

New Jersey Highlands Council Meeting

Thursday, July 20, 2023



Update on Highlands Council Funded Watershed Management Plans

Princeton Hydro

New Jersey Highlands Council Grants Municipal-Based Watershed Planning:

An update to the New Jersey Highlands Council
July 20, 2023



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“Anyone who can solve the problems of water will be worthy of two Nobel Prizes – one for peace and one for science.” - John F. Kennedy



SCIENCE
ENGINEERING
DESIGN

NJHC Public/Private Partnership Projects – Lake/Watershed Management Plan Tasks

- Historical Data Review
- Watershed Modeling:
 - Hydrologic Load
 - Pollutant Load (sub-watershed)
 - Water Quality Assessment
 - Baseline - watershed
 - Storm – watershed
 - Winter watershed sampling (road salts)
 - Lake Based water quality data for a growing season
- Watershed Assessment for Pollutant Removal techniques (w/P.E.)
- Overall Assessment Report



Participating Municipalities To Date

- Borough of Ringwood (6 lakes)
- Township of Rockaway (11 lakes)
- Township of West Milford (21 lakes)
- Somerset County Parks (2 lakes)
- Township of Byram (10 lakes)
- Township of Vernon (24 lakes)

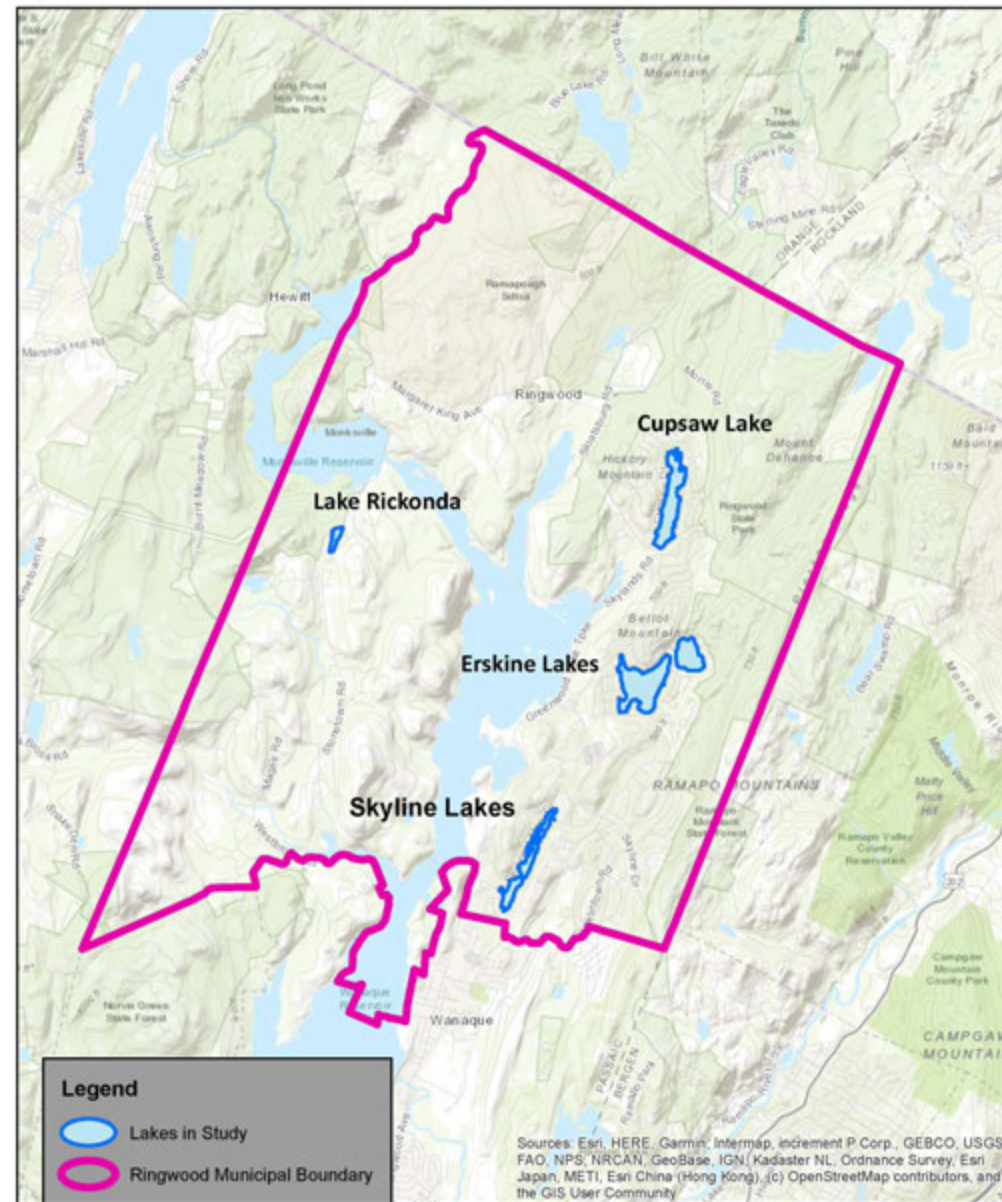
Who's next?



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Ringwood Borough Passaic County

- Cupsaw Lake
- Erskine Lakes (Upper/Lower)
- Skyline Lake (Upper/Lower)
- Lake Rickonda



NOTES:
1. Watershed and subwatershed boundaries obtained from WkWaterShed, Model My Watershed Application.
2. Streams and lakes obtained from NJDEP GIS website: www.state.nj.us/njdep/gis/
3. 2015 orthoimagery obtained from NJ Office of Information Technology (NJOTI), Office of Geographic Information Systems (OGIS).

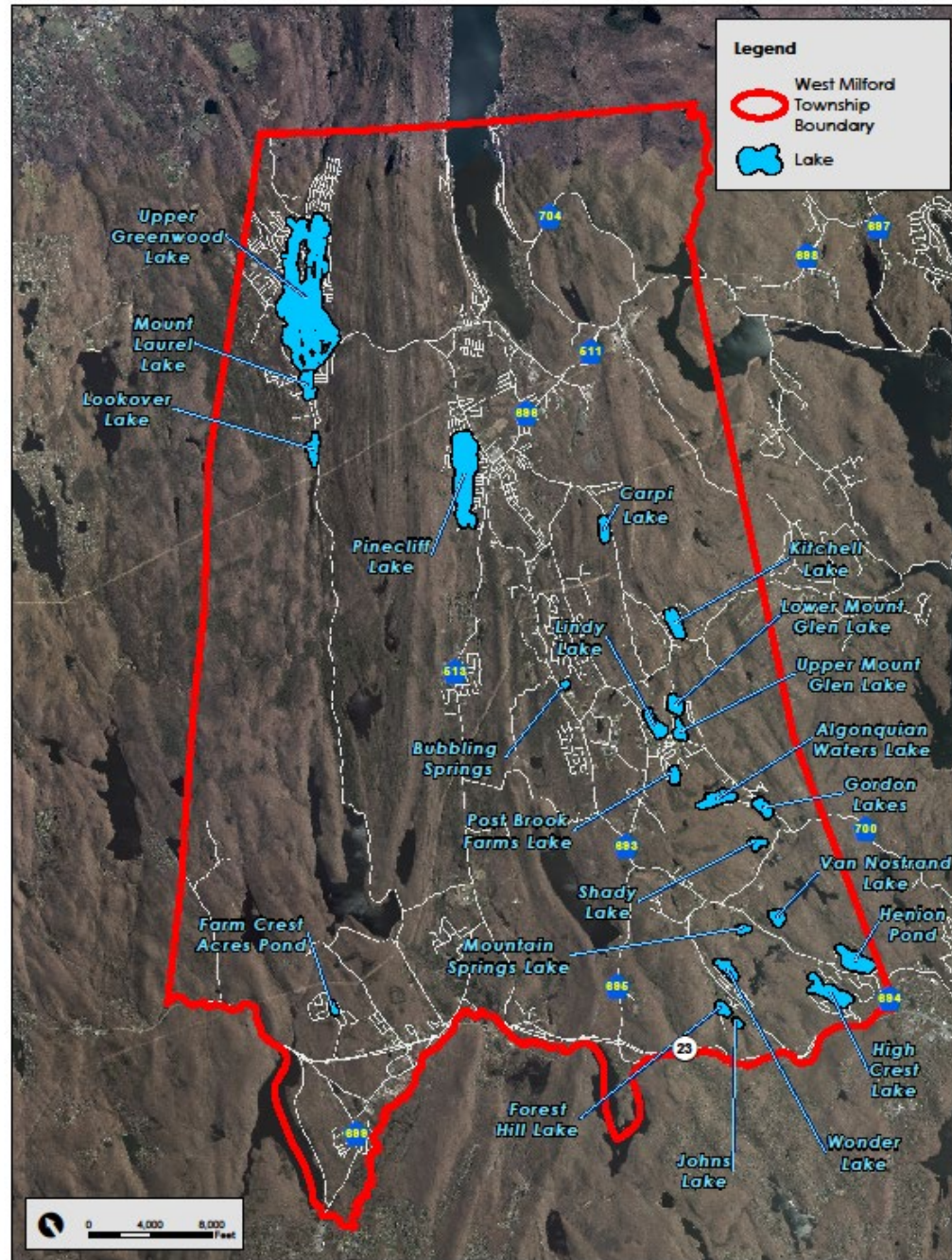
Map Projection: NAD 1983 StatePlane New Jersey FIPS 2900 Feet

LAKES ASSESSMENT BOROUGH OF RINGWOOD PASSAIC COUNTY, NEW JERSEY



West Milford Township Passaic County

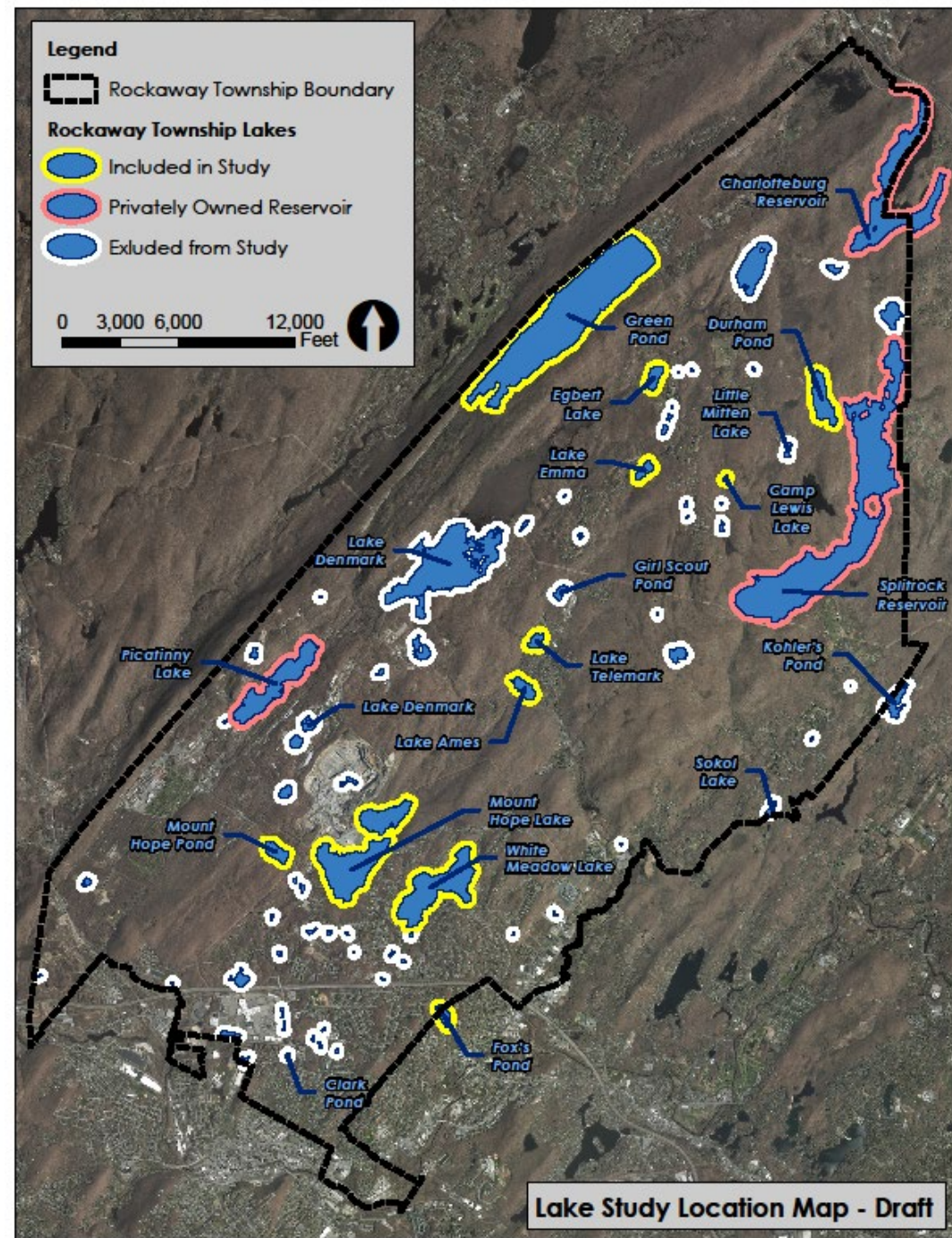
- High Crest Lake
- Algonquin Waters
- Lake Lookover
- Kitchell Lake
- Lindys Lake
- Mt. Laurel Lake
- Shady Lake
- Wonder Lake
- Mt. Glen Lakes
 - Carpi Lake
 - Pinecliff Lake
- Van Nostrand Lake
- Upper Greenwood Lake
 - Post Brook Farms
 - Farm Crest Acres
 - Mt. Springs Lake
 - Forest Hill Park
 - Johns Lake
 - Gordon Lake
- Bubbling Springs Lake



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Rockaway Township Morris County

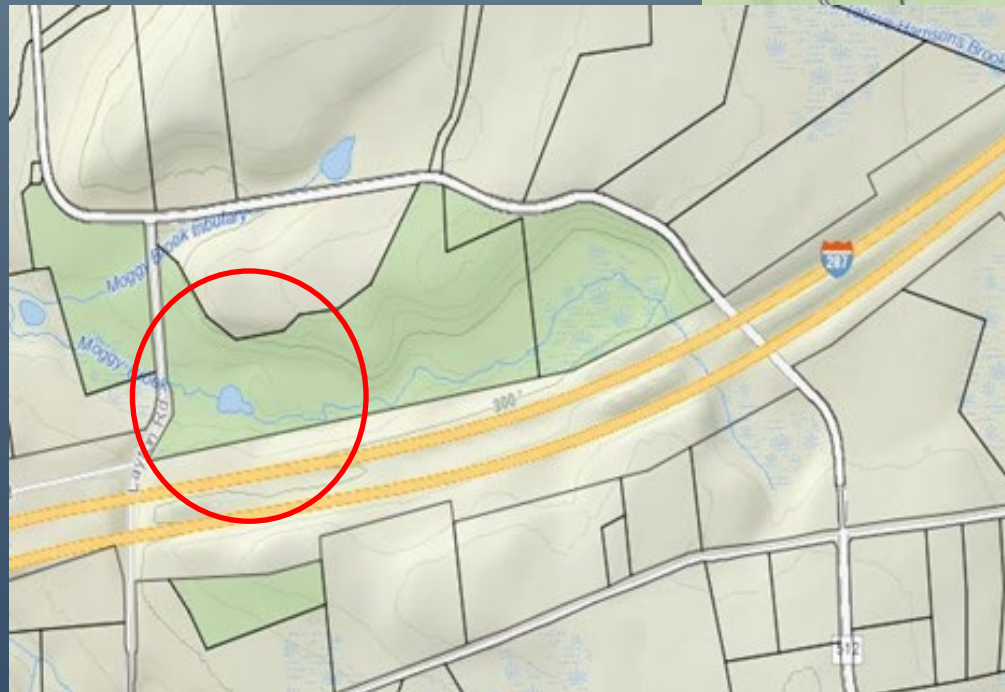
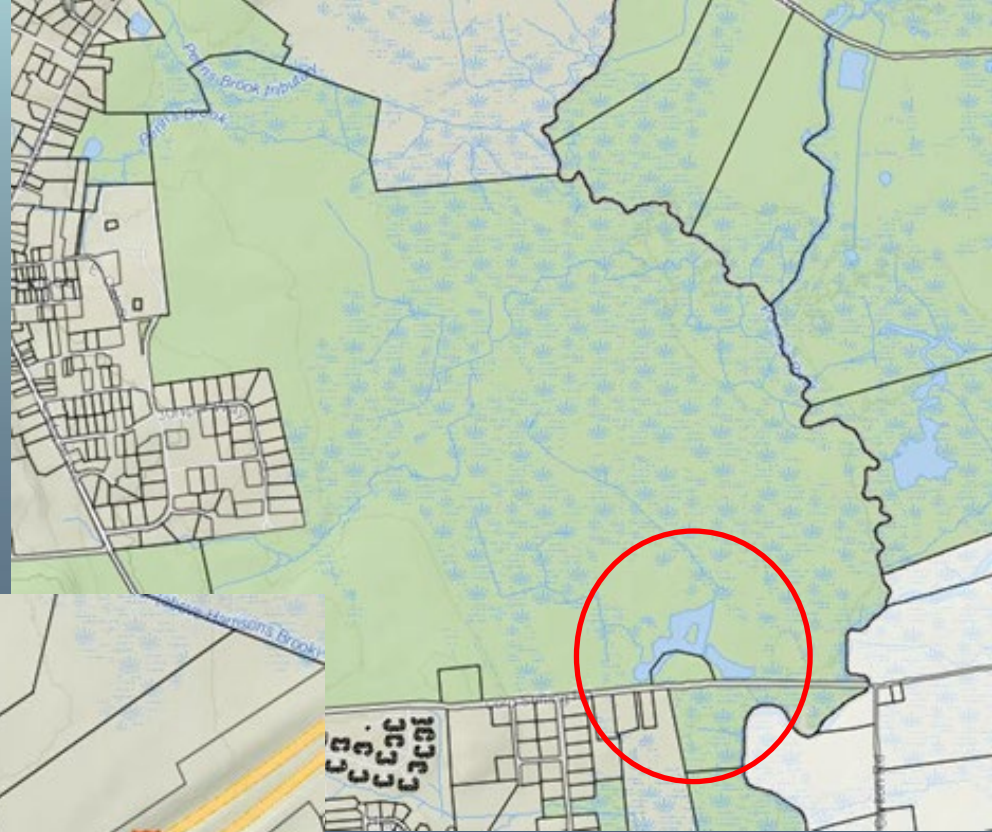
- Green Pond
- Egbert Lake
- Durham Pond
- Lake Emma
- Camp Lewis Lake
- Lake Telemark
- Lake Ames
- Mt. Hope Pond
- Mt. Hope Lake
- White Meadow Lake
- Fox's Pond



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Somerset County Parks

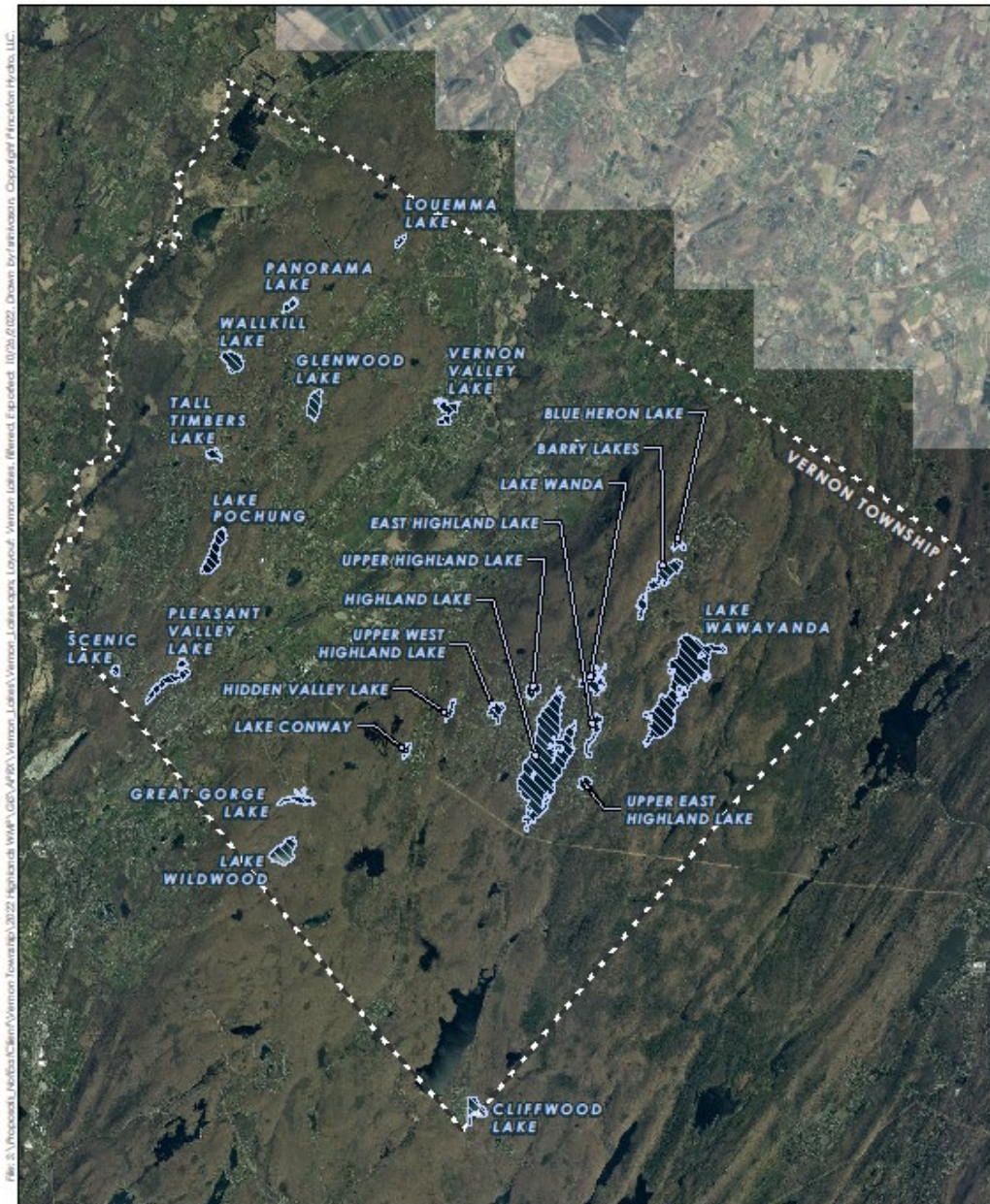
- Education Center
- LJ Buck Gardens



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Vernon Township Sussex County

- Highland Lakes community (5 lakes total)
- Lake Wawayanda
- Hidden Valley Lake
- Lake Conway
- Walkill Lake
- Barry Lakes (Upper/Lower)
- Vernon Valley Lake
- Lake Wanda
- Lake Pochung
- Lake Wildwood
- Pleasant Valley Lake
- Glenwood Lake
- Cliffwood Lake
- Great Gorge Lake
- Tall Timbers Lake
- Panorama Lake
- Scenic Lake
- Louemma Lake
- Blue Heron Lake



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DESIGN

0 4,000 8,000
Feet
Spatial Reference: NAD 1983 2011 StatePlane New Jersey NPS 2900 FUS

VERNON TOWNSHIP
LAKES

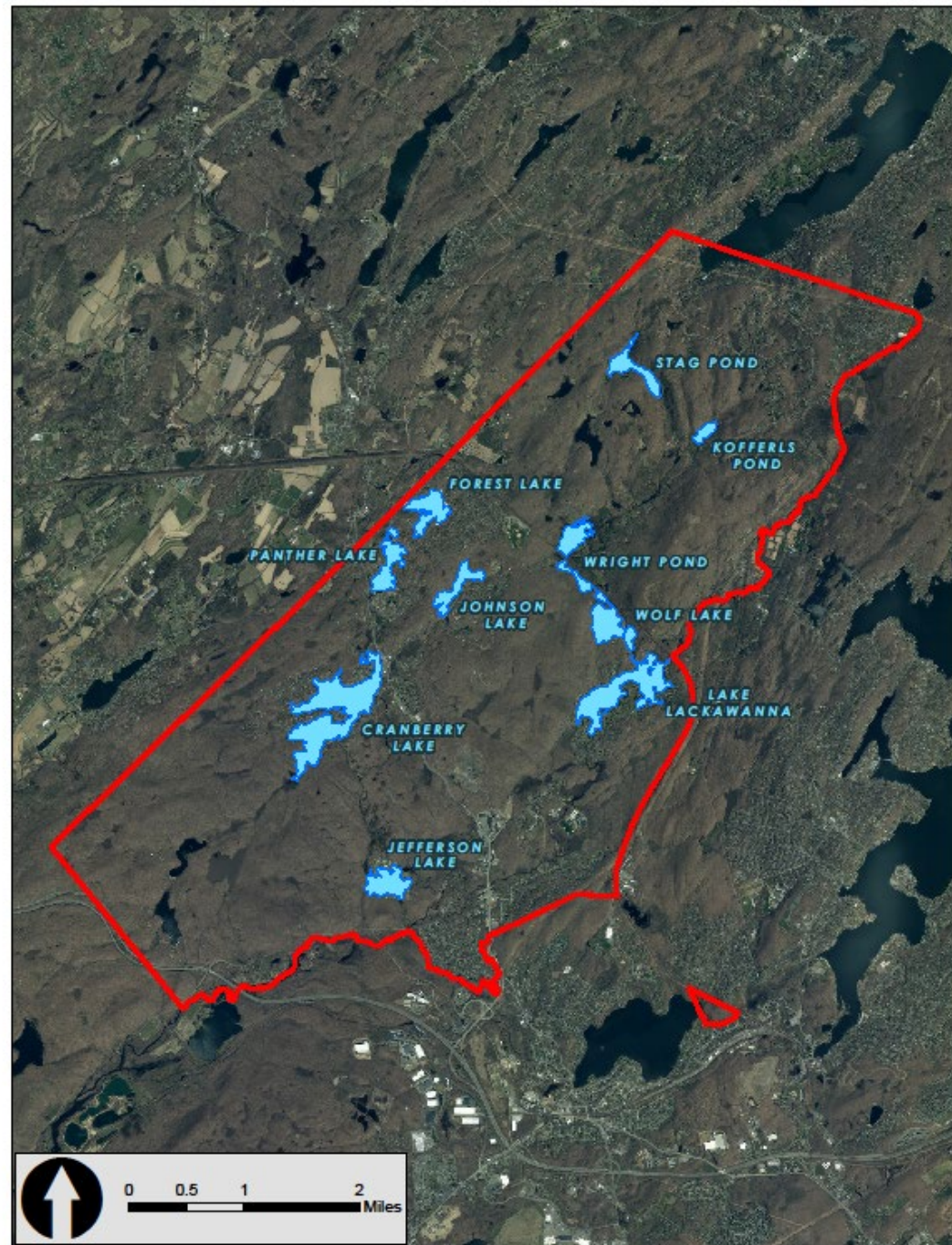


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Byram Township Sussex County

- Stag Pond
- Kofferls Pond
- Wright Pond
- Wolf Lake
- Lake Lackawanna
- Johnson Lake
- Forest Lake
- Panther Lake
- Cranberry Lake
- Jefferson Lake



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Putting The Plans Together

- Base decisions on analytical data
- Address short and long term problems
 - In-lake = short-term
 - Watershed = long-term
- Prioritize projects accordingly
- Develop budget
- Develop implementation schedule
- Make sure plan is cost-effective



In-Lake / Watershed Measures

- ✓ **Benefits / Value** – what will it accomplish?
- ✓ **Limitations** – what can't the action do?
- ✓ **Permit Requirements** – get approvals for action.
- ✓ **Capital Costs** – initial costs (design, implementation).
- ✓ **Monitoring** – assess the effectiveness of the action.
- ✓ **Long-term, Annual Costs** – routine costs associated with maintenance.
- ✓ **Maintenance Requirements** – routine activities that must be implemented to keep efficiency at its maximum level.

Typical Elements of a Good Plan

Source Control - Reduce pollutant load at point of origin, by decreasing inputs you decrease rate of eutrophication

Delivery Control - Intercept and decrease pollutants before they enter lake

In-lake Restoration – Use in-lake techniques to both correct the cause of eutrophication and lessen WQ impacts



Put Plan Into Motion

- Make full use of the data
- Listen to stakeholders
- Make sure plan prioritizes the correction of cause of problems
- Make sure plan addresses lake users
- Develop an implementation schedule
- Coordinate finances and create budget
- Finance sources (such as 319(h) plan)
- Put plan into action



Progress of Participating Municipalities To Date

- Borough of Ringwood – **Complete**
- Township of Rockaway - **Complete**
- Township of West Milford – **Draft Report**
- Somerset County Parks – In Progress
- Township of Byram – In Progress
- Township of Vernon – In Progress



New Developments - Municipalities

The Borough of Ringwood has recently been awarded an NJDEP storm water grant to fund a green infrastructure recommendation direct from their plan. Specifically, a rain garden at the Martin J. Ryerson Middle School (Plan - Site 6). The project will begin in late 2023.

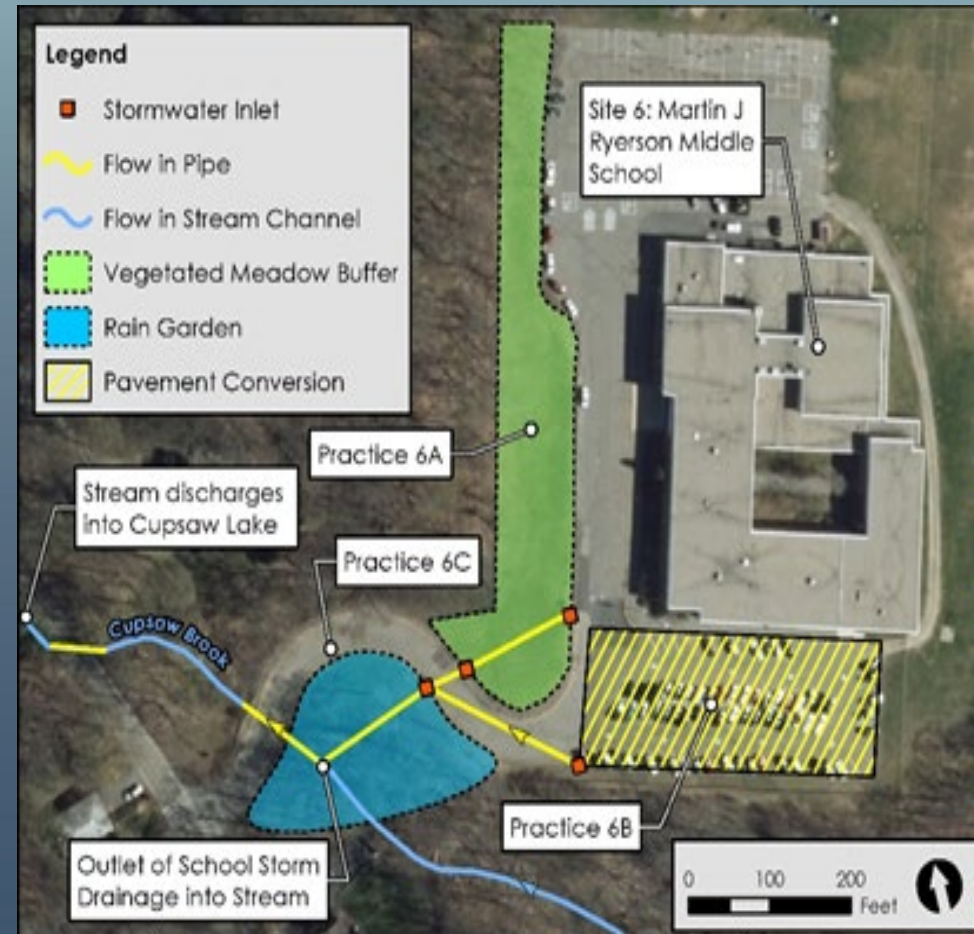


Figure 39: Site 4 Overall Outlet Location



New Jersey Highlands Council are currently funding a path forward

- Since the program started, over 75 private and public lake communities have had their watersheds delineated, their hydrologic and nutrient loads calculated, their lakes and watershed assessed with nutrient based field sampling, their algal and SAV communities assessed, and an overall management plan authored for the management of their lakes and watersheds.
- Now, working together for the betterment of the aquatic environment, we move forward!



QUESTIONS?



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THANK
YOU!

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Request for Proposals: Watershed Restoration and Protection Plans

Watershed Restoration and Protection Plans RFP

Objectives

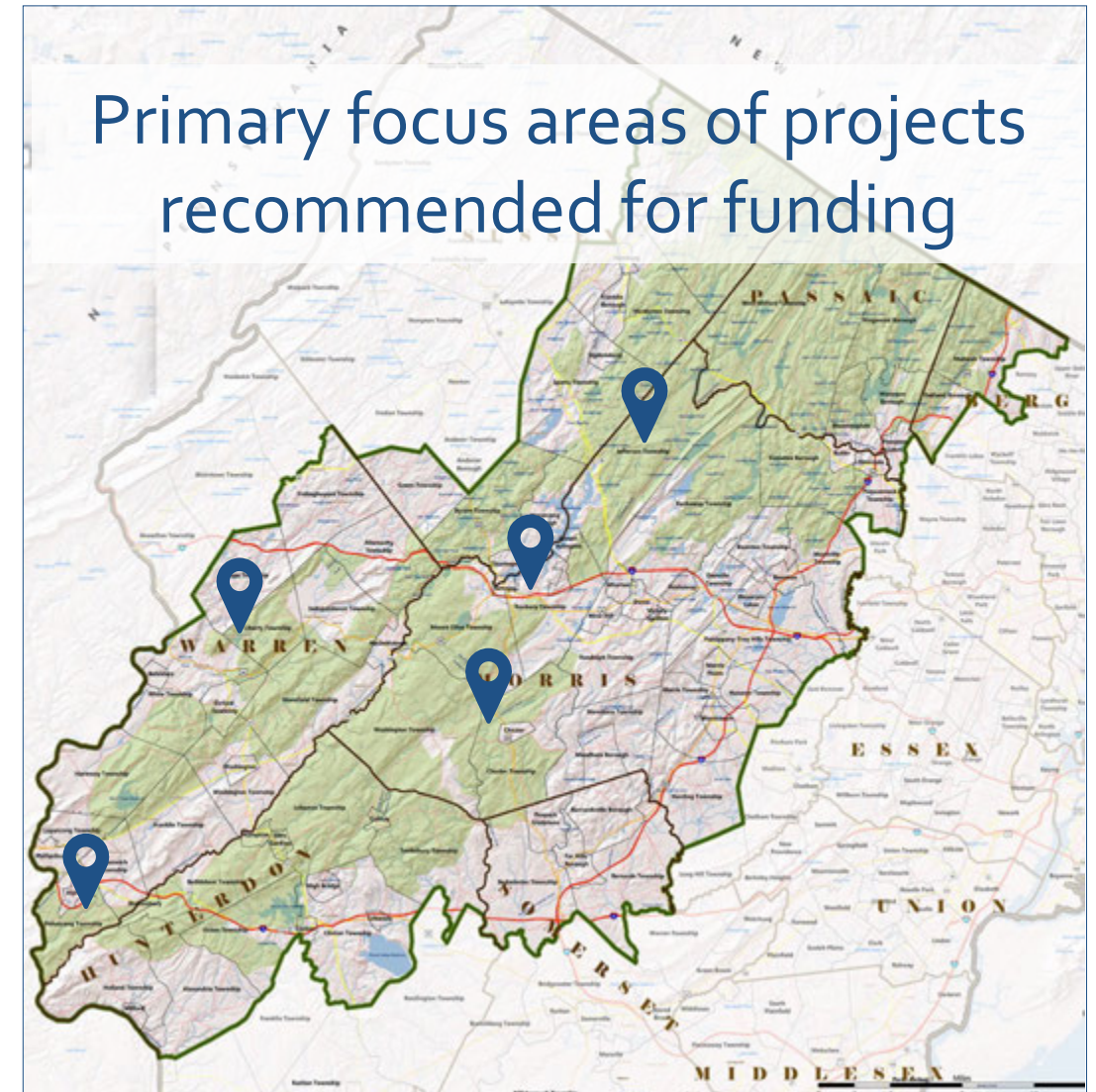
- Protect high quality subwatersheds
- Restore impaired subwatersheds

Proposal Requirements

- Develop or update Watershed Restoration and Protection Plans (WRPPs) for one or more subwatersheds
- Incorporate EPA's "9 key elements" – essential for NJDEP Water Quality Restoration Grants (to implement WRPPs)

Response

- 4 proposals received; 3 recommended

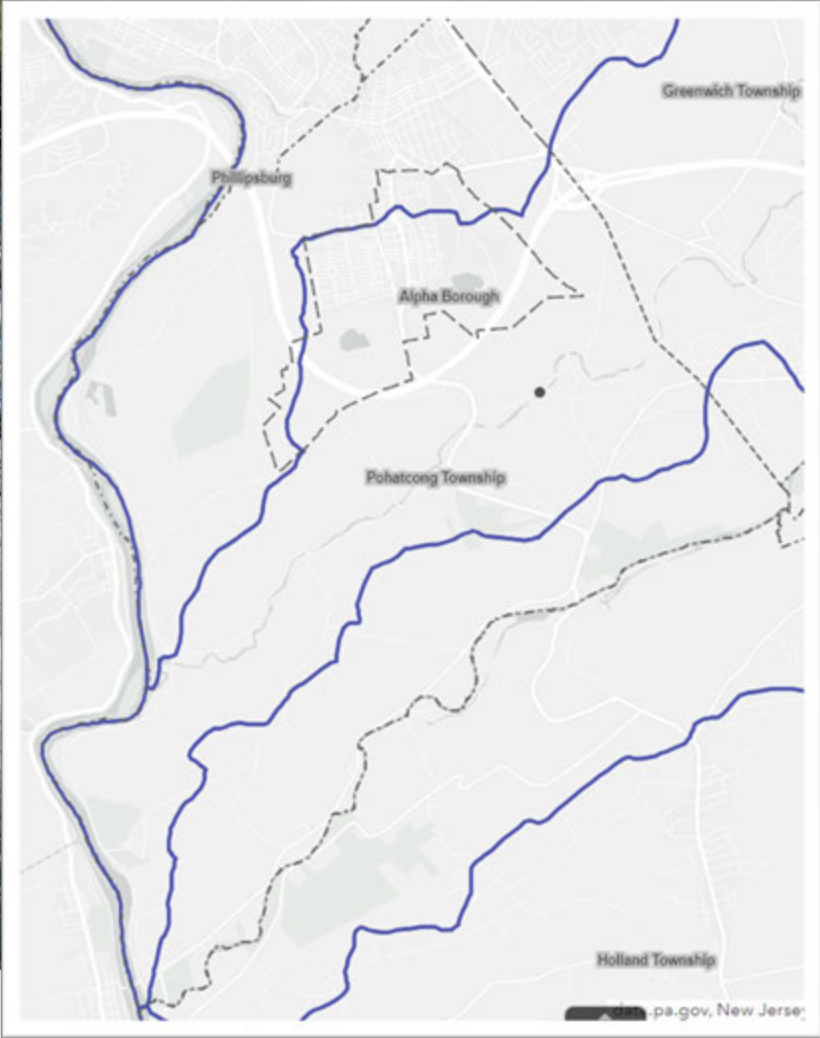
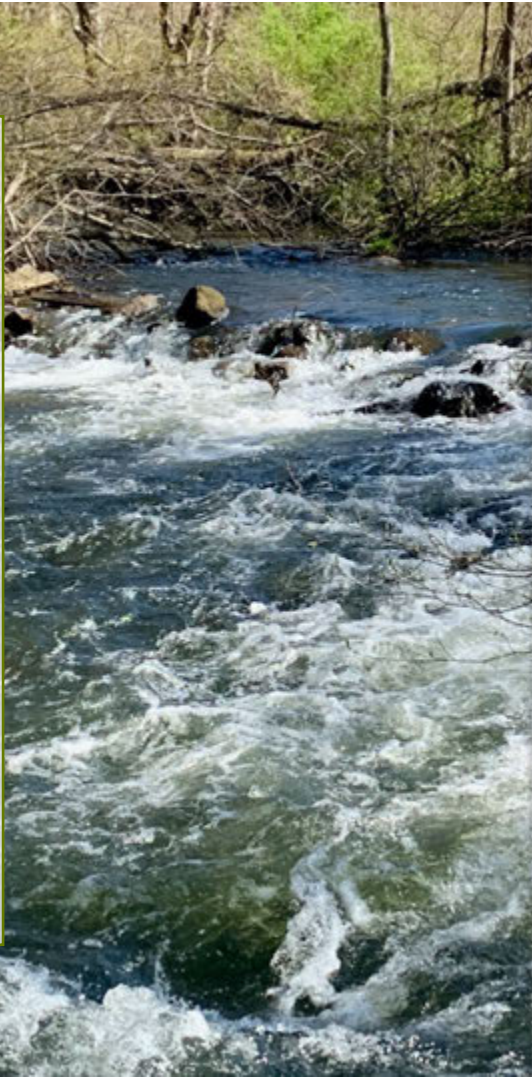


Proposed Project: Pohatcong Township Watersheds

Project Team
Engineering and Land Planning, Inc.
Stroud Water Research Center

Focus Areas (portions of)
Lopatcong Creek Watershed
Pohatcong Creek Watershed
Musconetcong River Watershed

Proposed Budget
\$41,000

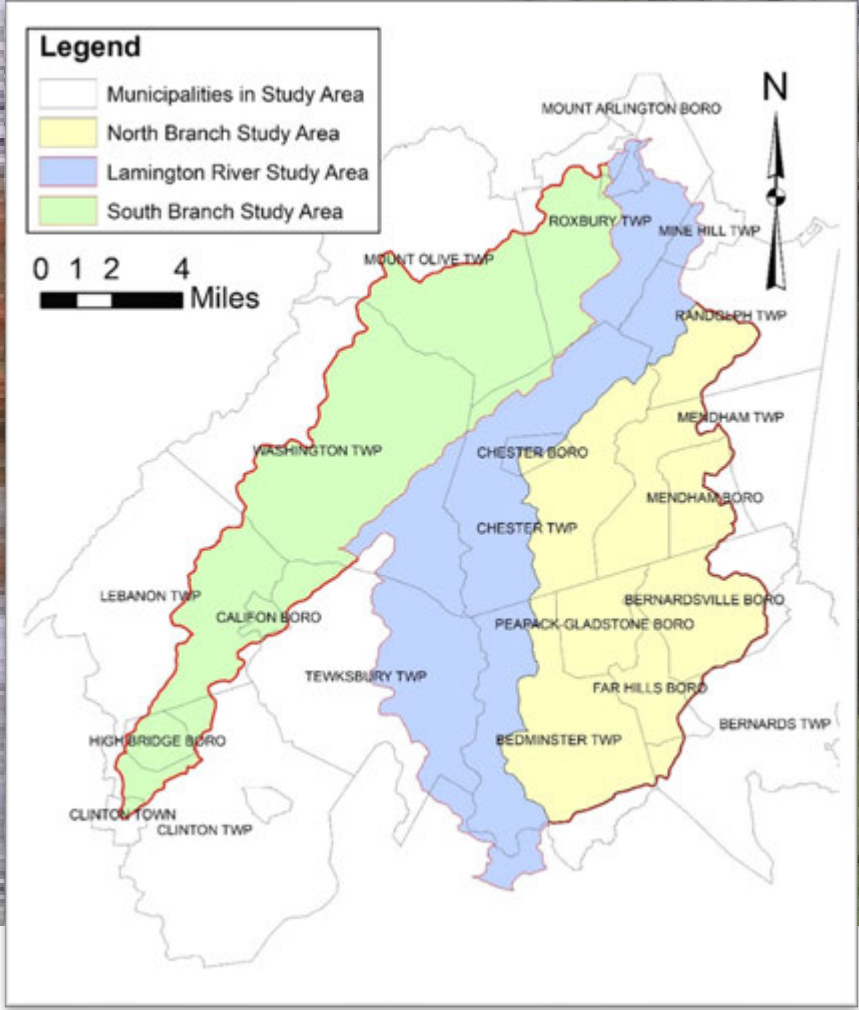


Proposed Project: North Branch Raritan River, South Branch Raritan River, Lamington River, and Black River

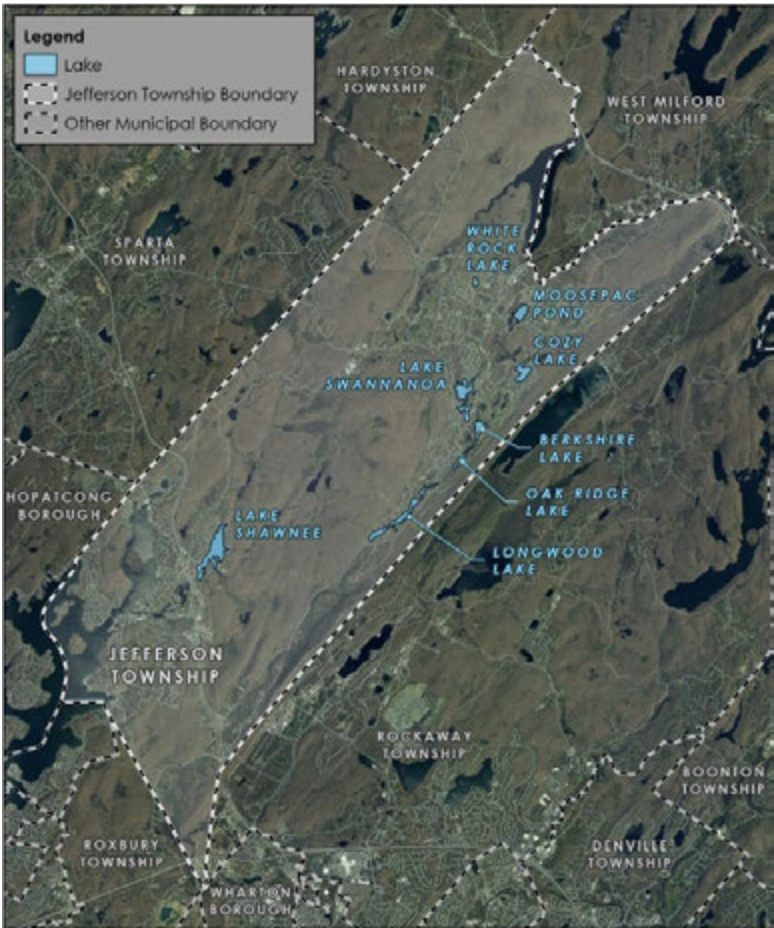
Project Team
Rutgers Cooperative Extension (RCE)
Water Resources Program
Raritan Headwater Association
New Jersey Water Supply Authority

Focus Areas
24 HUC 14s across 21 municipalities

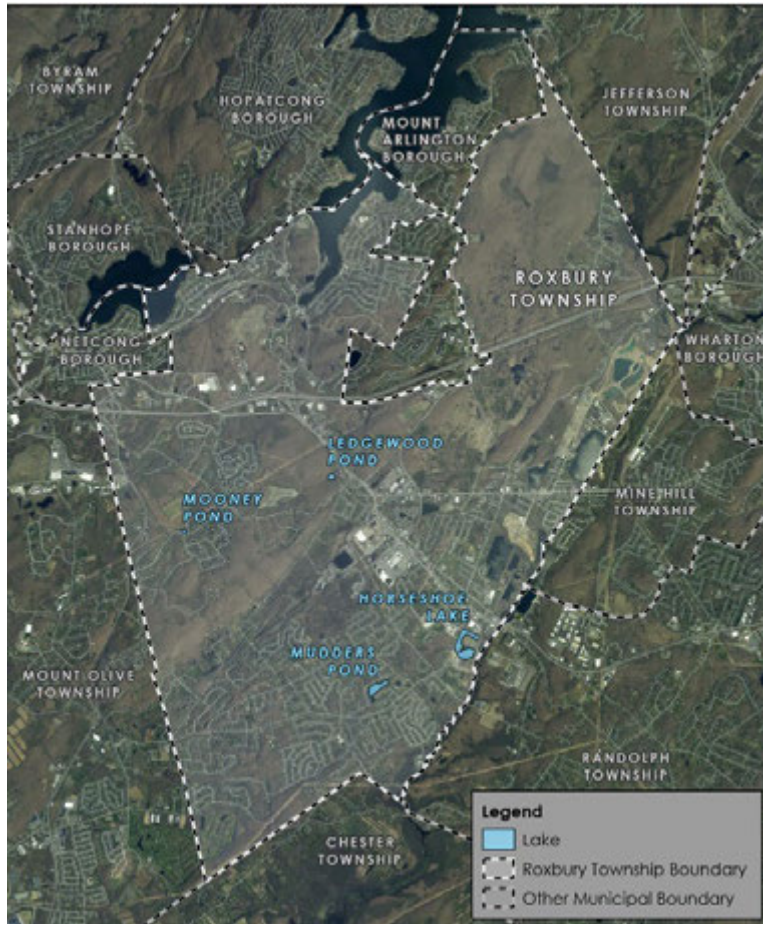
Proposed Budget
\$371,562



Proposed Project: Morris County and Warren County Locations



8 lakes in Jefferson Township



4 lakes in Roxbury Township



Mountain Lake Community
Liberty Township

Project Team Princeton Hydro, LLC Proposed Budget \$334,915



Summary Benefits of Recommended Projects

- In total, projects will have the potential to positively impact water quality in **34 HUC 14 subwatersheds** in **25 Highlands municipalities**.
- Watershed Restoration and Protection Plans:
 - Set the stage for implementation funding through NJDEP and others
 - Address point and nonpoint pollution, HABs, TMDLs, stormwater management, septic system improvements, animal waste, agricultural BMPs, and climate change
 - Can be used in the development of Watershed Improvement Plans required by the MS4 stormwater permit regulations

Council Action

- Three proposals as outlined recommended for funding
- Total investment of \$747,477
- As always:
 - Contract totals are not-to-exceed amounts
 - Contract payments are:
 - ✓ Reimbursement-based
 - ✓ Pending Highlands Council staff review and approval of project deliverables