

COLUMBIA UNIVERSITY

IN THE CITY OF NEW YORK

INTEGRATED WASTE MANAGEMENT SYSTEMS EARTH ENGINEERING CENTER

Comments on NYC's Solid Waste Management Plan
December 20, 2004

Good evening. My name is Benjamin Miller. I am a research associate at Columbia University's Earth Engineering Center and I am providing these comments on behalf of the Center.

There is much in the Solid Waste Management Plan that deserves applause. For example:

- **Recycling:** The plan to encourage the expansion of the number of plastics types recycled by the Neu Company by offering economic incentives is a good one. To maximize the recycling rate we should be asking citizens to separate *all* plastic, then allowing market conditions to determine when it is cost-effective to recover and market those materials as opposed to leaving them in the residue stream for disposal. As we learned when the recycling of glass and plastics was turned off, it is difficult to train our citizenry to start and stop recycling particular materials; the easiest and best system is to collect for recycling anything that is likely to have the potential for marketability over time and to let market dynamics take over from there. Markets *can't* develop until the materials are first accessible in the recycling stream.
- **Composting:** The feasibility of the proposal to develop an in-vessel facility for the Hunts Point food market is supported by the city's successful experience with the Rikers Island composting plant. More such facilities are needed in the city, for both public and private source-separated kitchen waste from institutions and restaurants.
- **Transfer/transport:** The proposed reliance on rail and barge transport will produce major environmental benefits both locally and regionally due to a reduction in truck miles travelled. The proposed dispersion of transfer facilities throughout the city, including the proposed use of the 91st Street MTS for waste generated within nearby areas, will also produce significant reductions in truck miles travelled, relative to current conditions. The use of additional transfer facilities—such as using the 135th Street MTS to load metal, glass, and plastics onto barges for shipment to the Neu plant on the Brooklyn waterfront, as suggested below—

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would offer further environmental and cost benefits over the course of this long-term plan.

- Control over facilities: The fact that the City will maintain control over the South Brooklyn waterfront property that will be used by the Neu materials recovery facility will help to allow the possibility of market competition after the initial contract term has expired. Such competition is essential if the city is to maintain any control over future pricing. For that reason the maintenance of City control over several of its proposed transfer facilities—the Marine Transfer Stations—should also prove beneficial to the City. But to the extent that the City proposes reliance on private transfer facilities on sites to which it will not have fair-market access at the end of the contract term, it is facing the risk that there will be no effective competition over time, so that winning vendors will have an indefinite virtual monopoly for those waste sheds.

But there are important areas in which the plan at present is inadequate.

The most important of these is that, with the exception of the proposed long-term government-to-government contract for access to the Port Authority's Essex County Waste-to-Energy Facility, it fails to address facilities for disposing of that portion of the city's waste stream that it will not be feasible to handle through prevention, recycling, or composting.

In the absence of any proactive plan to develop or acquire disposal capacity, the city will be forever dependent on the private landfill market. The greatest problem with this is that it will mean a constant escalation of prices, which it will be beyond the city's power to control. A second problem is that, while we will always require access to a certain amount of landfill capacity for wastes that cannot be processed by other means, landfilling will not only be, in the long-run, the most expensive waste disposal alternative, but is also the most damaging to the environment and the most threatening to public health.

Between 1996, when the decision to close Fresh Kills was announced, and the present, landfill prices in the East Coast region most accessible to New York have increased dramatically. They are projected to increase another 60% for the period between 2002 and 2010.¹ The average per-ton contract price that NYC has paid to export its waste to these landfills has increased by a third since we started exporting in FY98, from \$52 a ton to \$69 in FY04, while the private sector's costs increased 50% by 2003. For next year, the Sanitation Department has accepted four bids to dispose of Manhattan's waste. The highest of these, at \$90 a ton, is 73% higher than the city's first contract bid, in 1997.

The lowest—at \$75 a ton, which is only 44% higher than our first contract 7 years ago—is for the Essex County Incinerator.ⁱⁱ

In 2002, Pennsylvania imposed a tax of \$4 on every ton of waste disposed of in the state. Last year, although it has not yet been adopted, an additional \$5/ton fee was proposed. Such levies are one means at states' disposal for restricting the amount of waste they accept from other states. There are other means as well. Landfills in the states of Rhode Island and Delaware are closed to out-of-state waste because these states have taken the prudent step of creating statewide waste-management authorities so that they can control their own waste-disposal destinies. New Hampshire has considered doing the same. South Carolina has instituted regulations that, by capping landfill capacity, impose limits on the amount of waste that can be imported.ⁱⁱⁱ National legislation to restrict interstate waste shipments is a distinct future possibility. Cumulatively all these measures will have the effect of raising even further the price New Yorkers will have to pay for the privilege of exporting our waste.

Since we will always need some landfill capacity to serve NYC's needs, we must develop means to control the long-term costs of this capacity. There are only two ways to do this. One is to develop or acquire landfill capacity either alone or in cooperation with some larger governmental entity such as New York State, a state or regional authority, or some consortium of local governments. The other is to obtain access to such capacity through a long-term contract, such as a lease of airspace. Given the dynamics of the inter-state transport situation I mentioned and the fact that New York State encompasses within its boundaries as much area potentially suitable for landfilling as does any other state, it clearly would be prudent and appropriate to begin at once to develop or acquire such capacity within New York State. While this process is underway—since it will take some time—we should acquire long-term access to any landfill capacity wherever it can be obtained most quickly and at the least overall cost.

Developing public control over landfill capacity is one thing we should do to minimize the impacts of our waste management system on the city's economy. But to reduce those impacts further, as well as to reduce the environmental and public health impacts imposed by exporting our waste, we need to do more. We need to process wastes that cannot feasibly be prevented, composted, or recycled to reduce the volume that requires landfilling. In the future other technologies may be available on the scale that New York City requires that will operate reliably and cost-effectively. At present, however, the most-established and most widely-used such technology is some form of waste-to-energy processing. Such facilities—in Hempstead, Babylon, and Islip, Long Island, Westchester, Dutchess, Oswego, and Onondaga Counties; Niagara Falls and Hudson Falls, NY; or across the river in Newark, Camden, Rahway, Oxford, and Westville, NJ, Hartford and Bridgeport, CT, Claremont, NH, Rochester, MA, Portland, ME, or, heading in the other direction—Lancaster County and Chester, Conshohocken, Manchester, and Morrisville, PA; Baltimore, MD; Alexandria, Fairfax, Hampton, Harrisburg, and Portsmouth, VA—to name just a few, have long been relied on to reduce waste volume at the least overall economic and environmental cost.^{iv} Because of WTE's clear environmental advantages over landfilling, the European Union—whose members

operate waste-to-energy facilities in Austria, Denmark, France, Germany, Great Britain, Hungary, Italy, the Netherlands, Portugal, Spain, Sweden, and Switzerland—has directed that the landfilling of combustible materials cease within the decade. To reduce its waste-management impacts, China recently built seven waste-to-energy facilities.

While landfill costs will continue to increase rapidly, in part because of the offsetting effect of future energy prices, waste-to-energy costs will rise more slowly. In New Jersey, according to state officials, the costs are now equal;^v in the near future, waste-to-energy is likely to be less expensive throughout the East.

From an environmental perspective as well, waste-to-energy is clearly preferable to landfilling. Every ton processed in a waste-to-energy facility eliminates the need for importing a barrel of oil. Energy recovered from waste-to-energy facilities produces fewer emissions than does energy produced by burning coal or some grades of oil. And because combusting waste avoids the production of the landfill methane that would otherwise be produced, each ton of waste that is burned produces a net *reduction* of greenhouse gases by the equivalent of 1.3 tons of carbon dioxide.^{vi}

Unlike a landfill, a waste-to-energy facility *could* be developed within New York City. But it needn't be—just as we must procure landfill capacity outside the city limits, we could also develop or procure additional waste-to-energy capacity outside the city, as we are already doing in the case of the Newark facility. Even if it isn't within NYC, it is likely that WTE capacity can be obtained that is significantly closer to NYC, thus offering the potential for a significant decrease in the economic and environmental costs of transporting waste hundreds or thousands of miles to a landfill.

In order to reduce the cost of transporting waste to remote landfills, it is essential that the City contract directly for freight service with the railroads, rather than simply relying on the waste-management companies to act as middlemen. The city's long-term volume will offer the negotiating clout needed to lower prices, while increasing competition for both transfer and landfill bids.

The plan should also include economic incentives for reducing the amount of waste generated. As the experience of thousands of US towns and cities has demonstrated, the most effective way to reduce waste generation is by instituting some form of “pay-as-you-throw” system. Since property owners would receive a reduction in their property taxes equivalent to the amount they now pay for their pro rata share of the city's overall waste-management bill, and instead pay only for disposing of the volume of wastes that they themselves produced, such a system, as Councilman Michael McMahon has pointed out, should more properly be referred to as “*save-as-you-throw*.” While implementing this critically important waste-prevention system will require some time, an immediate step that could—and should—be taken is forbidding the collection of grass-clippings and yard waste. This measure alone could reduce the city's waste-disposal budget by millions of dollars a year.

Because of the critical importance of minimizing truck miles travelled over the course of this long-term plan for reducing congestion, emissions, and costs, we should do everything possible to reduce the distance between the end of the collection route and the dump site. Among other things, this means that rather than hauling recyclables all the way from the tip of northern Manhattan to Gansevoort Street, we should take advantage of the excellent existing transfer station at West 135th Street for transferring recyclables. Similarly, in addition to using the 59th Street MTS for commercial waste, we should provide for the transfer of recyclables collected in the adjacent Community Boards.

As for the question of how commercial waste should be drawn to the 59th Street MTS—a proposal that will produce significant benefits from reduced truck miles travelled—the ultimate answer (since flow control would be problematic) is a franchise system for commercial waste collection, under which franchise winners would be required to transfer waste there. Franchising is the best long-term option for doing this because of the other potential benefits it offers, the most important of which is the possibility of rationalizing private collection routes so that multiple trucks from multiple firms would no longer make stops on the same block, thus significantly reducing truck miles. Franchising would also offer the opportunity for instituting other controls on carting companies (such as requiring the use of clean-fuel vehicles and restricting waste collection and transfer to specified hours), as well as offering a more-formal competitive structure that could reduce the price businesses pay for waste removal. Since establishing a franchise system could take some time, however, in the near-term the City may well find that the benefits of reducing truck miles by attracting commercial waste to West 59th Street may outweigh the cost of providing subsidized transfer and disposal services to private carters.

Another source of savings could come from adjusting the DS's collection system to take advantage of the potential efficiencies offered by different neighborhood conditions. Just as the two-compartment recycling trucks are a source of cost-savings in lower-density areas, the type of semi-automated ("robot-arm") collection systems that are widely used in other localities would allow less-expensive collection in neighborhoods where single-family housing predominates. Such a semi-automated collection system would also make volume-based save-as-you-throw systems easier to implement in these areas.

Thank you for the opportunity to offer these comments on behalf of the Earth Engineering Center. We would be happy to be of assistance to the City in any way that we can as New York moves ahead with efforts to address its pressing waste-management needs.

ⁱ Johnson, Kirk, "To City's Burden, Add 11,000 Tons of Daily Trash," *NYT*, 2-28-02

ⁱⁱ Elizabeth Franklin, NYC Independent Budget Office, telephone interview 12-17-04, and NYC Comptroller (Chris Boyd, author), *No Room to Move: New York's Impending Solid Waste Crisis*, October, 2004.

ⁱⁱⁱ *Ibid.*, p. 42

^{iv} Kiser, Jonathan V. L. and Maria Zanes, "The 2004 IWSA Directory of Waste-to-Energy Plants," Integrated Waste Services Association, http://www.wte.org/2004_Directory/IWSA_2004_Directory.html

^v Kaufman, Scott M., Nora Goldstein, Karsten Millrath, Nickolas J. Themelis, “The State of Garbage in America, *Biocycle*, 1-2004, p. 36.

^{vi} Themelis, Nickolas J., “An Overview of the Global Waste-to-Energy Industry,” *Waste Management World*, July/August 2003, pp. 40-47
(http://www.seas.columbia.edu/earth/papers/global_waste_to_energy.html).