THE CITY OF NEW YORK
INDEPENDENT BUDGET OFFICE
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May 22, 2012

Council Member Jessica S. Lappin
Council of the City of New York
250 Broadway
Room 1762
New York, NY 10007

Dear Council Member Lappin:

At your request, the Independent Budget Office has prepared an estimate of the cost of constructing and operating the East 91st Marine Transfer Station (MTS) compared to continuation of the interim plan of exporting waste to transfer stations in New Jersey under short-term contracts. Based on IBO's analysis, the present value of the twenty-year cost of exporting under interim contracts to transfer stations in New Jersey is $218.9 million, compared with $554.3 million for export at the East 91st MTS. We estimate that the cost per ton in the first year the new facility could be operating is $90 for the interim plan and $238 for the East 91st MTS. As construction of the East 91st MTS is part of the broader state mandated-Solid Waste Management Plan which sought to balance fiscal costs, environmental impacts and concerns of communities across the city, any option that did not include construction of the plant would require modification of the SWMP by the administration and approval by the City Council and New York State.

New York City is operating under a twenty-year plan, approved by the City Council and New York State in 2006, that details how the city will handle all of its solid waste. The aptly named Solid Waste Management Plan stated that the city would construct a marine transfer station at East 91st Street to containerize and export residential waste from Community Districts 5, 6, 8, and 11 in Manhattan, while the remaining residential waste would be exported by garbage truck to a waste-to-energy facility in New Jersey. The city has applied for permits and sought construction bids for the East 91st MTS and is currently negotiating a twenty-year contract with the Port Authority of New York and New Jersey for the export of waste from the other districts in Manhattan. In the interim, while the long-term plan is being implemented, the city has secured short-term contracts with private transfer stations to export all of Manhattan's residential waste.

It is possible to break down the first year per ton cost into export fees, transportation costs, and facility costs. Both options include the cost of contracting with a private transfer station for the ultimate disposal of the waste. The per ton export cost is higher under the East 91st MTS option

primarily because our estimate is based on recent contract bids and the twenty-year contracts, like the one the city would secure for East 91st MTS, have higher costs than the interim contracts. Both options also include an estimate of the cost to transport waste to the transfer stations. Given the shorter distance to the East 91st MTS than New Jersey and a lack of tolls, transportation costs are lower under the East 91st MTS option. The largest difference between the two options is the additional cost attributable only to the East 91st MTS for building the facility and operating it with municipal employees.

First Year Projected Cost by Category		
	Interim Plan	**East 91st MTS**
Export Per Ton	$76.91	$106.72
Transport Per Ton	13.09	3.23
Facility Per Ton	0.00	128.47
Total Cost Per Ton	**$90.00**	**$238.43**
SOURCE: IBO		

A summary of the assumptions used in the analysis are shown in the table below (please see the attached memo for a detailed explanation of the methodology and assumptions). The analysis begins in 2016, when East 91st MTS would be operational, and extends over the twenty-year export contract period. Whenever possible, IBO relied on observed data for 2011. Tonnage and number of truck trips is based on 2011 data. Capital costs for the East 91st MTS ($226.5 million) were based on the Executive 2013 Capital Commitment Plan while the Department of Sanitation (DSNY) provided updated 2012 operating costs ($9.4 million in 2016). Costs that are expected to grow over time were assumed to rise between 2 percent a year and 4 percent a year, depending on the type of cost. IBO's estimates only reflect the direct cost of the two options. Any additional economic activity or tax revenue that would result from the construction and operation of the East 91st MTS in the city were not taken into account, and neither were environmental impacts.

Assumptions in Cost Comparison of East 91st MTS versus Continuation of Interim Plan			
	Baseline	**Source**	**Annual Growth Assumption**
Shared Assumptions			
Tonnage	577	2011 observed	Flat
Trips	16,340	2011 observed	Flat
Cost Per Mile	$1.39	2011 estimate, grown to 2016	2% a year
Relay Shift Cost	$403.63	2011 estimate, grown to 2016	4% a year
Dump-On-Shift Differential	$7.63	2011 estimate, grown to 2016	4% a year
Interim Plan			
Export Fee	$76.91	Projected, inflated to 2016, based on Interstate Waste Services	2% a year; 4% at renewal
Mileage	260,537	2011 estimate	Flat
Tolls	$475,770	2011 estimate, grown to 2016	2% a year
Number of Relays	10,014	2011 estimate, assume 3 trips per worker	Flat
Dump-on-Shift Trips	6,326	2011 estimate, 2 payments per trip	Flat
East 91st MTS			
Export Fee	$106.72	Projected, average of existing LT contracts, at 90 pecent to reflect city operation of MTS	2.5% a year
Mileage	54,925	2011 estimated	Flat
Number of Relays	2,778	2011 projection, assume 4 trips per worker	Flat
Dump-on-Shift Trips	13,562	2011 estimate, 2 payments per trip	Flat
Facility OM	$9,355,091	2012 estimate, grown to 2016	3% a year
Facility Capital Cost	$226,487,000	2013 Executive Capital Commitment Plan	Flat
Facility Debt Service	$13,031,141	Capital Cost (30-year bond at 4%)	Flat
SOURCES: IBO; Department of Sanitation; NYC Office of Management and Budget			

The most difficult component to model was the cost of the export fee. The East 91st MTS would load containerized waste on barges at a city-operated facility. The existing long-term contracts are for rail-based export and two of the three are at privately-owned transfer stations (the cost of operating the facility is built into the contract). The absence of similar contracts for barge-based export from city-operated facilities makes estimating export costs more difficult. With regards to the interim plan option, the cost per ton of export has varied widely when the interim contracts have been renewed.

Given the wide variation in export fees, IBO performed tests to gauge the sensitivity of the total cost estimates to changes in export fees under both options. For example, if the five-year export contracts in the interim option renew with an 8 percent increase, compared with the 4 percent assumed in the baseline, the total cost of the interim option (in current dollars) would increase by $17.8 million. Similarly, if the renewal increase is 20 percent (still below the increases the city saw in the early years of the interim plan), total cost would increase by $79.7 million. If the long-term export contract in the East 91st MTS option is 10 percent less than the baseline and increases at 2 percent a year, the total cost the East 91st MTS option would be $34.6 million lower. However, if the contract is at $125 per ton and grows 3 percent a year, the total cost would be $57.1 million more. Note, however, that given the additional cost to construct and operate the East 91st MTS, total costs are higher for the East 91st MTS option under each of the scenarios.

The city is currently negotiating a long-term, 20-year contract with the Port Authority to accept the waste from the other community districts in Manhattan (about 1,680 tons per day) at the Essex County Resource Recovery Facility in Newark, New Jersey. According to DSNY, the long-term contract will preclude using the facility for waste planned to be processed at the East 91st MTS because the tonnage will fully exhaust the existing available capacity of the Essex facility (exclusive of other waste being processed at the facility from municipalities in New Jersey). Therefore, the city would need to contract with other transfer stations that primarily landfill waste, making the export fee under the interim option more uncertain.

IBO's analysis assumed that the interim option would be a series of five-year contracts as has been the case since the late 1990s. However, a 20-year contract is currently being negotiated for waste in the rest of Manhattan, and it would be possible to do so for the East 91st MTS. Twenty-year contracts may have a higher initial price than the current interim contracts but are likely to be less volatile over time and the city might benefit from securing landfill capacity, especially if constraints on the supply of landfill space drive up prices over the long-term. While IBO did not model that variation, it is possible to consider the impact. For example, if export costs were the same under the two options, then the East 91st MTS would cost $119 more per ton than continuing the interim plan in the first year of operation, compared with a difference of $148 dollars under our baseline assumptions.

The city considered many factors in addition to cost in preparing the comprehensive Solid Waste Management Plan for the city, such as environmental impact of waste, fairness among the boroughs, and long-term reliability and efficiency. Finally, it is important to note that continuation of the interim plan instead of construction of the East 91st MTS would be considered a modification of the Solid Waste Management Plan. The administration would need to prepare a revision of the SWMP and the revised plan would require approval by the City Council and the NYS Department of Environmental Conservation.

If you have any questions or would like more information, please feel free to contact me or Ana Champeny (anac@ibo.nyc.ny.us or 212-442-1524) who conducted the analysis.

Sincerely,

Ronnie Lowenstein

enclosure

cc: John J. Doherty

NYC Independent Budget Office

DATE: May 22, 2012

TO: Ronnie Lowenstein
George Sweeting

FROM: Ana Champeny

SUBJECT: Methodology, Assumptions, and Results of the Comparison of Waste Export Costs via the East 91st Marine Transfer Station or the Interim Plan

Background

In 2006, the city's 20-year Solid Waste Management Plan (SWMP) was approved by the City Council and the NYS Department of Environmental Conservation. The 2006 SWMP seeks to balance environmental, borough equity, infrastructure, and financial considerations.

The SWMP called for the city to enter into long-term waste export contracts for disposal of all residential waste. There were two strategies. Under the first, waste would be handled by private transfer stations that would either containerize the waste and transport it by rail or barge, or process it at a waste-to-energy plant. Under the second, the city would reconstruct five city-owned transfer stations to containerize waste for transport either by barge (four transfer stations) or rail (one transfer station) and enter into long-term contracts for transport and disposal of the waste.

Residential waste in Manhattan would be handled by a combination of the two strategies. Waste for community districts 5, 6, 8, and 11 (the East 91st waste shed), about 720 tons per day, would be containerized at the city-owned East 91st Marine Transfer Station and transported by barge to either an ocean-going barge or rail connection. Then, the containerized waste would be transported to the landfill (under a twenty-year contract). For the rest of Manhattan, about 1,680 tons per day, the city would enter into a twenty-year contract with the Port Authority of New York and New Jersey to process the waste at the Essex County Resource Recovery Facility in Newark, New Jersey with the city delivering waste to the transfer station by garbage truck.

Currently, the city is negotiating the long-term contract with the Port Authority, applying for the necessary permits for East 91st MTS, and seeking bids from contractors for the construction of the East 91st MTS. In the meantime, the city has been entering into a series of interim 3-year contracts (with an option for two one-year extensions, at the city's discretion) with local transfer stations to handle all Manhattan waste. In 2011, an average of 1,164 tons per day were driven from Manhattan to the Essex County Resource Recovery Facility, another 774 tons per day were driven to a transfer station operated by Interstate Waste Services, and the remaining 26 tons per day were driven to other transfer stations, including a Waste Management Transfer Station in Elizabeth NJ and a transfer station in Newark NJ.

(These tonnages are lower than those presented in the SWMP because they reflect actual tonnage collected by DSNY and there has been a citywide decline in refuse tonnage in recent years).

Methodology and Limitations

IBO was asked to conduct a fiscal estimate comparing construction and operation of the East 91st MTS with continuation of the interim plan.

In order to determine the annual cost, we estimated the cost for the export fee, transportation to the transfer station, and facility operations under each option, while collection costs within the district were assumed to be the same under each option. Each cost component is adjusted annually at the rate specified in the assumptions table; tonnage and truck runs are kept constant. Since construction at East 91st MTS has not begun, we assumed that the facility would be operational in 2016 and focused our analysis on the twenty-year period that would be covered by the export contract at the East 91st MTS. Finally, to compare the two estimates in 2016 dollars, we calculate the present value of the total costs over the twenty-year period, using a 6 percent discount rate.

According to the Department of Sanitation, the twenty-year contract currently under negotiation with the Port Authority to take all the non-East 91st Manhattan waste to the Essex County Resource Recovery Facility, would preclude that facility from accepting any waste from the East 91st waste shed because of insufficient capacity. While the facility is permitted for 2,800 tons per day, it also accepts waste from 22 municipalities in the surrounding area, including New York City, that take up the remaining capacity. The average daily tonnage from the non-East 91st waste shed, expected to be 1,680 tons per day in the SWMP (actual tonnage in 2011 was 1,393 tons per day and 1,457 tons per day over the past six years), already exceeds the average tons per day that the city has delivered to the Essex County Resource Recovery Facility under the interim contracts in any year since 2003. Additionally, since 1999 when the city began using private transfer stations to handle Manhattan waste, there have been between three and six different transfer stations under contract at any given time. Therefore, if the city continued interim export contracts for the East 91st waste shed, the city would need to contract with transfer stations other than the Essex County Resource Recovery Facility. Since the other transfer stations landfill rather than incinerate waste, the export cost may be more volatile because it is affected by supply and demand for landfill space.

The city considered many factors in addition to cost in preparing the comprehensive Solid Waste Management Plan for the city, such as environmental impact of waste, fairness among the boroughs, and long-term reliability and efficiency. It is also important to note that not constructing the East 91st MTS would be a modification to the SWMP, affecting more than 5 percent of the city's residential waste. As such, it would require the administration to prepare a modification of the SWMP that would need to be approved by the City Council and the New York State Department of Environmental Conservation.

Our analysis is limited to the city cost associated with exporting the waste in the East 91st waste shed. We do not consider the economic or fiscal impact of either undertaking a large construction project in Manhattan or keeping the waste processing in the city. For example, construction activity would

generate jobs, tax revenue, and economic activity in the area. We also did not consider the environmental impact of the two options.

Data Sources and Assumptions

Data Sources. IBO used DSNY data on each individual sanitation truck run to estimate tonnage, number of truck runs, and number of relay runs (where a truck is driven to offload on a later shift by a different sanitation worker). Data on annual contract costs was compiled from information provided by DSNY. DSNY also provided information on miles per gallon for garbage trucks and per gallon cost of fuel. The capital cost of the facility was based on the planned cost in the 2013 Executive Capital Commitment Plan. DSNY provided IBO with an updated cost for operating the East 91st MTS based on recently negotiated staffing patterns. The NYC Office of Management and Budget provided information on current interest rates for 30-year tax exempt bonds.

Assumptions. The following table provides a summary of the assumptions that IBO made in order to estimate the cost of the East 91st MTS option and the Interim Plan option.

Assumptions in Cost Comparison of East 91st MTS versus Continuation of Interim Plan

	Baseline	Source	Annual Growth Assumption
Shared Assumptions			
Tonnage	577	2011 observed	Flat
Trips	16,340	2011 observed	Flat
Cost Per Mile	$1.39	2011 estimate, grown to 2016	2% a year
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Export Fee	$106.72	Projected, average of existing LT contracts, at 90 pecent to reflect city operation of MTS	2.5% a year
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SOURCES: IBO; Department of Sanitation; NYC Office of Management and Budget

*Assumptions Shared across the Options.*IBO assumed that the tons per day (577) and number of truck trips per year (16,340) would remain constant at the level observed in 2011 under both scenarios. The 2011 cost per mile was the cost of the gas ($1.15 per mile) plus an allotment for wear and tear ($0.10 per mile), assumed to grow 2 percent a year.

When sanitation workers drive the truck to the transfer station during their regular shift, they receive a dump-on-shift payment. DSNY also relays collection trucks, which means that a different sanitation worker (just one, rather than the two-person collection crew), drives the truck to offload on a separate shift, usually at night when there is less traffic and tolls are less expensive. Generally, one worker will relay between three and four trucks per shift. The cost of a relay shift and the dump-on shift payment for 2011 were assumed to grow 4 percent a year, reflecting recent annual growth in personnel costs.

Interim Export Option Assumptions. For the interim plan option, the export fee was based on the current fee for the Interstate Waste Services contract for Manhattan waste. Interim plan contracts have a standard increase of 2 percent a year during the term of the contract. Based on a review of the percentage change in contract cost at renewal, IBO assumed that the interim plan contract increased 4 percent at each renewal. The contracts have a three-year term, with the city having the option to extend for two additional years, so IBO assumed renewal every five years. Based on the time when each load was offloaded, IBO was able to estimate the cost of tolls (using the cost for a three-axle truck at either the peak, off-peak or overnight rate). Toll costs were assumed to grow 2 percent a year.

IBO assumed that the number of truck runs that were relayed and the number that were offloaded by the collection crew would stay the same as observed in 2011, with 61 percent of truck runs needing relay. Given the further distance to the transfer stations, IBO assumed that a worker would relay three trucks on one shift. IBO estimated the mileage associated with driving the trucks to the transfer station. For trucks that are relayed, IBO estimated the distance from the center of the district to the district garage and then from the garage to the transfer station. For trucks that were not relayed, IBO estimated the distance from the center of the district to the transfer station. In both instances, the route with the shortest mileage on Google maps was used.

East 91st MTS Option Assumptions. The export contract for the East 91st MTS would be a twenty-year contract, in accordance with the Solid Waste Management Plan. To date, the city has awarded three long-term contracts, all for rail-based export, with two at privately-operated transfer stations. Conversely, waste at the East 91st MTS, a city-operated transfer station, would be transported by barge to either ocean-going barge or rail. The three long-term contracts currently in effect have a service fee that is set monthly by summing a series of cost components, such as fees for transporting the waste to the landfill, the tipping fee at the landfill, cost of operating the transfer facility, a fuel surcharge, and the cost of the containers and railcars. The contracts also specify how each component is adjusted during the contract period. IBO assumed the East 91st MTS contract would start at 90 percent of the average per ton cost of the three current contracts; we assume costs would be lower because East 91st would be operated by city personnel, unlike Waste Management's contracts at Harlem River Yards and Varick Street. Based on the last three years, the long-term contract fee has grown about 2.5 percent a year, which is the annual increase in our estimate.

With the East 91st waste shed community districts closer to the East 91st MTS than to the New Jersey transfer stations, IBO assumed that fewer trucks would need to be relayed. DSNY confirmed that they expect over 80 percent of the truck trips in the four community districts to be offloaded by the collection crew. IBO also looked at the share of trucks being relayed in 2010 and 2011 in certain

community districts that have nearby transfer stations (the Bronx, Northern Brooklyn, and Staten Island) and found that 83 percent of trucks were offloaded by the collection crew. In the analysis, we assume that 17 percent of the truck trips to East 91st will be relayed and 83 percent will be dumped on shift. Since the transfer station is closer, we assume that each worker would relay four trucks per shift. There are no tolls associated with the East 91st MTS option. The same methodology is used to determine truck mileage as with the interim option.

The East 91st MTS option includes costs for constructing and operating the transfer station. The capital cost of the MTS was based on the 2013 Executive Capital Commitment Plan. The annual debt service cost was based on 30-year bonds offered at 4 percent interest, just 30 basis points above the rate the city would currently expect for that bond term. Debt service costs are flat; no refunding or change in terms is assumed. DSNY provided operating costs for the MTS based on staffing negotiated with the union. In addition to salaries and differentials, the operating cost includes fringe costs and other than personal service costs of the facility. Given that the transfer station has both personnel costs and other costs, IBO assumes the operating costs will grow at 3 percent a year (midway between the 4 percent we use for relay shifts and 2 percent for gas and tolls).

Results

IBO found that over twenty years, the cost in present value terms of continuing the interim plan would total $218.9 million, compared with $554.3 million for the East 91st MTS. The first year cost is $15.7 million or $90 per ton for the interim plan, compared with $41.5 million or $238 per ton for the East 91st MTS. The Interim Plan option cost grows at 2.5 percent a year on average, while the East 91st MTS option grows an average of 2 percent a year.

Preliminary Results, Interim versus East 91st MTS				
	Interim Plan		East 91st MTS	
	Total Cost	Cost Per Ton	Total Cost	Cost Per Ton
2016	$15,683,658	$90.00	$41,546,606	$238.43
2017	$16,027,095	$91.98	$42,313,317	$242.83
2018	$16,378,261	$93.99	$43,100,849	$247.34
2019	$16,737,251	$96.05	$43,909,778	$251.99
2020	$17,294,101	$99.25	$44,740,693	$256.76
2021	$17,770,111	$101.98	$45,594,203	$261.65
2022	$18,160,160	$104.22	$46,470,931	$266.69
2023	$18,560,199	$106.51	$47,371,518	$271.85
2024	$18,968,604	$108.86	$48,296,624	$277.16
2025	$19,599,827	$112.48	$49,246,927	$282.62
2026	$20,140,338	$115.58	$50,223,124	$288.22
2027	$20,585,040	$118.13	$51,225,932	$293.97
2028	$21,040,363	$120.75	$52,256,088	$299.88
2029	$21,507,313	$123.43	$53,314,898	$305.96
2030	$22,227,385	$127.56	$54,402,592	$312.20
2031	$22,845,256	$131.10	$55,519,972	$318.62
2032	$23,355,855	$134.03	$56,667,859	$325.20
2033	$23,876,099	$137.02	$57,847,102	$331.97
2034	$24,409,644	$140.08	$59,058,570	$338.92
2035	$25,228,504	$144.78	$60,303,159	$346.06
Present Value	**$218,870,863**		**$554,295,085**	
SOURCE: IBO				
NOTE: Present Value uses 6 percent discount rate.				

IBO also looked separately at the cost for export, transportation, and facility operations (all on a per ton basis). The export cost is about 39 percent higher under the East 91st MTS option. This results stems from the fact that the projected export cost is based on existing long-term and interim contracts, and long-term contracts are currently more costly. The export costs are the most difficult to measure accurately and forecast over the twenty-year horizon, because of volatility and uncertainty, and we conduct a sensitivity analysis to see how changing our assumptions about contract costs affects the results.

Preliminary Results, Interim versus East 91st MTS						
	Interim Plan			East 91st MTS		
	Export Per Ton	Transport Per Ton	Facility Per Ton	Export Per Ton	Transport Per Ton	Facility Per Ton
2016	$76.91	$13.09	$0.00	$106.72	$3.23	$128.47
2017	$78.45	$13.53	$0.00	$109.39	$3.36	$130.08
2018	$80.02	$13.97	$0.00	$112.13	$3.48	$131.74
2019	$81.62	$14.43	$0.00	$114.93	$3.61	$133.45
2020	$84.34	$14.91	$0.00	$117.80	$3.75	$135.21
2021	$86.58	$15.40	$0.00	$120.75	$3.89	$137.02
2022	$88.31	$15.91	$0.00	$123.77	$4.03	$138.89
2023	$90.08	$16.43	$0.00	$126.86	$4.18	$140.81
2024	$91.88	$16.98	$0.00	$130.03	$4.34	$142.79
2025	$94.94	$17.54	$0.00	$133.28	$4.50	$144.83
2026	$97.46	$18.12	$0.00	$136.61	$4.67	$146.93
2027	$99.41	$18.72	$0.00	$140.03	$4.85	$149.10
2028	$101.40	$19.35	$0.00	$143.53	$5.03	$151.33
2029	$103.42	$20.01	$0.00	$147.12	$5.22	$153.62
2030	$106.87	$20.69	$0.00	$150.80	$5.42	$155.99
2031	$109.71	$21.39	$0.00	$154.57	$5.63	$158.42
2032	$111.91	$22.12	$0.00	$158.43	$5.84	$160.93
2033	$114.14	$22.88	$0.00	$162.39	$6.06	$163.52
2034	$116.42	$23.66	$0.00	$166.45	$6.29	$166.18
2035	$120.31	$24.47	$0.00	$170.61	$6.53	$168.92
SOURCE: IBO						

The export cost per ton is the majority of the cost of the interim plan, with only about 15 percent of the first year cost attributable to the cost of transporting the waste from the community districts to transfer stations in New Jersey. The transport cost under the East 91st MTS option is about 75 percent lower than the interim plan because the transfer station is located closer to the community districts (about one-fifth of the mileage estimated under the interim option), there are no tolls, and there is less relaying of trucks.

The East 91st MTS option includes an additional cost not present in the interim plan option, the cost of constructing and operating the facility, which IBO estimates to be about $128 per ton in the first year. The facility costs are largely fixed and a slight increase or decrease in tonnage would not change the total cost for the facility, but it would go up or down on a per ton basis. The estimates for export fee and transportation are more stable on a per ton basis, so that more tonnage would increase the total cost but not the per ton cost.

Sensitivity to Changes in Assumptions. As noted, the most difficult component to estimate was the export fee with either the interim five-year contracts or the twenty-year contract for export at the East

91st MTS. IBO considered the sensitivity of the estimate to these assumptions by running the analysis with different assumptions for contract costs.

The price per ton at renewal for the interim contracts is especially volatile and we estimate the total cost for the interim plan if the renewal saw increases of 8, 14, or 20 percent, rather than the 4 percent in the baseline assumption. Conversely, the city has not yet entered into a long-term contract for containerization at a city-owned marine transfer station. So, we modeled the cost if the long-term export cost was initially lower or higher, or grew either more quickly or more slowly than our baseline.

The results of our sensitivity analysis show that the cost can vary greatly based on the assumptions. For example, if the five-year contracts renewed with an 8 percent increase, compared to the 4 percent in the baseline, the total cost in current dollars would increase by $17.8 million. However, if the renewal increase were 20 percent (still less than what the city saw in the early years of the interim plan), the cost would increase by $79.7 million. If the East 91st MTS long-term export contract were 10 percent less than the baseline and increased at 2 percent a year, the total cost would be $34.6 million lower. However, if the contract were at $125 per ton and 3 percent a year growth, the total cost would be $57.1 million more.

Cumulative Cost (Present Value) Under Different Contract Cost Assumptions
Dollars in millions

	Cumulative Cost (Present Value)	Change from Baseline
Interim Plan Option, Renewal Increase Adjustment		
Baseline Model, renewal at 4 percent	$218.9	
Renewal at 8 percent	$236.7	$17.8
Renewal at 14 percent	$266.0	$47.1
Renewal at 20 percent	$298.6	$79.7
East 91st MTS Option, Baseline and Annnual Increase Adjustments		
Baseline Model, $107 per ton/2.5 percent a year	$554.3	
$96 per ton/2 percent a year	$519.7	($34.6)
$125 per ton/2 percent a year	$586.7	$32.4
$125 per ton/3 percent a year	$611.4	$57.1

SOURCE: IBO
NOTE: Present Value over 20-year period, 6 percent discount rate.