上被送去位于瓦里克街的废物处理设施的污泥中进行硝化, 并与在位于 Newtown Creek 的污水处理厂中的城市污水共同处理。这也是与 Newtown Creek 污水处理厂联合的厌氧消化试验项目的一部分。

Newtown Creek 污水处理厂有多余的能力

对未处理的有机废物进行共硝化。正在进行的实验项目每周可以处理来自与瓦里克街的 60 吨生物泥浆, 并计划在三年内将处理能力增加到每天 250 吨。原先的计划是经过一年的试验再扩张, 但是此实验项目很可能会加速扩张过程, 并计划在今年夏天, 也就是三个月试验期满后, 就开始增加处理接收量。最终, 瓦里克街的设施可能将能够每天接受 500 吨泥浆, 同时 Newtown Creek 污水处理厂使用他们多余的能力接收这些泥浆。不过, 瓦里克街设施扩张计划才刚刚开始进入许可申请阶段。就目前来看, 并没有足够的泥浆进入 Newtown Creek 污水处理厂因而不能量化可能增加的成本和随着共硝化而来的气体排放, 但是衡量这些成本与排放的计划正在进行中。如果可以, 那么当瓦里克街的设施增加了它的处理能力, 商业废弃物搬运工将有更多选择去倾倒分好类的有机废物。处理能力的增加也可以降低成本和减少阻碍现在商业废物中更强健的有机物收集的困难。

除了这些试验项目, 纽约市还在逐步增加纽约市民的农贸市场的有机物收集, 并将很快在一些独栋房屋的家庭里对街边收集进行试验。现在农贸市场的垃圾收集每周大概两吨, 但是一旦有额外的市场也提供收集服务, 垃圾收集量将会增加。对于五月开始的街边收集项目, 将有大约 3500 户家庭开始把他们分类的有机废物扔到路边由纽约卫生局特别设计的垃圾桶中。这个项目预计每周会额外收集大约 20 吨的有机废物。

In addition to these pilots, the city has been steadily increasing the greenmarket collection of organic waste from New York City residents, and will soon pilot curbside collection in select city single-family homes. Currently greenmarket collection stands at roughly two tons per week, but is expected to expand once additional markets start offering the service. For the curbside pilot, starting in May, roughly 3,500 homes will begin disposing of their source separated organic waste at the curb, using specially designed bins provided by DSNY. This is expected to yield about 20 tons per week of additional organic waste.

New York City restaurants generate the largest single stream of commercial food waste, generating roughly 320,000 tons per year, representing the greatest opportunity to reduce the volume of New York City's landfilled food waste. The Mayor's Food Waste Challenge is a voluntary challenge to groups within the private sector to match City government's goal to reduce the amount of food waste we landfill and achieve 75% diversion of waste overall from landfills by 2030. Participants in the Food Waste Challenge must reduce the amount of their food waste that goes to landfill by 50% from their base year, of which no more than 10% can come from documented non-organic waste reduction or diversion.



## CASE STUDY

### School Food Waste Composting Pilot

Organics suitable for source-separated composting make up almost 30% of the city's residential and institutional waste stream. This includes food scraps, compostable paper (tissues, napkins, soiled paper, paper plates, etc.), and other materials suitable for industrial-scale composting. By collecting this material, we can reduce the amount of materials sent to landfills and waste-to-energy facilities, reducing expensive export costs and GHG emissions, while generating a valuable material that can be used as fertilizer in the city's parks and gardens.

The Departments of Sanitation and Education launched a pilot program in 2012 to collect food waste for composting from New York City public schools. Students and kitchen staff collect organic waste from the cafeteria and kitchen using a dedicated food waste bin and the bins are set out for DSNY collection. The collected material is brought to a DSNY processing facility where it is either composted or used to generate alternative energy.

DSNY is also running the program in public agencies and institutions throughout the city. The program has enjoyed success to date and DSNY plans to expand it. The goal is to implement the source separated organics program in all City agencies and schools within the next few years.

**food waste**  
(no plastic, no Styrofoam)

napkins & paper boats	grains	fruit	vegetables	meat & dairy
napkin	bread	apple core	broccoli	meat
paper boat	crackers	banana	tomato	dairy
	cookies	pear	eggplant	
	rice	orange	spinach	
	fruit		potato	

Logos for DSNY, Department of Sanitation, and Department of Education are visible at the bottom.

纽约市餐厅每年要产生大约 320,000 吨的商业食品废物，是最大的商业食品废物供给源，因此也是纽约市减少填埋食品废物最大机遇。市长的食品废物挑战是一个志愿的挑战项目，私有部门可以与市政府的目标进行比赛以减少填埋的食品废物并帮助实现 2030 年的转移 75% 废物的目标。

此项挑战的参与者必须减少扔到垃圾堆的 50% 的食品废物(相比与基准年), 减少的食品废物中来自于无机废物的减少或转移不能超过 10%。

织物占据了居住和公共机构 8% 的废物量。2011 年春，纽约市启动再时尚纽约项目。该项目提供住宅建筑 10 个甚至更多个独立容器来装织物，把它们从垃圾填埋中转移出来并为“Housing Works”<sup>1</sup> 提供捐赠的衣物和其他纺织品。截至 2013 年春天，此项目以收集了超过 1,000,000 磅的衣物。

电子设备是最大以及发展最快的进入我们废物的有毒物质的组成部分。2013 年夏天，纽约市电子循环利用项目将启动，旨在为城市住宅提供十个或以上容器并提供免费的可自主选择方便的电子设备移除服务。



<sup>1</sup> “Housing Works” 是一个帮助纽约无家可归和低收入的爱滋病患者的非营利组织

## 案例研究

### 学校食品废物合成堆肥实验项目

适于源分离合成堆肥的有机物占了城市居住和公共机构废物的 30%。这包括食物废渣，可堆肥纸（卫生纸，餐巾纸，弄脏的纸，纸盘子，等等）以及其他适于在工业水平上堆肥的材料。通过收集这些材料，我们可以减少扔到垃圾堆的废物和变废物为能源的设施，减少昂贵的出口成本和温室气体排放，同时创造可用做城市公园和花园中肥料的有用的材料。

卫生局和教育局在 2012 年启动了收集从纽约市公共学校收集食品废物用作堆肥的实验项目。学生和厨房员工使用专用的食品废物容器从咖啡厅和厨房收集有机食品废物，之后这些容器将会送到纽约卫生局。这些材料会被纽约卫生局的处理设施买走并进行堆肥或生产能源。

## 食品废物

(无塑料, 无泡沫聚苯乙烯)







Textiles make up 8% of our residential and institutional waste stream. In spring 2011, the city launched the re-fashionNYC program that provides residential buildings of 10 or more units with separate containers for textiles, removing these materials from our landfilled waste and providing donated clothing and other textiles to Housing Works, a not-for-profit organization supporting homeless and low-income New Yorkers living with HIV/AIDS. By the spring 2013, more than 1,000,000 pounds of clothing have been collected through this program.

Electronics make up the largest and fastest growing component of hazardous materials entering our waste stream. In summer 2013, the e-cycleNYC program will launch, providing the city's residential buildings of 10 or more units with options for a free and convenient service to remove electronics. E-cycleNYC is a partnership between the City of New York and Electronic Recyclers International and receives funding from various electronics manufacturers. All electronics are processed domestically and recycled using the strictest industry and environmental standards available.

As part of the Comprehensive Solid Waste Management Plan, the City is also

exploring options for deploying an emerging waste management technology at a site in or near the city. The City views localized processing capacity, particularly anaerobic digestion of organic waste, as a critical way both to save taxpayer money and increase sustainability in the solid waste sector. Likewise, testing an innovative treatment technique ahead of other U.S. cities will give New York an edge in advanced, sustainable waste management and planning.

The pursuit of sustainable solid waste management in New York City is a long-term and complicated effort. We must pursue several strategies—increase the recycling capture rate, get residents and businesses to divert organic material from landfills, overcome permitting obstacles to introduce waste-to-energy and other innovative technologies, improve the quality of service in the commercial waste hauling industry, and strengthen the demand for recyclable materials—while also balancing the needs of local communities. Success will require continued commitment as well as creative thinking and better coordination between different levels of government. We know the critical metrics behind sustainable solid waste management, our task now is to delay no longer to reach these goals.



北岸海洋转换站

纽约市电子循环利用项目是纽约市与电子设备回收利用公司 (Electronic Recyclers International) 的合作项目，并获得了来自各种电子设备生产商的资金。所有电子设备均在国处理与回收，并遵守现有的最严格的工业和环境标准。作为固体废物管理综合计划的一部分，纽约市还在寻找与某地或城市附近区域实施一项新型废物处理技术的可能。纽约市正在审查地区的处理能力，特别是有机废物厌氧消化，作为节省纳税者开销和提高固体废物部门可持续性的重要手段。同样的，在其他城市之前率先试验创新性处理技术将为纽约实现先进的可

持续的废物管理和规划带来优势。纽约市追寻可持续的固体废物管理系统是一项长期而又复杂的过程。我们必须探索不同的策略：增加循环利用收集率，号召居民和商业从垃圾堆转移有机材料，克服许可障碍以引入变废为宝和其他创新技术，提高商业废物搬运产业的服务质量，和增加可回收材料的需求，同时也要平衡当地社区的需求。探索的成功需要持续的牡蛎和创新的思维以及不同层级政府间更好地合作。我们已经知道可持续的固体废物管理背后重要的指标，现在需要做的就是毫不迟疑的放手去做实现目标。