

**United States Environmental Protection Agency  
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**FINANCING THE JOURNEY TO PROTECTION:**

**The New York City Watershed  
Memorandum of Agreement -  
Forging A Partnership to Protect Water Quality**

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# New York City's Water Supply System

## Catskill/Delaware Watersheds

## Croton Watershed

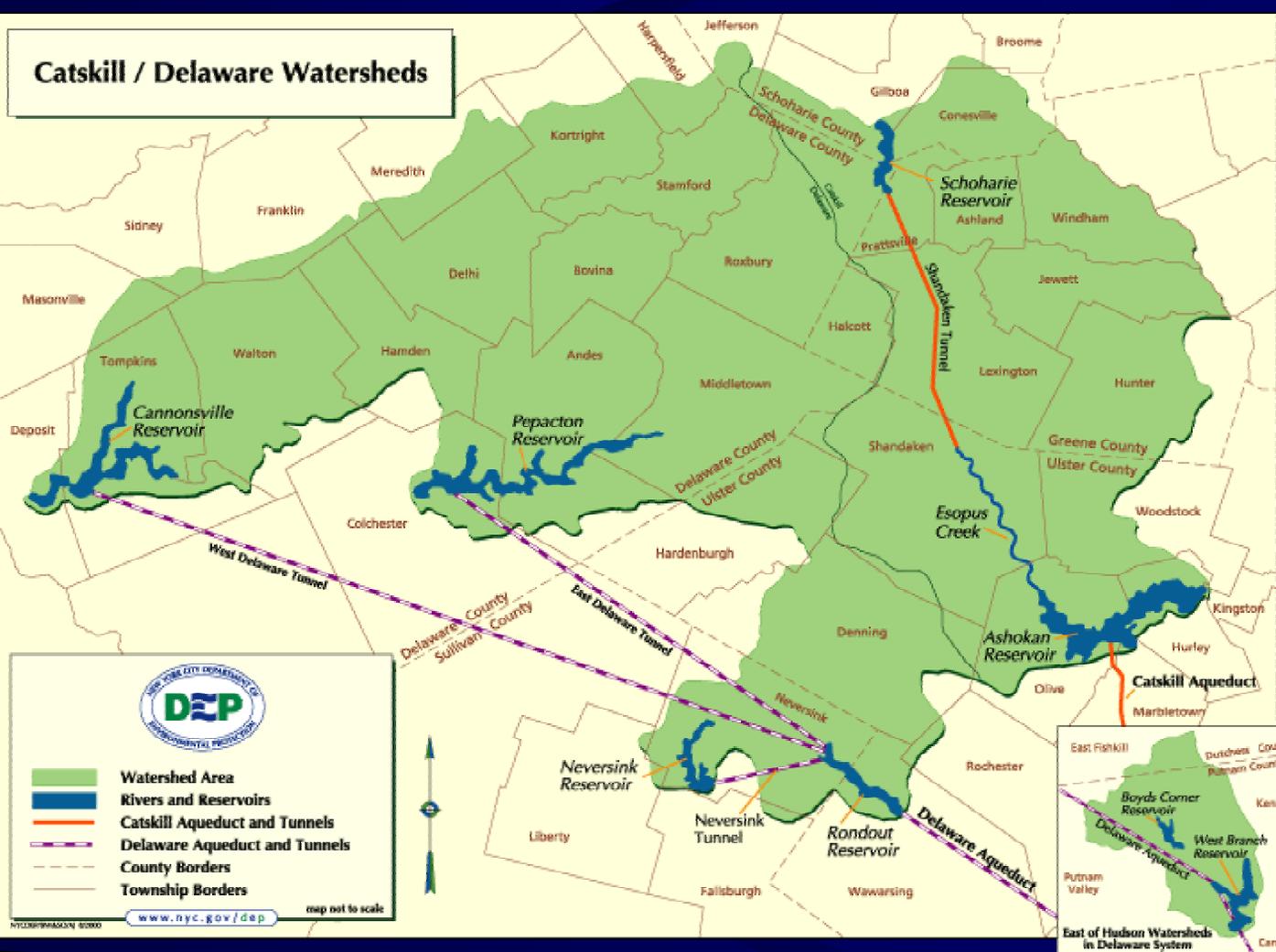


# New York City Water Supply System



- Primarily a surface water supply
- 19 reservoirs; 3 controlled lakes
- Serves 9 million people (1/2 of population of New York State)
- Delivers approx. 1.3 billion gallons per day to the City
- Source of water is a 2,000 square mile watershed in parts of 8 upstate counties
- System is divided into 3 components:
  - ◆ Catskill water supply
  - ◆ Delaware water supply
  - ◆ Croton water supply
- Operated and maintained by New York City Department of Environmental Protection (NYCDEP)

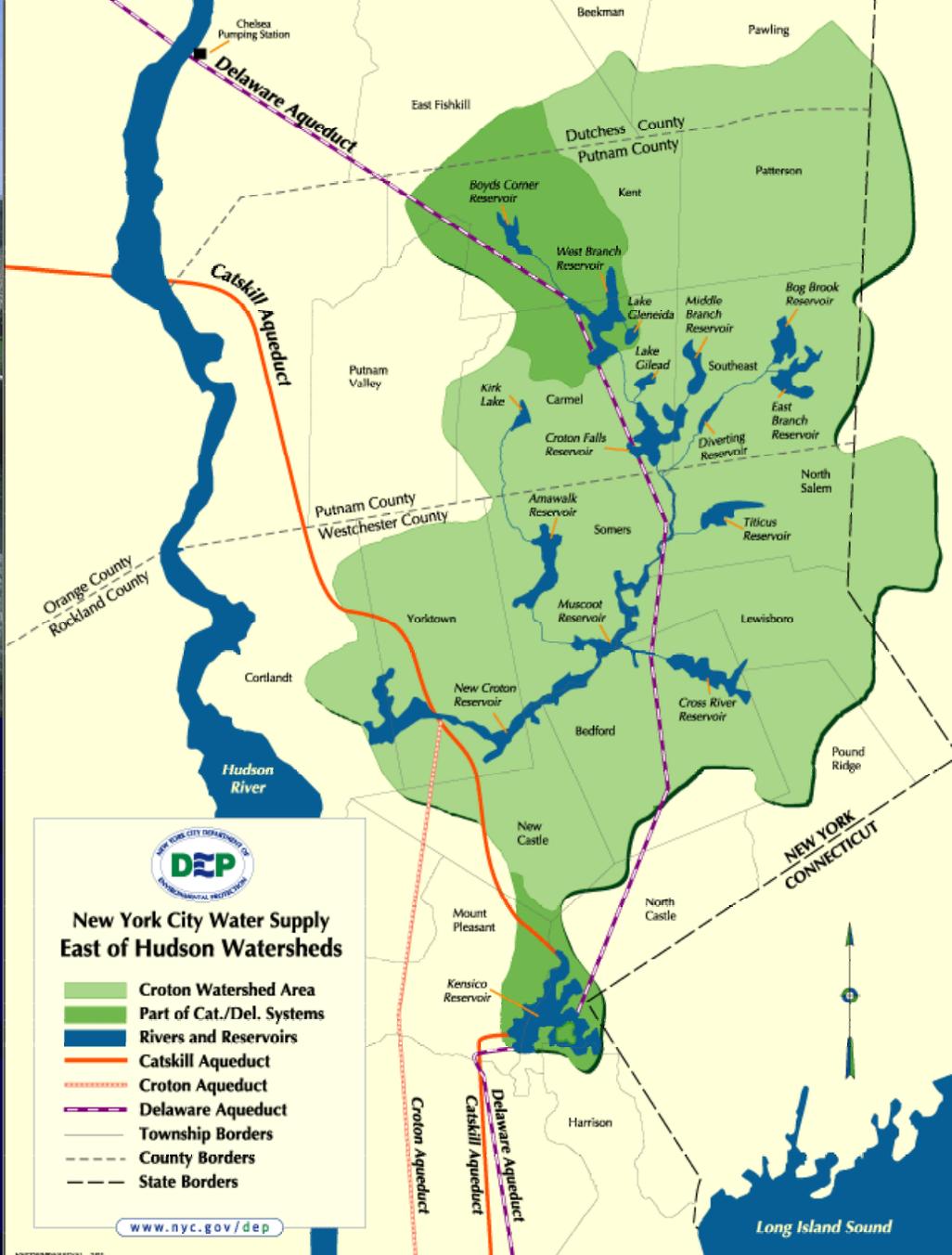
## Catskill / Delaware Watersheds



## CATSKILL AND DELAWARE SUPPLIES

- Supply about 90% of City's average daily needs
- Located primarily West of the Hudson River
- Built in 20<sup>th</sup> Century, pursuant to Water Supply Act of 1905 and its progeny
- Last reservoir (Cannonsville) completed in 1967
- Rural, mountainous watershed
- Are currently unfiltered
- City has obtained five (5) Filtration Avoidance Determinations for these supplies; latest one expires April 2007





# CROTON WATER SUPPLY

- Supplies about 10% of City's daily needs (can supply up to 30% in times of drought)
- Located East of the Hudson River
- Oldest part of system
- Built primarily in 19<sup>th</sup> Century
- Watershed is now suburban in character
- Is currently unfiltered, but City is under Consent Decree to construct filtration plant by 2010 or 2011 (depending on site selected)

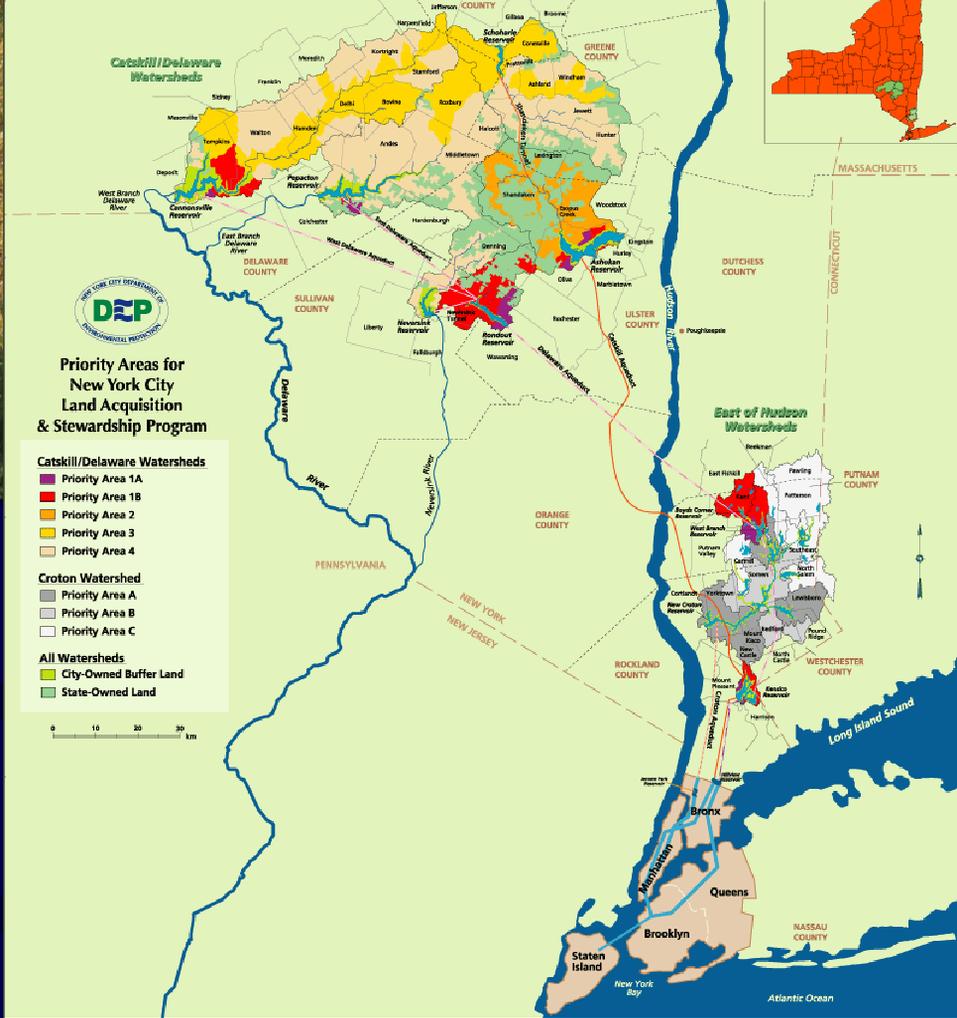
# FACTORS DRIVING CITY TOWARDS NEGOTIATION OF WATERSHED MEMORANDUM OF AGREEMENT

- Increased federal regulation of drinking water - late 1980's
  - ◆ SDWA amendments of 1986
    - ◆ requiring disinfection by all public systems
    - ◆ directing USEPA to develop criteria to determine when filtration will be required
  - ◆ SWTR, 1989
    - ◆ objective and subjective criteria
- Concern over whether City could meet subjective criteria
  - ◆ City owned only very small portion of watershed - less than 8% overall
  - ◆ City regulations outmoded
- Increased concern by public over safety of drinking water - Milwaukee incident
- City alarmed by potential cost of filtration plant (originally estimated at \$6-8 Billion)
- Firm belief by NYCDEP that reliance on end-of-pipe solutions alone is not prudent; best approach is to protect quality of water at its source

# WATERSHED MOA - MAJOR ELEMENTS

## Major elements:

- Watershed Land Acquisition
- New Watershed Regulations
- Environmental and Economic Partnership Programs



# WATERSHED LAND ACQUISITION

## ➤ Watershed Land Acquisition Program by City

- ◆ No limit on total acreage that can be acquired
- ◆ No local veto, although local communities are notified about, and are asked to comment on, proposed acquisitions
- ◆ Willing seller/willing buyer only
- ◆ City to pay fair market value, based on appraisal
- ◆ City may buy fee title or conservation easement
- ◆ City must solicit certain acreage by year and by priority area (City must solicit 355,050 acres in total)
- ◆ Land divided into “priority areas”
- ◆ City pays property taxes on land it acquires
- ◆ City to look at recreational uses and to preserve historic uses where consistent with water quality protection and public safety

# NEW WATERSHED REGULATIONS

- Replaces outmoded regulations dating back to 1953
- Adopted as both City law and as State law
- Apply throughout the watershed (all 3 City watersheds)
- Regulate land use activities of concern:
  - ▲ design and construction of wastewater treatment plants
  - ▲ design and construction of subsurface sewage treatment systems
  - ▲ creation of impervious surfaces
  - ▲ require stormwater pollution prevention plans (SPPPs) for certain types of projects
- Contains some innovative elements:
  - ▲ 2 for 1 phosphorus offset for variance - expanding WWTPs in P-restricted basins
  - ▲ 3 for 1 phosphorus offsets - pilot program in Putnam County
  - ▲ 10% sewage diversion credit - Westchester and Putnam Counties
- NYCDEP issues Notices of Violation (NOVs) for infractions

# ENVIRONMENTAL AND ECONOMIC PARTNERSHIPS

- City-funded programs to address water quality problems while helping local communities in watershed preserve their economic viability
- City invests approx. \$330 Million, on top of planned \$1.2 Billion investment in watershed improvements
- Major programs include (partial listing):

## West of Hudson

- ▲ \$13.6 Million for septic system rehabilitation
- ▲ \$31.7 Million for West of Hudson Future Stormwater
- ▲ \$7.625 Million for Stormwater Retrofits
- ▲ \$59.9 Million for Catskill Fund for the Future

## East of Hudson

- ▲ \$38 Million to Westchester County, \$30 Million to Putnam County for water quality protection projects (MOA defines eligible projects)
- ▲ \$2 Million - to Westchester and Putnam Counties to develop comprehensive Croton Water Quality Protection Plans
- ▲ \$800,000 - to Westchester and Putnam Counties for sewage diversion studies
- ▲ City is upgrading all existing WWTPs to meet requirements of new Watershed Regulations (total program, West and East of Hudson, is in excess of \$260 Million)

# FINANCING WATERSHED PROTECTION

- City water and sewer systems are self-sustaining, based on user fees (separated from City's General Fund in 1985)
- Tri-Partite Financing Structure:
  - ◆ New York City Municipal Water Finance Authority - independent public authority which issues bonds and notes to pay for capital projects to improve and upgrade the water and sewer systems
  - ◆ New York City Department of Environmental Protection - executive agency of the City which operates and maintains the water and sewer systems
  - ◆ New York City Water Board - public benefit corporation which sets rates for water and sewer service in amounts sufficient to pay principal and interest on Authority bonds; DEP operating expenses; and other system-related costs. Water Board also collects water and sewer charges from system customers.



# ENHANCING THE CREDIT AND LOWERING CAPITAL COSTS

- Water utility is a very strong credit; ratings on NYCMWFA bonds are higher than ratings on City General Obligation Bonds. Ratings on most recent issuance of NYCMWFA bonds:
  - ◆ Fitch - AA
  - ◆ Moody's - Aa2
  - ◆ Standard & Poor's - AA
  
- NYCMWFA and DEP are aggressive users of the New York State SRF Program, administered by the New York State Environmental Facilities Corporation
  - ◆ Credit is even stronger when NYCMWFA uses the SRF as the vehicle to reach the capital markets
  
  - ◆ NYS SRF uses federal capitalization grants and State matching funds to establish reserve accounts for each EFC bond issuance - at least 1/3 of principal amount; reserves provide additional security
  
  - ◆ In addition, interest earnings on reserve accounts are paid over to borrower as interest rate subsidy, cutting interest costs by at least 1/3
  
  - ◆ Ratings on SRF bonds issued to support NYCMWFA financings are even higher; ratings on most recent issuance:
    - Fitch - AAA
    - Moody's - Aaa
    - Standard & Poor's - AAA



# SEEKING OUT SUPPLEMENTARY FUNDING FROM OTHER SOURCES

- DEP is working with local partners to aggressively seek out supplementary funding for watershed protection
- Examples of success in securing grant funds for watershed protection projects:
  - ◆ SDWA grant funds - approx. \$7 Million received in FFYs 98-02 for various watershed projects.  
Examples:
    - Ambient surface water quality monitoring
    - Wetland water quality functional assessment
    - Pathogen Fate, Transport and Source Identification
    - Identification of watershed sources of *E. coli*
    - Genotyping of *Cryptosporidium* Oocysts
  - ◆ WRDA grant funds - Approx. \$2.5 Million in funds received for the following projects:
    - Evaluating effectiveness of stormwater BMPs
    - Pathogen Program Study
    - Stream Management Projects on Stony Clove, Chestnut Creek, West Branch Delaware River, and Woodland Valley
    - Winterization of septage hauler connection at City-owned Tannersville WWTP

# SEEKING OUT SUPPLEMENTARY FUNDING FROM OTHER SOURCES

## ◆ USDA Funds

- Conservation Reserve Enhancement Program (CREP) - \$7.5 Million - paying farmers to retire environmentally sensitive lands from production. Program helps establish forested riparian buffers and protect highly erodible crop land. As of 2002, 1,227.6 acres of riparian forest buffers are under contract, which is the equivalent to approx. 341 miles of streams protected by riparian buffers.

- ◆ Funding Support from Federal, State and Private Sources for Watershed Agricultural and Forestry Programs in the New York City Watersheds as grants to farmers, farm and forest landowners, the Watershed Agricultural Council, or Federal and State Partner Agencies - over \$15 Million since 1992 (inclusive of \$7.5 Million for CREP)



# THANK YOU

**For more information, please contact:**

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