



THE CITY OF NEW YORK  
INDEPENDENT BUDGET OFFICE

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March 18, 2002

Ms. Cathleen Breen  
Watershed Protection Coordinator  
New York Public Interest Research Group  
9 Murray St., 3<sup>rd</sup> Floor  
New York, NY 10007

Dear Ms. Breen:

This letter is written in response to your request that IBO report on the status of spending by the city Department of Environmental Protection (DEP) for Catskill/Delaware watershed protection programs required under the 1997 Memorandum of Agreement (MOA) and filtration avoidance determination (FAD). Overall, DEP has \$1.3 billion in planned spending for watershed protection activities, of which it has committed \$372.6 million, or about 30 percent of the planned total. We summarize the city's progress in more detail below.

The federal Environmental Protection Agency (EPA) has recently approved relieving the city of the requirement to complete final design of a filtration plant for the Catskill/Delaware water supply if it instead completes design of an ultraviolet disinfection facility. We also review current cost estimates for this plant.

### **Background**

New York City operates the nation's largest municipal water system, and one of the last to remain unfiltered. The city has repeatedly sought to avoid the imposition of a federal mandate to filter its water supply on the basis of continued acceptable water quality under federal Surface Water Treatment Rule (SWTR) standards. EPA has already required the city to begin filtering water from the Croton watershed, which supplies 10 percent of the city's daily consumption. The Croton filtration plant, which it is estimated will cost \$950 million to construct, has been delayed due to difficulties in finding a site. Filtration of the much larger Catskill/Delaware system would require construction of a facility that could cost between \$4 billion and \$8 billion, resulting in significant rate increases for city residents and businesses (see *The Impact Of Catskill/Delaware Filtration On Residential Water And Sewer Charges In New York City*, IBO, 2000).

The city first applied for a filtration avoidance determination in 1991 and was awarded a one-year waiver, renewed in 1992. In 1993, the EPA awarded the city a filtration avoidance determination with 150 conditions that the city needed to meet in order to continue to avoid filtration of the watershed. However, DEP was unable to move forward with some of the key conditions because of objections raised by upstate watershed communities—mainly concerning the impact that the implementation of the proposed programs would have on the economic

viability of those communities. The negotiations that followed led to the development, and eventual signing, of the Memorandum of Agreement in 1997. In conjunction with the settlement, the city received a further filtration avoidance determination from the EPA.

*The Memorandum of Agreement.* New York City, New York State, the EPA, upstate watershed communities and various environmental groups signed the watershed Memorandum of Agreement in order to ensure that the city will enjoy high quality water well into the 21<sup>st</sup> century while protecting the interests of upstate communities. The city agreed to meet the requirements spelled out in the MOA in order to satisfy federal water quality standards. In exchange, the EPA continued to waive the requirement that New York City filter Catskill/Delaware water, effective through 2002. There are three overarching requirements laid out in the MOA: land acquisition in the watershed area, the promulgation of watershed regulations, and the development of watershed protection and partnership programs.

*The Filtration Avoidance Determination.* In conjunction with the signing of the MOA, the city received its most recent filtration avoidance determination from the EPA for the Catskill/Delaware drinking water supply system. EPA will review progress in implementing the FAD in April 2002. There are many requirements included in the FAD. Land acquisition, wastewater treatment plant upgrades, and planning for a filtration plant that would become necessary if the FAD is not renewed in April 2002 are several of the key components. The FAD will not be renewed if the EPA determines that the city has failed to fulfill the requirements of the MOA and the FAD. EPA can at any time require that the city begin filtering the Catskill/Delaware watershed if it determines that the city's water no longer meets federal water quality standards.

These two documents govern the various watershed protection programs that DEP has developed. Although some of the watershed protection programs are specifically thought of as "MOA programs" or "FAD programs," in truth, these two directives work hand in hand. DEP's spending to date on watershed protection programs is summarized below, and in the attached tables.

### **DEP's Spending to Date**

DEP has a planned \$1.3 billion in watershed protection spending under the two programs combined. The vast majority of the total is included in the department's capital budget and program (financed by debt issued by the Municipal Water Finance Authority), although a small portion—\$78 million—is included in the city's expense budget. To date, the city has committed \$372.6 million, or 30 percent of the planned total. Under the MOA program, DEP has spent \$291.4 million to date—roughly 50 percent of the total amount planned in the MOA program. FAD program spending to date has been \$81.2 million out of a planned total of \$679.5 million, or 12 percent. Major components of the two programs include the agricultural partnership programs, wastewater treatment plant upgrades, and land acquisition. These and other components of the watershed protection program are discussed in what follows.

**Spending for Watershed Protection Programs Under the MOA and FAD**  
*Millions of dollars*

	Total Planned	Committed to date	Remaining Balance
Agricultural Partnership Programs	\$390.0	\$12.6	\$377.4
WWTP Upgrades	272.6	99.2	173.4
Land Acquisition	271.3	57.9	213.3
Catskill Fund for the Future	59.7	47.3	12.4
Stream Corridor Protection	14.7	10.2	4.5
Other Programs	245.9	145.4	99.4
<b>Total</b>	<b>\$1,254.2</b>	<b>\$372.6</b>	<b>\$880.4</b>
SOURCE: IBO; DEP.			
NOTE: See attached tables for details.			

*Agricultural Partnership Programs.* The Agricultural Partnership Programs are voluntary partnerships between the city and farmers in the watershed aimed at managing nonpoint sources of agricultural pollution. In addition, the program incorporates the economic and business concerns of each farm into the development of a “Whole Farm Plan” to further pollution prevention within farm operations. Currently, DEP has formed partnerships—through the Watershed Agricultural Board—with 85 percent of the commercial farms in the watershed areas. The Conservation Reserve Enhancement Program is another important part of the agricultural partnerships, focused on establishing riparian buffers along streams that come into contact with farmland. The city pays for the technical assistance to implement the program and shares program costs equally with the United States Department of Agriculture. In addition, the Agricultural Partnership Programs include a nutrient management planning program and the Small Farm Program.

To date, the city has committed \$12.6 million of the \$390 million planned for the agricultural partnership programs. Although the city has successfully formed partnerships with the majority of farms in the watershed, there have been delays in commencing implementation of the farm plans, thus slowing the actual commitments of funding in the program.

*Wastewater Treatment Plant Upgrades.* One third of total spending to date—\$99.2 million—has been for wastewater treatment plant (WWTP) upgrades, through two programs: the Regulatory Upgrade Program and the State Pollution Discharge Elimination System (SPDES) Upgrade Program. The Regulatory Upgrade Program is intended to fund the costs of designing, permitting, constructing and installing all regulatory upgrades required at non-city owned WWTPs in operation in the watershed. The SPDES Upgrade Program is intended to assist existing WWTPs in the West-of-Hudson (WOH) watershed with funds for rehabilitation and upgrading of equipment. Both the Regulatory Upgrade Program and the SPDES program are funded at a combined total of \$272.6 million, with the Regulatory Upgrade Program representing 98 percent of WWTP Upgrade Program total commitments—or \$267.6 million.

To date, about 36 percent of planned funds have been committed. The delays in the WWTP upgrade programs are due to the complexity of the process involved. There are 30 major steps involved in each upgrade and most of the delays have been in the early stages, when the steps are relatively simple. DEP has stated that they do not have concerns with meeting the May 1, 2002 deadline for upgrading the WWTPs as set out in the MOA.

*Land Acquisition.* Another key area of both the FAD and MOA are the land acquisition requirements. The MOA requires the city to solicit the purchase of 355,050 acres of undeveloped, environmentally sensitive watershed lands over the course of 10 years (1998-2007). For each eligible parcel, the city will make fair market value purchase offers for either transfer of ownership or conservation easements, and may purchase the land only from willing sellers. To date, the city has solicited 270,000 acres of land, with 33,764 acres acquired or under contract. DEP allocates consultation on land acquisitions to the MOA program, with approximately \$30,000 having been spent out of \$1.3 million in planned funds. The cost of actually acquiring the land is tracked under the FAD program. To date, DEP has spent \$57.9 million for land acquisition out of a planned total of \$270.0 million.

The Land Acquisition program has moved more slowly than might have been hoped, especially in the Kensico Reservoir area. The land in this area—highly developed Westchester County—is expensive and the landowners have a stronger economic reason to hold on to the land, as it is only likely to become more valuable with time. However, the EPA, in its midcourse review of the city’s progress in meeting the requirements of the MOA, stated that in order to maintain a filtration waiver, the city must increase efforts to acquire land in this area of the watershed.

*Other Programs.* The Catskill Fund for the Future is a program run by the Catskill Watershed Corporation—funded by DEP—which provides grants, loans and financing for economic development studies in communities located in the watershed area west of the Hudson River. In the past five years, \$6.3 million in loans and \$1.5 million in grants have been approved through this program.

Other projects that have substantial planned funding commitments are new sewage treatment infrastructure needs with \$75 million in planned commitments (\$7.9 million spent to date), and future stormwater controls in the west-of-Hudson watershed, funded at \$31.7 million (\$15.6 million spent to date). Finally, all of the planned \$68 million for water quality projects in the east-of-Hudson watershed has been committed.

### **Ultraviolet Filtration**

One of the requirements of the FAD was that the city complete a final design of the filtration system that would be built if it were deemed necessary in the future to protect the quality of the city’s drinking water. The city approached EPA for relief from completing the final design, citing the success of the city’s watershed program and the high cost—roughly \$160 million—for something that may never be built. On July 23, 2001 the EPA announced that it is proposing to relieve the city of its obligation to commence and complete the final design of a drinking water filtration system for the Catskill/Delaware watershed, contingent on the city accomplishing certain measures to increase protection of the water supply.

EPA’s proposal to waive this requirement of the FAD is dependent on the city completing its preliminary design for a filtration facility (completed in late 2001), sticking to a strict schedule for upgrading sewage treatment plants in the upstate watershed areas, taking additional watershed protection measures, and designing and, if necessary, building a facility that would disinfect the Catskill/Delaware water using ultraviolet light. The city has completed a required feasibility study for UV disinfection and must, if feasible, commence final design of a UV

facility by August 2002. If ultraviolet disinfection is determined by EPA to be feasible, DEP will design and construct a UV disinfection facility for the Catskill/Delaware water supply.

Currently, there are three potential sites for such a facility: Kensico Reservoir, Eastview, and the Hillview Reservoir (see attached table). A facility at the Kensico Reservoir site would be the least expensive—a total capital cost of \$171 million—because it has the fewest problems with site constraints. In contrast, the Hillview site would be nearly twice as costly due to the necessity of a pumping station and the use of a combined facility at this location.

The 2002 Adopted Capital Commitment Plan includes \$150 million for an UV disinfection facility. However, the February Plan includes an increase in funding—from \$150 million to \$188.4 million, with planned completion of the facility in 2006. This funding is part of the city's overall watershed protection spending although because it has not yet received final approval from the EPA, does not constitute spending under the MOA or FAD.

Of course, if you have any questions about what we have presented here, please feel free to contact me at (212) 442-8616 or by email at [merrillp@ibo.nyc.ny.us](mailto:merrillp@ibo.nyc.ny.us).

Sincerely,

Merrill Pond  
Senior Budget and Policy Analyst

C: Preston Niblack  
Ronnie Lowenstein

**MOA Program Spending Summary as of January, 2002***Dollars in millions*

<b>Capital Projects</b>	<u>Planned</u>	<u>Committed</u>	<u>Uncommitted Balance</u>
WWTP Upgrades	\$272.6	\$99.2	\$173.4
New Sewage Treatment Infrastructure	75.0	7.9	67.1
EOH Water Quality Funds	68.0	68.0	0
WOH Future Stormwater Controls	31.7	15.6	16.1
Septic Rehabilitation	13.6	13.4	0.2
Good Neighbor Payments	12.8	12.7	0.1
Sand & Salt Storage Facilities	10.3	9.4	0.8
Stormwater Retrofit Funds	7.6	2.2	4.3
Alternative Design Septics	3.0	1.5	1.5
Local Consultation on Land Acquisitions	1.3	*	1.2
Diversion Study	0.8	0.7	0.1
<b>Subtotal: Capital Projects</b>	<b>\$496.7</b>	<b>\$230.6</b>	<b>\$264.8</b>
<b>Expense Projects</b>			
Catskill Fund for the Future	\$59.7	\$47.3	\$12.4
CWC Operating Funds	3.5	3.5	0
Tax Consulting	3.0	3.0	0
Payment of Costs & Expenses	2.6	2.6	0
Delegation	2.5	1.1	1.4
Public Education	2.0	0.7	1.3
Croton Planning	2.0	1.0	1.0
Stormwater Retrofit Funds	1.1	0.0	1.1
Funding for WPPC	1.1	1.1	0
WOH Economic Development Study	0.5	0.5	*
<b>Subtotal: Expense Projects</b>	<b>\$78.0</b>	<b>\$60.8</b>	<b>\$17.2</b>
<b>Total MOA Program Funding</b>	<b>\$573.4</b>	<b>\$291.4</b>	<b>\$282.0</b>

SOURCES: IBO; DEP.

NOTE: \* Less than \$50,000.

**FAD Program Spending Summary as of January 2002***Dollars in millions*

<b>Program</b>	<u>Planned</u>	<u>Committed</u>	<u>Uncommitted Balance</u>
Land Acquisition	\$270.0	\$57.9	\$212.1
Agricultural Partnership Programs	390.0	12.6	377.4
Stream Corridor Protection	14.7	10.2	4.5
Dunraven Bridge Construction	2.0	0.0	2.0
Resurfacing Schorarie Roads	2.0	0.0	2.0
Sewage Diversion Feasibility Studies	0.8	0.5	0.4
<b>Total</b>	<b>\$679.5</b>	<b>\$81.2</b>	<b>\$598.4</b>

SOURCES: IBO; DEP.

**Comparison of Potential UV Facility Site Costs***Dollars in millions*

<b>Item</b>	<u>Kensico</u>	<u>Eastview</u>	<u>Hillview</u>
UV Reactor Building	\$38.2	\$17.4	\$53.9
UV Reactor Equipment	42.9	35.4	35.6
Channels/Pumps	5.5	124.1	98.9
Operation and Maintenance Building	9.5	9.5	*
<b>Subtotal – Equipment, Materials &amp; Construction</b>	<b>\$96.1</b>	<b>\$186.4</b>	<b>\$188.4</b>
Overhead & Profit (15% of Equipment, Materials & Construction Costs)	14.4	28.0	28.3
Contingency (40% of Equipment, Materials & Construction Costs)	38.4	74.6	75.4
<b>Subtotal - Construction Cost</b>	<b>\$148.9</b>	<b>\$289.0</b>	<b>\$292.1</b>
Engineering/Construction Management (15% of Construction Costs)	22.3	43.4	43.8
<b>Total Capital Cost</b>	<b>\$171.2</b>	<b>\$332.4</b>	<b>\$335.9</b>

SOURCE: Hazen and Sawyer/Camp Dressen & McKee, *UV Disinfection Feasibility Study*, December 2001, Table 7-1.  
NOTE: \*Included in the UV reactor building cost.