

**New York City Department of Environmental Protection  
Bureau of Water Supply**

**Proposal for Septic Program in the  
Croton Falls and Cross River Reservoir Basins**

**June 2015**

*Prepared in accordance with Section 4.9 of the NYSDOH  
Revised 2007 Filtration Avoidance Determination*



Prepared by: DEP, Bureau of Water Supply



The New York City Department of Environmental Protection (“DEP”) has established programs for the Croton Falls and Cross River Reservoir Watersheds that provide a variety of water quality protection measures. In accordance with *Section 4.9 of the Mid-Term Revisions to the 2007 Filtration Avoidance Determination* (May 2014), DEP is to submit a proposal for a septic program in the Croton Falls and Cross River Reservoir basins by June 30, 2015.

This Report provides information on several unique factors in the Croton Falls and Cross River Watershed areas and the proposed means by which DEP will monitor and address septic issues in these basins.

## **Background Basin Characteristics**

### **Croton Falls**

Croton Falls Reservoir is located in Putnam County in the towns of Carmel and Southeast. The reservoir has a drainage basin of 16 square miles and DEP estimates that there are approximately 2,350 residential septic systems. The reservoir is split into three portions by Putnam County Routes 35 and 38, which cross it with causeways and bridges. The reservoir is part of the Croton Water Supply system and typically discharges to the Muscoot Watershed. The outlet works for the Croton Falls Dam is equipped with a pumping station to permit pumping of water from the reservoir into the Delaware Aqueduct downstream of Croton Falls Dam.

### **Cross River**

Cross River Reservoir is located in northern Westchester County situated within the towns of Bedford, Lewisboro, and Pound Ridge. The reservoir has a drainage basin of 30 square miles and DEP estimates that there are approximately 2,700 residential septic systems. The reservoir is part of the Croton Water Supply system and typically discharges to the Muscoot Watershed. The Cross River Dam includes a suction line for a pump station which can pump Cross River water into the Delaware Aqueduct.

## **Unique Factors in Croton Falls and Cross River**

### **1. MS4 Septic Inspection and Rehabilitation**

As of May 2011, Towns were required to implement and enforce a program for the inspection, maintenance, and where necessary, the rehabilitation of septic systems as part of their MS4 compliance (Part IX.3.b of NYSDEC General Permit GP-0-10-002). Specifically, the MS4 permit requires that all municipalities “Develop, implement and enforce a program that ensures that on-site sanitary systems...are inspected at a minimum frequency of once every five years and, where necessary, maintained or rehabilitated.”

The implementation of the septic inspection requirements of the MS4 permit are being implemented through a two-step process. Local laws require that owners of septic systems pump out their septic system not less than once every five years. Then County laws (in Westchester) or local laws (in Putnam) require that haulers complete an inspection form during the septic hauling process. In the event that the hauler identifies a potential concern at the site, the County Health Department is notified and a complete inspection is done. Any septic system that does not pass inspection is rehabilitated as part of permit compliance.

Westchester County and several communities within Westchester County are considering developing programs to reimburse homeowners for a portion of the cost of septic repairs under the Water Quality Investment Program (“WQIP”) (MOA Section 140). The Town of Cortlandt already has an established program and other communities are inclined to develop programs of their own or partner with the County to implement a program on a regional scale. The Town of Bedford is one community that is developing such a program. The Town has already received a resolution from the Northern Westchester Watershed Committee authorizing \$3.5M in WQIP funds for such a program and Westchester County has issued the Notice of Preliminary Decision to MOA parties expressing their intent to fund the program. The portion of the Cross River watershed closest to the dam and intakes lies entirely within the Town of Bedford. To date, DEP has provided information and program documents from existing septic reimbursement programs to the communities considering septic reimbursement programs.

Regardless of municipal septic reimbursement programs that might be implemented, as of May 2016, all septic systems in Croton Falls and Cross River will have been pumped and inspected as required under the provisions of the MS4 permit and municipal law. As such, repairs of failing septic systems have already been occurring in these basins and will continue to occur under existing State and local regulatory requirements. This septic inspection and repair program is an effective way for local enforcement agencies to address the septic issues as they arise.

## 2. Lack of Demonstrated Need

DEP has reviewed septic failure rates and water quality data and has found no evidence to suggest there are concentrated hotspots of failing septic systems or that failing systems present an immediate water quality concern in the Cross River and Croton Falls Reservoir basins.

In the ten years between January 2005 and December 2014, the annual average number of approved septic repairs in the Cross River and Croton Falls Reservoir basins was approximately 1.2 and 10.7, respectively. This represents a particularly low rate of failure.

As noted in the 2011 Watershed Protection Program Summary Assessment, all EOH Cat/Del Reservoir Basins generally have stable and very low fecal coliform and total phosphorus levels at the stream inputs to the reservoirs.

In addition, DEP reviewed existing fecal coliform data collected between 1995 and 2014 from the reservoir outlets as well as a total of 13 in-reservoir sampling locations between the two basins. This review showed relatively low levels of fecal coliform in-reservoir and at the outlets and does not indicate a public health concern.

## 3. Frequency of Use in Delaware System

Croton Falls and Cross River Reservoir basins are operated as part of the Croton water supply system. DEP does not routinely rely on Croton Falls and Cross River Reservoir basins for operation of the Cat/Del water supply. Pumping of Croton Falls or Cross River water into the

Cat/Del System would only occur under very unique circumstances, such as a severe drought or to maintain a sufficient supply during infrastructure repairs.

Water from Croton Falls or Cross River Reservoirs is not being used for water supply purposes in the Cat/Del system and has not been used in a number of years. Croton Falls water was briefly introduced into the Cat/Del system in 2010-11 during shutdown of the Rondout West Branch Tunnel for repair work on Shaft 6. Water was pumped from Cross River into the Delaware Aqueduct for three days in 2012 during equipment testing. Other than equipment testing, water from Cross River has not been introduced into the Cat/Del system since before 1997.

Any use of Cross River or Croton Falls water in the Cat/Del system is strictly regulated under Section 2 of the Revised Final 2007 FAD, which requires prior written approval by NYSDOH/EPA prior to activation of Cross River or Croton Falls for emergency or dependability use. Further, DEP developed internal operating procedures related to activation of Cross River or Croton Falls that includes additional sampling and submission of data to NYSDOH/EPA prior to activation. In the event that water from Croton Falls or Cross River should need to be used, the majority of water would still come from other basins within the Cat/Del system.

#### 4. Existing UV Treatment

Since 2012, the City's Cat/Del water supply system is treated using UV light, which protects against potential microbial contaminants. In the event that water from Croton Falls and Cross River Reservoirs is used in the Cat/Del system, this water will be treated by the UV plant. UV treatment provides for *Cryptosporidium* inactivation and represents an additional disinfection barrier enhancing the City's water supply protection efforts. The UV facility has been designed to satisfy the *Cryptosporidium* inactivation treatment requirements under the Long Term 2 Enhanced Surface Water Treatment Rule, 40 CFR Part 141, Subpart W. The facility is designed to treat up to 2 billion gallons per day to provide 99.9% inactivation of *Cryptosporidium*.

#### **Septic Monitoring and Rehabilitation in the Croton Falls and Cross River Reservoir Basins**

DEP's approach to septic systems in Croton Falls and Cross River will be tailored to reflect the unique factors that exist in these basins. A DEP-funded reimbursement program would not result in any additional repairs or improve water quality beyond what is already occurring in these watershed basins as required pursuant to MS4 standards. DEP is proposing a septic monitoring and rehabilitation program that will include the following three measures.

- Allow MS4 regulations to continue to direct the inspection and repair of septic systems, as has been the case since 2011. DEP will coordinate with local municipalities and the County Health Departments to facilitate continued monitoring of inspection and repair data collected through the local MS4 programs. DEP will also provide technical assistance to support municipal or county septic reimbursement programs that are currently under consideration.

- DEP currently tracks septic failures through its regulatory program database. DEP will review regulatory data to identify the number and location of failures in the Cross River and Croton Falls basins. The data will be mapped in DEP's GIS system to identify any spatial trends. The results of this monitoring and the number of failures in each basin will be reported to NYSDOH and EPA as part of DEP's annual reporting.
- Monitor water quality data collected from these basins. DEP currently collects and reports on this data as part of its annual Watershed Water Quality Annual Report. That data would also be used to assess implementation of the program.

In the event that data from the above reflect a potential change in the frequency or intensity of septic failures, DEP will respond with additional sampling in the reservoir and/or upstream locations to determine potentially problematic sub-basins. Additional sampling would include either *Bacteroides* samples to assess potential sources and/or fecal coliform sampling at additional locations to identify potential areas of concern. Information from DEP or local MS4 databases would be used to direct sampling efforts.

In the event that sampling results in a verified problem area, DEP would then target funding for septic evaluations and develop a program, if necessary.



# Residential Sewage Service Status

Cross River Watershed

North Salem

Somers

Lewisboro








Connecticut  
New York

Pound Ridge




Bedford





**Features:**

-  Water Body
-  Streams
-  Wetlands
-  Wastewater Service Areas
-  Basin Boundaries
-  Town Boundary
-  State Boundary

**Parcel Status**

-  Residential
-  Protected Open Space\*
-  Vacant/Non-Res


  
 0 0.5 1 Miles



\*Protected Open Space includes NYC owned land in fee and conservation easements, NY State owned land, and land protected by other entities.  
 Data Source: Westchester County, 2007.  
 All other Data: NYCDEP, 2014.  
 Produced by WLCP GIS (JRT), 7/2014.  
 NOTE: GIS data are approximate according to their scale and resolution. They may be subject to error and are not a substitute for on-site inspection or survey.



# Residential Sewage Service Status

## Croton Falls Watershed



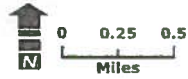
City of New York  
Bureau of Water Supply  
Community Planning

### Features:

- Water Body
- Streams
- Wetlands
- Wastewater Service Areas
- Basin Boundaries
- Town Boundary
- County Boundary

### Parcel Status

- Residential
- Protected Open Space\*
- Vacant/Non-Res

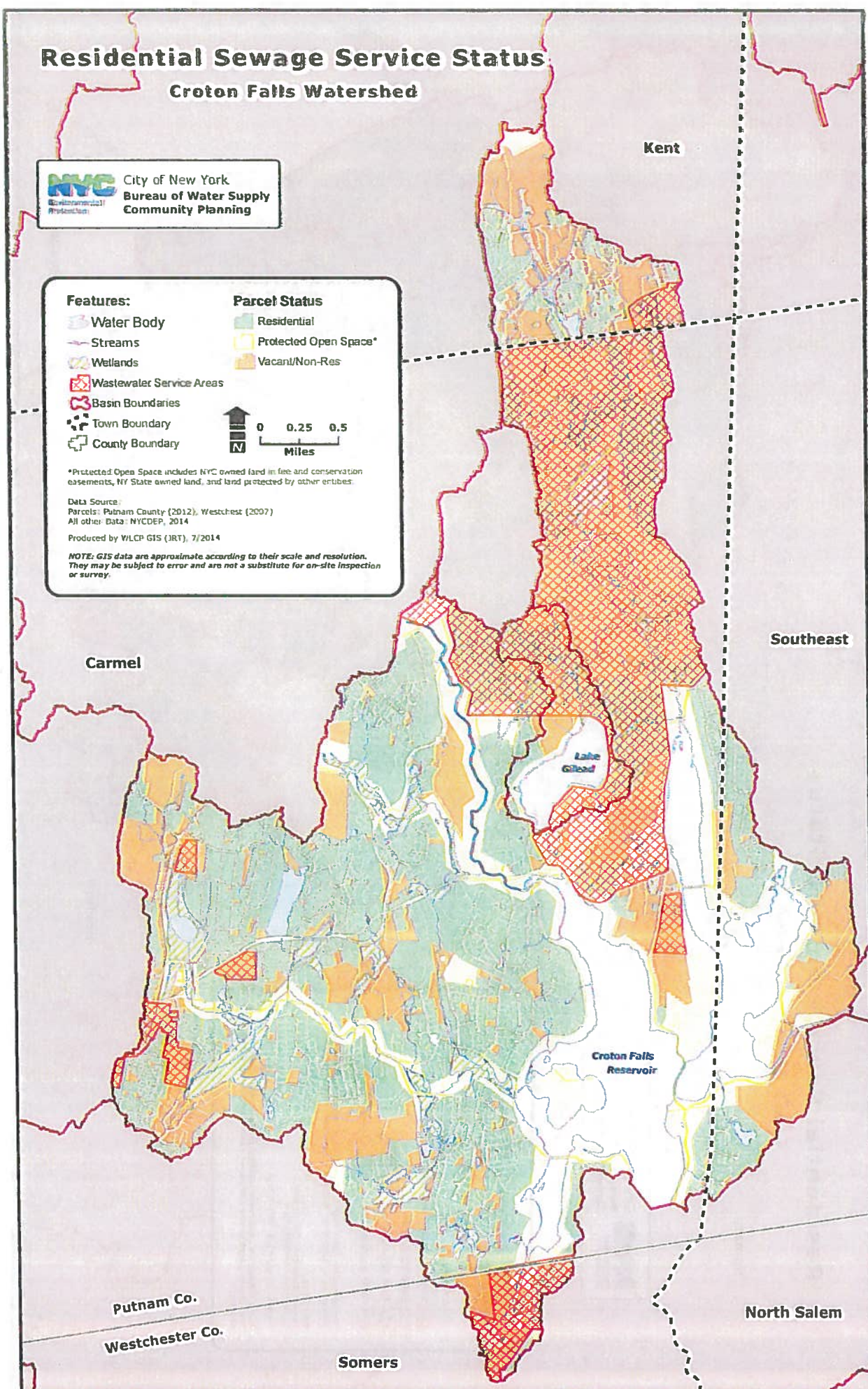


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# Sub-basin Boundaries

## Cross River Watershed

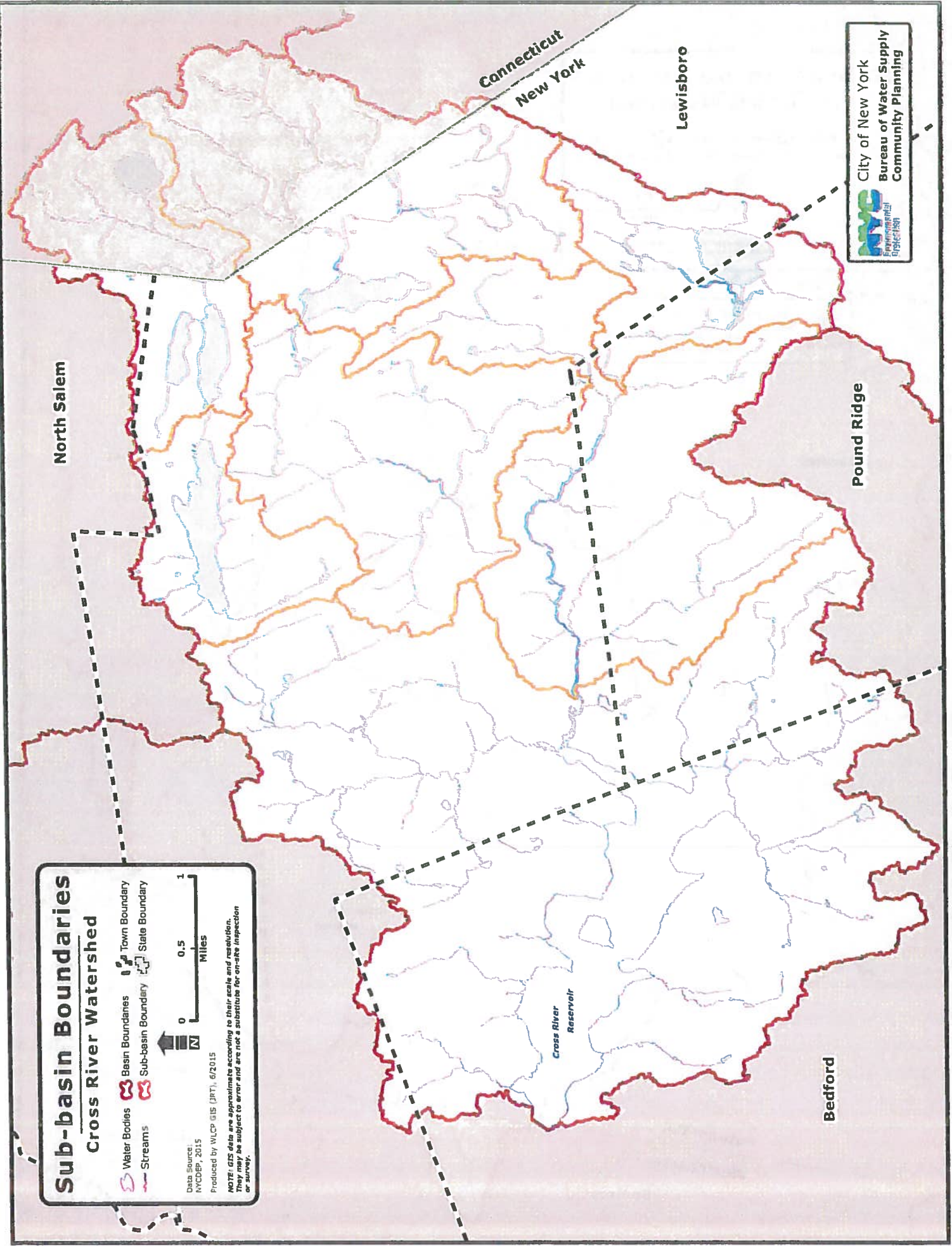
 Water Bodies  
 Streams  
 Basin Boundaries  
 Sub-basin Boundary  
 Town Boundary  
 State Boundary

Data Source:  
 NYCDEP, 2015  
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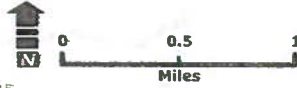
# Sub-basin Boundaries Croton Falls Watershed

- Water Bodies
- Basin Boundaries
- Town Boundary
- Streams
- Sub-basin Boundary
- State Boundary

Date Source:  
NYCDEP, 2015

Produced by VLCP GIS (JRT), 6/2015

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