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Croton Watershed Clean Water Coalition



THE SELLING OF THE CROTON WATERSHED

How "multi-barrier" protection is vanishing before the onslaught of development

By Marian H. Rose



The Author

Despite all the lip service being paid to the need to protect the sources of drinking water that are to be filtered as much as those that are to remain unfiltered, the reality is that this is simply not happening. And nowhere is this more apparent than in the acquisition of land in the Croton watershed as opposed to the Catskill/Delaware (Cat/Del).

The disparity was immediately apparent in the 1997 Watershed Agreement in which only \$10 million was assigned to buying land in the Croton as opposed to \$250 million for the Cat/Del. Granted that the Cat/Del covers a much larger area; however, land in the Croton

is much more expensive.

To date, the NYC Department of Environmental Protection (DEP) has acquired about 800 acres in the Croton watershed. By contrast, developers have developed or are in the process of developing well over 3,000 acres - at least four times as much. The accompanying map, pockmarked with development sites, conveys the extent to which this watershed and its unsurpassed natural resources that protect the quality of its water are being sacrificed to commercial interests. The list of sites in the hands of developers may be accessed on our website at www.newyorkwater.org

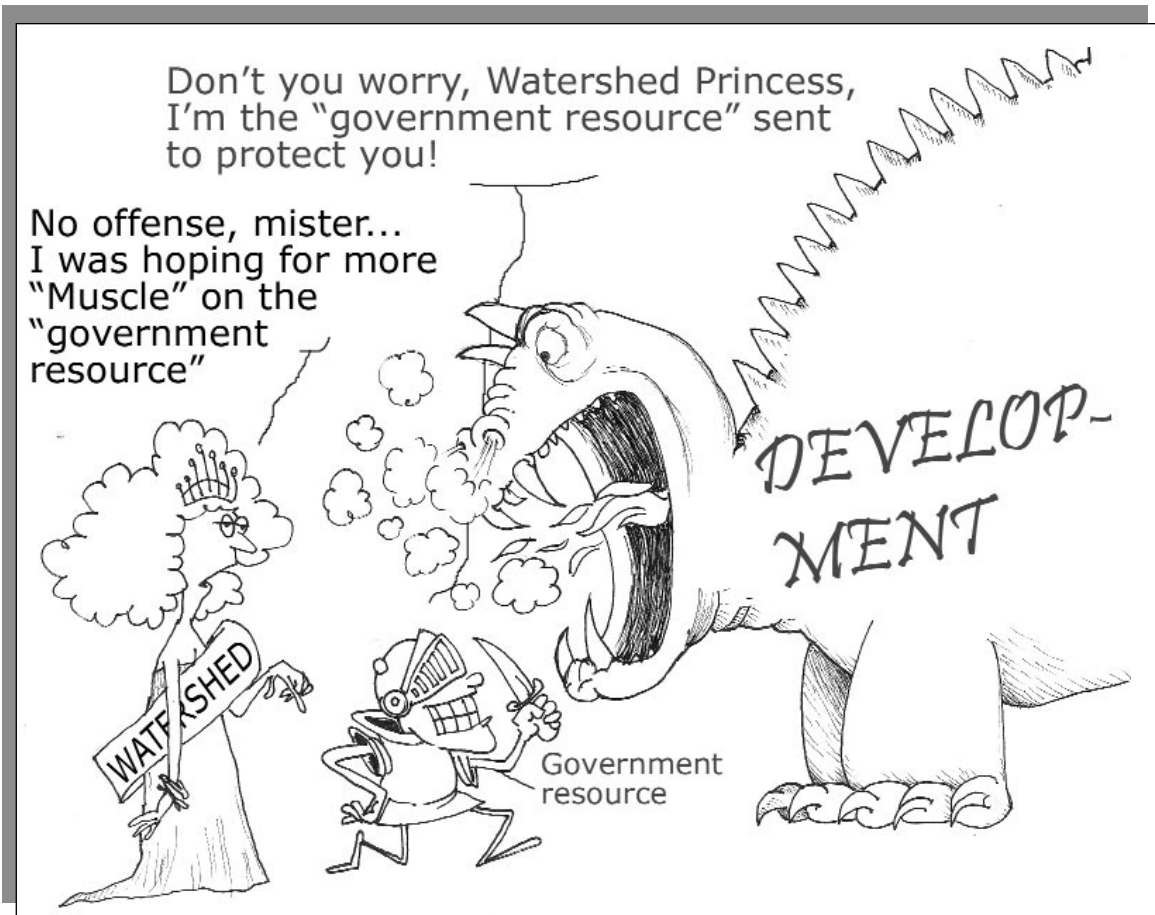


Illustration by Enrique Dura



EPA'S "MULTI-BARRIER APPROACH" TO WATERSHED PROTECTION

From one of EPA's websites, we read: "The Safe Drinking Water Act (SDWA), passed in 1974 and amended in 1986 and 1996, gives the Environmental Protection Agency (EPA) the authority to set drinking water standards. Drinking water standards are regulations that EPA sets to control the level of contaminants in the nation's drinking water. These standards are part of the Safe Drinking Water Act's "multiple barrier" approach to drinking water protection, which includes assessing and **protecting drinking water sources (emphasis added)**; protecting wells and collection systems; making sure water is treated by qualified operators; ensuring the integrity of distribution systems; and making information available to the public on the quality of their drinking water."

We note that "protecting drinking water sources" is the first in the list in complying with drinking water standards, **irrespective of whether the supply is filtered or unfiltered.**

A similar view was expressed in a speech

delivered in June, 2003 ("Challenges and Opportunities of Source Water Protection" Plenary Address to the National Source Water Protection Conference, Washington, DC - June 2, 2003) by G. Tracy Mehan, III, Assistant Administrator for Water, United States Environmental Protection Agency, who stated:

"While some form of treatment may always be needed, preventing contamination from entering water bodies serves as the first barrier to reducing consumer exposure to contaminants in their drinking water" (emphasis added).

These citations, including one from a former EPA top administrator, show unequivocally that regardless of the treatment protocol, **EPA regards source water protection as being first in line. Nowhere is there a distinction between "filtered" and "unfiltered". And, keeping critical land out of development through acquisition and preservation is the best means of protection.**

A COMPARISON BETWEEN PROTECTION OF THE CROTON AND THE CATSKILL/DELAWARE WATERSHEDS

Recently, bill Int.375 was introduced by the Environmental Committee of the NYC Council.

The purpose is to insure that the Cat/Del system remains unfiltered for the foreseeable future through a well-determined program of land acquisition.

CWCWC is in complete agreement with the need to buy land in the Cat/Del watershed in order to protect water quality.

However, even here, a double standard is being applied.

For the Cat/Del, the bill states: "The commissioner shall establish a goal of acquiring fee simple ownership or conservation easements for at least seventy-five thousand acres within the Catskill/Delaware watershed during the period from 2007 to 2017." The bill gives specific instructions on

how these seventy five thousand acres shall be acquired.

Croton watershed management strategy, a specific program to acquire watershed lands within the high priority areas established by DEP must be included.

For the Croton, the bill merely says: "The commissioner shall establish a goal of pursuing increased watershed protection and land acquisition efforts in the croton watershed. To help accomplish this goal, the commissioner shall assess, at minimum, the following: (1) the effectiveness of the croton watershed management strategy to protect the croton watershed and croton supply..."

The bill does not even attempt to quantify any goals for the Croton, nor does it establish a time line or a time limit. The contrast between the treatment of the watersheds could not be starker.

To inject some degree of reality into the bill's proposed Croton watershed management strategy, a specific program to acquire and preserve watershed lands within the high priority areas established by DEP must be included. To buy land, the same source of funding could be used as a few years ago when, in order to dull the opposition of some Bronx politicians to the Croton filtration plant in Van Cortlandt Park, the mayor siphoned off over \$200 million from the Municipal Water Finance Authority to pay for a multitude of park

embellishments in the Bronx, that had nothing whatsoever to do with any water-related project – a use of those funding sources whose legality remains highly questionable. That same funding source could be used, this time legally, for acquisition of land in the Croton watershed. Two hundred million dollars would go a long way towards paying for land that would help protect source water quality and ensure healthy drinking water for the consumer.

THE “MULTI-BARRIER APPROACH” IS NOT BEING APPLIED TO THE CROTON

a) Source water in the Croton is not being protected

DEP and DEC consider phosphorus to be the pollutant of main concern in the Croton watershed because it is the limiting factor in controlling the growth of nuisance algae in fresh waters. Algae cause discoloration and odor problems and render disinfectants such as chlorine, less effective.

From DEP's own figures, phosphorus levels in 8 out of 10 of Croton reservoirs have increased significantly since 1997 – among them the Croton Falls Reservoir. In times of drought, when the Cat/Del system is no longer able to supply the region's needs, waters from the Croton Falls reservoir are diverted directly into the Delaware aqueduct.

Phosphorus concentration in the Croton Falls reservoir has increased by 5% since 1997 and is now a whopping 57% above its target value of 15 micrograms/liter. Phosphorus levels in the Middle Branch that feeds directly into Croton Falls have also been allowed to rise – 10% since 1997 and 55% above its target value of 20 micrograms/liter.

The Middle Branch watershed is being overrun by development - 630 acres have been developed or are under development over the last ten years. And a further 131 acres in the Croton Falls Watershed itself have been or are being developed. Unless development is brought under control – and quickly, and unless these watersheds in the Croton are fully protected, water from the Croton Falls Reservoir will continue to degrade and may become unsuitable to be included in the Cat/Del system.

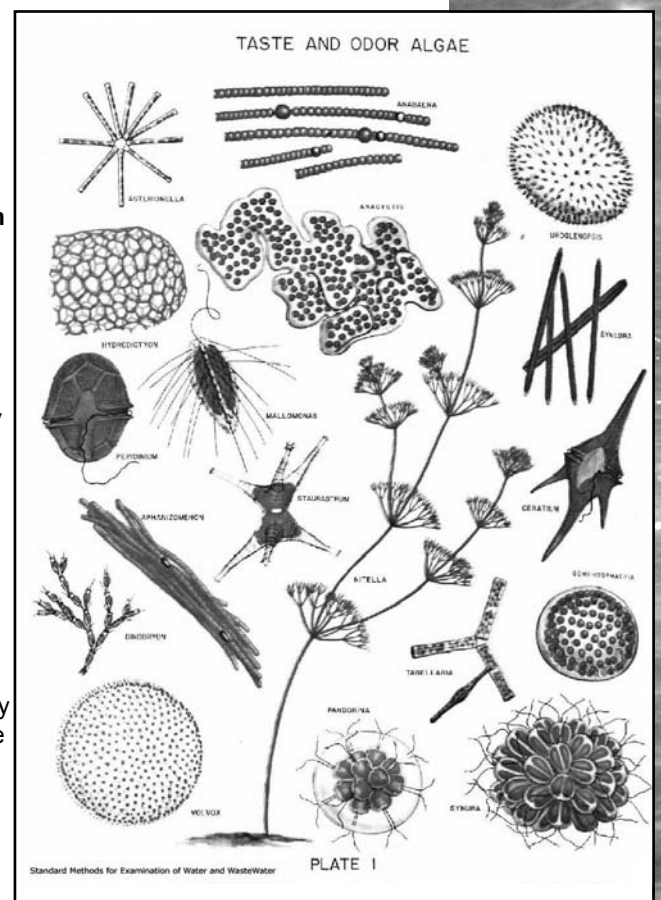
b) Wastewater Treatment Plant Upgrades are Seriously Behind Schedule

As of January 27, 2006, only 14% of the total East of Hudson (i.e., Croton) sewage had been upgraded to tertiary levels. Only 9 wastewater treatment plants (WWTP) out of 69 (or 13%) had been upgraded to the tertiary levels that, under the 1997 Watershed Agreement, was required by May 1, 2002. Plants accounting for 36% of the flow are now, finally, under construction.

By contrast, plants accounting for 97% of the West of Hudson WWTP flow have been upgraded (2005 DEP Drinking Water Supply and Quality Report)

An accelerated plan to make up for lost time and upgrade the Croton WWTPs to tertiary levels should be an integral part of this bill.

In the meantime, WWTPs that are waiting to be upgraded continue to pour sewage effluent into streams and reservoirs.



CONCLUSIONS

Those of us who live in the Croton Watershed and who participate actively in its protection have seen little sign of DEP helping in or leading any endeavor to protect it.

The regulatory agencies' much-touted "multi-barrier approach" to watershed protection is non-existent in the Croton Watershed, for all practical purposes. Croton water is to be filtered and there is next to nothing being done to protect the source water. If the present rate of degradation is allowed to continue, the Croton's natural defenses - wetlands, soils and forests - will collapse, and water quality will deteriorate to a point where expensive "remediation", beyond the \$1.5 billion already being spent on the chemical treatment/filtration plant, will be needed.

At a public hearing in January, 2001, at De Witt Clinton High School, DEP Commissioner Ward stated that rising water and sewer rates would act as a regressive tax on the ratepayers. That was a candid statement, insofar as it went.

What the Commissioner neglected to say was that the ratepayers will have to bear the burden of the regulatory agencies' willful neglect of the Croton and end up paying higher rates for lower quality water. The political fallout from such a manifestly unfair rise in rates could be considerable.

However, if past performance is any indication, the regulatory agencies will only do the minimum to protect water quality in the Croton.

We urge the DEP and DEC to buy significantly more land in the Croton and to swiftly upgrade the WWTPs - so that this extraordinary watershed may continue to produce clean, healthy and affordable water as it has shown itself capable of doing for the past hundreds of years.



The New Croton Reservoir - The terminal reservoir for the Croton that supplies drinking water for New York City and Westchester County residents.

In times of drought these reservoir provides drinking water for up to 2 million people.

DOES YORKTOWN REALLY NEED TO EXPAND ITS SEWAGE TREATMENT PLANT

CWCWC Offers Solutions That Would Have Less Impact on the New Croton Reservoir

Since the defeat of the project to divert 1.5 million gallons per day (mgd) of raw sewage from its Hallock's Mill plant to the County-owned plant in Peekskill, Yorktown now has no alternative than to upgrade its plant. Yorktown is proposing to ask for a 1.0 mgd increase in its State Pollutant Discharge Elimination System (SPDES) permit - up to 2.5 mgd. It will need approval from both the NYS Department of Environmental Conservation (DEC) and NYC Department of Environmental Protection (DEP).

Some of this extraordinary increase, Yorktown claims, is due to the vast amount of Infiltration & Inflow (I/I) - stormwater that accesses the sanitary collection system through cracks in the sewer pipes, defective covers over manholes, illegal hookups by private property owners etc... - that the Town has made great efforts, albeit unsuccessfully, to diminish. (For further background on I&I, please refer to comments by

Ivanka Roberts in our March/April newsletter, available on our website www.newyorkwater.org).

Yorktown points to the latest Stearns & Wheeler report (DRAFT Technical Memorandum No. 1-Draft Infiltration/Inflow, August 1, 2005) that commends the town for its efforts to reduce I/I and agrees that further efforts would not be cost-effective.

CWCWC hired an independent engineering firm, David Clouser & Associates to analyze the identical research documents (mainly reports by J. Robert Folchetti & Associates.) on which Stearns & Wheeler reached their conclusions.

The conclusions reached by Clouser & Associates, as reproduced here in their Executive Summary, are very different from Stearns & Wheeler's.

TOWN OF YORKTOWN WASTEWATER DISPOSAL SYSTEM INFLOW AND INFILTRATION CONDITION EVALUATION ENGINEERING REVIEW AND ASSESSMENT

By David Clouser & Associates
Executive Summary

A review of prior engineering reports and studies indicates that considerable effort has been made by the Town to identify and reduce the substantial I/I flows that are present in its deteriorating sanitary sewer collection system. Each mini-basin area of the system studied over the past 25+ years has identified several sections of collection mains that appear to be in an advanced stage of deterioration. Such deterioration of the collection system unfortunately can be expected to worsen, particularly considering that a majority of the original sanitary sewer collection system in this Sewer District was constructed with asbestos cement pipe (ACP). ACP is well known to be particularly susceptible to structural failure and leakage as a result of poor installation practices, and it becomes very brittle and easily fractured with age.

The recent Stearns & Wheeler 2005 Draft Report noted that although the Town has made

a commendable effort in identifying I/I and rehabilitating those portions of the system where the I/I flows were greatest, plant flows remain essentially the same. Our office, however, believes this to be true for other reasons, including considerations of the complexity of the system's reaction to various seasonal and rainfall conditions (i.e., that make comparisons of both flow records and treatment plant performance difficult at best). Another factor is that only a minor portion of the system has undergone substantial rehabilitation, thereby allowing the remainder of the system to deteriorate at a pace greater than its repair frequency.

A separate determination of the magnitude and frequency of I/I flows was undertaken in this investigation for the period from July 2004 through June 2005. The results of this determination indicated somewhat less I/I flows in the collection system than were projected by



earlier studies. This analysis also clearly identified the most problematic I/I flow type to the wastewater collection and treatment system process - rainfall derived infiltration and inflow (RDII). Cost of treatment of these infiltration and inflow components are estimated to be in the order of \$610,000 per year based on average operation and maintenance cost of wastewater collection systems and treatment plants throughout the country.

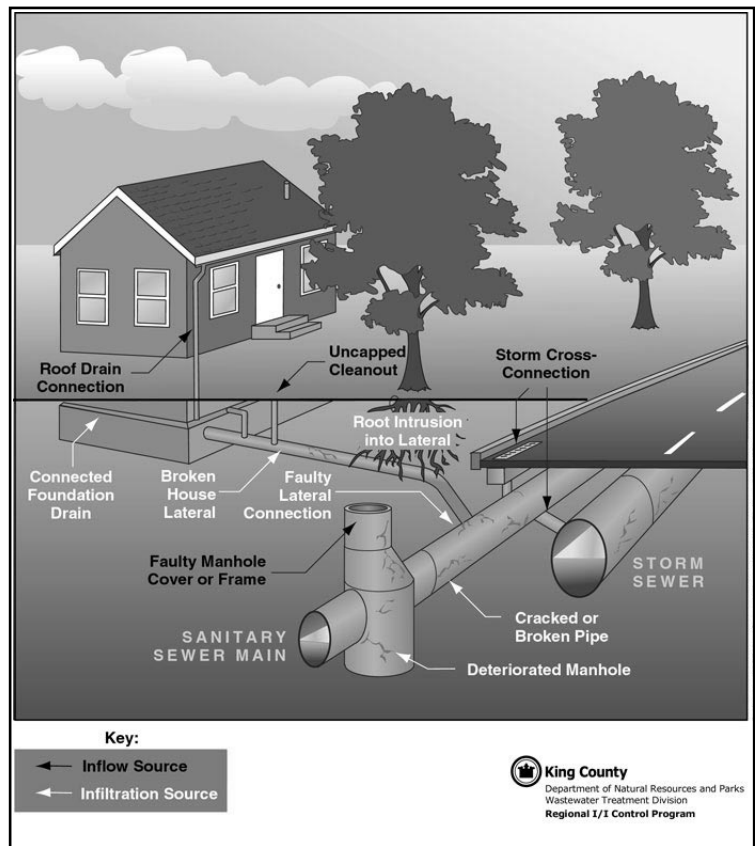
Our investigation's development of the treatment plant's flow rate hydrograph indicates significant periods of I/I that exceeds 5,000 gallons/inch-mile/day - which should be considered excessive flow by any standards. A review of the flow rate response period compared to rainfall event indicates the probability of substantial RDII, from private sewer lateral sources, illegal private connections and defective collection system component sources. Additionally, there remain several obvious, previously identified major sources of inflow and infiltration within the collection system that do not appear to have been addressed, but should be.

A review of previous engineering studies provides numerous identified areas of needed repair. Only a small portion of the Sewer District has been evaluated and an even smaller portion of the system's components have been rehabilitated. The Town's past policy of selecting elements to be rehabilitated based on cost-effectiveness is valuable in setting program priorities, but the ultimate program goals should be:

- 1) an eventual rehabilitation of a majority of the entire system, and
- 2) establishing an ongoing maintenance program that protects the system's functional and operational capabilities. Once instituted, the proactive investment in this community asset will allow for future population growth with the sewer system's (rehabilitated and regained) excess capacity.

Other communities have addressed similar I/I extraneous flow issues by undertaking various forms of a focused asset management program (i.e., similar to those described in the US EPA's CMOM capacity management guidelines). Implementation of this type of program has resulted in a cost effective reduction of infiltration flows through a systematic rehabilitation of the collection system. Inflow point source contributions from private properties must also be addressed and have been successfully by many communities through cooperative public/private disconnection and repair programs. Several examples of how other communities have effectively addressed this problem with the associated cost implications are provided.

Sewer District fees may need to increase to fund a proactive approach that will be needed to address the sources of this problem in both the deteriorating publicly owned sewer components and the substandard private sewer services. Addressing the source of the problem is a more feasible option than attempting to accommodate it.



COMMENTS ON THE CLOUSER REPORT

By Oreon Sandler

I/I is storm water getting into the sanitary sewer collection system. The costs for complying with the Phase II stormwater regulations for small, regulated municipal separate storm sewer systems (MS4s) and many of the costs for I/I are the same dollars. That flow (I/I) is a portion (very likely a big portion) of what must be treated by the MS4. Funding both MS4s and reducing I/I are directly related and reducing I/I can go a long way towards meeting the March 2008 deadline when each small regulated MS4 must have its program fully implemented or face heavy fines.

1. The deterioration of the entire Hallocks Mill Sewer District underground sewage collection system is far more serious than reported based on I/I data. This refers primarily to installed piping material (asphalt concrete) chosen which becomes brittle with age, and this piping needs to be replaced or lined throughout the district.

2. Total volume of I/I is not as large as projected by Folchetti

3. Cost estimates to repair, reduce or remediate I/I throughout the system are not as expensive as forecast in the Folchetti report, but is more costly to homeowners than revealed due to the deteriorating private lines' piping integrity. That

refers to the homeowner's line from the home to the street lateral. This means that system costs are less but individual homeowner costs are more than expected.

4. Proactive system costs to reduce I/I would be less expensive in the long run than emergency repairs as has been the recent management style. Proactive means that the entire system is analyzed for total remediation project costs and planned over a period of years. Then the full scope of work is funded for those 5-10 years or longer to get it thoroughly completed in a planned method instead of the current reactive emergency maintenance program.

CONCLUSIONS

CWCWC opposes any increase in the present 1.5 mgd SPDES permit for Hallock's Mill to discharge sewage effluent into the New Croton Reservoir:

1) We believe, based on the Clouser report, that the I/I problem can be solved without the need for any increase beyond the plant's present SPDES permit of 1.5 mgd

2) Yorktown's request for a 1.0 mgd increase over the present 1.5 mgd SPDES permit would, in our opinion, lead to further development in the sensitive Croton Watershed. If Hallock's Mill were granted this increase, it could undercut DEP's and DEC's legal arguments if they were to refuse other similar requests in the watershed.

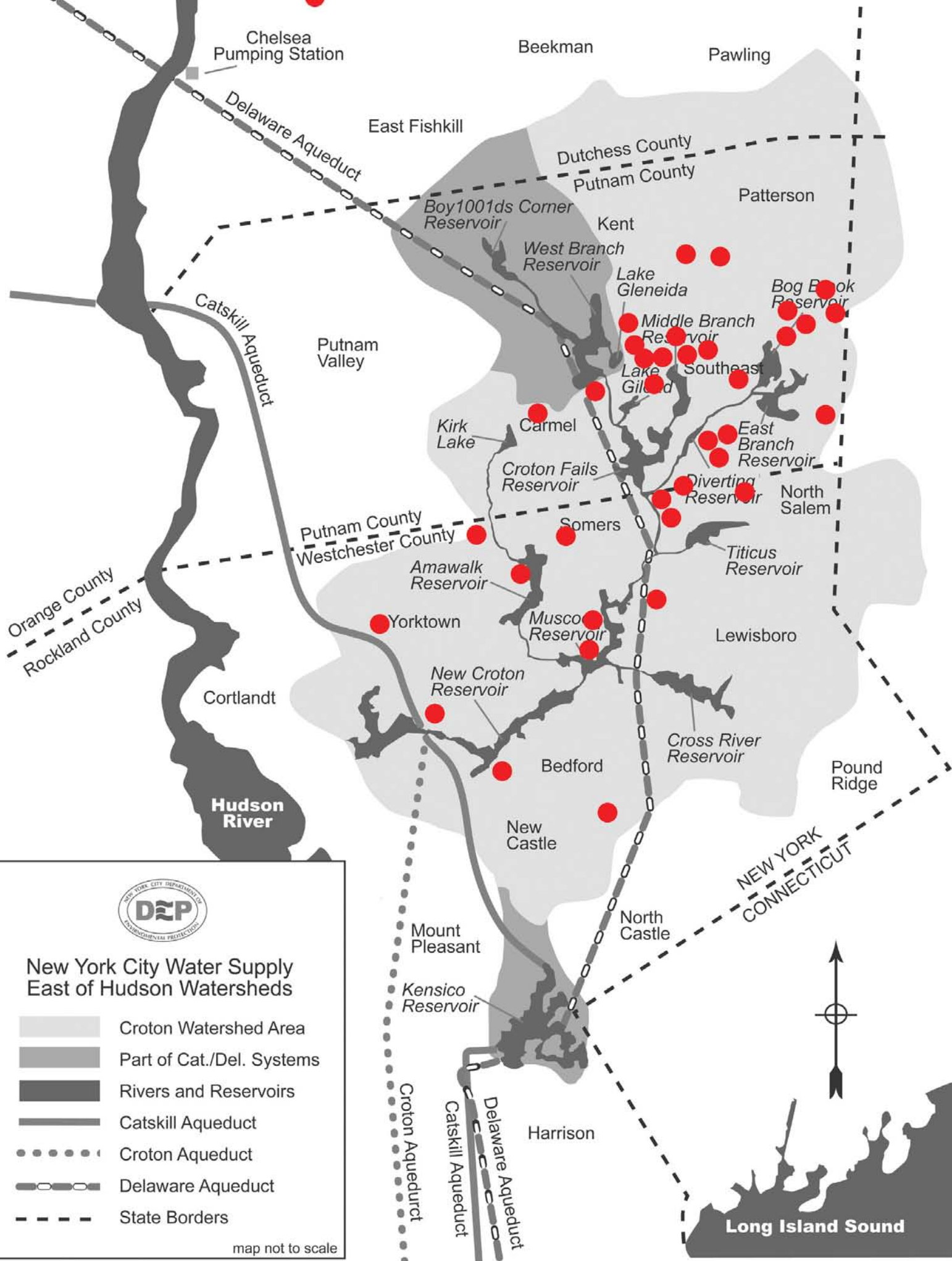
3) Stormwater runoff from impervious surfaces that inevitably accompanies development, carries with it the most toxic and carcinogenic pollutants.

4) Solving the I/I problem, and receiving funding from DEP to upgrade Hallock's Mill to tertiary levels would go a long way towards helping Yorktown comply with the Phase II Stormwater Regulations for small, regulated MS4s.

Yorktown is, arguably, the most critical municipality in the Croton Watershed in terms of its impact on water quality in the New Croton Reservoir. The outcome of these decisions will have a major impact on the future quality of Croton water and our drinking water supply.



DEVELOPMENTS IN THE CROTON WATERSHED



New York City Water Supply East of Hudson Watersheds

- Croton Watershed Area
- Part of Cat./Del. Systems
- Rivers and Reservoirs
- Catskill Aqueduct
- Croton Aqueduct
- Delaware Aqueduct
- State Borders

map not to scale

Long Island Sound

PLEASE JOIN US

Through regional action, CWCWC is dedicated to providing alternatives to chemical treatment/filtration, and to protecting and improving the naturally-filtered, high-quality waters of the Croton Watershed for today and for generations to come.

Send in your membership and receive membership mailings, a subscription to CWCWC's newsletter, "Our Water, Our Future" and (at your request) a free copy of the multi-award-winning video, "The Fight for the Croton Watershed."

Most importantly, your membership will help you get involved with the preservation of one of our most precious resources, our water.

Croton Watershed Clean Water Coalition Membership Application

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Email: _____

- Group/Coalition Membership (Voting) \$25/year [For Groups/Assoc. only]
- Individual Membership (Non-Voting) \$10/year [For Individuals only]

Is this a Renewal or a New Membership? (Circle one)

Make checks payable to Croton Watershed Clean Water Coalition and mail, along with your membership form, to:

FAY MUIR, Secretary, CWCWC, INC., 9 OLD CORNER ROAD, BEDFORD, NY 10506



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