Watervliet Reservoir
Watershed Protection Study Update
Capital District Regional Planning Commission
Reservoir Overview

Owned by city of Watervliet (sole drinking water source)

Primary drinking water source for the town of Guilderland

Created in 1915 by damming the Normans Kill

259 ft. elevation

39 ft. water depth
Reservoir Overview (cont.)

Safe yield of 12 million gallons/day

Watervliet’s daily average: 2.75 million gallons

Guilderland: between 3 - 4 million gallons of raw water/day

City and Town have separate intakes, treatment plants, pump stations and transmission lines
Watervliet Reservoir Watershed

115 sq. miles
11 municipalities
3 counties
Watersheds and Municipal Boundaries
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rotterdam</td>
<td>8700</td>
<td>9102</td>
<td>402</td>
<td>4.6%</td>
</tr>
<tr>
<td>Princetown</td>
<td>1360</td>
<td>1477</td>
<td>117</td>
<td>8.6%</td>
</tr>
<tr>
<td>Duanesburg</td>
<td>2715</td>
<td>2833</td>
<td>118</td>
<td>4.3%</td>
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<tr>
<td>Guilderland</td>
<td>5891</td>
<td>6984</td>
<td>1093</td>
<td>18.6%</td>
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<tr>
<td>Knox</td>
<td>1646</td>
<td>1685</td>
<td>39</td>
<td>2.4%</td>
</tr>
<tr>
<td>Bern</td>
<td>250</td>
<td>256</td>
<td>6</td>
<td>2.4%</td>
</tr>
<tr>
<td>New Scotland</td>
<td>216</td>
<td>224</td>
<td>8</td>
<td>3.7%</td>
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<tr>
<td>Delanson</td>
<td>361</td>
<td>385</td>
<td>24</td>
<td>6.6%</td>
</tr>
<tr>
<td>Altamont</td>
<td>1524</td>
<td>1737</td>
<td>213</td>
<td>14%</td>
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<tr>
<td>Voorhees.</td>
<td>199</td>
<td>215</td>
<td>16</td>
<td>8%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>22,862</strong></td>
<td><strong>24,898</strong></td>
<td><strong>2,036</strong></td>
<td><strong>8.9%</strong></td>
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Study Update Objectives

Objective: CDRPC develop and implement a Drinking Water Source Protection Program (DWSP2) using the DWSP2 Framework. CDRPC will review the community with DEC and insure it is approved before moving forward.

Task 1: Create a stakeholder group using the DWSP2 Framework. Working with the selected community, the stakeholder group will be involved throughout development and implementation. During the first meeting, discuss with the stakeholder group the steps to complete DWSP2.
Task 1

Establish goals and formulate a vision. Work with the stakeholder group to establish goals and formulate a vision to guide development and implementation of the protection program. Collect any relevant source water assessment and protection information needed for the selected community.

• Performance measure: Completed Goals and Vision. Provide to DEC with Quarterly report.

• Performance measure: Completed “Develop an Overview of Your Water System” worksheet from DWSP2 Framework or similar worksheet. Provide to DEC with Quarterly report.
Task 3

Use the DWSP2 Framework to update the drinking water source protection map.

• Performance measure: Completed map(s) and GIS shapefiles showing delineated source water protection areas and potential contaminant sources (PCS) within the watershed. Provide to DEC with Quarterly report.
Task 4

Work with community to conduct a PCS inventory and identify protection methods that the community deems appropriate using the DWSP2 Framework and updated maps.

- Performance measure: Completed PCS Inventory table according to the DWSP2 Framework.
- Performance measure: Regulatory and/or non-regulatory protection methods are selected. Provide to DEC with Quarterly report.
Task 5

Develop an implementation timeline and designate a plan management team using the DWSP2 Framework to keep the protection program on track.

- Performance measure: Implementation timeline table is completed using the table included in the DWSP2 Framework as a model. Provide to DEC with quarterly report.
- Performance measure: Identify members of the Plan Management Team. Using the DWSP2 Framework create a list of protection methods and how the measures will be completed (e.g., funding source, parties involved, obstacles and needs, etc.). Provide to DEC with Quarterly report.
Task 6

Once the Drinking Water Source Protection Program (DWSP2) has been finalized, it will be shared with DEC for review.

• Performance measure: The DWSP2 is submitted to DEC for review
Task 7

Facilitate education and outreach and source water related trainings to elected officials and municipal staff. Potential topics include: importance of source water protection, available resources to develop a DWSP2, and existing protection strategies for sources of drinking water.

- Performance measure: Trainings/Presentations held on importance of source water protection with municipal officials.
- Performance measure: Trainings held with municipal officials regarding protection strategies.
Additional Study Update

Objectives

• Reexamine the relationship between land use and water quality;

• Reexamine environmental features and their functions within the watershed;

• Reexamine the manmade features and growth trends within the watershed;

• Reexamine the current land use regulations within the watershed as they pertain to water quality;

• Identify potential water quality issues and threats;

• Offer recommendations for mitigating existing threats and for minimizing future threats to the water quality of the reservoir.
Advisory Committee Needed

Large Municipalities within Watershed
- Town of Guilderland
- Town of Rotterdam
- Town of Knox
- Town of Duanesburg
- Village of Altamont
- Village of Voorheesville
- Town of New Scotland
- Town of Bern
- Albany County
- Schenectady County

Suggested Committee Members:
- Stormwater Coalition of Albany County
- Soil & Water Conservation District
- Hudson Mohawk Land Conservancy
- Farm Bureau
- The US Army Corps of Engineers / Northeast Industrial Park Restoration Advisory Board
- Others?
Update Water Quality Report

- 14 contaminants detected
- Trihalomethanes exceeded state standards
- Added aeration and adjusted chemical dosages to meet standards

Introduction
To comply with State and Federal Regulations, the City of Watervliet annually issues a report describing the quality of drinking water provided to you. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. Last year, 2002, we tested for over 80 contaminants. We detected fourteen (14) of those contaminants and one, Trihalomethanes, at a level higher than the State allows. As we told you, our water temporarily exceeded a drinking water standard and we rectified the problem by adding aeration and adjusting chemical dosages. Latest testing confirms that our water meets all Federal and State regulations. This report provides an overview of last year’s water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. Additional information, including the complete raw and finished water test results are provided in the Annual Report Supplement, which is available at the Watervliet Public Library, 1500 Broadway, Watervliet, NY. If you have any questions regarding this report please contact Nicholas J. Ostapkovich, Deputy General Manager, at 270-3831.
“Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and many have an increased risk of getting cancer.”
12% imperviousness
100-Year Flood Zone
Steep Slopes
## Update Coverage Data

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Vac.</th>
<th>Rural Residential</th>
<th>Ag.</th>
<th>1&amp;2 Family Housing</th>
<th>Public/Recreational</th>
<th>Ind.</th>
<th>Com.</th>
<th>Multi Family Housing</th>
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</thead>
<tbody>
<tr>
<td>% Of Watershed</td>
<td>27.5</td>
<td>27</td>
<td>18.3</td>
<td>12.1</td>
<td>6.3</td>
<td>4.1</td>
<td>2.4</td>
<td>2</td>
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Specific Watervliet Reservoir Water Quality Issues Status?
New, additional issues?

- The Northeast Industrial Park
- School Bus Garage
- Former Town Landfill
- Proximity of Roads
- Invasive Plants
- Expansion Plans
- Gravel Quarry
- Others?
The Northeast Industrial Park

- Former Army Depot 1941 - 1969
- Private Industrial Park
- Class II Inactive Hazardous Waste Site
- "Significant threat to public health or environment - action required."
Status of Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS)

Federal program to investigate and clean up environmental condition resulting from the DOD’s past activities at installations now privately owned.

Citizen Restoration Advisory Board formed (RAB)

Army Corp of Engineers conducting the work
Status of Nine “Areas of Concern”
Sample of Concerns

• Ground water and soil testing has confirmed the presence of volatile & semi-volatile organic compounds, PCB’s, metals (inc. lead), arsenic, BEHP, PAH, and pesticides in several areas.

• A contaminated plume migrating toward Guilderland High School.

• Presence of VOCs, lead and other metals, and pesticides in the Black Creek.

• Future development impacts.
Protection Strategies

• How are past strategies working?
• Are new strategies needed?
• How can strategies align with goals and aspirations of neighboring communities?
• Is enhanced access possible?
• What is the best method to develop and employ new strategies?
1. **PROTECT SENSITIVE ENVIRONMENTAL AREAS:**

   Prevent development from occurring in floodplains, wetlands, steep slopes, mature forests, critical habitat areas, and along stream banks (conservation subdivisions, “design with nature”)

   In addition, on site septic systems should not be allowed on soils that can’t adequately filter septic effluent.
2. ESTABLISH STREAM and WETLAND BUFFERS:

Establish vegetative buffers adjacent to the stream channels and large unregulated wetlands (50 - 200 ft.).

Restrict structures and clearing in buffer zones.

A stream buffer overlay zone could be incorporated into the local zoning codes. In cases where no viable use is left for a parcel, the municipality should purchase the land.
Stream Buffer Overlay
3. REDUCE IMPERVIOUS SURFACES:

Less impervious cover means less stormwater runoff, less downstream flooding, and lower pollutant loadings.

Cost of development reduced.

Open space preserved and community becomes more walkable.

Healthy watersheds usually have no more than 10 to 15% of their area covered by impervious surfaces. At 30% imperviousness, stream degradation becomes severe.
Status of subdivision and zoning code modifications to reduce impervious surfaces and improve water quality

1. Reduce road width standards for roads within new housing developments.

2. Reduce the size of parking lots and require shared parking (particularly in commercial areas).

3. Reduce building setbacks, which reduces driveway length.

4. Reduce minimum lot size, which lessens road length/cost.

5. Cluster development.
A 100-acre parcel, developed using a conventional subdivision approach, creates 30 lots (3 acres each) and converts the entire 100 acres of open space into residential parcels.
A 100-acre parcel, developed using a rural cluster or Conservation Subdivision, creates 27 lots (1/3 acre each) and preserves 60 acres of farmland and significant woodlands.
Code modifications (cont.)

6. Cluster at the town scale: interconnected, higher density, mixed-use centers (Traditional Urbanism).

7. Limit infrastructure expansion in outlying areas.
4. CONTROL EROSION FROM CONSTRUCTION ACTIVITY:

Sediment accumulation and soil movement - erosion - are influenced by the following primary factors:

- soil erodibility
- vegetative cover
- topography
- climate and season

Planning boards should examine these factors by requiring the submission of an erosion and sedimentation plan when one or more acres of land will be disturbed (Phase II SPDES permit)