

## A GARBAGE RECYCLING PROGRAM FOR NEW YORK CITY

**HARRISON J. GOLDIN**

*Office of Comptroller*

*City of New York*

### ABSTRACT

A legislative initiative addressing recycling of solid wastes in New York City. The material presented in this article is much as it was originally prepared by Harrison J. Goldin, Comptroller of the City of New York with the assistance of Walter Bortko, P.E., of his staff, and includes the basic technical and economic bases on which the program was recommended. Also appended are testimony regarding a related bill requiring the City to recycle paper, copies of a "Memorandum in Support" of the bill, and a copy of a "Local Law" as proposed for enactment by the City Council. These materials provide a look at the technical and economic aspects of this nationally significant issue and illustrate the legislative process in a city whose solid wastes disposal problem is truly gargantuan and where the need to find practical solutions is critical.

Recycling is the most environmentally acceptable way in which to dispose of refuse—it eliminates burning and burying.

Garbage recycling programs have been used successfully elsewhere and, in tandem with the planning of a resource recovery plant system, now is the time to implement such efforts in New York City. A well-conceived recycling program could reduce the quality of garbage needing disposal in other ways by some 20 percent. This could eliminate the need for one or even two resource recovery plants.

New Yorkers understand that the City is running out of landfill. Given concern with the air pollution problem of resource recovery plants and sanitary landfills, substantial participation in a recycling program is likely. Extensive municipal garbage recycling programs are operating in communities as diverse as Groton and New London, Connecticut, Montclair, New Jersey, Islip, New York, and Minneapolis, Minnesota. More and more communities around the country

have a mandated recycling component in their garbage disposal programs; Essex County, New Jersey and San Diego, California are examples. New legislation in New Jersey to establish the first statewide garbage recycling system in the nation has been signed by the Governor.

The recycling impetus is growing as garbage collection and disposal costs increase rapidly. Average all-inclusive collection costs for New York City's Department of Sanitation are some \$90 a ton. Additional costs for disposal are \$15 a ton for truck-fed landfills, \$25 a ton for the barge-fed Fresh Kills, Staten Island landfill, and \$40 a ton for incineration. The weighted average of these methods of disposal is \$22 a ton. By contrast, disposal costs at a resource recovery plant are expected to run about \$40 a ton.

A recycling program calculated to remove just 20 percent of the City's garbage would produce economies exceeding \$500 million in resource recovery plant construction costs. Total capacity of resource recovery plants could be reduced by 4,400 tons per day; at \$40 a ton, this would reduce garbage disposal costs by over \$52 million a year (\$32 million involving the Department of Sanitation; the balance, private carters). Actual economies, however, would be less since collection costs involved in recycling could be as much as \$13 million higher than at present. The savings would pay for the total \$15 million capital cost of the program in nine months or less.

A 20 percent recycling program would also reduce pollution from resource recovery plants by over 10 percent and ash residue from landfills by nearly 300,000 tons a year because of lessened burning needs for paper, bottles, and cans. Proceeds of the sale of recycled material would cover operational costs. In addition, 700 low-entry jobs (sorting paper and glass off conveyor belts) would be created, allowing the gainful employment, too, of some of the handicapped and retarded. Perhaps some 2,000 additional jobs would be created for the reprocessing of such recyclable material as paper, glass, and tin cans. These 2,700 jobs would generate a payroll exceeding \$30 million a year, producing millions of dollars in additional tax revenue.

An important reason for the growing interest in recycling waste materials is the movement to reduce costs by substituting scrap for virgin components. For instance, recycled materials are less expensive because there is a 95 percent savings in energy by recycling aluminum and 55 percent for steel. Also, 1.17 tons of old newsprint produces one ton of new newsprint, saving seventeen trees plus landfill space.

A recycling program involving a 20 percent reduction in waste volume is attainable in New York City. The New Jersey State Recycling Plan has set a 25 percent recycling goal by 1995 for its solid waste. Groton, Connecticut, with 40,000 people, is already recycling 16 percent of its residential solid waste without really pushing the program, even though, like New York City, the pool of available recyclable material has declined somewhat because of a "Bottle Bill."

New York City should implement a 5-point pilot recycling program involving:

1. voluntary curbside pick-up of mixed recyclable materials in an entire community board in Queens or on Staten Island;
2. expansion and development of buy-back and processing centers for recyclable materials like R2B2 in the South Bronx and at East 127th Street in East Harlem;
3. community group involvement in the establishment and operation of drop-off facilities at which recyclable materials could be sold to help finance appropriate community activities;
4. utilization of roll-on or lift-on containers for recyclable materials at large apartment houses; and
5. greater involvement of private carters in the garbage recycling program through the elimination of tipping fees for recyclable materials dumped at conveniently located processing centers.

This report elaborates on each of these points.

Recycling should start as a voluntary program. Gradually, additional community boards can be introduced into an ever expanding program. Once material processing centers and a curbside collection system are functioning smoothly with markets for recyclable materials established, it can be made mandatory on a City-wide basis. The non-sorted garbage of private carters could be refused at City operated landfills or transfer stations. If a recycling program is to work, it must be mandatory and include commercial solid waste.

Widespread public participation in a recycling program can be promoted through an extensive educational campaign coordinated by the Department of Sanitation and involving the media and environmental and community organizations.

## **COLLECTION OF RECYCLABLE MATERIAL**

To obtain the requisite high percentages of public participation, a recycling program must be simple. Hence, the only separation of garbage that should be required involves mixed papers (newspapers, magazines, cardboard, etc.) and "kitchen mix" (glass jars, bottles, and all sorts of aluminum and metal cans which need not be washed or delabeled). The mixed papers can be bagged, boxed, or bundled and the "kitchen mix" placed in designated garbage cans. Further separation occurs at the processing center through revolving screens, magnets, and hand sorting, while the waste travels along conveyor belts.

## **CURBSIDE PICK-UP**

Initial recycling should involve a volunteering community board in an area that lends itself best to curbside pick-ups of mixed recyclables. While either

Queens or Staten Island would do, the former would be preferable economically because of the relatively higher cost of barging garbage to a Staten Island landfill or incinerating it (\$25 and \$40 a ton, respectively), as opposed to the cost of trucking waste directly to a landfill (\$15 a ton) as when collected on Staten Island.

In a demonstration program in Queens, mixed recyclables would be set at the curb along with other garbage, but in clearly marked garbage cans. Decals provided by the City through the community board would be applied by each householder on his or her own garbage can (plastic bags would not be allowed; they are not recyclable and a nuisance in the processing of recyclables).

City garbage trucks would tow a two-ton, ten cubic yard capacity trailer with hinges, aluminum mesh sides for easy loading and unloading. When fitted with custom side racks these brake equipped trailers cost less than \$4,000 a piece, including the cost of installing a trailer hitch on a garbage truck. An entire community board, say 110,000 people, would require about twenty-five trailers; the total cost would be less than \$100,000. Sanitation workers would dump the "kitchen mix" in one compartment of the trailer and the separately bundled mixed paper in the other compartment, in addition to collecting non-recyclable trash.

This method of collection would neither reduce service nor require the Department of Sanitation to pick up more garbage or make more stops than it does now. It would require the handling of more containers than at present. According to Mr. Andrew Sims, City Engineer for New London, Connecticut, little additional collection time is required once the system is rolling. New London has successfully utilized a curbside collection system for over five years. A few months into the recycling program, the municipal sanitation workers were able to complete their usual routes, loading the trailers with recyclable garbage, in about the same time it had taken prior to the introduction of recycling. Sanitation workers in New London are 100 percent unionized on a union shop basis and operate only rear loading garbage trucks with either two or three person crews. In over five years of operation, there has not been an accident attributed to the towing of trailers. New York City's side loading garbage trucks should facilitate even smoother collection.

## **INCREASED COLLECTION TIME AND COST**

In observing garbage trucks in Manhattan and Queens, we noted that only 36 percent of collection time on average is attributable to the handling of garbage containers by collectors between the curb and the truck. Most of the time involved is consumed by travel between stops and traffic delays, including stop lights and maneuvering into proper loading position.

A 50 percent increase in the number of containers handled due to separating 20 percent of all garbage collected for recycling (with no additional weight or volume of garbage) might increase total route collection time by 18 percent, or some forty minutes per shift. With the additional time consumed in dropping a

loaded trailer at the recycling center adjacent to the truck unloading site and picking up an empty trailer on the way out, the working time for each truck load could increase twenty minutes over the time involved at present. Hence, the collection time could rise by one hour per crew shift.

Maximum additional collection costs to the City would be some \$12.2 million a year, based on one hour overtime a day per collection truck crew (City-wide), six days a week, fifty-two weeks a year, and over time pay rates of about \$17 per hour. About 1,000 garbage collection trucks work on an average day, with a total of 2,300 drivers and collectors.<sup>1</sup>

The additional collection costs of \$12.2 million a year could be reduced if the City implemented sanitation management reforms called for in Comptroller's Office audits.<sup>2</sup>

The City began a small, but costly recycling experiment involving only newspaper collections in densely populated Greenwich Village. Our contention is that the first community board involved in demonstration garbage recycling program should have been one in which City trucks ordinarily collect only one load a shift. This would have involved a less densely populated area with a somewhat longer collection route and greater unloading distances. Since slack time on collection shifts in such areas tends to be greater than elsewhere, should program recycling add even one hour to the collection process, it would likely be accommodated within the ordinary eight-hour shift. Some 40 percent of the City's garbage trucks carry only one load a shift. The rest manage two loads a shift, generally in more densely populated parts of the City.

Further decrease in the additional collection time needed for a recycling program could derive from the 20 percent incremental garbage capacity of the truck-trailer combinations. More garbage could be loaded each collection shift, with routes elongated since recyclable materials loaded onto trailers would make room for more garbage that could be loaded onto trucks.

### **Other Curbside Collection Systems**

Combining regular garbage collections with simultaneous trailer tow pick-ups of recyclable materials is preferable to other arrangements used elsewhere, e.g., Islip, Long Island and Minneapolis, Minnesota. It maintains the existing garbage collection schedule, does not require collection duplication, and is more convenient for householders.

<sup>1</sup> 2,300 men × 6 days a week × 52 weeks a year × \$17 in overtime an hour = \$12,199,200 a year (no fringe benefits are paid for overtime).

<sup>2</sup> For example, our audit number ML83-502 of the Department of Sanitation's Bureau of Cleaning and Collection reported that the Department does not enforce the requirement that garbage collectors sweep or do similar work while collection trucks unload. We also observed that most trucks and crews return early to their garages in advance of the end of the normal work day, with 20 percent of the work day wasted as a result. This appreciable slack in the garbage collection process could surely absorb some of the additional collection time required for curbside pick-ups of recyclable materials.

By contrast, Islip uses private carters to collect only recyclable materials once a week. As a result, the number of regular garbage pick-ups is not as great as it would be otherwise. Also, all recyclable materials are mixed together at pick-up and compacted in the garbage collection truck; this adds to the work involved in later separating the different materials.

Minneapolis, Minnesota pays private recyclers \$10 to \$17 a ton to pick up separated clear glass, colored glass, newspapers, cardboard, and metal cans at curbside. The recycling program is voluntary, with the amount of garbage recycled still low, only about 6 percent. Block captains remind residents when the once a month pick up of recyclable materials is approaching. In addition to having to pay private recyclers, residents must store the material for its once a month pick up; then are burdened, therefore, with the further inconvenience of having to rinse bottles and cans. Also, one or two of the private recyclers with the lower contracted payments per ton reportedly fail to pick up the recyclable materials on schedule according to contract. Given the inconvenience and erratic nature of this system, it is hardly surprising that participation involves a disappointingly low of 6 percent of the City's solid waste.

### **BUY-BACK CENTERS**

A handful of recyclable waste buy-back centers operate successfully in New York City. One is the R2B2 center in the South Bronx, where over 2,000 tons of materials are recycled each year. Such centers seem to work best in less affluent parts of the City where the economic incentive involved in selling recyclable materials is greatest. The buy-back center pays those who collect recyclable items about a penny a pound for glass, tin cans, and paper, and twenty-five cents a pound for aluminum.

A network of private or community operated buy-back centers needs to be established in the City. Besides providing low skilled jobs, they reduce the cost of garbage collection.

Like curbside collection, every ton of recyclable material sold to a buy-back center reduces the amount of garbage the City must pick up and dispose of by a like amount. Hence, buy-back centers can save \$90 a ton in garbage collection costs and \$40 a ton for disposal costs—a total of \$130 a ton! To expand buy-back centers, the City should:

1. provide City-owned garage or warehouse space at nominal rent such space is available in less affluent parts of the City;
2. provide low-cost loans for the acquisition of processing equipment through the Industrial Development Agency;
3. increase public awareness of recycling through neighborhood school and community group programs; and

4. subsidize payouts to those selling recyclable materials by an average \$10 a ton for non-bottle bill material (if buy-back centers received 10 percent of the recycled residential waste, they would account for 80,000 tons a year involving an annual subsidy of \$800,000 and a City collection and disposal savings of over \$9 million a year ( $\$130 \text{ less } \$10 \text{ subsidy a ton} \times 80,000 \text{ tons} = \$9.6 \text{ million}$ ).

### **COMMUNITY DROP-OFF LOCATIONS**

The Department of Sanitation should encourage community groups to establish and operate places for the dropping-off of recyclable materials at shopping plazas, public buildings, and large apartment complexes. They could sell the material directly to private recyclers and use the revenue for community activities. Again, every ton diverted from the City's regular waste stream in this manner would result in a municipal savings of \$130.

### **APARTMENT HOUSES AND COMPLEXES**

Apartment houses can be required to separate recyclable materials into appropriately marked containers for curbside pick up along with their other garbage. Many apartment houses use garbage compactors; and, in order to avoid injury from broken glass, they require tenants to set aside all glass containers from other garbage. The glass is collected by the custodian and placed at the curb for Department of Sanitation pick up and disposition in City landfills. At the same time, the City's largest paper recycler, A. and R. Labosco, Inc., reports an increase in the number of apartment complexes bringing old newspapers to its facility in Flushing, Queens. It has been paying \$25 a ton for the paper.

### **PRIVATE CARTERS**

Private carters which pick up commercial solid waste have a strong economic incentive to participate in a recycling program, as is now being done to some extent with high grade office paper and cardboard. City regulations now limit charges by private carters to \$9.31 a cubic yard for collection and disposal of loose solid waste. About 30 percent of this fee is paid to the City for dumping at municipal landfills (60% if dumped at an incinerator or a marine transfer station).

Private carters would not be charged a fee for the disposal of recyclable materials at recycling centers, thereby reducing their cost and providing an additional incentive to recycle. With City fees now \$11.75 per compacted cubic yard at landfills and \$20 at incinerators or \$17.50 at marine transfer stations, private carters could save some \$175 to \$350 a truck load in disposal fees alone for recyclable material.

## RECYCLING CENTERS

In addition to buy-back centers, the City would need about twenty recycling centers throughout the five boroughs, preferably at landfills, marine transfer stations, incinerators, or sites of future resource recovery plants. Each recycling center would have an ultimate processing capacity of about 200 tons a day.

For the pilot program the City would need an unheated, high ceiling, 6,000 square foot building with truck entrances and a concrete floor, as well as an open sided storage shed of about 6,000 square feet. Such a new structure would cost about \$450,000.

A recycling company would probably ask the City to support an application for an Office of Economic Development low interest loan to help finance the purchase and installation of about \$200,000 worth of processing equipment for the first of two production lines. While the recycling company would be responsible for the marketing of all recycled materials, the City would have to accept for disposal the approximately 10 to 15 percent unrecyclable residue, at no fee.

## STATE GRANTS FOR RECYCLING

According to the office of former New York Assembly Speaker Stanley Fink, \$3 million of State aid on a 50/50 matching basis is available to New York City for resource recovery and recycling under Title 5, Article 27 of the State Conservation Law. Any and all of this money is available to fund recycling programs. Yet, the Department of Sanitation does not plan to use much, if any, of it for this purpose. The State and the Department of Sanitation are negotiating on how the \$3 million should be spent. Were the entire \$3 million spent for recycling, 20 percent of the City's capital cost of \$15 million to create a City-wide recycling program would be covered. (On the other hand, \$3 million represents only about one-tenth of 1 percent of the cost of a resource recovery program which would be about \$3 billion.)

To encourage the recycling of solid municipal waste, New York State enacted the "Environmental Quality Bond Act" of 1976. It assists municipalities to finance solid waste source separation and recycling activities. Of the original \$1 million in the grant-in-aid fund, \$492,000 is still available. To date, New York City has received one \$30,000 grant for the recycling of waste paper by the Department of General Services; another for \$50,000 is pending for the East Harlem Recycling Center. The Act provides for matching grants to municipalities of up to \$50,000 per project to finance the acquisition of solid waste recycling equipment, including trailers to receive recyclable materials towed by the City's sanitation trucks. Moreover, it appears that each separate order of trailers for the use of a community board would be considered a separate project. The grant-in-aid can also be used to finance the purchase of

recycling equipment at processing centers, provided they are situated on City property or are under lease to the City for at least two years.

## MATERIALS MARKETS

For recycling programs to succeed there must be markets for the materials they produce. According to materials brokers and processors we have consulted, acceptable qualities of recyclable paper, glass, and metal can nearly always be sold, with the market generally expanding. Moreover, Dr. Neil Seldman, Director of Waste Utilization for the Institute for Local Self Reliance, confirms that the foreign market for baled waste paper in South America, Europe, and Asia is expanding, as well, by hundreds of thousands of tons per year.

Garden State Waste Paper Co., which is processing 270,000 tons of old newspaper a year at its Garfield, New Jersey plant, cannot get enough paper for its recycling operation, with its inventory down to a dangerously low 45,000 tons, compared to 90,000 tons in 1981. It pays \$50 a ton and will also collect the baled newspapers in truck load quantities. Garden State also provides baling machines to large customers, in addition to long-term contracts at fixed prices. Steve Batty of Garden State Waste Paper Co. indicated that the company opened two newspaper collection depots, in Providence, Rhode Island and Stratford, Connecticut, shortly after the New York City Department of Sanitation refused to encourage newspaper recycling in the City in 1980.

Mr. Batty indicated that the Korean and Taiwanese market alone, supplied from New York Harbor, has increased 500 percent in the past four years, to 50,000 tons per year (TPY). The estimate is that, even without any official municipal encouragement, some 20 percent (45,000 TPY) of the old newspapers generated in New York City are being recycled by waste paper dealers working with apartment custodians and tenant and community groups. Garden State Waste Paper Company indicated that it stands ready to buy virtually all the old newspapers that New York City can supply.

The Vulcan Materials Company in Elizabeth, New Jersey processes about 40,000 tons per year (TPY) of tin cans and appears ready to take under a long-term contract virtually all supplies it is offered. Vulcan pays about \$70 a long ton delivered to its plant.

Thatcher Glass Company processes over 30,000 TPY of glass cullet at its plant in Wharton, New Jersey. Although because of New York State's "Bottle Bill" the market for recyclable glass is a bit soft, Thatcher Glass indicates its readiness to enter into long-term purchase contracts for large quantities of "furnace ready" cullet, i.e., glass sorted by color and crushed into granules that are ready for the melt down furnace without further processing. The price is \$45 a ton for amber, \$50 a ton for flint, F.O.B. its plant in Wharton. Green glass is \$35 a ton, F.O.B. its plant in Elmira, New York.

A study by Essex County in New Jersey of solid waste management (April 1983) concludes: "Most of the markets contacted indicated that they had the capacity to accept the amounts of materials projected through this study" (over 170,000 tons of material a year).

Peter Karter, President of Resource Recovery Systems, Inc., maintains that the market is ready to absorb New York City's recyclable solid waste (1.3 million tons a year at a 20 percent rate of recycling) provided that it is of reasonable quality, so long as the supply is introduced into the market gradually over a five-year period and is provided on a steady, uninterrupted basis.

Under a New York City recycling plan, private materials processors should be responsible for their remanufacture outlets. They know the market and how to cope with it.

With many outlets located in New Jersey, New York City has the advantage of proximity over other suppliers of recyclable materials, like Long Island and Connecticut. However, since New York's "Bottle Bill" went into effect several years ago, New Jersey has been increasing its recycling efforts; consequently, more glass, paper, plastics, and metals are and will be recycled. To increase the market for these recyclable materials, New York City and State should encourage the use of recycled paper, glass, plastics, and metals through legislation, economic development of recycling industries, and expansion of overseas markets.

Efforts to expand the recyclable market should proceed in tandem with the City's garbage recycling program over the next five years. The objective should be to condition the market to progressive increases in recycled materials.

Among the available techniques through which the City and State can encourage the development of industries utilizing recycled materials are tax abatements, low interest loans, and a guaranteed supply of recyclable material.

## **A PUBLIC RELATIONS PROGRAM**

A successful City-wide garbage recycling program requires an informed and educated public. The benefits and operations of the program can be publicized through the mass media, as well as schools and community boards and groups. A "recycling" campaign as large as the "save water" effort of 1980-81 and the more recent "anti-litter" campaign is indicated.

The successful "save water" effort of 1980-81 cost the City about \$300,000, for television and radio production (\$50,000) and for posters, flyers, buttons, and ad agency fees (\$250,000). Television and radio time was donated as a public service; no increase in staff was required at the City's Department of Environmental Protection.

With the "save water" campaign as a model, a four- to five-year recycling campaign should cost an average some \$150,000 a year, assuming free television and radio time, and involve no likely increase in the staff of the Department of

Sanitation—it already has an Office of Public Participation and Recycling and an Office of Community Services.

## TIME TABLE

New York City could have a recycling program under way in all five boroughs that would eventually remove 20 percent or more of its solid waste stream, before the City's first resource recovery plant becomes operational in 1988 or 1989.

The City should encourage the creation of two additional buy-back centers in the first year of the program; this might require subsidies totaling some \$60,000. The pay out being \$10/ton of recyclable material processed. The subsidy would be offset by reducing the amount of waste required to be collected by the Department of Sanitation at a cost of \$90 a ton. One or two recycling centers should be established at a cost to the City of about \$450,000 each. Also, the first two or more community boards can be incorporated into a voluntary curbside pick up program. Collection trailers would be purchased and outfitted to the City garbage trucks at a cost of about \$100,000 a community board. An education and publicity program would be implemented by the Department of Sanitation on the many benefits of recycling, especially in the community boards initially designated for the program. Also, community groups throughout the City would be encouraged and assisted in establishing drop-off stations for recyclable materials.

The City's expertise developed during the first year of the recycling program should serve well the second and third years permitting an accelerated growth of additional community boards incorporated into the recycling programs. By the fourth and if necessary the fifth year, the City-wide recycling program should be fully operational at which point it should then be made mandatory. Not only would the four or five years permit the City to establish an infrastructure of recycling centers, buy-back centers, and community drop-off locations, it will permit a gradual development of private industry's capacity to accept and process an additional 1.3 million tons of recyclable materials a year.

## COSTS

New York City's direct capital costs in a fully implemented recycling program are likely to approximate:

- |   |                  |
|---|------------------|
| • For construction of twenty recycling centers on City property, at \$450,000 each  | \$ 9,000,000     |
| • For 1,500 ten cubic yard trailers, at \$4,000 each  | <u>6,000,000</u> |
| Against this total capital investment of \$15,000,000 by the City, the possibility exists that the City could receive up to \$3,000,000 in State aid. | \$15,000,000     |

Direct annual operating costs for the City in a fully implemented recycling program are likely to run as follows:

- An annual subsidy to buy-back centers, calculated to cover a maximum 80,000 tons a year, at \$10/ton – \$ 800,000/year
  - For education and promotion of the recycling program by Department of Sanitation staff, including printing and advertising costs – \$ 150,000/year
  - For the maintenance and repair of trailers and recycling center buildings – \$ 350,000/year
  - Additional collection costs for the Department of Sanitation: one hour overtime a day for 2,300 sanitation workers, at \$17/hour X 312 days a year – \$12,200,000/year
  - Recycling and buy-back centers should be privately financed, with the costs involved subsidized through tax credits and low interest industrial development loans; their operating costs should be covered by revenues from the sale of recyclable materials.
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- Direct annual operating costs for the City will approximate – \$13,500,000/year

### SAVINGS

The savings to the City of New York in a fully implemented recycling program should run as follows:

- The required capital investment in resource recovery plants in the City would be reduced by the quantity of waste recycled, i.e.,  $20\% \times 22,000\text{TPD} = 4,400\text{TPD} \times \$124,000 =$  \$546,000,000/year
- The resulting annual reduction in fees and direct savings to the City would aggregate  $20\% \times 4.1$  million TPY  $\times \$40/\text{T} =$  \$32,800,000/year
- If private carters utilize the City's resource recovery plants, the savings in fees to them will be  $20\% \times 2.6$  million TPY  $\times \$40/\text{T} =$  \$20,800,000/year

Direct savings to the City would range from \$19.3 million<sup>3</sup> to \$31.5 million a year, depending on additional collection costs. The anticipated annual savings would be sufficient in six to nine months to finance the capital expense necessary to implement recycling (exclusive of any State aid).

<sup>3</sup> \$32,800,000/year (reduced disposal costs) less \$13,500,000/year (maximum increase in operating costs) = \$19,300,000/year (savings).

## CONCLUSION

The City should immediately implement a pilot garbage recycling program. Within five years, before the first proposed resource recovery plant is operational, 20 percent of the solid waste disposed in the City would reasonably be expected to be recycled, amounting to 4,400 TPD or over 1.3 million tons a year of recycled cans, bottles, and paper. An ancillary benefit would be the creation of at least 700 relatively unskilled jobs at twenty recycling centers and perhaps an equal number at twenty buy-back centers.

A fully implemented City-wide recycling program could reduce the need for the last one or two now planned huge resource recovery facilities or would allow an overall 20 percent reduction in the capacity of these facilities. This would save about \$546 million<sup>4</sup> in construction costs and reduce incineration disposal costs by about \$40 a ton, nearly \$54 million a year.<sup>5</sup> The direct savings to the Department of Sanitation would be at least \$19 million a year; this would be sufficient to pay for the total capital cost of the recycle program in nine months or less.

Recycling centers would be operated privately. The City would have to provide about twenty facilities at a cost of \$9 million for structures<sup>6</sup> and \$6 million for trailers.<sup>7</sup> The City would be eligible for State grants-in-aid exceeding \$3 million to help finance the construction of recycling facilities.

The recycling program would lower air pollution from resource recovery plants by over 10 percent and reduce ash residue by nearly 300,000 tons a year.

## A LOCAL LAW

### As Proposed For Enactment By The City Council

To amend the administrative code of the City of New York, in relation to the use of recycled paper by city agencies.

*Be it enacted by the Council as follows:*

Section one. The administrative code of the City of New York is amended by adding a new section, 6-122, to read as follows:

§6-122 Purchase of recycled paper products.

a. When purchasing paper products made with and without significant recycled content, recovered from materials otherwise destined for disposal, the department of general services shall, wherever the price is reasonably competitive and the quality adequate for the purpose intended, purchase the recycled product. For the purpose of this section the term "recycled paper" shall mean any paper products which have been manufactured from materials otherwise

<sup>4</sup> 4,400 TPD × \$124,000/TPD = \$546 million.

<sup>5</sup> 20% × 6.7 million TPY × \$40/ton = \$53.6 million.

<sup>6</sup> 20 × \$450,000 = \$9 million.

<sup>7</sup> 1,500 × \$4,000 = \$6 million.

destined for the waste stream including, but not limited to, old newspapers, magazines, paperboard boxes, tabulating cards, mixed waste, used fibrous material such as rags and overstock or obsolete inventories from distributors, wholesalers, printers and other companies as defined in rules and regulations promulgated by the commissioner provided that the term "recycled paper" does not include those materials and by products generated from, and commonly reused within an original manufacturing process. "Reasonably competitive" shall mean a comparable recycled product with a cost premium of no greater than ten percent.

b. The department of general services shall review its own paper product procurement specifications and consider those of the State of New York in order to establish realistic recycled content standards and to eliminate, wherever feasible, discrimination against the procurement of products manufactured with recovered materials. The department of general services shall annually review the paper specifications to consider increasing the percentage of recycled paper in paper product purchases and shall submit an annual report to the council on its activities and results pertaining to the purchase of recycled paper products.

Section two. This local law shall take effect one-hundred and twenty days from the date it shall have become law, but all actions necessary to prepare for the implementation of this local law may be taken prior to its effective date.

**MEMORANDUM IN SUPPORT**  
**Of Recycling of Solid Wastes in New York City**  
**October 29, 1986**

TITLE	AN ACT to amend the Administrative Code of the City of New York in relation to the use of recycled paper products by City agencies.
SUMMARY OF PROVISIONS	This bill would amend the Administrative Code of the City of New York to encourage the increased use of recycled paper by authorizing the Department of General Services, when purchasing paper products for all City agencies, to purchase paper products with significant recycled content. The price of the recycled paper products must be reasonably competitive, i.e., costing a premium of no more than ten percent of virgin paper products. Also, the quality of the recycled paper products must be adequate for the purpose intended.
REASONS FOR SUPPORT	New York City has committed itself to recycling up to 15% its waste stream. However, recycling requires markets for recyclable materials. It is important that the City encourage the expansion of these markets by purchasing products with the highest practical percentages of recycled materials, if these products can be procured at competitive prices and meet reasonable performance standards. This

amendment deals with paper, the largest component of the City's waste stream designated for recycling.

Enactment of this proposed amendment would permit the Department of General Services to pay a premium of up to ten percent, when necessary, to purchase paper products with recycled content. This would encourage production of more recycled paper products. Eventually, when demand for these products increases, production costs should fall below those of paper products made solely of virgin materials, eliminating the need for a premium.

As matters stand, in thirteen states, including New York, laws, resolutions or executive orders encourage the purchase of recycled paper products containing a minimum of from 25% to 80% recycled fiber. Four of the states allow premiums of from 5% to 10%. New York State provides a 10% premium for the purchase of paper products with a minimum of 40% recycled content. Fifty-nine percent of the paper products purchased by the State of New York in 1985 had at least 40% recycled content. The State paid premiums totalling \$135,953, or 2.75% of the \$5,045,173 spent on recycled paper products. As more recycled paper is used, the amount of and the need for a premium should decline.

Encouraging a market for recyclable materials will help maintain capacity in our landfill, protect our air quality, and reduce the more than \$400 million a year spent by the Department of Sanitation to collect and dispose of garbage.

Accordingly, we urge the City Council to consider this proposal favorably.

Sincerely,

Harrison J. Goldin

New York City Comptroller

**TESTIMONY BY**

**Comptroller Harrison J. Goldin**

**New York City Council Committee on Environmental Protection**

**Public Hearings on Paper Recycling**

**City Council Hearing Room, City Hall, Manhattan**

**Thursday, October 30, 1986, 10:15 A.M.**

I appreciate this opportunity to say a word about the City's progress in developing a comprehensive recycling program.

In sum, the City still does not have such a program two years after I issued a formal study documenting the City's critical need for it as an indispensable component of a garbage disposal program.

The City does plan to proceed with a test demonstration of the cost effective feasibility of recycling, but all the details have not yet been ironed out.

Today, as you know, we are supplying another piece of the overall picture by submitting a proposed City Council bill requiring the City to recycle paper whenever the price is right and its quality adequate.

I thank Council Member Sheldon Leffler, chairman of the Committee on Environmental Protection, for agreeing to sponsor the bill. I also want to thank him and his Committee for holding these oversight hearings on what the City has done so far. America has always been a land blessed with abundance. We hope it will continue to be. But when the first census was taken in 1790, there were fewer than four million people here. Understandably, in our expansion as a young and vigorous nation the view was prevalent that the natural resources of our land were virtually infinite. As a country we became the mightiest production engine in all history, far outstripping the rest of the world in the consumption of goods and services.

But with 240 million people today, America is belatedly recognizing that we cannot deplete our abundance as though there were no tomorrow. For there will be many tomorrows, doomsayers notwithstanding, for ourselves, our children, and our children's children. And we must understand that what we have is not infinite. We can see the ultimate limits and had best prepare for them now.

We can do that by controlling consumption, reducing waste, and reusing what we now throw away. We hardly need rationing. But if we want to avoid that bleak possibility some time in the future, we need plan now to curtail our net waste by recovering resources from it and recycling products which in our continuing abundance we discard with no thought for tomorrow.

The proposed paper recycling bill before you today is a good first step. The concept is right and the timing for the bill sensible. The City should increase its present small use of recycled paper as soon as the public and the full Council have had input into the measure.

The bill before us would require the Department of General Services to buy recycled paper products—and I quote—“wherever the price is reasonably competitive and the quality adequate for the purpose intended.”

A “reasonably competitive price” is defined as a price “involving a premium not greater than 10%.” One might understandably ask, why would a recycled product be more expensive than a virgin product? The reason is that the markets for recycled products are still relatively small and mass volume capability with attendant price discounting still modest.

But that will change as markets get bigger and the mass volume capability larger. Enactment of this bill would make the City a mass buyer of recycled paper. It would greatly expand the present market for recycled paper.

Enactment of this bill would let General Services pay a premium of up to 10 percent to buy paper products with significant recycled content. That would be an incentive to manufacturers to produce more recycled paper products. Eventually, when demand for these recycled products increases, production cost costs should fall below those of virgin paper products and the need for a premium be eliminated by an expanded market.

It is important for the City to encourage the expansion of markets for recycled paper. If there are no markets for recyclable materials, there can be no

recycling. The City is committed to recycling up to 15 percent of its waste stream, of which nearly half is paper! Enactment of this bill would provide the encouragement to private industry to expand the market for recycled materials.

I believe the City should actually recycle 20 percent of its entire waste stream and said so in my report two years ago. But the City Department of Sanitation was initially unwilling to embark on any formal recycling program, agreeing in the end to a compromise of 15 percent. Indeed, it stopped dragging its heels on this issue only when the Board of Estimate insisted that recycling had to be a significant component of the City's proposed resource recovery program.

As to the recycling of paper alone, in thirteen states, including New York State, laws, resolutions, or executive orders encourage the purchase and use of recycled paper products containing a minimum of 25 to 80 percent recycled fiber. Four of the states allow premiums of 5 to 10 percent.

Our own State government allows a 10 percent premium on paper products with a minimum of 40 percent recycled content. Its initiative has been successful. Nearly 60 percent of the paper products bought by the State of New York in 1985 had at least 40 percent recycled content. And while a 10 percent premium was allowed, the State actually paid only 2.75 percent extra—\$136,000 on the \$5,045,000 spent for recycled paper.

What are the broader social and environmental benefits of buying and using recycled materials of all kinds, in addition to recycled paper?

One, a reduction of the pressures on our dwindling landfill space, through the encouragement of recycling; two, a reduction in air pollution, through a lessened need for incineration; and three, some savings on the \$400 million spent each year by the Department of Sanitation, through a reduction in the cost of disposing of the trash and garbage produced by seven million New Yorkers.

In that connection, I have proposed a comprehensive recycling program for the City, based on an extensive study by my staff. You may remember that I described that program at a public hearing this Committee held in May 1985. I spoke of the immediate need for a pilot program patterned on my proposal. I asked that a prototype recycling program be tested on a demonstration basis in a few community districts.

Recycling, of course, cannot eliminate the need for a resource recovery program involving the incineration of garbage. But implementation of my recycling proposal could reduce incineration by about 20 percent and, consequently, reduce air pollution, garbage disposal costs, and the dumping of ash on our shrinking landfills.

I issued my recycling study and program in October 1984. That study showed the following benefits of recycling:

- savings of \$500 million in resource recovery plant construction costs;
- lowering of total capacity of such plants by 4,400 tons a day;
- reduction of garbage disposal costs by \$52 million a year;
- reduction of air pollution emissions from resource recovery plants by more than 10 percent;
- reduction of ash residue at landfills by nearly 300,000 tons a year because of a lessened need to burn paper, bottles, and cans;
- absorption of operational costs of recycling for the City through the sale of recycled materials;

- creation of 700 low level entry jobs (sorting paper and glass off conveyer belts), jobs that could be tailored for the handicapped and retarded;
- creation of 2,000 more jobs for the processing of such recyclable materials; and
- generation of payroll exceeding \$30 million a year, producing millions of dollars in additional tax revenue.

My program, which would cost \$15 million in capital funds, calls for curbside pickup of recyclable materials separated by homeowners; development of buy-back centers for recyclable materials; community groups establishing and operating drop-off locations through which recyclable materials could be sold to help finance community activities; and use of roll-on or lift-on containers for recyclable materials at large apartment houses.

When I testified before this Committee in May 1985, Queens Community Boards 7 and 11 had already volunteered to participate in a demonstration program. The Department of Sanitation said it wanted to develop its own demonstration program in community districts of its own choice and I deferred to the wishes of the Department.

But its program, when finally proposed, entailed the use of two man trucks. I said that would be self defeating, involving higher costs. The Department has since modified its proposal to include one man trucks in the pilot program. But the Sanitation Union objected and the issue is now the subject of negotiations between the Department and the Union.

Eventually, because it is the only rational course of action, the City will implement a recycling program, mine, the Department's, or someone else's. My only concern is that the program be implemented quickly and that it be successful. The need for recycling on a comprehensive basis is clear.

In sum: with landfill space literally vanishing year by year and with New Yorkers producing 56 million pounds of garbage each and every single day of the year (in tonnage that is 28,000 tons a day, 8.5 million tons a year!), there is a great need for a comprehensive recycling program to recapture paper, glass, and aluminum that are now simply incinerated.

While the recycling bill I am submitting today deals only with recycled paper products, it is an important step in encouraging the expansion of markets for recyclable materials.

It is do-able and needed. I urge you to approve it.

I began this statement by noting that the United States has always been a land of abundance. Today we know and acknowledge that that abundance is not infinite. Today we accept the obligation to conserve our resources, use them wisely, and reuse them whenever possible.

It is time for New York and all American to take to heart the old maxim:  
Waste not, want not. Thank you.

Direct reprint requests to:

Harrison J. Goldin, Comptroller  
Office of the Comptroller  
Municipal Building  
New York, NY 10007