

**New Croton  
Dam Rehabilitation  
and Normal Pool Raise**

**Croton-on-Hudson  
Village Board of Trustees  
Informational Presentation**

**June 16, 2008**



# Purpose of Informational Presentation

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- Describe the Overall Project
- Discuss Environmental Issues and Concerns
- Project Schedule and Public Participation

# Orientation – New Croton Dam



# Purpose of Project

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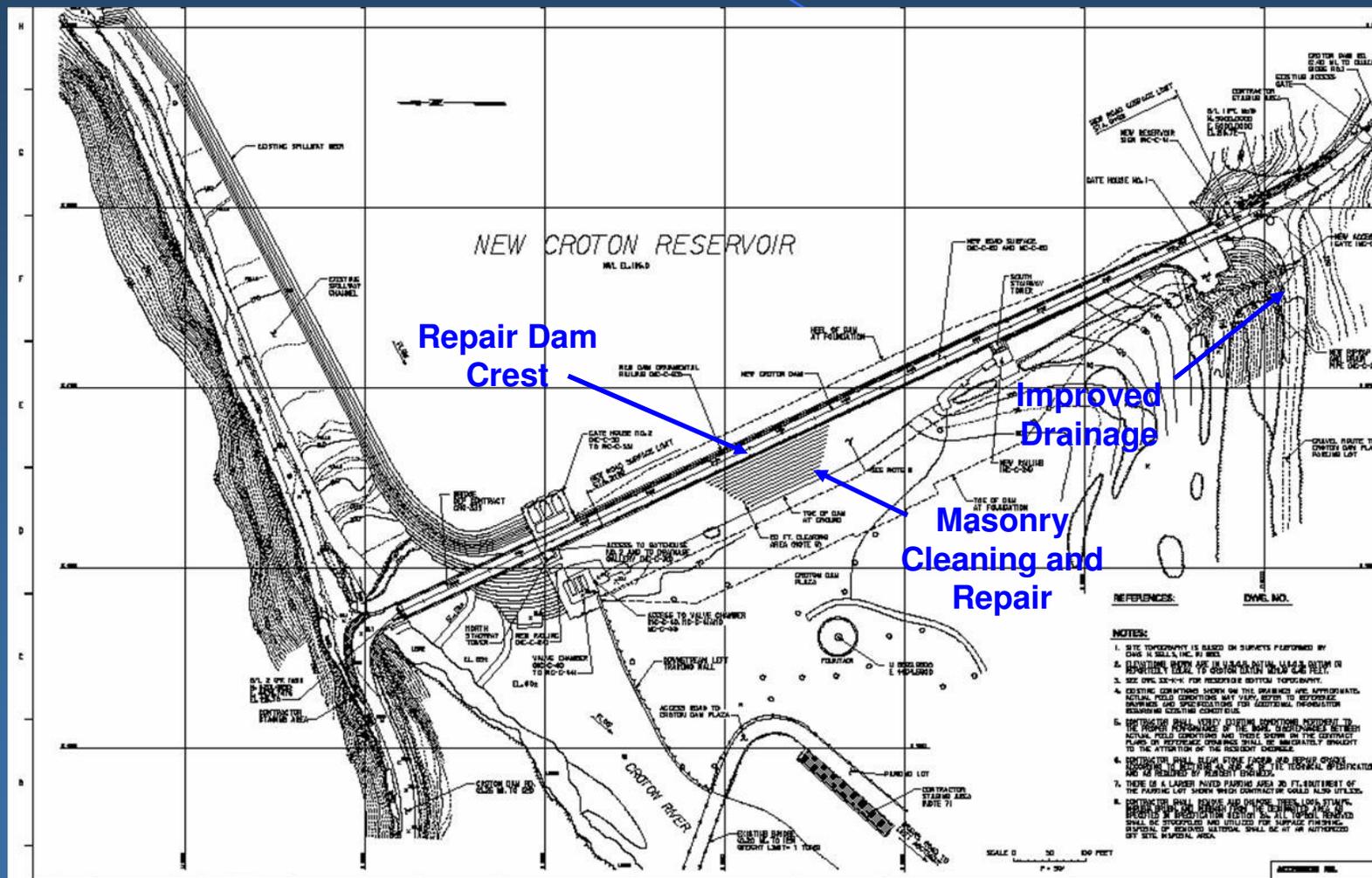
- **Extend the Useful Life of the Dam for 50 to 100 Years**
- **Modify Spillway**
  - Expand Capacity to Convey Extreme Storm Events
    - ✓ Needed to meet NYSDEC Dam Safety Guidelines for safely passing 100% Probable Maximum Flood (PMF)
  - Increase Maximum Storage Capacity of Reservoir
    - ✓ Normal Pool Raise - adding spillway crest height of 4 feet
- **Rehabilitate Water Conveyance Facilities**
  - Dam Safety and Conservation Releases
- **Preservation and Recreational Use**
  - Preserve Historic Dam and Associated Structures
  - Relocation of boat storage areas
- **Improve Access Roads and Slope Stabilization at Arcady Road**

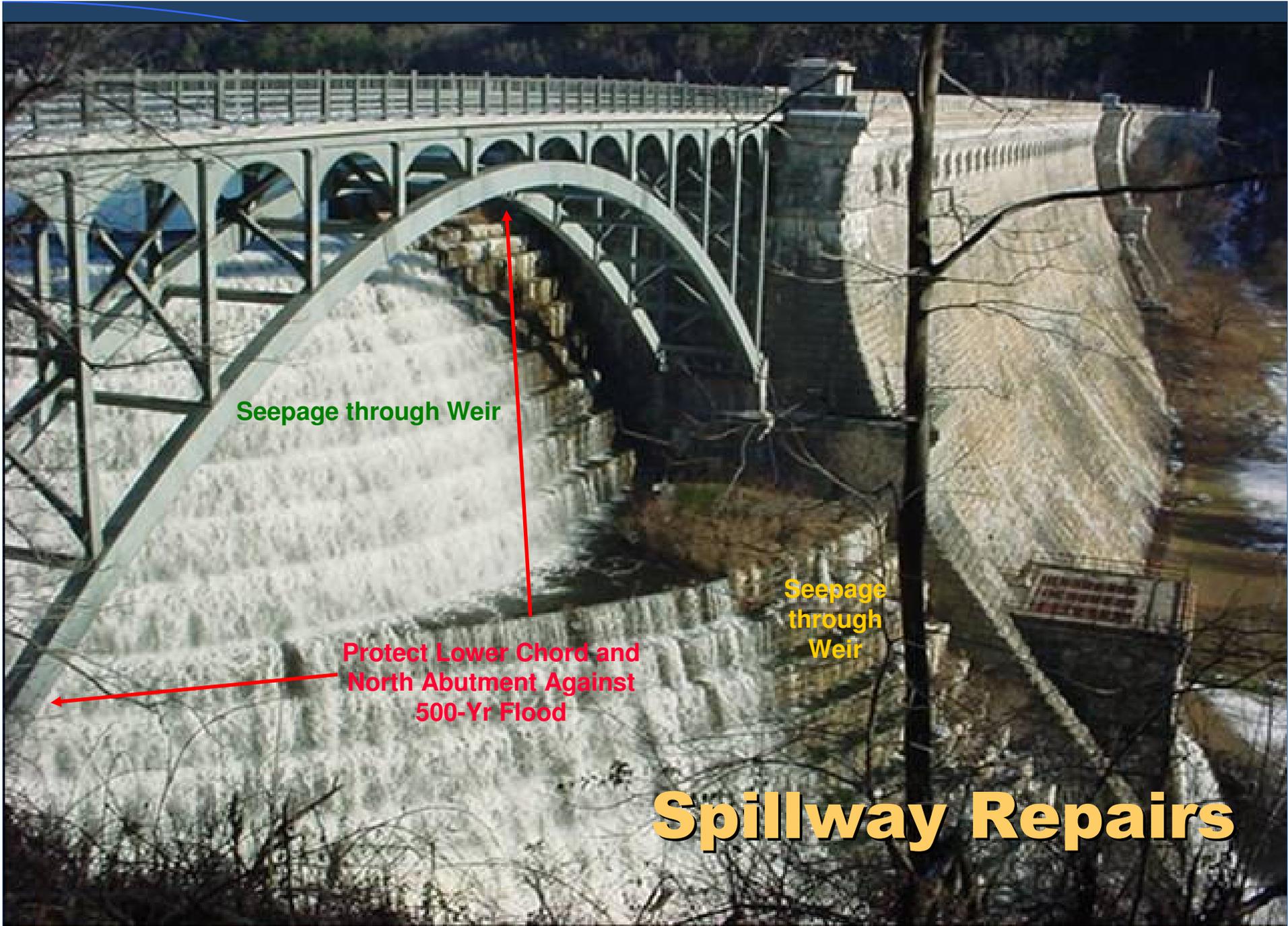
# Dam Rehabilitation



- **Reconstruct Dam Crest (Roadway and Drainage)**
- **Rehabilitate Upper and Lower Gate Chamber**
- **Electrical and Supporting Site Improvements**

# Dam Crest and Other Related Work





Seepage through Weir

Protect Lower Chord and  
North Abutment Against  
500-Yr Flood

Seepage  
through  
Weir

# Spillway Repairs



Mechanical improvements within Gatehouse

New Roof

New Handrail

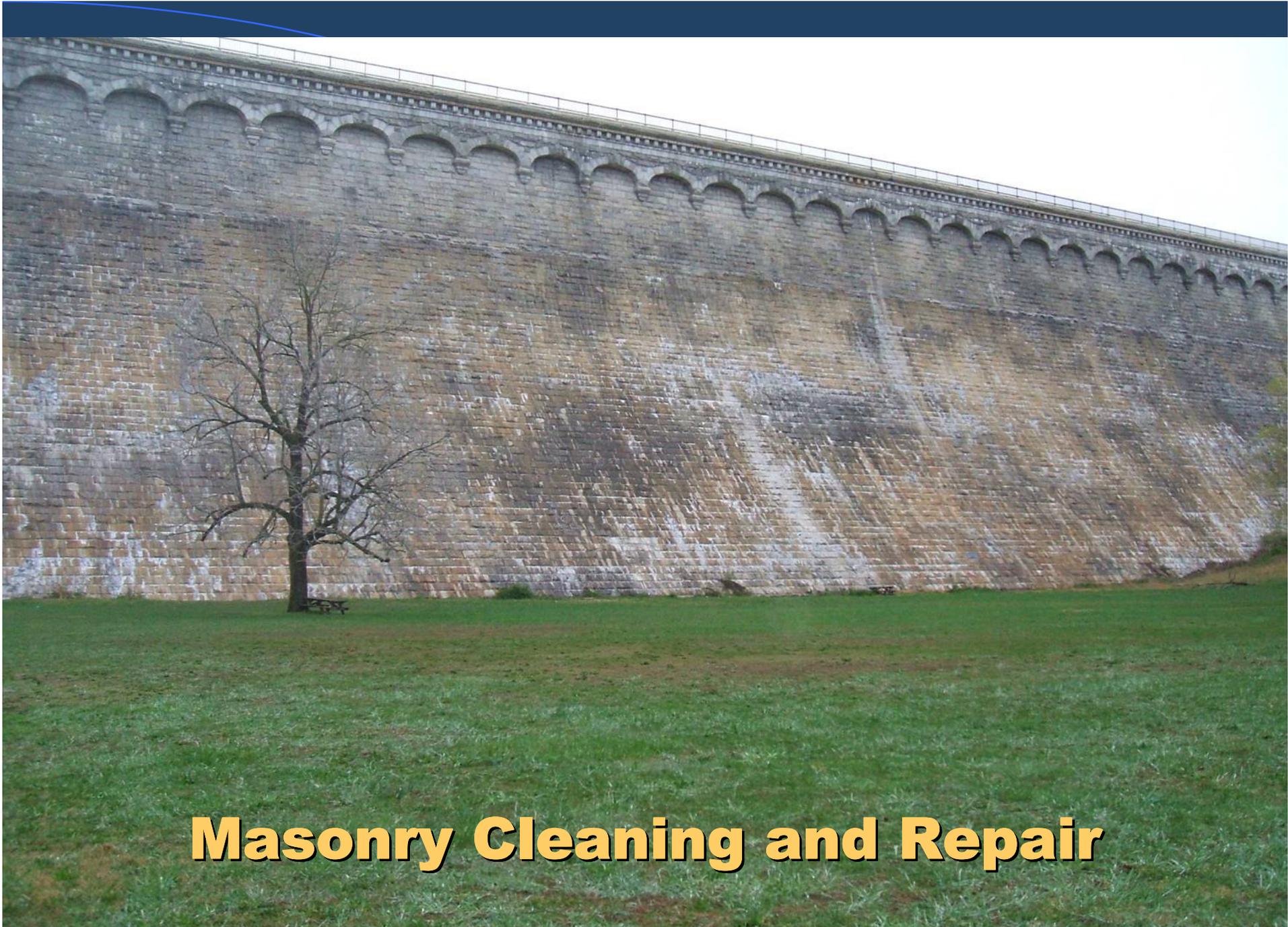
Maintain Conservation Flow

# New Croton Reservoir

## Release Schedule – Required Minimum Flows

Reservoir Storage Condition	Stream Flow Condition Above Normal		Stream Flow Condition Normal		Stream Flow Condition Below Normal	
	April 1 to June 30	July 1 to March 31	April 1 to June 30	July 1 to March 31	April 1 to June 30	July 1 to March 31
Above Normal	75 mgd	5.5 mgd	75 mgd	5.5 mgd	16.5 mgd	5.5 mgd
Normal	75 mgd	5.5 mgd	75 mgd	5.5 mgd	11.0 mgd	5.5 mgd
Below Normal	16.5 mgd	5.5 mgd	11.0 mgd	5.5 mgd	11.0 mgd	5.5 mgd

Source: NYS Regulations sub-Part 672-3: Croton System Reservoirs



# Masonry Cleaning and Repair

# Spillway Modifications



- **Spillway Channel**
  - Deepening of Channel to Pass Full PMF (for Dam Safety)
  - Would Require Excavation & Stabilization with Rock Bolts and Anchoring of Weir
- **Spillway Weir**
  - Increase Storage Capacity by Raising Normal Pool Elevation

# Flood Hydrology

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Flood Event	Outflow (cfs)
Storm of Record (1955)	45,400
Existing Spillway Capacity	170,000
Probable Maximum Flood (PMF)*	235,000

*\* The PMF is the worst possible combination of meteorological and hydrological conditions that can occur*

*Spillway being rehabilitated to pass the Full PMF*

# Pool Raise

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Raise Normal Pool four feet to Elevation 199.6 feet  
by increasing the height of the Spillway Weir

Increased Capability to Deliver Water during Drought

Requires Additional Modifications to Spillway Weir by either  
Changing the Crest Shape and/or Lengthening the Weir

# **Environmental Issues and Concerns**

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- **Construction Traffic and Site Access**
- **Contractor Work Area and Park Area Restrictions**
- **Rock Excavation and Blasting Program**
- **Wildlife and Fisheries**
- **Wetlands and Vegetation**

# Key Considerations for Pool Raise

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- The Reservoir falls within the Towns of Cortlandt, Yorktown, Somers, New Castle, and Bedford; the dam and spillway structures are located in Cortlandt
- New Croton Dam (and site of Old Croton Dam) is listed on both the National and New York State Register of Historic Places
- Estimated inundation area in the Town of Cortlandt is approximately 20 acres of the approximate 230 acres that NYCDEP owns contiguous to the Reservoir
- Approximately 85% of inundation area in Cortlandt is forested; Westchester County tree density estimates could put the loss of trees, within Cortlandt, at 2,500 to 3,500

# Key Considerations for Pool Raise

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(continued)

- Approximately 10 acres of wetlands and a known rare species -- Virginia snake-root (endangered plant species), are found within the inundation area. Also a Bald Eagle nest is located in vicinity of Reservoir
- NYC Watershed Rules & Regulations restrict certain activities within 500 feet of Reservoir shoreline

# Pool Raise Inundation by Town

## Estimates of Potential Inundation

	<u>Linear Shoreline (Miles)</u>	<u>Area (acres)</u>	<u>Wetlands (acres)</u>	<u>Wooded (acres)</u>	<u>Steep Slopes (slopes <math>\geq 15\%</math>) (acres)</u>	<u>Moderate Slopes (slopes 8-15%) (acres)</u>
<b>Cortlandt</b>	<b>6.2</b>	<b>19.5</b>	<b>9.7</b>	<b>17.5</b>	<b>4.9</b>	<b>0.5</b>
Yorktown	23.7	55.9	10.2	53.3	18.6	7.8
New Castle	2.6	5.2	0.5	5.0	0.2	0.7
Somers	7.2	20.2	4.6	18.4	1.8	1.5
Bedford	4.7	15.4	5.3	4.3	1.4	1.4
All Towns	44.5	116.2	30.3	98.6	26.9	11.9

# Construction Access Roads and Staging Areas

- Main Road
- Potential Construction Access Road
- - - Potential Construction Access Road (Unpaved)
- ▭ Potential Laydown Area



Image courtesy of Google Earth

# Five Mile Radius View



**Legend:**

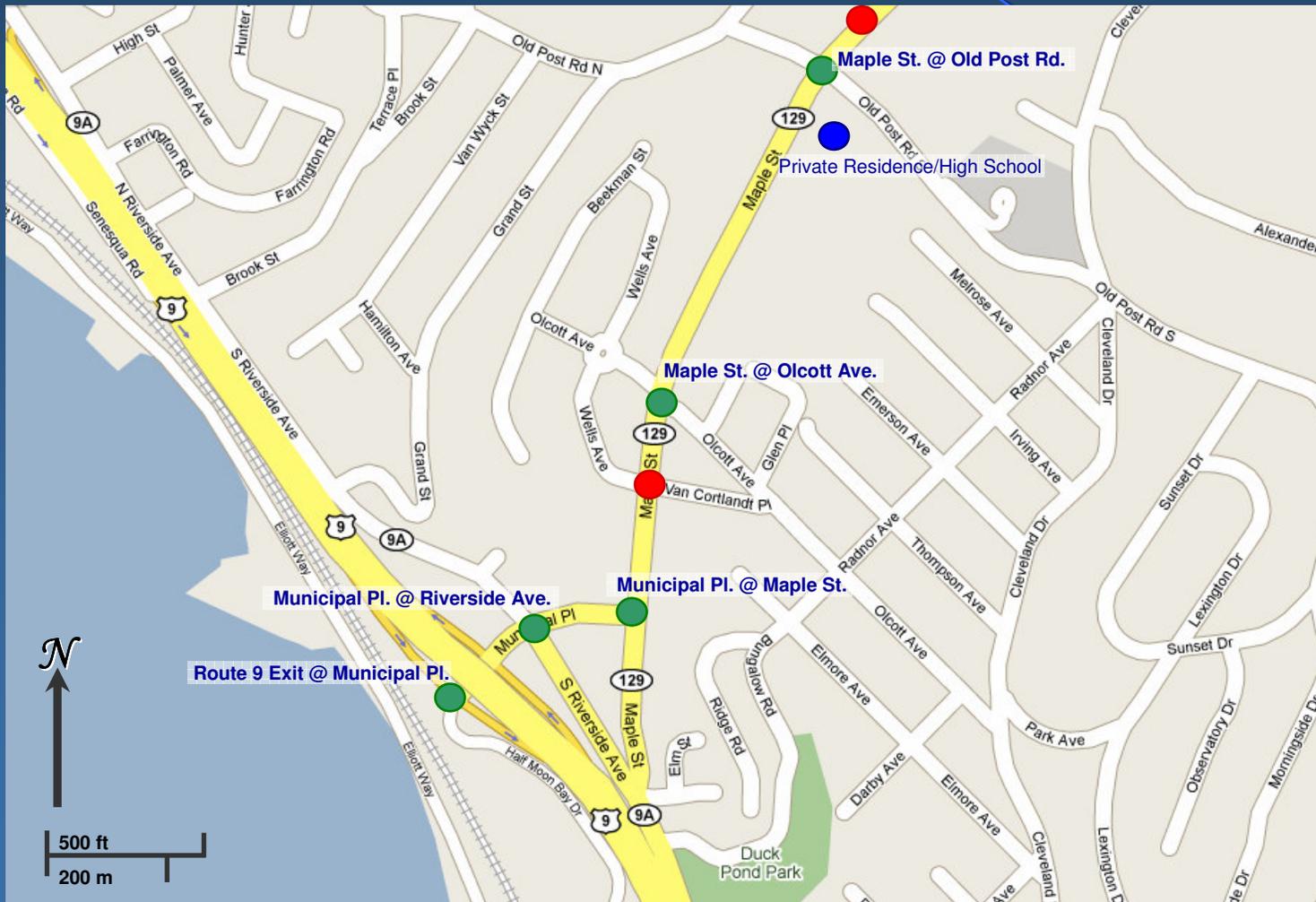
-  U.S. Route
-  State Road
-  Main Access Road to New Croton Dam

# Traffic and Noise Monitoring



# Detailed Monitoring Sites for the Village of Croton on Hudson

- Legend:**
- Automatic Traffic Recorder
  - Turning Movement Count
  - Noise Level Meter



# Public Recreation

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- Coordinate with County to minimize disruption to Croton Gorge Park
- There are 36 boat storage areas located along the reservoir perimeter containing approximately 1,400 permitted boats in total
- Conservation releases would continue during construction period

# Overall Project Schedule

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- Late July – Distribute DSOW to public
- July through September – Comment period and public meetings on DSOW
- Late September – Issue Final Scope of Work (FSOW)
- First quarter of 2009 – Certify and Issue Draft EIS

# Overall Project Schedule

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(continued)

- Second quarter of 2009 – Comment period and public hearings on Draft EIS
- Fourth quarter of 2009 – Issue Final EIS
- Spring 2011 – Commence Construction

**Questions?**

