

Village of Monroe Drinking Water Source Protection Program (DWSP2) Plan

Village of Monroe Water System

Prepared For

Village of Monroe

7 Stage Road
Monroe, NY 10950

November 2022



DWSP2 Plan
Village of Monroe, Orange County, New York

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INTRODUCTION	1
BACKGROUND	3
1.0 Stakeholder Group	4
1.1. Vision Statement and Goals.....	4
2.0 DRINKING WATER SOURCE ASSESSMENT	6
2.1. Water System Overview	6
2.2. General Treatment.....	7
2.3. Surface Water Source: Mombasha Lake.....	7
2.3.1. Environmental Setting	7
2.3.2. Methodology for Delineation of Source Water Area.....	9
2.3.3. Mombasha Lake: Critical Area Calculations.....	9
2.3.4. Mombasha Lake: Description of Boundary Area	10
2.4. Groundwater Source: Well No. 4.....	10
2.4.1. Environmental Setting	10
2.4.2. Hydrogeologic Setting.....	11
2.4.3. Data and Analysis used to Delineate and Map Critical and Source Water Areas	12
2.5. Potential Contaminant Source Inventory	13
3.0 PROTECTION AND IMPLEMENTATION STRATEGIES.....	16
3.1. Priority Issues.....	16
3.2. Protection and Management Methods	17
3.2.1. Land Use Tools and Methods.....	17
3.2.2. Monitoring and Reporting	18
3.2.3. Public Education and Outreach	18
3.3. Implementation Timeline	19
4.0 PLAN PROGRESSION AND MAINTENANCE.....	20
5.0 CONCLUSION.....	21

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Tables	
Table 0- 1: Phases and Key Components	2
Table 1- 1: Monroe Stakeholder Group	4
Table 2- 1: Water Quantity Summary	6
Table 2- 2: Hydrologic Soil Groups (HSG) Soil Classification System.....	8
Table 2- 3: Potential Contaminant Source Categories and Sources	14
Table 2- 4: Summary of Potential Contaminant Sources	15
Table 4- 1: Plan Management Team	20
Figures	
Figure 1 – Drinking Water System Overview	
Figure 2 – Mombasha Lake System Overview	
Figure 3 – Well No. 4 System Overview	
Figure 4 – Mombasha Lake Critical and Source Water Areas	
Figure 5 – Well No. 4 Critical and Source Water Areas	
Figure 6 – Mombasha Lake Topography and Drainage	
Figure 7 – Well No. 4 Topography and Drainage	
Figure 8 – Well No. 4 Aquifer Overview	
Figure 9 – Mombasha Lake Steep Slopes	
Figure 10 – Mombasha Lake Land Cover	
Figure 11 – Well No. 4 Land Cover	
Figure 12 – Mombasha Lake Land Use	
Figure 13 – Well No. 4 Land Use	
Figure 14 – Mombasha Lake Hydrologic Soil Type	
Figure 15 – Mombasha Lake Potential Contaminant Sources	
Figure 16 – Well No. 4 Potential Contaminant Sources	
Appendices	
Appendix A – DWSP2 Data Summary	
A.1 – DWSP2 Plan Checklist	
A.2 – Stakeholder Group	
A.3 – Goals and Vision	
A.4 – Overview of Water system	
A.5 – DWSP2 Map Creation	
A.6 – Potential Contaminant Source Inventory	
A.7 – Implementation Timeline	

A.8 – Plan Management Team
Appendix B – Project Profiles
Appendix C – Cost Estimates
Appendix D – Delineation Methods
Appendix E – Watershed Rules and Regulations, Village of Monroe

ABBREVIATIONS

3DEP	United States Geological Survey 3D Elevation Program
AIRS	Aerometric Information Retrieval System
AST	Aboveground Storage Tank
AWQR	Annual Water Quality Report
BMP	Best Management Practice
CBS	Chemical Bulk Storage
CEA	Critical Environmental Area
CSOs	Combined Sewer Overflows
CWSRF	Clean Water State Revolving Fund
DEM	Digital Elevation Model
DOH	Department of Health
DPW	Department of Public Works
DWSP2	Drinking Water Source Protection Program
ECHO	Enforcement & Compliance History Information
EDR	Environmental Database Report
EFC	New York State Environmental Facilities Corporation
EPA	United States Environmental Protection Agency
ERNS	Emergency Response Notification System
FINDS	Facility Index System
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FTTS	FIFRA/TSCA (Toxic Substances Control Act) Tracking system
GIS	Geographic Information System
HUC	Hydrologic Unit Code
IMA	Intermunicipal Agreement
MCL	Maximum Contaminant Load
MGD	Million gallons per day
MRDS	Mineral Resources Data System
MS4	Municipal Separate Storm Sewer System
MWC	Mean Wetted Channel
NLR	No Longer Regulated
NRCS	National Resources Conservation Service
NYCRR	NY Code of Rules and Regulations
NYS	New York State
NYSAGM	New York State Department of Agriculture and Markets

NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOS	New York State Department of State
NYSPI	New York State Pollution Prevention Institute
NYRWA	New York Rural Water Association
OCDOH	Orange County Department of Health
OCDPW	Orange County Department of Public Works
OGS	Office of General Services
PBS	Petroleum Bulk Storage
PCS	Potential Contaminant Source
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonic acid
PWS-ID	Public Water System Identification Number
QA/QC	Quality Assurance/ Quality Control
RCRA	Resource Conservation and Recovery Act
SDWA	Safe Drinking Water Act
SEQR	State Environmental Quality Review
SIR	Scientific Investigations Report
SOP	Standard Operating Procedure
SPDES	State Pollutant Discharge Elimination System
SSOs	Sanitary Sewer Overflows
SVS	Simplified Variable Shapes
SWAP	Source Water Assessment Program
TOT	Time-of-Travel
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
US	Unites States
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VFE	Volumetric Flow Equation
VSQG	Very Small Quantity Generator
WQIP	Water Quality Improvement Project
ZOC	Zone-of-Contribution

INTRODUCTION

The objective of this Drinking Water Source Protection Program (DWSP2) Plan for the Village of Monroe is to ensure that the community retains access to a safe and reliable supply of drinking water. The term source water refers to surface waters and groundwater aquifers that reach private and public drinking water supply intakes. Source water protection protects public health by preventing pollutants from entering the drinking water supply. Preventing pollution at the source ultimately decreases water treatment costs and increases public confidence in their drinking water supply. In many communities, source water protection efforts increase public awareness and strengthen intermunicipal partnerships during both planning and implementation phases.

Provisions of the 1996 Safe Drinking Water Act (SDWA) required each public water system to evaluate the source or sources of their drinking water. To meet this requirement, the New York State Department of Health (NYSDOH) developed a Source Water Assessment Program (SWAP) for public water supplies. Under the SWAP, water purveyors delineated contributing land areas (source water areas and/or aquifer recharge areas), inventoried potential contaminant sources, and analyzed the susceptibility of their water supply to contamination. The SWAP reports did not include an implementation strategy to protect susceptible areas or a provision to update the plan based on emerging issues. A SWAP report was prepared for the Village of Monroe in 2002.

In contrast, the DWSP2 is designed to focus on source water protection and embraces an adaptive management approach. The program is designed to engage community stakeholders to define priority issues and potential solutions. The core of the DWSP2 report is an implementation plan that identifies specific issues and threats to the drinking water supply, priority actions, resources, and a timeline required for implementation. A local Plan Management Team is tasked with evaluating and reporting progress. These changes to the initial SWAP approach were made to help ensure that protection of the drinking water supply remains a focus of community decisions and actions.

To guide municipalities and water providers in developing their DWSP2 reports, representatives of key state agencies (New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), New York State Department of State (NYSDOS), and New York State Department of Agriculture and Markets (NYSAGM) and other regional organizations worked together to create a draft Framework to guide communities through a structured process to develop their DWSP2¹. Public water supply providers were invited to apply for support in using the draft Framework to develop a DWSP2 tailored to their specific source water supply, land use and development conditions and trends, and community goals. NYS funding supports a Technical Assistance Provider to work with the participants in utilizing the Framework to develop a DWSP2. Monroe was among the communities selected to participate and the Barton & Loguidice team was assigned to the Village as their Technical Assistance Provider; all work associated with developing a DWSP2 was performed under a contract through the New York State Office of General Services (OGS). H2M architects + engineers (H2M)

¹ For the DWSP2 Program Framework visit https://www.dec.ny.gov/docs/water_pdf/dwsp2draftframework.pdf

managed the plan preparation and was supported by EcoLogic LLC and Shumaker Engineering; these firms led tasks associated with visioning and mapping analyses, respectively. The NYS agencies are building on the experiences and knowledge gained from the initial round of participants and will continue to refine the Framework.

The Framework guides participating public water suppliers through four phases and eight key components (Table 0-1). The sequence of tasks is structured to ensure that participants can successfully protect the quality of their drinking water supply for years to come.

Table 0- 1: Phases and Key Components

Phase 1. Stakeholder Group
1.1 Form a Stakeholder Group
1.2 Establish Goals and Formulate a Vision
Phase 2. Drinking Water Source Assessment
2.1 Develop an Overview of the Water System
2.2 Prepare a Drinking Water Source Protection Map
2.3 Create a Potential Contaminant Source Inventory
Phase 3. Protection and Implementation Strategies
3.1 Identify Protection and Management Methods
3.2 Develop an Implementation Timeline
Phase 4. Progression and Maintenance
4.1 Designate a Plan Management Team

The Village of Monroe DWSP2 report was developed through a series of steps aligned with the phases listed in Table 0-1. The first step was to identify a stakeholder group with local knowledge of current conditions of the water supply and emerging issues and trends. The stakeholder group met on a regular basis with the Technical Assistance Provider as the team progressed through the Framework phases and components. A comprehensive data summary contains details on each Framework component, located in Appendix A.

A key initial step was to engage the stakeholders in defining their vision and goals for the Village water supply. The goals identified during this first phase echo throughout Monroe's plan and form the basis of the adaptive management approach to assessment and re-evaluation. The second step of the Framework was a drinking water source assessment. During this step, the stakeholder group and Technical Assistance Providers developed an overview of their current water system, mapped contributing areas, and queried multiple databases to identify and locate potential sources of contamination. The Village provided annual water quality reports (AWQR), water master plan and rate study, and their 2002 SWAP to assist the team with compiling information and data.

Once the existing conditions and source water areas were delineated, the third step was identifying protection and management methods for long term protection. This process evaluated current measures and considered what additional measures could be effective given the nature of the environmental setting, land use and trends, and institutional partnerships. A key component of this third step was to develop a timeline for implementing the recommended actions: including lead agencies, priority, timelines, and estimated costs. The fourth and final step of the Framework is progression and maintenance. A Plan Management Team is identified; this group will be responsible for ensuring the DWSP2 recommended actions for protection of the Village of Monroe water supply are implemented, reporting progress to NYSDEC, NYSDOH, and the community at-large and updating the plan on a regular, five-year basis.

BACKGROUND

This Drinking Water Source Protection Plan was prepared for the Village of Monroe. The Village uses both surface water and ground water. The Village's water sources are the Mombasha Lake Reservoir and Village of Monroe Well No. 4. The well runs as a supplemental supply to the surface water when the reservoir water surface elevation falls below a defined target. A 1 MGD water storage tank was constructed in 2015 to provide storage capacity. This water system serves 9,753 residents of the Town and Village of Monroe. The NYS PWS-ID is NY3503535.

Mombasha Lake is a manmade reservoir fed by four small unnamed tributaries. Two tributaries enter from the southern end and two enter from the northwestern end of the reservoir. The dam and the water supply intake are located at the northeastern end. Water flows from the reservoir over the spillway located at the southeastern end and downstream toward Lake Winape.

1.0 STAKEHOLDER GROUP

For the source water protection effort, a stakeholder group was formed. The stakeholder group is comprised of people with different backgrounds and knowledge including the Water Treatment Plant Operator, Village of Monroe Mayor, Village of Monroe Trustees, as well as other representatives from the Town and Village Offices, and the Orange County Department of Health. Members of the stakeholder group and their affiliations are listed in Table 1-1. The stakeholder group established monthly meetings with the Technical Assistance Provider to work through the Framework and develop the DWSP2 Plan. A list of the scheduled meetings and summaries of the discussions is included in Appendix A.2. The stakeholder group assisted in creating a vision statement and goals for the Village of Monroe. They also provided local knowledge and feedback during the drinking water source assessment phase and protection and implementation strategies phase. Finally, they made important decisions on individuals and groups that should be included in the Plan Management Team.

Table 1- 1: Monroe Stakeholder Group

<u>Name</u>	<u>Relevant Affiliation(s)</u>
Ben Maldonado	Town of Monroe, Code Enforcement
Bonnie Franson	Town of Monroe, Planning Board Chair
Ernie Mabee	Village of Monroe, Water Treatment Plant Operator
John Karl	Village of Monroe, Trustee
John O'Rourke	Village of Monroe, Village Engineer/Lanc and Tully
Mary Bingham	Town of Monroe, Councilwoman
Mike Anderson	Orange County, Department of Health
Neil Dwyer	Village of Monroe, Mayor
Steve Gagnon	Orange County, Senior Public Health Engineer
Tony Cardone	Town of Monroe, Supervisor

1.1. Vision Statement and Goals

During Monroe's second stakeholder group meeting, the group brainstormed a draft vision statement and goals. The Village of Monroe stakeholder group finalized a vision statement in the third meeting that reflects their goals for the future of their drinking water supply. The goals of Monroe's DWSP2 are as follows:

1. Protect public health
2. Address existing water quality issues
3. Engage and educate the community about their drinking water
4. Increase reliability of source water testing and quality information
5. Knowing what contaminants are regulated and addressing emerging contaminants
6. Evaluate current land use and plan for future land use

After consideration of the community's goals, a vision statement was created and used to direct Monroe's DWSP2 project; *The Village of Monroe envisions a future where the community understands the source of their public water supply and is committed to adopting and enforcing protective measures for the Mombasha Reservoir and groundwater Well No. 4 and their respective source water area and contributing areas; that are designed to ensure continued availability of high-quality drinking water that meets or exceeds public health standards and serves current and future residents.*

2.0 DRINKING WATER SOURCE ASSESSMENT

This section of the plan provides an overview of the Village of Monroe's Water System and the hydrogeologic setting. The assessment also includes delineation of the drinking water source protection areas, and identification of the potential contaminants of concern.

2.1. Water System Overview

The Village of Monroe water system serves both the Village and Town of Monroe through approximately 43 miles of watermain. Approximately 9,753 customers are served by the water system through 3,000 service connections. The Village of Monroe's water source is primarily the Mombasha Lake Reservoir. The Village also maintains a secondary source, Well No. 4. For a project location and system overview with Mombasha Lake intake location, refer to Figure 1.

On average in 2020, approximately 87% of the total supply was sourced from the Mombasha Lake Reservoir and 13% of the total supply was sourced from Well No. 4. The combination of the two sources produced approximately 0.37 billion gallons of water with an average day of approximately 1.01 million gallons per day (MGD) and a maximum day of 1.4 million gallons per day (MGD). Approximately 0.20 MGD was not charged to customers; these water losses were due to backwashing the filters, water main breaks, hydrant flushing, Village Town and County designated hydrant use, normal losses, meter tampering, fires and non-metered Village building usage.

All the information described in this section was obtained through the Village of Monroe's 2020 Annual Water Quality Report (AWQR), 2021 AWQR, 2021 Water Withdrawal Report, and information provided by the stakeholder group. Refer to Table 2-1 for the Village of Monroe's water quantity summary.

Table 2- 1: Water Quantity Summary

Current Water Withdrawal Permit Expiration Date(s)	N/A*
Total Permitted Water Withdrawal Capacity	2.1 MGD**
Average Daily Water Demand (= Yearly Usage / 365)	1.01 MGD
Maximum Daily Water Demand (Unofficial 3-day average in peak month - e.g. July)	1.4 MGD
Daily Water Losses (can be obtained from Water Conservation Program form)	0.20 MGD (20%)
<p>*A water withdrawal permit is required as the Village of Monroe has the capacity to withdraw up to 2.1 MGD. The Village of Monroe water withdrawal permit dates from 2000. Unless there are changes to the volume of water withdrawn, the 2000 permit remains in effect. The Village is required to provide annual reporting of actual withdrawals once a year.</p> <p>** According to the Village of Monroe's 2000 water withdrawal permit, the total permitted withdrawal rate of the water system is 2.1 MGD. However, the system is currently operated using 1.5 MGD as a daily limit.</p>	

In recent years the Village's water source has been affected by turbidity, disinfection by-products, and sodium. Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA)

are an emerging concern. As of 2022, the PFOs/PFOAs in the water samples for the system entry and Well No. 4 were all under the Maximum Contaminant Load (MCL) set by New York State and as a result the sampling frequency requirements have been reduced. The EPA is expected to release updated guidance and new federal MCLs in the Fall of 2022, but it is unknown at this point if these regulations will be more or less stringent than the New York State MCLs already in place.

2.2. General Treatment

The Village of Monroe operates water treatment processes for each of its source water supplies. The raw water from Mombasha Lake is treated at the filtration plant with a series of treatment processes. A coagulant agent (poly-aluminum chloride) is mixed with the raw water and bonds to solids and colloid impurities in the raw water to create larger colloidal solid particles. The colloidal solids sink during the sedimentation process and are removed from the bottom of the tank and waste collection system. Filtration effluent is then treated with sodium hypochlorite for disinfection and ortho-polyphosphate for corrosion control. The raw water from Well No. 4 is treated on-site with chlorine prior to distribution.

2.3. Surface Water Source: Mombasha Lake

2.3.1. Environmental Setting

Mombasha Lake is a man-made lake formed by the Monroe Reservoir Dam (NYS Inventory of Dams ID #195-0409). The drainage area of Mombasha Lake encompasses several small ponds and unnamed tributaries. Anecdotal accounts from residents indicate that the Lake is also spring fed, a possibility noted in the 2012 Village of Monroe Water Master Plan.² Given the size of the source water area and the number of surface tributaries, groundwater is likely to represent an insignificant fraction of the hydrologic budget of the reservoir, thus the report focuses on the landscape for long-term water quality protection. The majority of the source water area lies in the Town of Monroe, but a small portion is in the Town of Tuxedo to the south and encompasses Kloibers Pond and a portion of the Appalachian National Scenic Trail. The outlet of the lake flows into Lake Winape and heads generally southeast into the Ramapo River. See Figure 6 for the topography and drainage map. Most steep slopes over 11% occur along southeast end of the lake. Most of the source water area is flat and has multiple small ponds and wetland areas. See Figure 9 for the steep slopes map.

Deciduous Forests make up 57.3% of the total land cover in the Mombasha Lake source water area. Open Water is the second most common land type in the source water area at 16.4%. Open Space Development accounts for 8.5% of the total source water area. The fourth most common land use type in the source water area is Woody Wetlands at 7.3% of the total area. Low, Medium, and High Intensity Developed areas account for

² <https://villageofmonroe.org/watermasterplan.pdf>

less than 5% of the total source water area. The remaining land cover types include Grassland/Herbaceous, Mixed Forest, Pasture/Hay, Shrub/Scrub, Emergent Herbaceous Wetlands, and Evergreen Forest. Refer to Figure 10 for the land cover map. Most parcels within the source water area are classified as Residential (29.4%), Vacant Land (25.6%), and Public Services (25.1%). Wild, Forested, Conservation Lands, and Public Parks accounts for 8.7% of the total source water area. Community Services accounts for 5.3% of the total land use area. Commercial land use only accounted for 1.1% of the total source water area. Recreation and Entertainment (4.4%) and Unclassified (0.3%) represent the remaining source water area land use. Figure 12 shows the land use map for Mombasha Lake's source water area.

Hydrologic Soil Groups are used to estimate runoff potential.³ Table 2-2 provides a summary of the four soil groups. Most of the hydrologic soils in the source water area is Group D with large areas of Group C. There are also several wetland complexes in the source water area that are composed of Group B/D soils. See Figure 14 for the hydrologic soil type map.

Table 2- 2: Hydrologic Soil Groups (HSG) Soil Classification System

Soil Classification	Soil Composition	Infiltration Rate	Filtration Characteristics
Group A	sand, loamy sand or sandy loam types of soils	High	Consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission.
Group B	silt loam or loam	Moderate	Consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.
Group C	sandy clay loam	Low	Consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.
Group D	clay loam, silty clay loam, sandy clay, silty clay or clay	Very Low	Consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material.

³ For a more detailed explanation of soil groups visit <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>

2.3.2. Methodology for Delineation of Source Water Area

The land area potentially affecting the quality and quantity of water reaching Mombasha Lake was mapped to support the long-term protection planning effort. The source water protection area mapping was completed using StreamStats. This is a web-based Geographic Information Systems (GIS) application that provides users with access to an assortment of analytical tools for a variety of water-resources planning and management purposes, and for engineering and design purposes. StreamStats determines drainage-basin boundaries by use of digital elevation data obtained from the USGS 3D Elevation Program (3DEP). The StreamStats “Delineate Basin” tool was used to generate the Source Water area for Mombasha Lake. The location of the source water intake was mapped in ArcGIS and the corresponding location was located on the StreamStats mapper (<https://streamstats.usgs.gov/ss/>).

The “Delineate Basin” tool was used at the Mombasha Lake intake location and StreamStats automatically generated source water area basin from the selected point. The generated basin was downloaded as shapefiles and reviewed for accuracy using topographic mapping and National Hydrography Dataset streamlines. The resulting shapefile represents the entire source water area. The source water area shapefile that is generated follows the guidance outlined in the DWSP2 Framework that states that the source water area is the “remaining area within upstream USGS Hydrologic Unit Code (HUC)-12 source water area boundaries that contain any portion of the critical area.” A hydrologic unit code is a sequence of numbers that identify a drainage basin. Refer to the Framework, section title “Using StreamStats” for a step-by-step guide on using StreamStats to delineate source water areas. StreamStats delineation method uses a DEM grid, which produces jagged edges on the shapefiles. The ArcGIS Advanced Editor tool “Generalize” was used with a maximum allowable offset of 15 to smooth the source water area shapefile edges. The total source water area of Mombasha Lake is outlined as a solid red line in Figure 2 and is 1,789.2 acres in size.

2.3.3. Mombasha Lake: Critical Area Calculations

The Framework was followed to develop the critical area for Mombasha Lake, section titles “Establish and Delineate Surface Water Protection Areas” and “Mean Wetted Channel (MWC) Width Equation” of the Framework. Per the Framework recommendation, the entire shoreline of Mombasha Lake was included in their respective critical area calculations. A 1000-foot buffer was utilized in ArcGIS around the reservoir based on the stakeholder's knowledge of the area. This distance was decided on by the community and stakeholder group as it was the most conservative choice per the Framework recommendations. To extend the critical area up mapped tributaries, the Mean Wetted Channel (MWC) Equation was used, which is $(MWC) \times 20$. The MWC

equation calculates the distance upstream of the tributaries that should be included in the critical area. The additional tributary buffer is added from the edge of the source water buffer. If the critical area buffer extended past the source water area polygon, it was clipped to the edge of the source water area. Overall, the total critical area is 888.5 acres, of which the Village of Monroe has control and monitoring of 72.1 acres. Refer to Figure 4 for the Mombasha Lake Critical Area map.

2.3.4. Mombasha Lake: Description of Boundary Area

The source water boundary for Mombasha Lake mapped in Figure 2 is the source water area upstream of the intake point at Water Plant Road. This boundary encompasses tributaries that flow into Mombasha Lake. All activities that take place within this boundary could potentially affect the drinking water source for the Village of Monroe, even though the reservoir is located outside of the Village boundaries. The source water area is primarily located within the Town of Monroe with only a small portion extending south into the Town of Tuxedo, as shown in Figure 1.

The critical boundary seen in Figure 4, is the area of land that surrounds Mombasha Lake and represents a greater threat to the drinking water source as contaminants in this area can take less time to reach the source. The boundary is a 1,000-foot buffer of the shore of the lake and includes areas around the lake's four tributaries. The control and monitoring area for the Village of Monroe is the area around the intake, indicated as a yellow circle on Figure 4.

2.4. Groundwater Source: Well No. 4

2.4.1. Environmental Setting

The source water area for Well No. 4 is located in one town and two villages. The southern and middle portions of the source water area lie mainly in the Town of Monroe and the Village of Monroe. The northern most portion and a small area in the middle of the source water area lies in the Village of Kiryas Joel. The general groundwater and surface water flow direction towards the wells is north to south. A tributary to the Ramapo River begins at the north end of Well No. 4 source water area. See Figure 7 for the topography and drainage map.

Deciduous Forests make up 41.1% of the source water area. Developed, Open Space (26.1%) and Developed, Medium Intensity (11.6%) are the second and third most common land cover type in the source water area. 10.3% of the source water area is classified as Developed, Low Intensity and 5.5% is classified as Woody Wetlands which occur along the tributary to the Ramapo River. 2.6% of the source water area land cover is classified as Developed, High Intensity. The remaining land cover classifications of Grassland/Herbaceous, Pasture/Hay, Mixed Forest, Emergent Herbaceous Wetlands,

and Open Water combined account for less than 3% of the remaining source water area. See Figure 11 for the Well No. 4 Land Cover map.

Most parcels within the Well No. 4 source water area are classified as Residential (31.9%). Community Services (28.2%) and Vacant Land (21.3%) are the second and third most common land use types in the source water area. 21.3 % of the source water area parcels are "Unclassified" and represent several large parcels owned by the Village. Commercial (1.3%) and Recreation and Entertainment (0.8%) account for the remaining land use classification types in the Well No. 4 source water area. See Figure 13 for the Well No. 4 Land Use map.

2.4.2. Hydrogeologic Setting

Monroe lies within the Highlands physiographic region of New York. Well No. 4 is in the Ramapo River-Woodbury Creek Valley-Fill Aquifer System. Based on information from the USGS Scientific Investigations Report 2014-5156, the aquifer system is located in a 23-mile-long fault-controlled valley. The valley has varying thickness of glacial deposits ranging from less than 10 feet to more than 200 feet. Elevations around Monroe range from about 600 to 900 feet above mean sea-level. Similar to other glacial fill valleys throughout the northeast, the Monroe area is primarily underlain by a sequence of unconsolidated clay through gravel size deposits of glacial origin, which are in turn underlain primarily by bedrock which is part of the Hudson Highlands region. The bedrock in the Monroe area is mapped as sedimentary carbonate and clastic rock. Precambrian age metamorphic rocks consisting mostly of gneiss occur to the south of the Monroe area. The valley in this area consists of two major source water areas. Surface water flow in the northern portion of the valley flows toward the northeastward-flowing Woodbury Creek which is a tributary to the Moodna Creek which flows east toward the Hudson River. Surface water flow in the southern portion of the valley flows towards tributaries to the southwestward-flowing Ramapo River. Monroe Well No. 4 is located in the northern portion of the southern source water area, so occupies the central portion of the valley.

The Monroe area is underlain by two primary aquifers, unconsolidated glacial materials or valley-fill aquifer and bedrock. In general, an "aquifer" is considered any groundwater-bearing geologic formation capable of supporting the water supply demands of local multi-groundwater users such as through a private supply well or public community supply well. Glacial valley-fill aquifers are formed as material was deposited primarily by melting glacial ice that occupied the area over 12,000 years ago.

Areas with thick, saturated sand and gravel deposits in this valley are reportedly limited in areal extent but several localized, productive aquifer zones occur. Based on USGS SIR 2014-5156, the valley-fill aquifer material in the Monroe Well No. 4 area has been described as generally thin and mostly unconfined. As typical for many supply wells such

as Well No. 4 completed in shallow valley-fill aquifers, the wells are generally most productive when sited near surface-water bodies allowing for additional recharge to the aquifer. Refer to Figure 8 for the Well No. 4 Aquifer Overview map.

The Monroe area is located in an area underlain by folded and faulted sedimentary carbonate bedrock and clastic bedrock comprising conglomerates, sandstones, and shales. Significant faults and lineaments have been mapped throughout the valley. Groundwater in the corresponding aquifers naturally moves from areas of recharge to areas of discharge. The major source of recharge to the groundwater bearing formations underlying the area is precipitation. Recharge from this source occurs when and where the precipitation can infiltrate through the local surficial materials and intercept the underlying perennial groundwater surface or can be transferred from underlying hydraulically connected formations that have received recharge from elsewhere (e.g., bedrock into overlying glacial deposits). Locally, some recharge may be provided by infiltration from surface-water bodies where the local groundwater surface is naturally or artificially depressed below a nearby surface-water level (such as in the vicinity of a pumping well). Such a scenario can be expected to potentially occur in the valley where local stream levels are higher than the nearby groundwater levels in the underlying glacial materials. Naturally occurring areas of discharge for the overburden and bedrock aquifer include the nearby surface-water bodies (e.g., tributary to the Ramapo River) and surrounding wetlands.

2.4.3. Data and Analysis used to Delineate and Map Critical and Source Water Areas

A combination of United States Environmental Protection Agency (USEPA) – approved Simplified Variable Shapes (SVS) and hydrogeologic mapping was selected as the most appropriate delineation methods for the following reasons:

1. Lack of available pumping test and observation well data to constrain select aquifer coefficients and variables required for analytical or numerical modeling (e.g., storage coefficient, hydraulic gradient, transmissivity, hydraulic conductivity, etc.).
2. Availability of hydrogeologic, topographic and hydrographic data to aid in the application of the selected methods, including a defensible determination of general groundwater flow direction and topographic drainage contributions.
3. Availability of well construction information for Well 4 to reasonably constrain upgradient Zone-of-Contribution (ZOC) null points utilizing the Volumetric Flow Equation (VFE).

It was generally found for groundwater sources, application of the VFE or variations thereof (i.e., the “half-circle” method), was inadequate as a sole delineation method. The half-circle method underestimates groundwater capture of areas directly downgradient of pumping wells. Similarly, analytical and numerical groundwater modeling was judged to be infeasible due to a

lack of available data. Any model would be fraught with assumptions to the point of becoming indefensible.

SVS is a delineation method approved by EPA to serve as an intermediate level between rudimentary methods (such as VFE and half-circle calculations) and much more complicated and information-rich methods (such as analytical and numerical modeling). Given the intended EPA application of this method, along with the inappropriateness of other delineations options, the project team came to select the combination of SVS and hydrogeologic mapping as the appropriate delineation method for Monroe Well 4.

Selection of an appropriate Source Water Protection delineation method is an essential step in any Source Water Protection Program. Many factors contribute to the selection process, including but not limited to the availability of data/information, the hydrogeologic setting, natural groundwater flow and gradient and other considerations to the benefitting water system. Oftentimes the availability of data, or lack thereof, is the single most important factor, as the technical defensibility of delineations depends on the quality and completeness of available information.

Professional judgement was used in balancing the aforementioned contributing factors such that defensible and implementable delineations were developed to achieve the primary goal of effective source water protection. Our approach to selecting delineation methods was guided by the DWSP2 Framework, United States Environmental Protection Agency (EPA) guidance documents (EPA, 1987; EPA 1992), available published hydrogeologic, topographic and hydrographic information, records made available to us by the subject municipality, feedback received from approving agencies, and our overall professional experience.

The step-by-step approach to delineating the Critical and Source Water Area for Well 4 serving the Monroe public water system is presented in Appendix D. Refer to Figure 3 for the Well No. 4 System Overview Map which details the Source Water Area. Refer to Figure 5 for the Well No. 4 Critical and Source Water Areas map. The critical area is outlined in a solid purple line, and the source water areas are outlined in a dotted red line. The source water area for Well No. 4 is 401 acres and the critical area is 78 acres. The Village of controls land activities in 2.88 acres and maintains land ownership of 0.72 acres of the source water area.

2.5. Potential Contaminant Source Inventory

The potential contaminant source inventory was assembled for the Village of Monroe and includes a list of potential contaminant sources (PCS) that may impact the quality of drinking water sources, if improperly managed. The inventory of potential contaminant sources was created based on radius reports compiled by EDR, Environmental Data Resources, LLC. EDR created a comprehensive collection of environmental records by searching hundreds of databases. This information is provided in the report format along with a downloadable excel file and interactive map. Appendix A.6 shows the potential contaminant source (PCS) inventory.

The data provided list the facility, address, and what database the information was pulled from along with many other important attributes associated with the proximity to the drinking water source. The data is categorized by an overall potential source category and further into the potential source consistent with the Framework. A number of PCSs are categorized as “other”,

which means that they did not fall into the dedicated common categories of potential sources. This was mainly due to lack of context provided by the EDR reports. In addition, most of the “other” category came from the Facility Index System (FINDS), which is central and common inventory of facilities monitored or regulated by the EPA. The PCSs are then assigned a contaminant category of concern (physical, chemical, or biological) if known to further assist with priority identification. Potential “future” sources of contamination were also identified in the PCS Inventory and were referred to as such, as they currently do not exist in the critical or source water areas. These future sources could potentially be present in the near or far future. Identifying these potential future sources is critical to protect the drinking water sources from future development/activities. See Table 2-3 for the list of potential contaminant source categories and sources.

Table 2- 3: Potential Contaminant Source Categories and Sources⁴

Bulk Storage	Transportation
Chemical Bulk Storage	Airports
Major Oil Storage Facilities	✓ Transportation Corridors
✓ Petroleum Bulk Storage Facilities	Road and Maintenance Facilities
Waste Management and Disposal	✓ Salt and Deicers Storage
Active Landfills	Agriculture
Inactive Landfills (Title 12)	Agricultural Activities
Hazardous Waste Management Facilities	Residential Sources
✓ Land Application Sites	✓ On-site Septic Systems
Vehicle Dismantling Facilities	✓ Lawn and Garden chemicals
Contamination Sites or Incidents	✓ Waterfront Property Management
Remediation Sites	Conveyances and Pipelines
✓ Spill Incidents	Oil and Gas Pipelines
Mineral Extraction Sites	Other
Oil and Gas Wells	Golf Courses
Orphan Oil and Gas Wells	✓ Marinas and Boat Launches
✓ Mines	✓ Stormwater
Historical Abandoned Mines	Toxic Release Inventory (TRI) Facilities

⁴ A check mark (✓) indicates a PCS identified in the source water or critical area and documented in the PCS Inventory.

Discharge to Water	Fire Training and Dedicated Fire Training Facilities
✓ State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	✓ Nutrient Loading (Lakes Only)
Combined Sewer Overflows (CSOs) and Sanitary Sewer Overflows (SSOs)	Saltwater Intrusion
	✓ Road Salt Application
	✓ Other

The report identified 49 potential contaminant sources in the Mombasha Lake source water area (44 of which were closed spills) and 29 in the Mombasha Lake critical area (16 of which were closed spills). Figure 15 shows the potential contaminant sources of concern in the Mombasha Lake source water and critical area. In the Well No. 4 source water area, the report identified 28 potential contaminant sources (6 of which were closed spills). In the Well No. 4 critical area, 4 potential contaminant sources were identified (3 of which were closed spills). Figure 16 shows the potential contaminant sources of concern in the Well No. 4 source water and critical area.

The PCSs consist of historic spills, active storage facilities, and transportation corridors. Refer to Figures 15 and 16 for maps of the identified PCS locations. One of the PCSs in the source water area of Mombasha Lake and four in the critical area of Mombasha Lake, as well as, three in the critical area of Well No. 4 are in multiple locations or encompass a large area and thus were not presented as points on the map. See Table 2-4 for a summary of the number of potential contaminant sources within the source water and critical areas for Mombasha Lake and Well No. 4. The PCS Inventory (Appendix A.6) includes a column labeled “Protection Area(s) Impacted” which indicates whether the potential source is in the critical area or source water area.

Table 2- 4: Summary of Potential Contaminant Sources

Area Impacted	PCS Status				Total (By Protection Area)
	Closed	Active	Historic	Undetermined*	
Critical Area	19	12	1	3	35
Source Water Area	50	7	1	19	77
Total					112
* Status not provided by EDR/LightBox report					

3.0 PROTECTION AND IMPLEMENTATION STRATEGIES

3.1. Priority Issues

A discussion was held with the Monroe stakeholder group to understand the municipality's priority issues. With each priority issue, the targeted potential contaminant source was identified, along with the goal to manage the issue. Refer to Appendix B for the comprehensive project profile for implementation of the protection and management methods with respect to each priority. Appendix C provides cost estimates for each project described in Appendix B.

The first priority issue for the Village of Monroe is "Intermunicipal Awareness, Collaboration, & Enforcement for Source Water Protection." The Mombasha Lake source water area and the source water area for Well No. 4 extend across municipal boundaries, making communication and cooperation between municipalities critical to source water protection, particularly in the areas of Road Salt Storage, and Residential and Commercial Development. Deicing materials used on state, county, and municipal roads can contaminate the water source and alter water chemistry in ways that affects source water quality and treatment. Additionally, uncoordinated land use development and inconsistent regulation and enforcement put the water source at risk of chemical and microbial contamination. The goal is to enhance intermunicipal and interagency cooperation and collaboration to advance best practices across the source water area and improve emergency response.

The second priority issue is "Existing Development in Mombasha Lake and Well No. 4 Source Water Areas." The existing homes, roads, and parks in the water source area are a potential source of contaminants, particularly in the areas of lakefront property use, dog parks, transportation runoff, and failing septic systems. The goal is to encourage recreational uses that do not harm water quality, promote best practices, or relocate road maintenance facilities, and mitigate septic system contamination through municipal programs which target failing systems.

The third priority issue is "Future Development in the Mombasha Lake and Well No. 4 Source Water Areas." New development creates the risk of introducing additional pollutants to the source water area. Appropriate regulations are needed to mitigate the impact of new development on the drinking water source. A first step is designating a Critical Environmental Area (CEA) for the Source Water Area, which will ensure that all SEQR projects in the CEA consider water quality in their environmental review. In addition, the Watershed Rules and Regulations in the Village of Monroe should be updated to outline the methods of protection and to give the Village adequate authority to protect the source water area. See Appendix E for the existing Watershed Rules and Regulations.⁵

The fourth priority issue is "Enhanced Management of Regulated Potential Contaminant Sources in Critical Area (Mombasha Lake and Well No. 4)." Extensive development in the source water

⁵ A digital copy of the Watershed Rules and Regulations for the Village of Monroe can be found here: <https://regs.health.ny.gov/content/section-13311-village-monroe>

area is contributing to contamination that is affecting water quality and treatment costs, more specific understanding of the source of these water quality issues would inform targeted management methods to address them. An enhanced monitoring and sampling program will provide the information needed to identify emerging contaminants and plan a response. Fuel and chemical storage tanks and spills are known sources of groundwater and waterbody contamination. Limiting the impacts of chemical and fuel leaks and spills will require enhanced monitoring of existing chemical contaminant sources in the critical area.

The fifth priority issue is “Erosion & Sediment Control in the Critical Area for Mombasha Lake and for Well No. 4 Stream.” Erosion along the reservoir shores and tributaries can bring excess amounts of soil (sediment) into the lake. This is particularly problematic along the southern side of the reservoir where runoff from dirt roads contributes to sedimentation. Restoration and maintenance of dirt roads and the addition of vegetation and riparian buffers can reduce the risk of erosion and turbidity. A streambank erosion study around Lake Mombasha and Well No. 4 stream is needed to identify and prioritize necessary stabilization projects.

The final priority issue is “Outreach and Education.” Home and business owners are often unaware of the impact their daily activities have on their drinking water. Education on the proper use of fertilizers, pesticides, and herbicides can raise awareness of water quality concerns and reduce chemical use. Educating homeowners as to the maintenance of septic systems and of the available programs for monitoring and/or replacing failing systems can reduce the amount of nutrients from septic systems entering the waterbody. Installing signage in parks can encourage residents to curb their dogs and deposit trash in appropriate receptacles. The goal of education is to equip home and business owners with the knowledge required to improve water source protection through their own behavior.

3.2. Protection and Management Methods

The protection and management methods chosen for each priority issue and potential contaminant source can help minimize the risk posed to the source water. These methods can protect against existing and future potential contaminant sources. There are a number of regulatory and non-regulatory methods that the municipality can explore.

The protection and management methods chosen for each priority issue and potential contaminant source can help minimize the risk posed to the source water. These methods can protect against existing and future potential contaminant sources. This section of the DWSP2 outlines the overview of management methods which can help the Village of Monroe achieve their source water protection goals.

3.2.1. Land Use Tools and Methods

The broad category of land use tools and methods includes both regulatory and non-regulatory methods for mitigating potential contaminant sources. Regulatory methods include zoning ordinances, updating Watershed Rules and Regulations to address

current and emerging concerns, designation of critical environmental areas (CEAs) that require additional reviews and oversight, inter-municipal agreements, etc.

There is a suite of non-regulatory methods as well; these rely on education, cooperation and collaboration, financial incentives, and other approaches. An inter-agency emergency response plan is one example. Other examples of non-regulatory approaches include land acquisition in critical areas, improved roadway maintenance, enhanced staffing for inspections and enforcement, and planned maintenance of stormwater and wastewater infrastructure. Some examples of non-regulatory actions for proactive source water area protection focus on ways to minimize adverse impacts of climate change. Actions such as relocating the dog park outside of the critical area, tree planting, vegetated buffers, wetland restoration, and floodplain management can help reduce flood flows and erosion of the stream bed and banks.

3.2.2. Monitoring and Reporting

Additional monitoring throughout the source water area may help locate specific areas where contamination is entering the source water. Identifying and addressing sources of contamination before they reach the water intake could eliminate or reduce the need for additional treatment. A detailed review of current monitoring plans and findings can identify gaps and highlight potential areas of vulnerability. Additionally, expanded monitoring could provide early warning of the presence of emerging contaminants.

3.2.3. Public Education and Outreach

Informing the public and providing educational tools to teach them about source water area protection methods can reduce the risk of contamination from residential sources including septic systems, household products, fertilizers, etc. Public involvement in monitoring programs (citizen science) can be a highly effective means of building understanding of source water area issues and a commitment to stewardship.

The following questions should be considered when identifying potential outreach approaches:

1. Who are your target audience(s) and what do you want them to do in response to your project (e.g., what behaviors you seek to change, or actions you want them to take as a result of the information provided)?
2. What are your key messages and where do you want to direct people to get more information on the topic?
3. Are messages short, long, require graphics, etc.?
4. How do you plan to get the information out? (in person, email, digitally, direct mail)?
5. Who are partners who can help you get the information out?

6. What is your budget? Example strategies for education and outreach include digital/social media, paid advertising, press release, newsletters, factsheets and flyers, email blasts, signage, tabling/presenting, community events, and training.

3.3. Implementation Timeline

For each protection and management method identified, the stakeholder group has established a step-by-step process for implementation. Refer to Appendix B for the project profiles, which identify the project leader and partnerships needed, and step-by-step processes. Refer to Appendix A.7 for a table summary of the implementation and a summary of the implementation timeline for each protection and management method.

4.0 PLAN PROGRESSION AND MAINTENANCE

This DWSP2 plan has been created to provide the Village of Monroe with the tools and information, including the potential contaminant source list and implementation timeline, the Village needs to protect their drinking source water. A Plan Management Team has been created and tasked with overseeing the implementation of the plan. The Plan Management Team is also responsible for generating and sharing progress reports to share with the community. The Plan Management Team includes two members from each affiliation for succession planning. Table 4-1 provides a list of Monroe's Plan Management Team members. These members were selected based on their knowledge of the water system, position, and potential to lead recommended actions. The team will meet on a regular basis to review the plan and will coordinate with their respective organizations to share the ideas and methods contained within the plan. The Plan Management Team was provided with an interactive and adaptable excel file to track progress on all implementation steps. Annual progress reports will be produced and shared with NYSDEC and NYSDOH along with the Monroe community. The Plan Management Team will convene every five years to provide revisions to the plan.

Table 4- 1: Plan Management Team

Name	Email	Relevant Affiliation(s)
Bonnie Franson	planningchair@monroeny.org	Town of Monroe, Planning Board
Deborah Villanueva	buildingclerk@tuxedogov.org	Town of Tuxedo, Representative
Ernie Mabee	waterplant@villageofmonroe.org	Water Treatment Plant Operator
John Karl	trustee.karl@villageofmonroe.org	Village of Monroe, Trustee
Kenneth English*	townsupervisor@tuxedogov.org	Town of Tuxedo, Supervisor
Neil Dwyer	mayor.dwyer@villageofmonroe.org	Village of Monroe, Mayor
Steve Gagnon	sgagnon@orangecountygov.com	Orange County Department of Health
Tanya McPhee	tmcphoe@thetownofchester.org	Moodna Joint Sewer Commissioner
Tom Rabey	trabey@monroeny.org	Town of Monroe, Water Representative
Tony Cardone	tcardone@monroeny.org	Town of Monroe, Supervisor
Ben Maldonado	ben@monroeny.org	Town of Monroe, Code Enforcement
Frank Pace*	fireinspector@villageofmonroe.org	Village of Monroe, Code Enforcement
Joe Corona*	pumajc@optonline.net	Monroe Conservation Commission
Representative(s)*		Monroe Lake Owners Association

*Will be invited to the plan management team.

5.0 CONCLUSION

This DWSP2 Plan serves to guide the Village of Monroe towards the implementation of various methods designed to protect their drinking water sources, Mombasha Lake Reservoir and Village of Monroe Well No. 4. The drinking water maps outline the source water area and critical environmental area that are a priority for protection, and the potential contaminant source inventory within these priority areas identifies potential point and non-point sources of contamination within the source water area. The project profiles included in Appendix B of this plan outline specific goals, partnerships, funding opportunities, and implementation steps to complete a variety of projects that align with the Village of Monroe's goals and vision. The Village of Monroe Plan Management Team will use this plan to progress forward with their drinking water source protection.

Figures*

Figure 1
Drinking Water System Overview

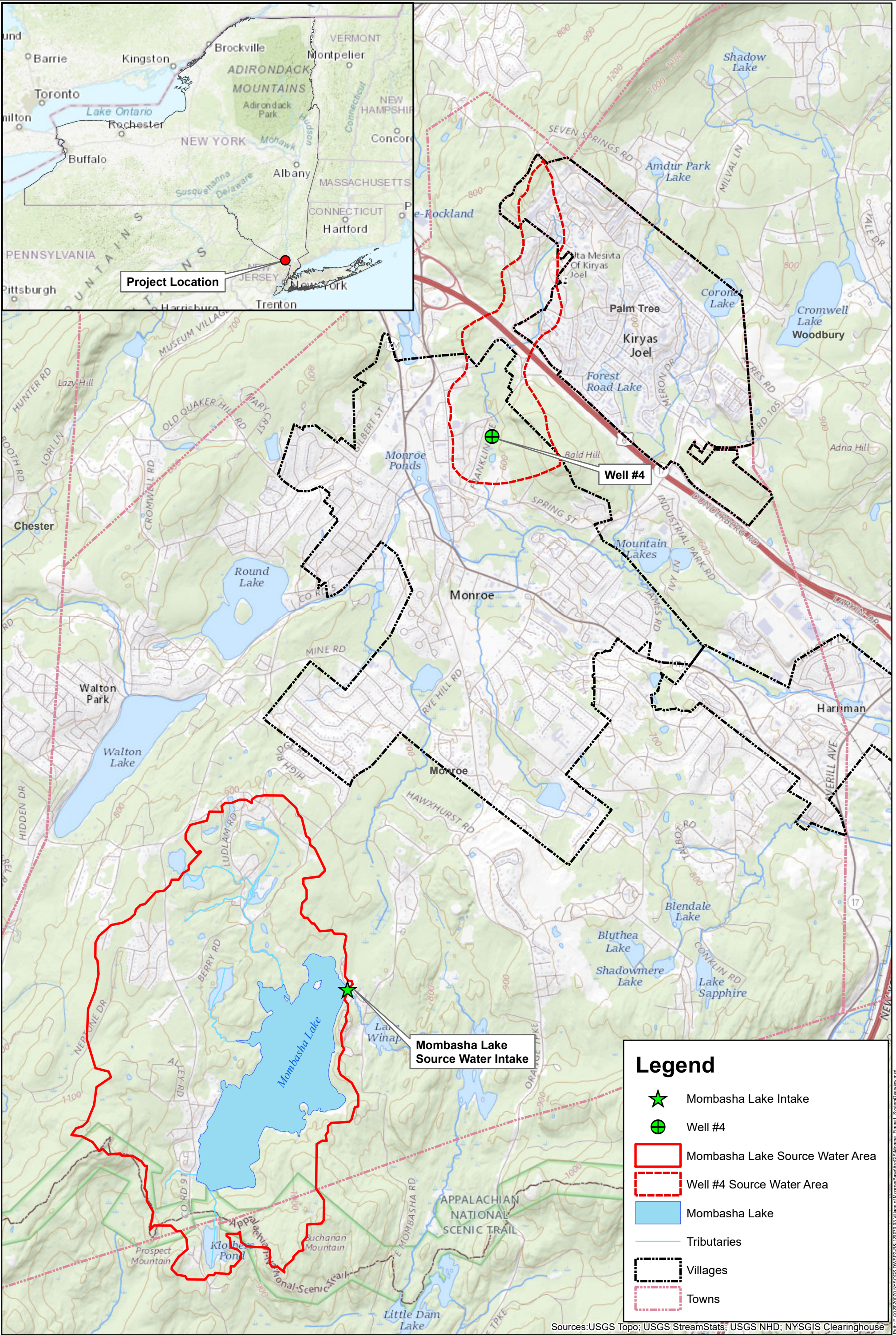


Figure 2
Mombasha Lake System Overview

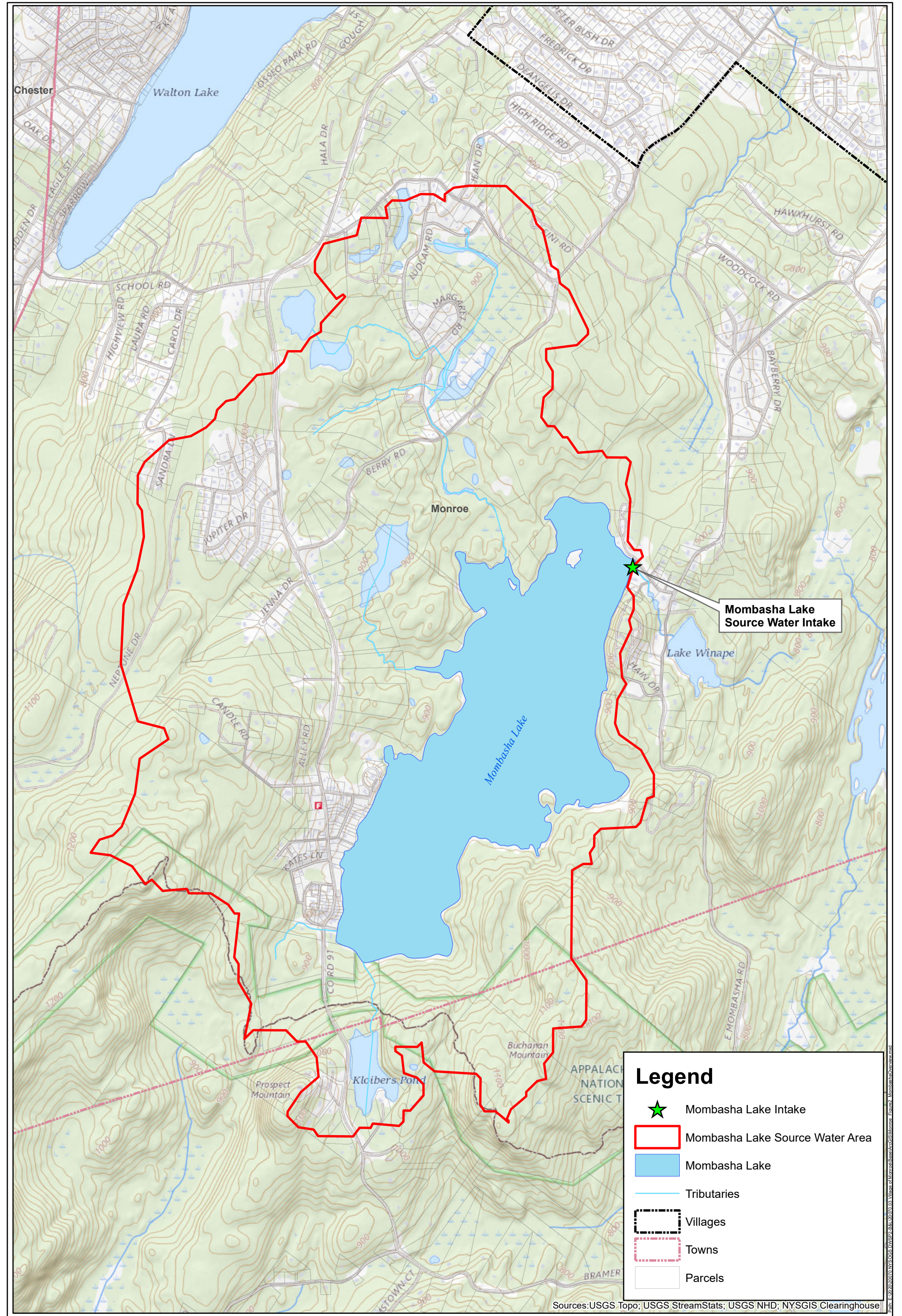
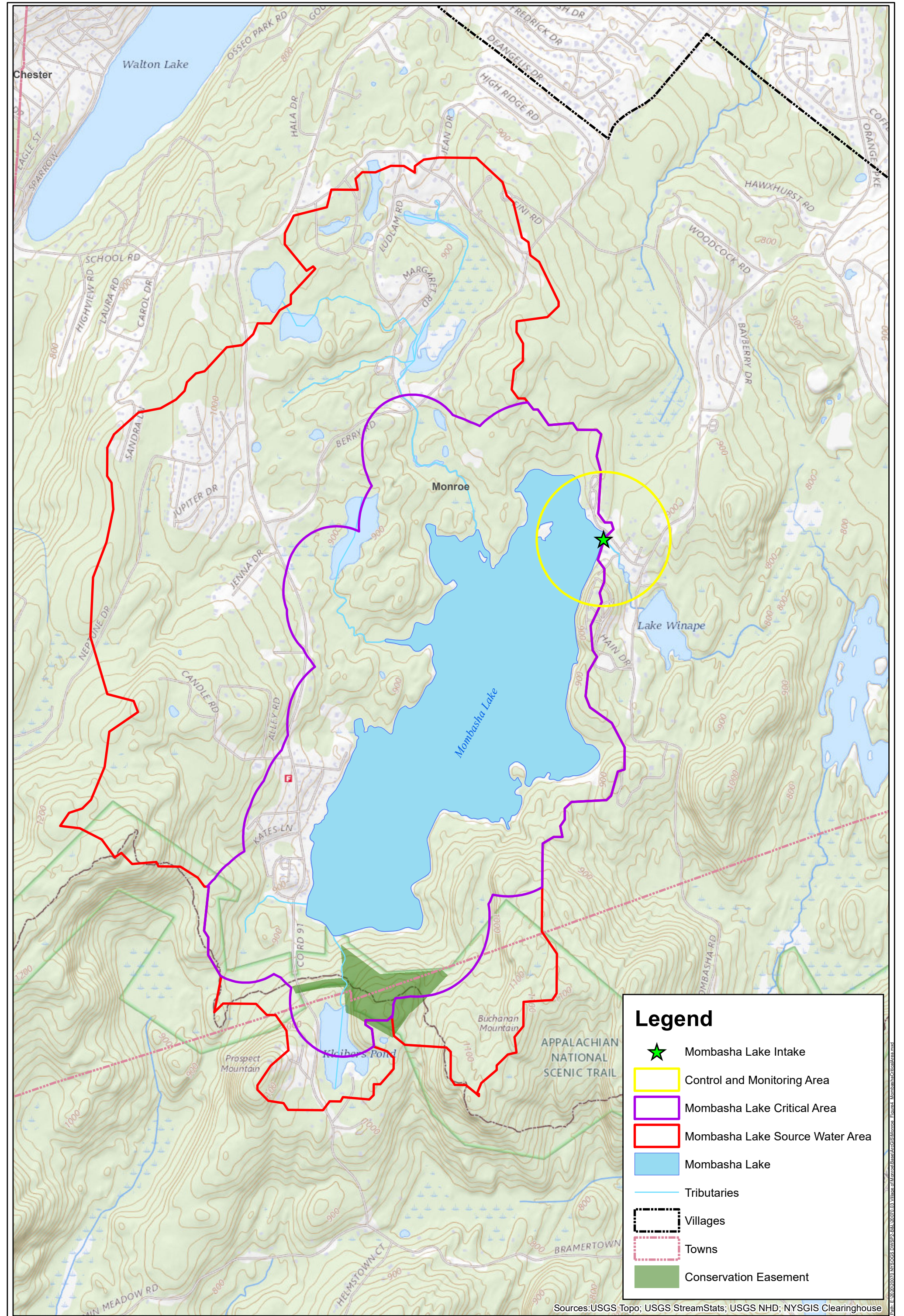


Figure 3
Well No. 4 System Overview

Figure 4
Mombasha Lake Critical and Source Water Areas



Legend

- ★ Mombasha Lake Intake
- Control and Monitoring Area
- Mombasha Lake Critical Area
- Mombasha Lake Source Water Area
- Mombasha Lake
- Tributaries
- Villages
- Towns
- Conservation Easement

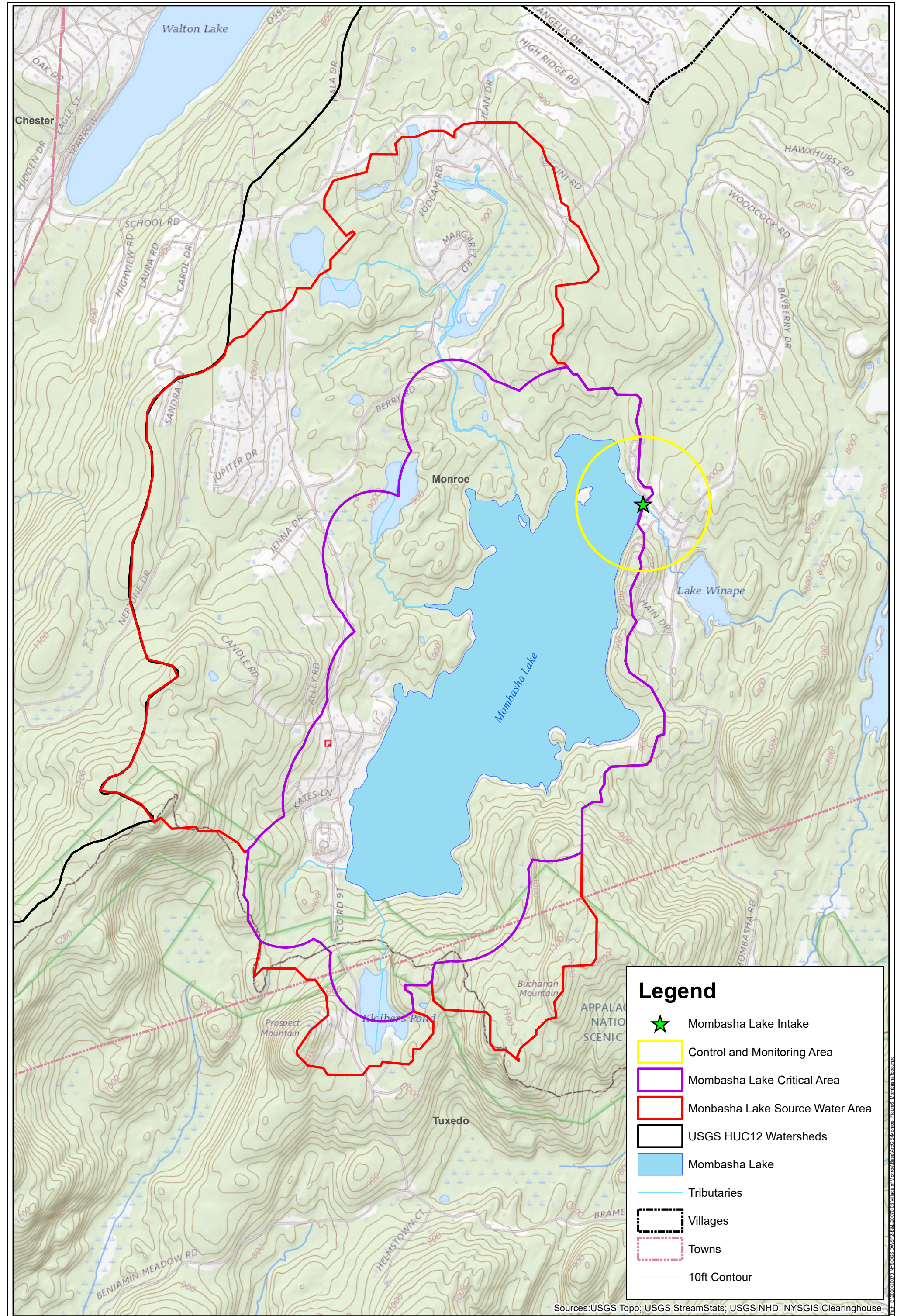
Sources: USGS Topo; USGS StreamStats; USGS NHD; NYSGIS Clearinghouse



0 1,000 2,000 4,000 Feet

Figure 5
Well No. 4 Critical and Source Water Areas

Figure 6
Mombasha Lake Topography and Drainage



Legend

- Mombasha Lake Intake
- Control and Monitoring Area
- Mombasha Lake Critical Area
- Mombasha Lake Source Water Area
- USGS HUC12 Watersheds
- Mombasha Lake
- Tributaries
- Villages
- Towns
- 10ft Contour

Sources:USGS Topo; USGS StreamStats; USGS NHD; NYSGIS Clearinghouse

Figure 7
Well No. 4 Topography and Drainage

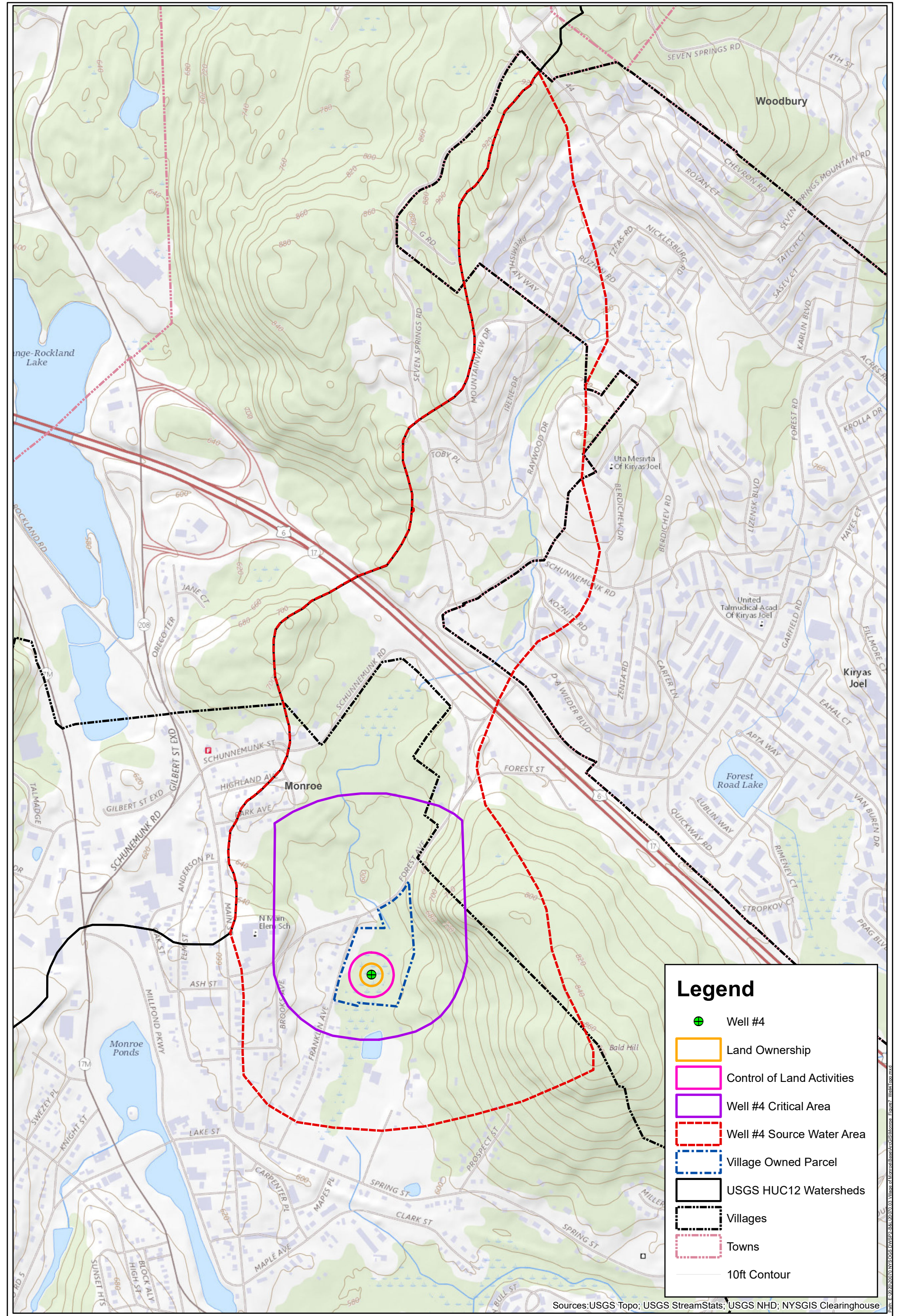


Figure 8
Well No. 4 Aquifer Overview

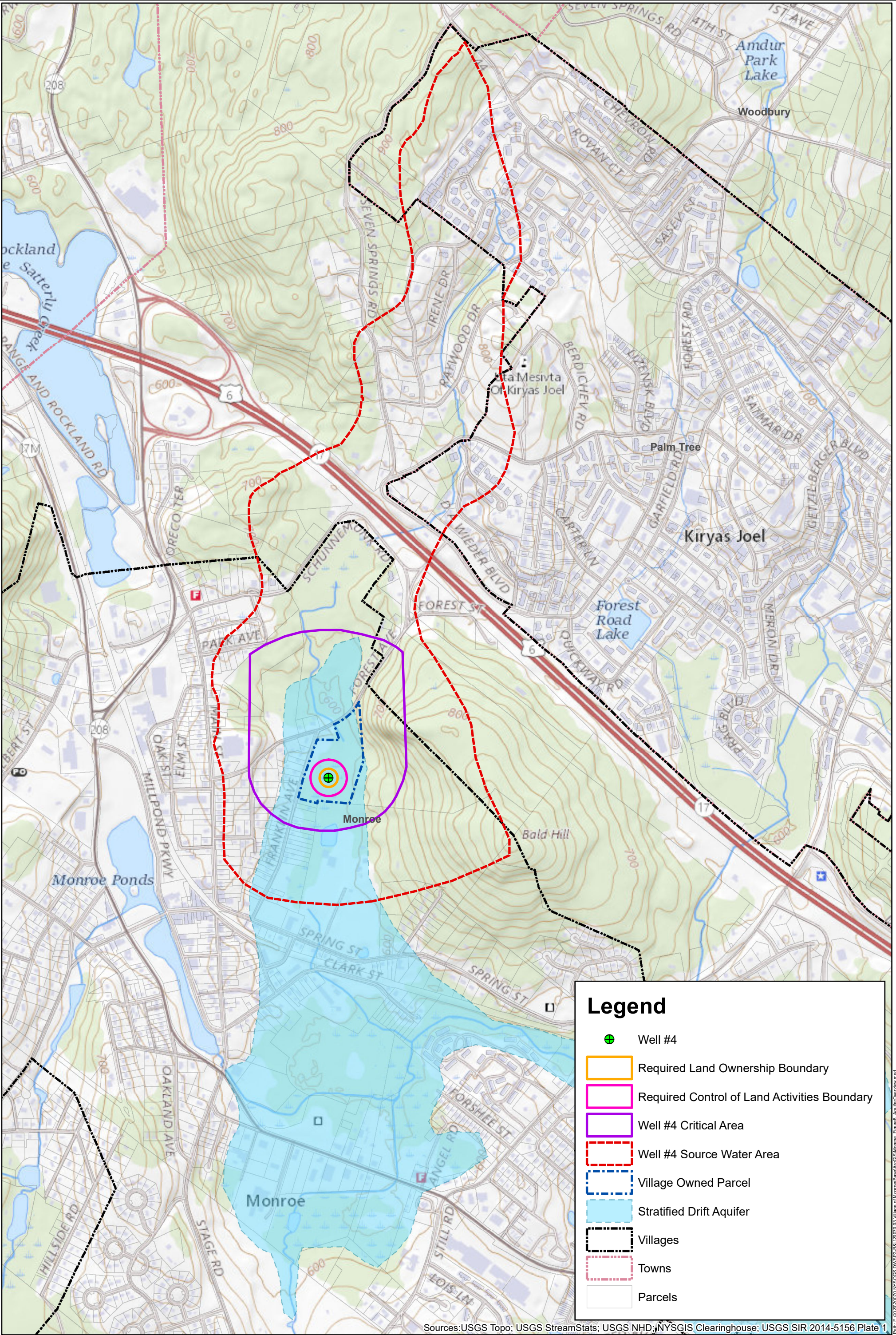
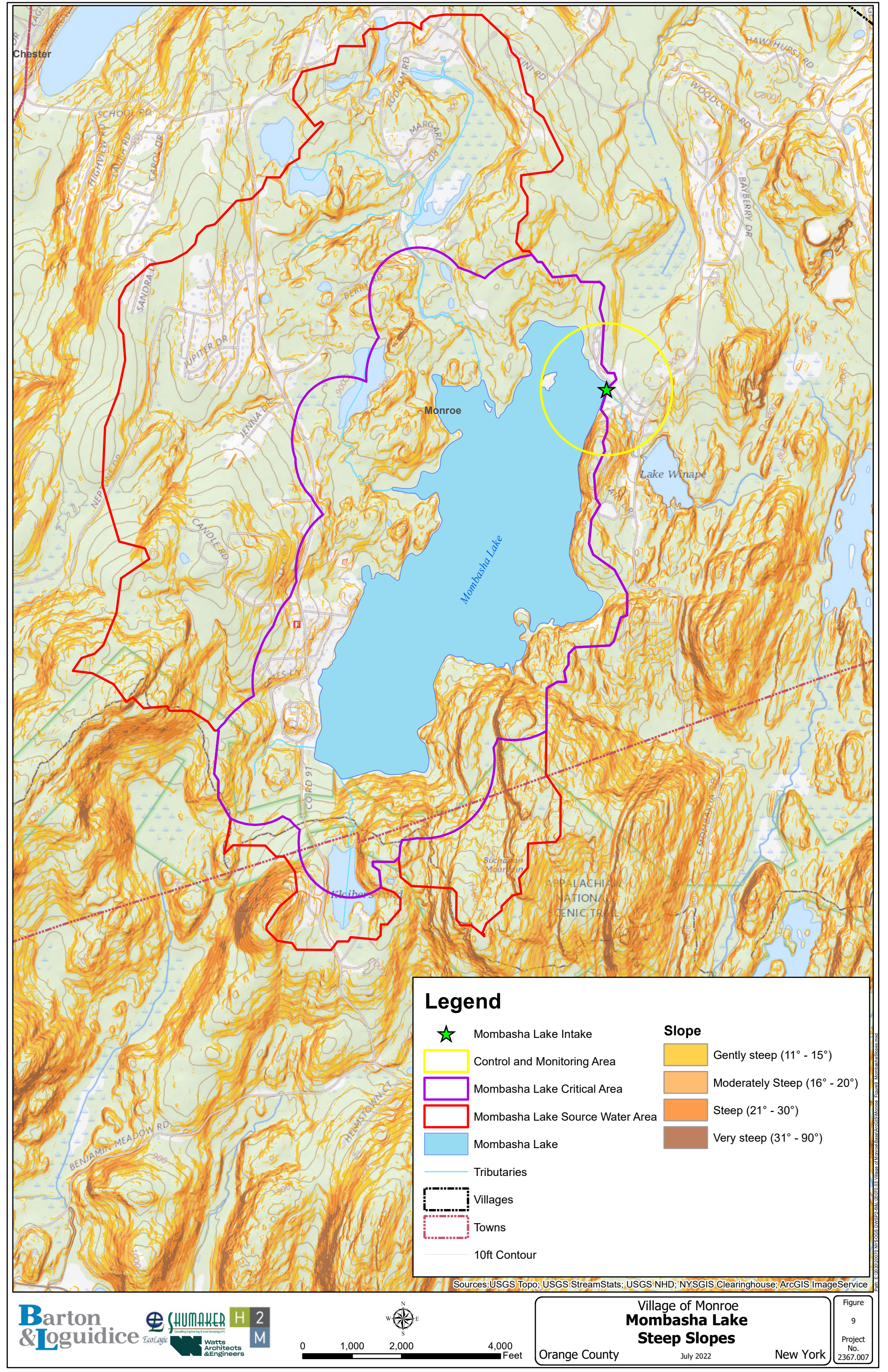


Figure 9
Mombasha Lake Steep Slopes



Legend

- ★

Mombasha Lake Intake
- Control and Monitoring Area
- Mombasha Lake Critical Area
- Mombasha Lake Source Water Area
- Mombasha Lake
- Tributaries
- Villages
- Towns
- 10ft Contour
- Slope**

Gently steep (11° - 15°)
- Moderately Steep (16° - 20°)
- Steep (21° - 30°)
- Very steep (31° - 90°)

Sources: USGS Topo; USGS StreamStats; USGS NHD; NYSGIS Clearinghouse; ArcGIS ImageService



Figure 10
Mombasha Lake Land Cover

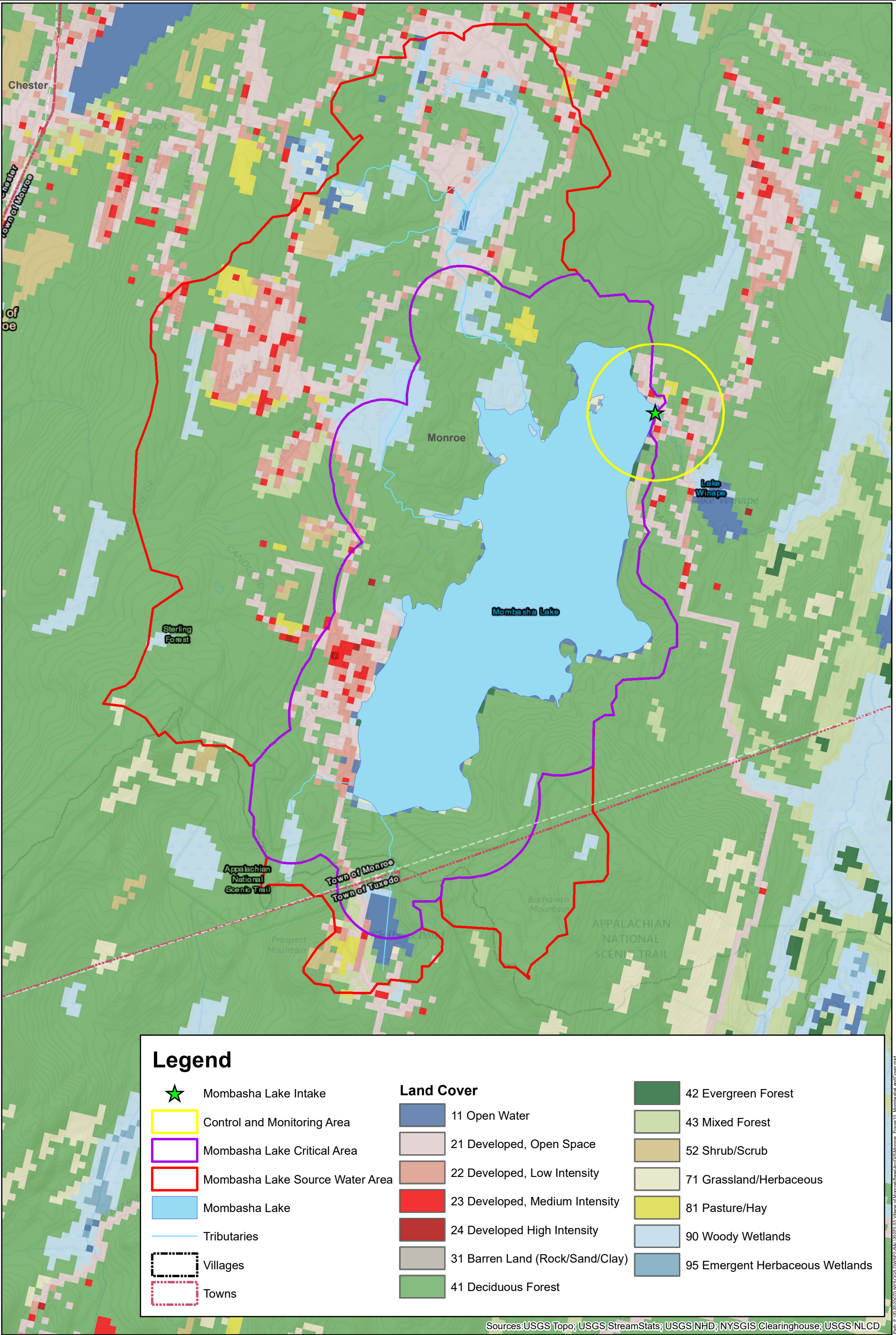
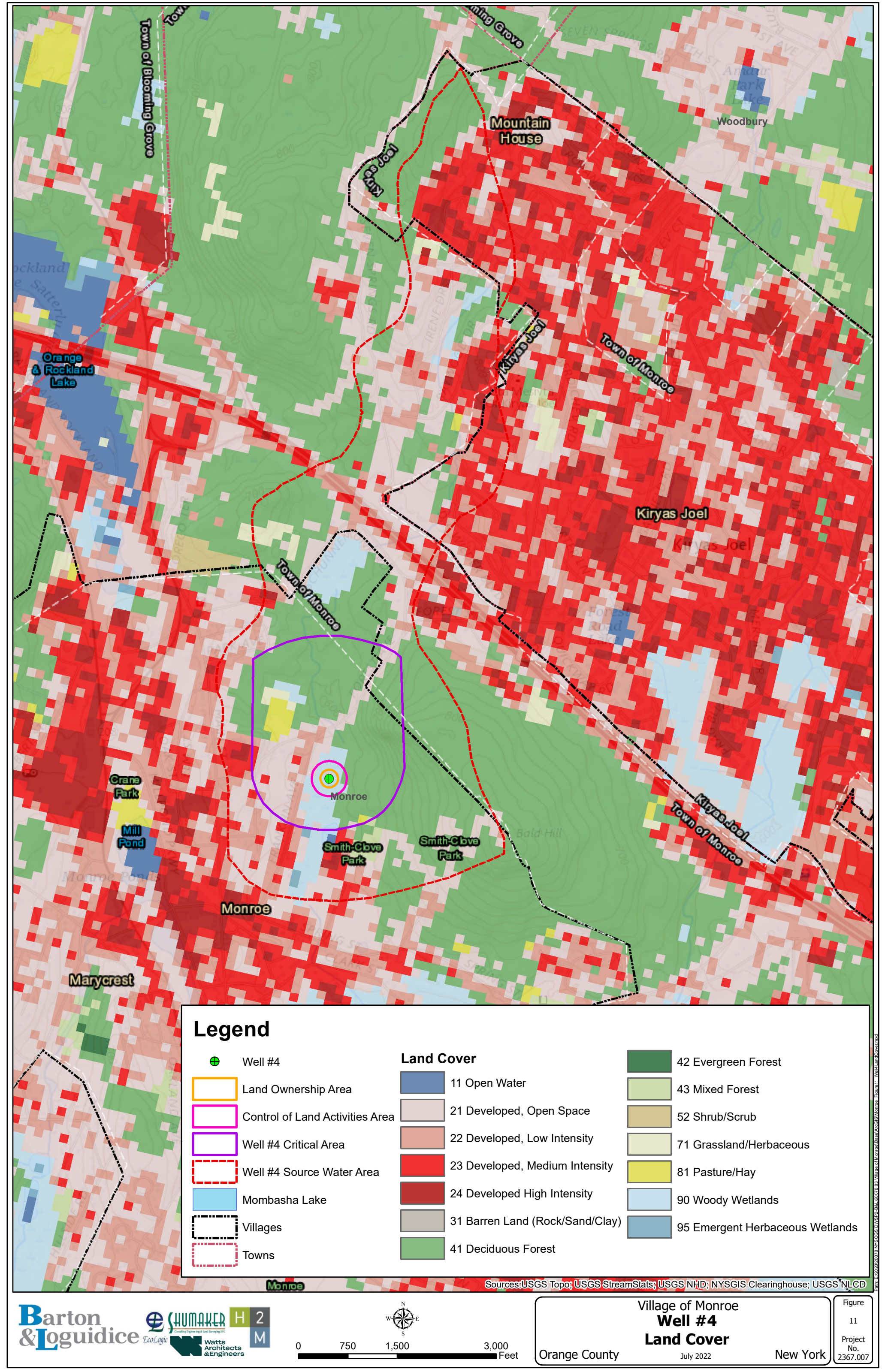


Figure 11
Well No. 4 Land Cover



Legend

Well #4

Land Ownership Area

Control of Land Activities Area

Well #4 Critical Area

Well #4 Source Water Area

Mombasha Lake

Villages

Towns

Land Cover

11 Open Water

21 Developed, Open Space

22 Developed, Low Intensity

23 Developed, Medium Intensity

24 Developed High Intensity

31 Barren Land (Rock/Sand/Clay)

41 Deciduous Forest

42 Evergreen Forest

43 Mixed Forest

52 Shrub/Scrub

71 Grassland/Herbaceous

81 Pasture/Hay

90 Woody Wetlands

95 Emergent Herbaceous Wetlands

Sources:USGS Topo; USGS StreamStats; USGS NHD; NYSGIS Clearinghouse; USGS NLCD

Barton & Loguidice

SHUMAKER
EcoLogic

Watts Architects & Engineers

H 2 M

0 750 1,500 3,000 Feet

Village of Monroe
Well #4
Land Cover

Orange County
July 2022
New York

Figure
11

Project
No.
2367.007

Figure 12
Mombasha Lake Land Use

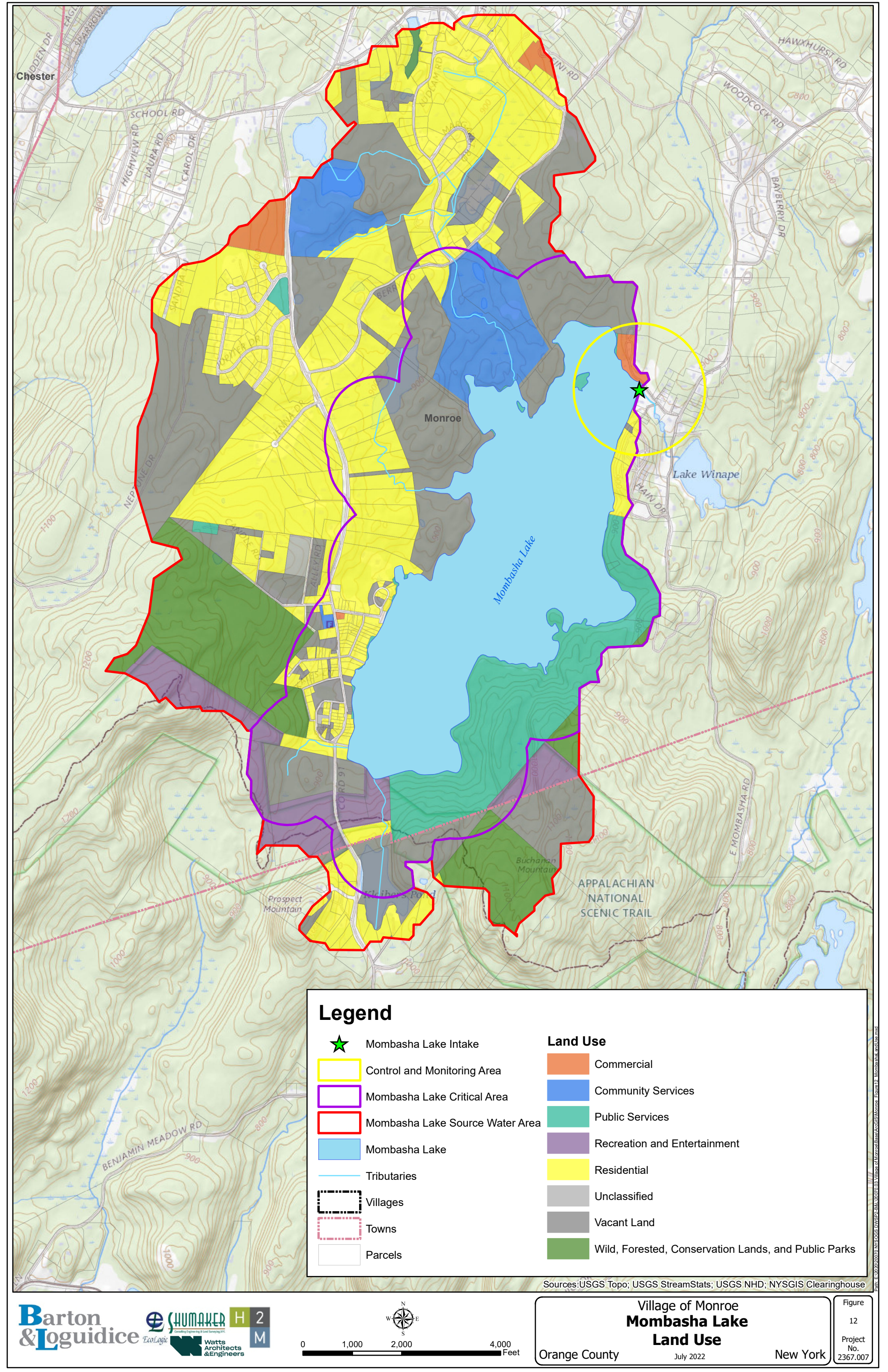


Figure 13
Well No. 4 Land Use

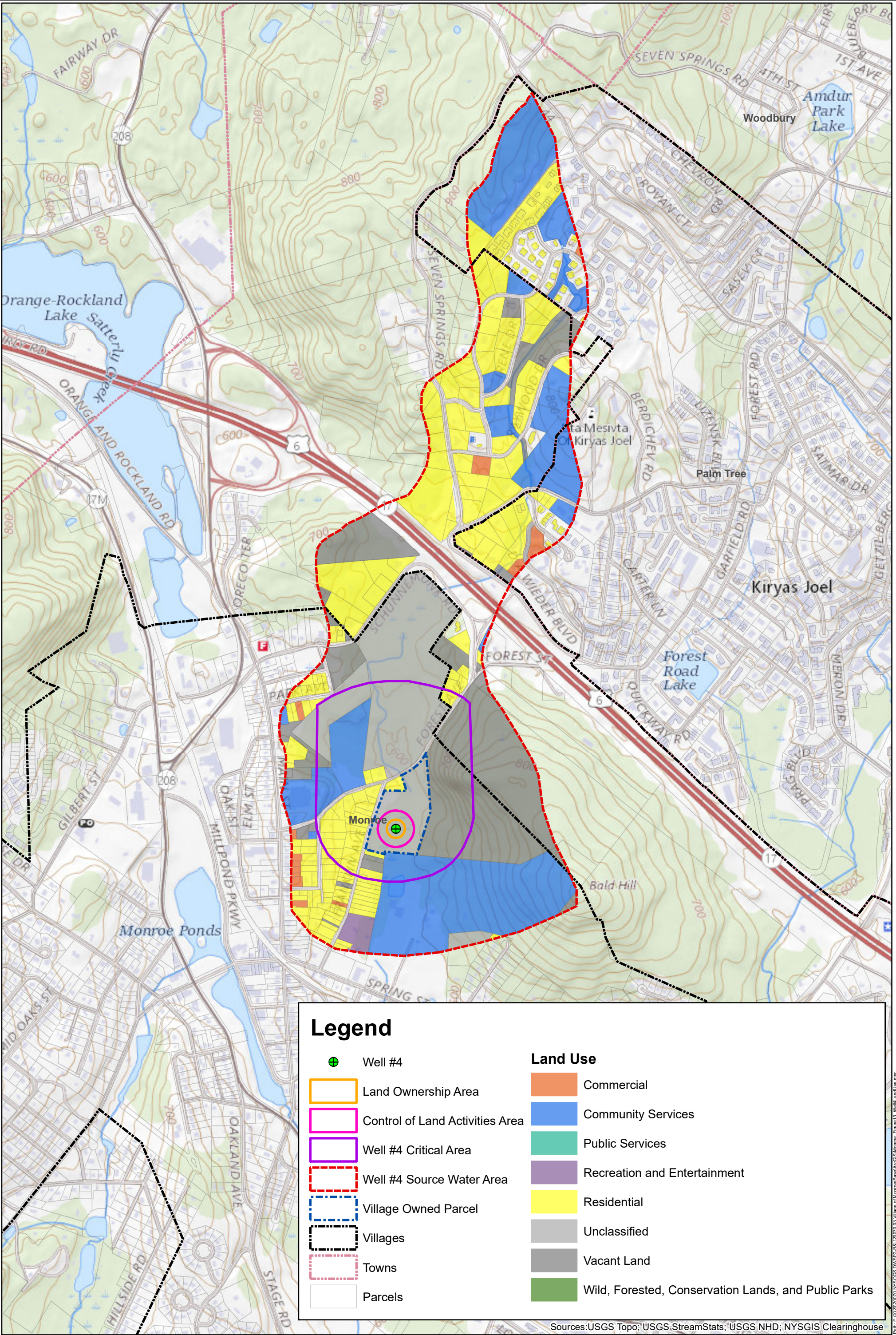


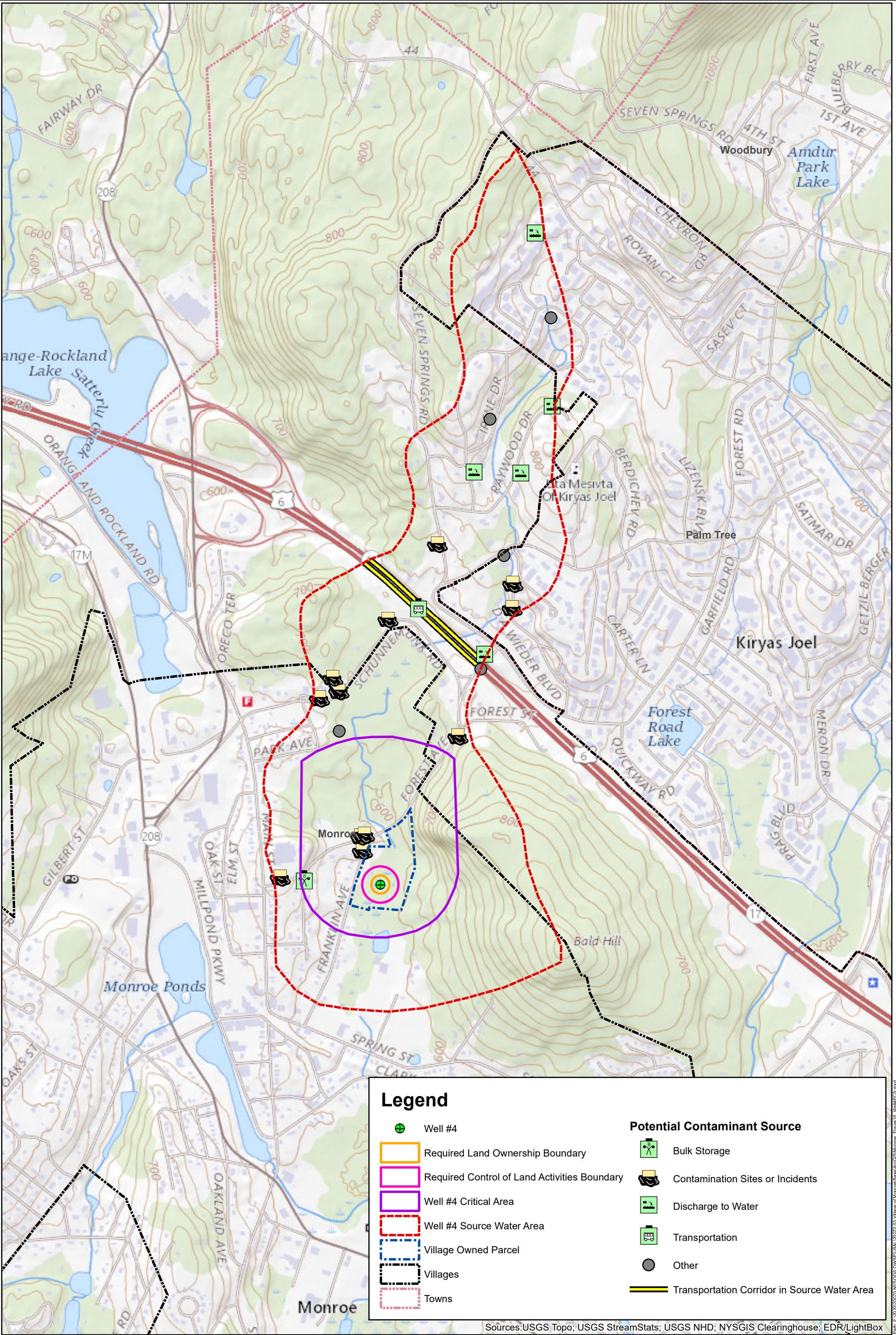
Figure 14
Mombasha Lake Hydrologic Soil Type

Figure 15

Mombasha Lake Potential Contaminant Sources

Figure 16

Well No. 4 Potential Contaminant Sources



Sources:USGS Topo; USGS StreamStats; USGS NHD; NYSGIS Clearinghouse; EDR/LightBox

Appendices

Appendix A
DWSP2 Data Summary

Appendix A.1
DWSP2 Plan Checklist

Description:

This DWSP2 Plan Data Summary is a tool to summarize data gathered throughout the protection planning process using the DWSP2 Framework. The sections in this Data Summary align with the components of the DWSP2 Framework.

Communities may seek to include information beyond what is outlined in this document and should make additions based on local needs. The tables and information in this document will be valuable to include within a community's DWSP2 Plan.

For guidance on writing a DWSP2 Plan, refer to the DWSP2 Plan Template. The DWSP2 Plan Template specifies where the tables from the data summary can be included in a DWSP2 Plan.

DWSP2 Plan Checklist

This checklist can be used throughout the protection planning process to keep track of components that are in-process or complete. Select "in-process" or "complete" under the status dropdown menu for each component.

Component		Status
Phase 1. Stakeholder Group		Complete
1.1	Form a Stakeholder Group	Complete
1.2	Establish Goals and Formulate a Vision	Complete
Phase 2. Drinking Water Source Assessment		Complete
2.1	Develop an Overview of the Water System	Complete
2.2	Prepare a Drinking Water Source Protection Map	Complete
2.3	Create a Potential Contaminant Source Inventory	Complete
Phase 3. Protection and Implementation Strategies		Complete
3.1	Identify Protection and Management Methods	Complete
3.2	Develop an Implementation Timeline	Complete
Phase 4. Progression and Maintenance		Complete
4.1	Designate a Plan Management Team	Complete

Appendix A.2

Stakeholder Group

1.1 Form a Stakeholder Group			
Name	Contact Information	Email	Relevant Affiliation(s)
	Phone		
Ben Maldonado	845-783-1900 x208	ben@monroeny.org	Town of Monroe, Code Enforcement
Bonnie Franson	845-783-1900 x115	planningchair@monroeny.org	Town of Monroe, Planning Board Chair
Ernie Mabee	845-492-7900	waterplant@villageofmonroe.org	Village of Monroe, Water Treatment Plant Operator
John Karl	845-774-9540	trustee.karl@villageofmonroe.org	Village of Monroe, Trustee
John O'Rourke	845-294-3700	jor@lancully.com	Village of Monroe, Village Engineer/ Lanc and Tully
Mary Bingham	845-500-1997	mbingham@MonroeNy.org	Town of Monroe, Councilwoman
Mike Anderson		MAndersen@orangecountygov.com	Orange County, Department of Health
Neil Dwyer	845-782-8341	mayor.dwyer@villageofmonroe.org	Village of Monroe, Mayor
Steve Gagnon	845-291-2331	sgagnon@orangecountygov.com	Orange County, Senior Public Health Engineer
Tony Cardone	845-783-1900 x105	tcardone@monroeny.org	Town of Monroe, Supervisor

Stakeholder Group Meetings			
Date	Time	Stakeholder Group Meeting #	Topic(s) Covered
9/14/2021	9:00AM	Pre Meeting for SG1	Meeting with Water System Operator to discuss DWSP2 process and additional stakeholders to participate in group.
9/29/2021	9:00AM	SG1	Stakeholder Group Kickoff meeting: Detailed presentation outlining the DWSP2 Framework. Addressed any additional stakeholders that could be a voice. This meeting was not recorded.
10/14/2021	9:30AM	Meeting with Village Trustee	Meeting to discuss stakeholder guidance and invites. This meeting was not recorded.
12/2/2021	9:00AM	SG2	Vision and Goals Session: Formulate a vision statement. Introduced Framework Component 2: Drinking Water Source Assessment. Vimeo Link: https://vimeo.com/654197843/4e3222ea8a
1/6/2022	9:00AM	SG3	Water System Overview: Finalized the Vision statement. Went through the "Overview of Water System" tab in the Data Summary Excel Spreadsheet. Began to talk about Potential Contaminant Sources. Vimeo Link: https://vimeo.com/663074215/87de0705e1
2/3/2022	9:00AM	SG4	PCS Listing, Mapping and Initial Protection & Management Methods Discussion: The draft of the PCS Inventory on tab "2.3 PCS Inventory" was presented to the stakeholder group along with preliminary mapping efforts. Vimeo Link: https://vimeo.com/673331769/9023aa9dbf
3/3/2022	9:00AM	SG5	Initial Protection & Management Methods Discussion: Critical area discussion, review of PCS inventory, protection and management methods presented as written in the framework. Vimeo Link: https://vimeo.com/685470235/9a06957c90
5/5/2022	11:00AM	SG6/SG7	Discussion on priority issues to be addressed by the plan and present implementation timeline. Vimeo Link: https://vimeo.com/706668268/7069cee0d0
6/9/2022	11:00AM	Priorities and Management Methods Review	DWSP2 team presented the revisions to the management methods made after the last stakeholder group meeting to receive additional feedback and detail about Village priorities, constraints, and goals. This work session was not recorded.
6/24/2022	9:00AM	SG8	The revised priority issues and the protection and management methods were reviewed. There was further discussion on the plan management team and possible members. Logistics regarding the public meeting were discussed. Vimeo Link: https://vimeo.com/723803517/81fd4711c6
7/7/2022	9:00AM	SG9	This meeting presented a chance for stakeholders to provide feedback on the DWSP2 plan. Vimeo Link: https://vimeo.com/727787669/4834eaf527
8/4/2022	9:00AM	SG10	Members of the stakeholder group and consultants planned for the public meeting and discussed logistics of plan implementation. This meeting was held on zoom and link to the meeting is: https://vimeo.com/736539025/c3685e7857
9/19/2022	6:00 PM	Public Meeting	The Village of Monroe and the Town of Monroe held a joint meeting at the Monroe Town Hall to present the DWSP2 plan to the public. The public was able to provide comments and ask questions regarding the plan. This meeting was recorded and is available at: https://townofmonroe.viebit.com/player.php?hash=rLOPgKK9bTz

Appendix A.3

Goals and Vision

1.2 Establish Goals and Formulate a Vision

Vision Statement

“The Village of Monroe envisions a future where the community understands the source of their public water supply and is committed to adopting and enforcing protective measures for the Mombasha Reservoir and groundwater Well No.4 and their respective watershed and contributing areas; that are designed to ensure continued availability of high-quality drinking water that meets or exceeds public health standards and serves current and future residents.”

Goal #1	Protect public health
Goal #2	Address existing water quality issues
Goal #3	Engage and educate the community about their drinking water
Goal #4	Increase reliability of source water testing and quality information
Goal #5	Knowing what contaminants are regulated and addressing emerging contaminants
Goal #6	Evaluate current land use and plan for future land use

Appendix A.4
Overview of Water System

2.1 Develop an Overview of the Water System		
Public Water Supply (PWS) Information		
PWS Name:	Mombasha Reservoir	
PWS ID:	NY3503535	
Type of Sources identified in plan:	Both	
Name(s) of sources being protected (if different than PWS Name):	Mombasha Reservoir and Well #4	

Water system name:	Village of Monroe Water Department		
NYS PWS ID:	NY3503535		
Type of water system (e.g. community, non-community, transient, non-transient):	Community		
Name of the community, or communities, served by the system:	Town and Village of Monroe		
Population served by the system:	9,753		
# of service connections:	3,000		
Summary of wells, intakes, infiltration galleries, and/or springs including name, depth, screen length and pumping rates where applicable:	Surface water from Mombasha Lake Reservoir (35' depth 1.4 MGD), Village of Monroe Well #4 (Depth 30' 300 GPM). Well runs as secondary to surface water comes on at 17 feet off at 18.2 feet. 1MGD water storage tank added to help with storage capacity (circa 2015).		
General treatment information:	The reservoir water is filtered and treated at the filtration plant, P.A.C.L.-108 (Poly-aluminum chloride) is used in our treating process as a coagulant. Ortho-Polyphosphate is added for corrosion control and sodium hypochlorite is used to disinfect present bacteria. The well water is chlorinated on site. The well water and surface water is not blended at filtration plant but rather in the distribution system).		
Summary of hydrogeographic setting of drinking water sources including watershed information and/or type of aquifer and aquifer materials (this information may be gathered after delineating protection areas in section 2.2):	The primary soil type surrounding the Mombasha Lake reservoir are Group D soils based on USDA Hydrologic classification. Group D soils have a high runoff potential and restricted water movement trough the soil and typically contain more than 40% clay. The Village of Monroe groundwater well is located in a Stratified Drift Aquifer consisting mostly of Group D soils with some areas of Group A. Group A soils have high permeability and low runoff potential. Group A Soils are typically sands and gravels with less than 10% fines. (Source ArcGIS and USDA Soil Groups)		
Water quality summary including any known ambient water quality information, finished water detections, and/or history of maximum contaminant level (MCL) violations*:	Per WQR: Sodium, DBP's, Turbidity, PFOA, PFOS		
Water quantity summary:	Current Water Withdrawal Permit Expiration Date(s)	N/A*	
	Total Permitted Water Withdrawal Capacity	2.1 MGD**	
	Average Daily Water Demand (= Yearly Usage / 365)	1.01 MGD	
	Maximum Daily Water Demand (Unofficial 3-day average in peak month - e.g. July)	1.4 MGD	
	Daily Water Losses (can be obtained from Water Conservation Program form)	0.20 (20%) MGD	

Refer to "Sources of Water Quality Information" in Drinking Water Source Assessment Resource Kit

Additional Testing/Monitoring:	Water suppliers appear to be meeting State and Health department requirements, no additional testing suggested at this time.
Water system adequate for future use:	Reservoir and well #4 capacity appears to be sufficient at this time, however if future demand is expected to increase above 2.0 mgd the water supplier would likely have to bring wells 2 and 3 online and provide treatment for iron and manganese (per LBG report)

*A water withdrawal permit is required as the Village of Monroe has the capacity to withdraw up to 2.1 MGD. The Village of Monroe water withdrawal permit dates from 2000. Unless there are changes to the volume of water withdrawn, the 2000 permit remains in effect. The Village is required to provide annual reporting of actual withdrawals once a year.

**According to the Village of Monroe's 2000 water withdrawal permit, the total permitted withdrawal rate of the water system is 2.1 MGD. However, the system is currently operated using 1.5 MGD as a daily limit.

Appendix A.5

DWSP2 Map Creation

Protection Areas	Description	Delineation Method
Ownership and Control Area (for groundwater) or Control and Monitoring Area (for surface water)	Well #4: Ownership Area - 100ft radius around well, Control of Land Activities - 200ft radius around well. Mombasha Lake: Control and Monitoring Area - 1000ft radius around Mombasha Lake intake.	Arbitrary fixed radius
Critical Area	Well #4: Area developed using US Environmental Protection Agency-approved Simplified Variable Shapes (SVS) and hydrogeological mapping. Mombasha Lake: 1000ft buffer around the lake and along tributaries. Distance along tributaries determined using Mean Wetted Channel calculation.	Simplified Variable Shapes/Hydrogeologic mapping and Surface water delineation method
Source Water Area	Well #4: Area developed using US Environmental Protection Agency-approved Simplified Variable Shapes (SVS) and hydrogeological mapping. Mombasha Lake: Watershed of Mombasha Lake delineated at intake point using USGS StreamStats	Simplified Variable Shapes/Hydrogeologic mapping and Surface water delineation method
Additional Protection Area (if applicable)		

Below is a list of sources of publicly available data:	
URL	Publicly Available Data
https://data.ny.gov/	<ul style="list-style-type: none"> Bulk Storage Facilities Solid Waste Management Facilities Environmental Remediation Sites <ul style="list-style-type: none"> Superfund Sites Spill Incidents Oil, Gas and Other Regulated Wells SPDES Multi-Sector General Permit Combined Sewer Overflows (CSOs) <ul style="list-style-type: none"> Water Withdrawals by Facility <ul style="list-style-type: none"> Boat Launch Sites Inventory & Priority Waterbodies
https://gis.ny.gov/	<ul style="list-style-type: none"> State Pollutant Discharge Elimination System <ul style="list-style-type: none"> NYS DOT Facilities NYS Tax Parcels USGS Digital Raster Graphic Quadrangle <ul style="list-style-type: none"> NYS Tax Parcels NLCD Land Cover
https://mrlc.gov/	
http://opdgig.dos.ny.gov/index.html#/home	<ul style="list-style-type: none"> Unconsolidated Aquifers
https://datagateway.nrcs.usda.gov/GDGOrder.aspx	<ul style="list-style-type: none"> NRCS Conservation Easement Areas by State
https://www.conservationeasement.us/	<ul style="list-style-type: none"> Conservation Easement Areas US
https://datagateway.nrcs.usda.gov/GDGOrder.aspx#	<ul style="list-style-type: none"> National Hydrography Dataset 1:24,000 <ul style="list-style-type: none"> Mines Pipelines
http://www.dec.ny.gov/lands/5374.html	
https://www.eia.gov/	
https://www.epa.gov/	<ul style="list-style-type: none"> TRI Basic Data Files

Layer	Date Created or Acquired	Description
<i>Mombasha Lake Intake</i>	1/5/2022	<i>Village of Monroe source water intake point</i>
<i>Well #4</i>	1/5/2022	<i>Created a new layer from coordinates received by the municipality</i>
<i>Mombasha Lake Source Water Area</i>	1/5/2022	<i>Mombasha Lake Watershed, delineated at intake using USGS StreamStats</i>
<i>Mombasha Lake and Tributaries</i>	1/5/2022	<i>Dataset from National Hydrography Dataset (NHD)</i>
<i>Villages/Towns</i>	3/2/2022	<i>NYS Municipal Boundary shapefiles available at http://gis.ny.gov</i>
<i>Control and Monitoring/Land Ownership/Control of Land</i>	1/5/2022	<i>Areas created per DWSP2 framework recommendations with a fixed radius around well/intake</i>
<i>Well #4 Source and Critical Areas</i>	5/4/2022	<i>Area developed using US Environmental Protection Agency-approved Simplified Variable Shapes (SVS) and hydrogeological mapping</i>
<i>Parcels</i>	2/2/2022	<i>Orange County tax parcels dated 2021 available on http://gis.ny.gov</i>
<i>Conservation Easement</i>	3/2/2022	<i>NRCS Easement Boundaries available at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/dma/?cid=stelprdb1043930</i>
<i>10ft Contours</i>	6/2/2022	<i>USGS 10ft contours downloaded from https://www.usgs.gov/the-national-map-data-delivery/gis-data-download</i>
<i>USGS HUC12 Watersheds</i>	4/13/2022	<i>USDA NRCS Dataset (https://datagateway.nrcs.usda.gov/GDGOrder.aspx)</i>
<i>Stratified Drift Aquifer</i>	4/11/2022	<i>Digitized in ArcGIS from USGS Report SIR 2014-5156 plate 1</i>
<i>Steep Slopes</i>	4/1/2022	<i>Data layer available from ESRI ArcGIS Online</i>
<i>Land Cover</i>	6/7/2022	<i>2019 National Land Cover Database raster file downloaded from the Multi-Resolution Land Consortium Data Viewer (https://www.mrlc.gov/viewer/)</i>
<i>Land Use</i>	6/7/2022	<i>Land use attributes displayed from the Orange County Tax Parcel shapefile</i>
<i>Hydrologic Soil Types</i>	4/1/2022	<i>Data layer available from ESRI ArcGIS Online</i>
<i>Potential Contaminant Sources</i>	1/27/2022	<i>Shapefile created from database search performed by Environmental Data Resources (EDR)/LightBox</i>

Appendix A.6
Potential Contaminant Source Inventory

Unique ID	Potential Source Category	Potential Source	Facility	Contaminant Category of Concern	Specific Contaminants	Protection Area(s) Impacted	Status (Active/Closed/Historic Future)	Date Closed (if applicable)	Latitude	Longitude	Street	City	ZIP	Database Name	Database Description	Spill Number (if applicable)	Spill Date (if applicable)
MON0076	Agriculture	Agricultural Activities	NA as of June 2022	NA	NA	NA	Future	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MON0004	Bulk Storage	Other	MAYBROOK LAUNDROMAT & DRY CLG	Chemical	Cleaning Agents, Solvents, Detergents, Steam Cleaning Waste	Critical Area	Historic	Unknown	41.3326596	-74.185692	142 BROOKS AVE	MONROE	10950	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	NA	Unknown
MON0153	Bulk Storage	Petroleum Bulk Storage Facilities	AT&T MONROE, NEW YORK	Chemical	Petroleum	Source Water Area	Closed	Not Reported	41.29096016	-74.22286216	NEPTUNE RD	MONROE	10950	UST	Underground storage tanks	NA	Not Reported
MON0154	Bulk Storage	Petroleum Bulk Storage Facilities	RONALD FINELL	Chemical	Petroleum	Source Water Area	Closed	Not Reported	41.28089208	-74.21841745	161 ROBYN ROAD	MONROE	10950	UST	Underground storage tanks	NA	Not Reported
MON0165	Contamination Sites or Incidents	Land Application Sites	UNITED TALMUDICAL ACADEMY	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3370008	-74.179528	500 FOREST RD.	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	Undetermined
MON0166	Contamination Sites or Incidents	Land Application Sites	UNITED TALMUDICAL ACADEMY	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3370008	-74.179528	500 FOREST RD	MONROE	10950	FTTS	FIFRA/TSCO Tracking System	NA	Undetermined
MON0167	Contamination Sites or Incidents	Land Application Sites	UNITED TALMUDICAL ACADEMY	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3370008	-74.179528	500 FOREST RD	MONROE	10950	HIST FTTS	See FTTS	NA	Undetermined
MON0002	Contamination Sites or Incidents	Spill Incidents	MONROE TOWN PARK	Chemical	Petroleum	Critical Area	Undetermined	Undetermined	41.28459095	-74.21435968	W MOMBASHA RD (CO RTE 91) - E SIDE - NW END OF MOM	MONROE	10950	ECHO	Enforcement & Compliance History Information	Undetermined	6/25/2002
MON0003	Contamination Sites or Incidents	Spill Incidents	MONROE TOWN PARK	Chemical	Petroleum	Critical Area	Undetermined	Undetermined	41.28459095	-74.21435968	W MOMBASHA RD (CO RTE 91) - E SIDE - NW END OF MOM	MONROE	10950	ECHO	Enforcement & Compliance History Information	Undetermined	4/23/2003
MON0005	Contamination Sites or Incidents	Spill Incidents	144 Neptune Drive	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.29135015	144 Neptune Drive	144 NEPTUNE DRIVE	MONROE	10950	ERNS	Emergency Response Notification System	Undetermined	10/5/1993
MON0013	Contamination Sites or Incidents	Spill Incidents	SPILL NUMBER 9714263	Chemical	Petroleum	Critical Area	Closed	9714263	41.3335449	-74.183356	155 FRANKLIN AVE	MONROE	10950	LTANKS	Leaking Storage Tanks	9714263	10/31/1990
MON0014	Contamination Sites or Incidents	Spill Incidents	WATERHOUSE	Chemical	Petroleum	Critical Area	Closed	203176	41.3339785	-74.183428	127 FOREST AVE	MONROE	10950	LTANKS	Leaking Storage Tanks	203176	7/29/1992
MON0015	Contamination Sites or Incidents	Spill Incidents	N MAIN ST ELEMENTARY	Chemical	Petroleum	Source Water Area	Closed	300820	41.3327448	-74.186661	NORTH MAIN ST	MONROE	10950	LTANKS	Leaking Storage Tanks	300820	8/7/1992
MON0026	Contamination Sites or Incidents	Spill Incidents	BURKE RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	212142	41.3383402	-74.184305	252 SCHUNNEMUNK ST	MONROE	10950	LTANKS	Leaking Storage Tanks	212142	5/23/2006
MON0036	Contamination Sites or Incidents	Spill Incidents	BAGGOT RESIDENCE	Chemical	Petroleum	Critical Area	Closed	9403105	41.27813071	-74.21380837	23 LAKE VIEW DR	MONROE	10950	LTANKS	Leaking Storage Tanks	9403105	12/15/1999
MON0038	Contamination Sites or Incidents	Spill Incidents	FISCHER RESIDENCE	Chemical	Petroleum	Critical Area	Closed	509308	41.27330512	-74.21660943	68 WEST MOMBASHA RD	MONROE	10950	LTANKS	Leaking Storage Tanks	509308	10/10/2011
MON0040	Contamination Sites or Incidents	Spill Incidents	LEZAK RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	9910948	41.2976283	-74.20932257	62 MARGARET RD	MONROE	10950	LTANKS	Leaking Storage Tanks	9910948	37523
MON0042	Contamination Sites or Incidents	Spill Incidents	MILDE RES.	Chemical	Petroleum	Source Water Area	Closed	1108676	41.29145345	-74.22092744	150 NEPTUNE DR	MONROE	10950	LTANKS	Leaking Storage Tanks	1108676	37095
MON0046	Contamination Sites or Incidents	Spill Incidents	RESI: RODANO	Chemical	Petroleum	Source Water Area	Closed	9/19/2001	41.29833072	-74.21017864	80 LUDLAM RD	MONROE	10950	LTANKS	Leaking Storage Tanks	104286	40317
MON0047	Contamination Sites or Incidents	Spill Incidents	RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	3/29/1990	41.2930082	-74.21835924	14 NEPTURN COURT	MONROE	10950	LTANKS	Leaking Storage Tanks	8911653	39037
MON0077	Contamination Sites or Incidents	Spill Incidents	INT OF FRANKLINE AVE	Chemical	Petroleum	Critical Area	Closed	508804	41.334025	-74.183267	FOREST AVE	MONROE	10950	NY Spills	Spill Incident Database	508804	1/29/2008
MON0078	Contamination Sites or Incidents	Spill Incidents	N MAIN ST ELEMENTARY	Chemical	Petroleum	Source Water Area	Closed	9711309	41.3327448	-74.186661	NORTH MAIN ST	MONROE	10950	NY Spills	Spill Incident Database	9711309	12/1/2010
MON0086	Contamination Sites or Incidents	Spill Incidents	# 9 AQUARIUS STREET	Chemical	Petroleum	Source Water Area	Closed	9112639	41.28889657	-74.22161915	9 AQUARIUS STREET	MONROE	10950	NY Spills	Spill Incident Database	9112639	3/17/2000
MON0088	Contamination Sites or Incidents	Spill Incidents	ANTHONY BACHILLER	Chemical	Petroleum	Source Water Area	Closed	1805228	41.28940537	-74.21980771	15 JUPITER DR	MONROE	10950	NY Spills	Spill Incident Database	1805228	1/26/2015
MON0089	Contamination Sites or Incidents	Spill Incidents	AVENTAJADO RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	608016	41.29129591	-74.22013644	136 NEPTUNE DRIVE	MONROE	10950	NY Spills	Spill Incident Database	608016	5/21/2019
MON0090	Contamination Sites or Incidents	Spill Incidents	BAGGOT RESIDENCE	Chemical	Petroleum	Critical Area	Closed	9914256	41.27813071	-74.21380837	23 LAKE VIEW DR	MONROE	10950	NY Spills	Spill Incident Database	9914256	4/13/2015

Unique ID	Potential Source Category	Potential Source	Facility	Contaminant Category of Concern	Specific Contaminants	Protection Area(s) Impacted	Status (Active/Closed/Historic Future)	Date Closed (if applicable)	Latitude	Longitude	Street	City	ZIP	Database Name	Database Description	Spill Number (if applicable)	Spill Date (if applicable)
MON0091	Contamination Sites or Incidents	Spill Incidents	BARLOW HOME	Chemical	Petroleum	Source Water Area	Closed	510939	41.30186849	-74.20980539	135 LUDLUM ROAD	MONROE	10950	NY Spills	Spill Incident Database	510939	2/11/2018
MON0092	Contamination Sites or Incidents	Spill Incidents	BASEMENT	Chemical	Petroleum	Source Water Area	Closed	1410434	41.30291688	-74.21123332	3 BALDER COURT	MONROE	10950	NY Spills	Spill Incident Database	1410434	10/20/2008
MON0093	Contamination Sites or Incidents	Spill Incidents	CATHY ITRO	Chemical	Petroleum	Source Water Area	Closed	1901835	41.28838259	-74.21972895	48 ORION AVE	MONROE	10950	NY Spills	Spill Incident Database	1901835	2/11/2013
MON0094	Contamination Sites or Incidents	Spill Incidents	CICORIA RES.: 550 UST	Chemical	Petroleum	Source Water Area	Closed	1500386	41.29109446	-74.21814351	4 ORION AVE	MONROE	10950	NY Spills	Spill Incident Database	1500386	9/11/2020
MON0095	Contamination Sites or Incidents	Spill Incidents	DOUGHER RES	Chemical	Petroleum	Source Water Area	Closed	1710207	41.26505584	-74.21387343	435 BRAMERTOWN RD	TUXEDO	10987	NY Spills	Spill Incident Database	1710207	3/1/2019
MON0096	Contamination Sites or Incidents	Spill Incidents	ENDRIZZI RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	808146	41.30264833	-74.20585035	5 BELLMONT RD	MONROE	10950	NY Spills	Spill Incident Database	808146	8/2/2012
MON0097	Contamination Sites or Incidents	Spill Incidents	FAITH RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	1215458	41.29267762	-74.22095826	110 MERCURY COURT	MONROE	10950	NY Spills	Spill Incident Database	1215458	5/21/2019
MON0098	Contamination Sites or Incidents	Spill Incidents	FANNIE MAE- VACANT HOUSE	Chemical	Petroleum	Critical Area	Closed	2005345	41.27842519	-74.2136577	33 LAKE VIEW DRIVE	MONROE	10950	NY Spills	Spill Incident Database	2005345	2/14/2006
MON0099	Contamination Sites or Incidents	Spill Incidents	FASANARO RES	Chemical	Petroleum	Source Water Area	Closed	1811926	41.28933563	-74.22160203	11 AQUARIUS ST	MONROE	10950	NY Spills	Spill Incident Database	1811926	4/8/2016
MON0101	Contamination Sites or Incidents	Spill Incidents	FEDORA ITRO	Chemical	Petroleum	Source Water Area	Closed	1901825	41.28858147	-74.21930776	44 ORION AVE	MONROE	10950	NY Spills	Spill Incident Database	1901825	5/14/2008
MON0103	Contamination Sites or Incidents	Spill Incidents	GARNET RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	1600290	41.29343691	-74.21852703	12 NEPTUNE COURT	MONROE	10954	NY Spills	Spill Incident Database	1600290	12/12/2008
MON0104	Contamination Sites or Incidents	Spill Incidents	GROUND AND MOMBASHA LAKE	Chemical	Petroleum	Critical Area	Closed	1810845	41.27580063	-74.21435968	110 W MOMBASHA ROAD	MONROE	10950	NY Spills	Spill Incident Database	1810845	6/2/2016
MON0105	Contamination Sites or Incidents	Spill Incidents	HARRINTON RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	801767	41.28177291	-74.21800996	159 ALLEY RD	MONROE	10950	NY Spills	Spill Incident Database	801767	8/13/2018
MON0106	Contamination Sites or Incidents	Spill Incidents	HOME	Chemical	Petroleum	Source Water Area	Closed	1601678	41.28961457	-74.22020835	18 JUPITER DRIVE	MONROE	10950	NY Spills	Spill Incident Database	1601678	10/8/2007
MON0107	Contamination Sites or Incidents	Spill Incidents	IN WOODS	Chemical	Petroleum	Critical Area	Closed	810246	41.27519613	-74.21651355	25 KATES LANE	MONROE	10950	NY Spills	Spill Incident Database	810246	5/8/2008
MON0108	Contamination Sites or Incidents	Spill Incidents	INGLESE RES	Chemical	Petroleum	Source Water Area	Closed	1602193	41.28961457	-74.22020835	18 JUPITER DRIVE	MONROE	10950	NY Spills	Spill Incident Database	1602193	11/24/2015
MON0109	Contamination Sites or Incidents	Spill Incidents	JESUS BURGOS	Chemical	Petroleum	Source Water Area	Closed	1805178	41.29295396	-74.21901327	7 NEPTUNE COURT	MONROE	10950	NY Spills	Spill Incident Database	1805178	8/13/2009
MON0110	Contamination Sites or Incidents	Spill Incidents	JORDEN RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	707490	41.28879842	-74.22199924	1 AQUARUS ST	MONROE	10950	NY Spills	Spill Incident Database	707490	2/9/2004
MON0111	Contamination Sites or Incidents	Spill Incidents	KANARICH HOME	Chemical	Petroleum	Source Water Area	Closed	801519	41.28077068	-74.22004056	69 CANDELL ROAD	MONROE	10950	NY Spills	Spill Incident Database	801519	12/13/2017
MON0112	Contamination Sites or Incidents	Spill Incidents	KRENNER RESIDENCE	Chemical	Petroleum	Critical Area	Closed	1508835	41.27436947	-74.21463705	87 WEST MOMBASHA ROAD	MONROE	10950	NY Spills	Spill Incident Database	1508835	39822
MON0113	Contamination Sites or Incidents	Spill Incidents	LEIPER RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	905645	41.2927112	-74.21885576	5 NEPTUNE CT	MONROE	10950	NY Spills	Spill Incident Database	905645	38148
MON0114	Contamination Sites or Incidents	Spill Incidents	LEVENTHAL RESIDENCE	Chemical	Petroleum	Critical Area	Closed	312445	41.28588499	-74.1986354	1191 EAST MOMBASHA ROAD	MONROE	10950	NY Spills	Spill Incident Database	312445	40622
MON0116	Contamination Sites or Incidents	Spill Incidents	OIL TRUCK SPILL	Chemical	Petroleum	Source Water Area	Closed	1/9/2009	41.29756374	-74.20645987	26 MARGARET RD	MONROE	10950	NY Spills	Spill Incident Database	811190	38539
MON0118	Contamination Sites or Incidents	Spill Incidents	ORANGE & ROCKLAND UTIL PROPERTY	Chemical	Petroleum	Source Water Area	Closed	3/20/2011	41.28915742	-74.21835924	33 ORION AVE	MONROE	10950	NY Spills	Spill Incident Database	1012683	39416
MON0119	Contamination Sites or Incidents	Spill Incidents	ORTLIEB RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	2/24/2005	41.29127783	-74.21887973	125 NEPTUNE DRIVE	MONROE	10950	NY Spills	Spill Incident Database	307508	42828
MON0120	Contamination Sites or Incidents	Spill Incidents	OVERHEAD TRANSFORMER	Chemical	Petroleum	Critical Area	Closed	7/6/2005	41.27856985	-74.21392822	35 LAKEVIEW DRIVE	MONROE	10950	NY Spills	Spill Incident Database	504042	40513

Unique ID	Potential Source Category	Potential Source	Facility	Contaminant Category of Concern	Specific Contaminants	Protection Area(s) Impacted	Status (Active/Closed/Historic Future)	Date Closed (if applicable)	Latitude	Longitude	Street	City	ZIP	Database Name	Database Description	Spill Number (if applicable)	Spill Date (if applicable)
MON0121	Contamination Sites or Incidents	Spill Incidents	PETILLO RES.	Chemical	Petroleum	Source Water Area	Closed	12/12/2013	41.29030416	-74.21822911	15 ORION AVE	MONROE	10950	NY Spills	Spill Incident Database	1308446	35527
MON0122	Contamination Sites or Incidents	Spill Incidents	PETROCCIONE RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	12/22/2008	41.29116161	-74.21927009	129 NEPTUNE DRIVE	MONROE	10950	NY Spills	Spill Incident Database	709420	43338
MON0123	Contamination Sites or Incidents	Spill Incidents	POLE #53087 /47082	Chemical	Petroleum	Source Water Area	Closed	4/6/2017	41.29250975	-74.22035559	104 MERCURY CT	MONROE	10950	NY Spills	Spill Incident Database	1700067	36027
MON0124	Contamination Sites or Incidents	Spill Incidents	POLE 53300	Chemical	Petroleum	Critical Area	Closed	12/2/2010	41.29095241	-74.20650439	BERRY RD	MONROE	10950	NY Spills	Spill Incident Database	1009376	42307
MON0125	Contamination Sites or Incidents	Spill Incidents	PRIVATE RESIDENCE	Chemical	Petroleum	Critical Area	Closed	7/2/1997	41.27894699	-74.21550681	3 CANDLE RD	MONROE	10950	NY Spills	Spill Incident Database	9700340	43311
MON0126	Contamination Sites or Incidents	Spill Incidents	RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	9/4/2018	41.30105766	-74.20423067	312 RYE HILL RD	MONROE	10950	NY Spills	Spill Incident Database	1805724	41648
MON0127	Contamination Sites or Incidents	Spill Incidents	RESIDENCE	Chemical	Petroleum	Critical Area	Closed	2/5/1999	41.27706642	-74.21390768	8 LAKEVIEW DR	MONROE	10950	NY Spills	Spill Incident Database	9807318	42249
MON0128	Contamination Sites or Incidents	Spill Incidents	RESIDENCE	Chemical	Petroleum	Critical Area	Closed	8/22/2019	41.27426097	-74.21416792	86 WEST MOMBASHA RD	MONROE	10950	NY Spills	Spill Incident Database	1508020	37951
MON0129	Contamination Sites or Incidents	Spill Incidents	RESIDENTIAL	Chemical	Petroleum	Source Water Area	Closed	10/16/2018	41.28968172	-74.21787984	27 ORION AVE	MONROE	10950	NY Spills	Spill Incident Database	1804636	42800
MON0130	Contamination Sites or Incidents	Spill Incidents	ROADSIDE	Chemical	Petroleum	Source Water Area	Closed	1/9/2014	41.30183234	-74.20742552	159 LUDLAM RD	MONROE	10950	NY Spills	Spill Incident Database	1309816	39360
MON0131	Contamination Sites or Incidents	Spill Incidents	ROOSA-BIFULCO RES.	Chemical	Petroleum	Critical Area	Closed	8/22/2019	41.27447797	-74.21414738	88 MOMBASHA RD	MONROE	10950	NY Spills	Spill Incident Database	1506986	42339
MON0132	Contamination Sites or Incidents	Spill Incidents	SLICKER RESIDENCE	Chemical	Petroleum	Critical Area	Closed	1/17/2006	41.27865509	-74.21470553	150 WEST MOMBASHA RD	MONROE	10950	NY Spills	Spill Incident Database	310075	38463
MON0133	Contamination Sites or Incidents	Spill Incidents	SOIL	Chemical	Petroleum	Source Water Area	Closed	3/6/2017	41.2900743	-74.21873933	18 ORION AVE	MONROE	10950	NY Spills	Spill Incident Database	1610901	43035
MON0134	Contamination Sites or Incidents	Spill Incidents	SOSLER RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	4/28/2008	41.29703435	-74.2070694	16 MARGARET RD	MONROE	10950	NY Spills	Spill Incident Database	707430	39913
MON0135	Contamination Sites or Incidents	Spill Incidents	TOWN PARK PROPERTY	Chemical	Petroleum	Critical Area	Closed	10/28/2016	41.29338009	-74.20853841	INTERSECTION OF BERRY AND LUDLAM ROAD	MONROE	10950	NY Spills	Spill Incident Database	1509243	39920
MON0136	Contamination Sites or Incidents	Spill Incidents	VANDELAER RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	8/16/2007	41.2950665	-74.21052107	21 LUDLAM ROAD	MONROE	10950	NY Spills	Spill Incident Database	500894	44149
MON0137	Contamination Sites or Incidents	Spill Incidents	WERLING RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	12/11/2017	41.2906864	-74.22130069	31 AQUARIUS ST	MONROE	10950	NY Spills	Spill Incident Database	1707233	43125
MON0138	Contamination Sites or Incidents	Spill Incidents	YURGEL RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	4/20/2009	41.28098766	-74.21969813	63 CANDLE RD	MONROE	10950	NY Spills	Spill Incident Database	900706	Undetermined
MON0139	Contamination Sites or Incidents	Spill Incidents	YURGEL RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	8/17/2009	41.28098766	-74.21969813	63 CANDLE RD	MONROE	10950	NY Spills	Spill Incident Database	900673	Undetermined
MON0140	Contamination Sites or Incidents	Spill Incidents	RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	10/29/2021	41.29343691	-74.21852703	12 NEPTUNE	MONROE	10950	NY Spills	Spill Incident Database	2007314	11/14/2020
MON0141	Contamination Sites or Incidents	Spill Incidents	VACANT HOUSE	Chemical	Petroleum	Source Water Area	Active	Not Closed	41.29907444	-74.20799737	40 MARGARET RD	MONROE	10950	NY Spills	Spill Incident Database	1709792	1/25/2018
MON0154	Contamination Sites or Incidents	Spill Incidents	ROADWAY/SOIL	Chemical	Petroleum	Source Water Area	Undetermined	Undetermined	41.3427867	-74.18035	19 SEVEN SPRINGS MOUTAIN ROAD	MONROE	10950	FINDS	Facility Index System/Facility Registration System	Undetermined	3/29/2004
MON0157	Contamination Sites or Incidents	Spill Incidents	TRANSFORMER - PAD	Chemical	Petroleum	Source Water Area	Undetermined	Undetermined	41.3415945	-74.177319	8 D A WEIDER BLVD	KIRYAS JOEL	10950	NY SPILLS	Spill Incident Database	Undetermined	5/11/2018
MON0158	Contamination Sites or Incidents	Spill Incidents	UNSURE OF ACCURATE (TRUCK FIRE)	Chemical	Petroleum	Source Water Area	Undetermined	Undetermined	41.3408616	-74.177347	21 DAVID WEIDER BLVD	KIRYAS JOEL	10950	NY SPILLS	Spill Incident Database	Undetermined	Undetermined
MON0159	Contamination Sites or Incidents	Spill Incidents	SPILL NUMBER 0314228	Chemical	Petroleum	Source Water Area	Closed	3/29/2004	41.3405184	-74.182332	240 SCHUNNEMUNK ROAD	MONROE	10950	NY SPILLS	Spill Incident Database	0314228	3/29/2004
MON0164	Contamination Sites or Incidents	Spill Incidents	PROBABLY A RESIDENCE	Chemical	Petroleum	Source Water Area	Closed	5/14/2018	41.3387505	-74.184545	266 SCHUNNEMUNK RD	MONROE	10950	NY SPILLS	Spill Incident Database	1801617	5/11/2018

Unique ID	Potential Source Category	Potential Source	Facility	Contaminant Category of Concern	Specific Contaminants	Protection Area(s) Impacted	Status (Active/Closed/Historic Future)	Date Closed (if applicable)	Latitude	Longitude	Street	City	ZIP	Database Name	Database Description	Spill Number (if applicable)	Spill Date (if applicable)
MON0168	Contamination Sites or Incidents	Spill Incidents	O&R TRANSFORMER	Chemical	Petroleum	Source Water Area	Closed	8/20/2018	41.3381286	-74.185079	288 SCHUNNEMUNK ST	MONROE	10950	NY SPILLS	Spill Incident Database	1805474	8/19/2018
MON0075	Conveyances and Pipelines	Oil and Gas Pipelines	NA as of June 2022	NA	NA	NA	Future	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MON0145	Discharge to Water	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	POLAK FARM SUBDIVISION PHASES I & II	Biological/Chemical	Undetermined	Source Water Area	Closed	Not Reported	41.29979233	-74.20220692	RYE HILL ROAD & BERRY ROAD	MONROE	10920	SPDES	State Pollutant Discharge Elimination System	NA	NYR10T902
MON0146	Discharge to Water	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	POLACK FARM SUBDIVISION PHASES I & II	Biological/Chemical	Undetermined	Source Water Area	Closed	Not Reported	41.29979233	-74.20220692	RYE HILL ROAD & BERRY ROAD	MONROE	10920	SPDES	State Pollutant Discharge Elimination System	NA	NYR11E971
MON0147	Discharge to Water	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	SCANCARELLO SUBDIVISION	Biological/Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.28585916	-74.21917764	WEST MOMBASHA ROAD	MONROE	10950	SPDES	State Pollutant Discharge Elimination System	NA	Undetermined
MON0151	Discharge to Water	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	CONGREGATION ZERA KOIDESCH D'ROPSHITZ	Chemical	Stormwater runoff	Source Water Area	Active	NA	41.3449854	-74.178884	214 MOUNTAIN VIEW DR	MONROE	10950	SPDES	State Pollutant Discharge Elimination System	NA	NA
MON0152	Discharge to Water	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	RAYWOOD CEMETERY	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3449493	-74.177001	48-58 RAYWOOD DRIVE	MONROE	10950	SPDES	State Pollutant Discharge Elimination System	NA	Undetermined
MON0153	Discharge to Water	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	BAIS A PROPERTIES	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3469724	-74.175748	81 RAYWOOD DRIVE	MONROE	10950	SPDES	State Pollutant Discharge Elimination System	NA	Undetermined
MON0160	Discharge to Water	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	MOUNTAINVIEW CONDOMINIUMS	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3521924	-74.176429	MOUNTAIN ROAD	KIRYAS JOEL	10950	SPDES	State Pollutant Discharge Elimination System	NA	Undetermined
MON0161	Discharge to Water	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	KIRYAS JOEL MUNICIPAL BUS PARKING	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3394964	-74.178453	FOREST ROAD	MONROE	10950	SPDES	State Pollutant Discharge Elimination System	NA	Undetermined
MON0057	Mineral Extraction Sites	Mines	MOMBASHA MINE/O'NEILL/FORSHEE/CLOVE MINES	Undetermined	Undetermined	Critical Area	Undetermined	Per framework contact NYSDEC for information on this site. Aerial imagery does not confirm presence.	41.2916704	-74.20235074	NA	MONROE	10950	MINES MRDS	Mineral Resources Data System	NA	Undetermined
MON0070	Other	Fire Training and Dedicated Fire Training Facilities	NA as of June 2022	NA	NA	NA	Future	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MON0073	Other	Marinas and Boat Launches	MOMBASHA RESERVOIR RESIDENCES ON SHORES	Biological/Chemical	Oil/Gasoline and Bacteria	Critical Area - Multiple Locations	Active	NA	NA	NA	NA	NA	NA	NA	N/A	NA	NA
MON0069	Other	Nutrient Loading (Lakes Only)	LAKE MOMBASHA AND MOUNTAIN LAKE	Chemical	Bacteria/ Nutrients	Critical Area	Active	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MON0007	Other	Other	BERRY RD CULVERT	Undetermined	Undetermined	Source Water Area	Undetermined	Undetermined	41.289581	-74.21411998	BERRY RD	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	NA
MON0008	Other	Other	GRANT PROPERTY	Biological/ Chemical	Undetermined	Critical Area	Active	NA	41.27334387	-74.21316803	W MOMBASHA RD NEAR WOODLAND RD	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	NA
MON0009	Other	Other	MOMBASHA LAKE	Biological/ Chemical/ Physical	Undetermined	Critical Area	Active	NA	41.28049945	-74.20591541	MONROE RESERVIOR	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	NA
MON0010	Other	Other	MONROE TOWN PARK	Biological/ Chemical	Undetermined	Critical Area	Active	NA	41.28459095	-74.21435968	W MOMBASHA RD (CO RTE 91) - E SIDE - NW END OF MOM	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	NA
MON0011	Other	Other	ROSE PROPERTY	Biological/ Chemical	Undetermined	Critical Area	Active	NA	41.27382955	-74.21428092	78 WEST MOMBASHA RD	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	NA
MON0012	Other	Other	WEISS PROPERTY	Undetermined	Undetermined	Source Water Area	Undetermined	Undetermined	41.29979233	-74.20220692	RYE HILL RD & BERRY RD	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	NA
MON0148	Other	Other	SMITH CLOVE DOG PARK	Chemical/ Biological	Fertilizer/Pesticides and Solid Waste	Source Water Area	Active		41.337172	-74.184286	Smith Field Road	MONROE	10950	NA	NA	NA	NA
MON0149	Other	Other	NEW YORK PROFESSIONAL DRYWALLS	Chemical	Undetermined	Source Water Area	Historic	Unknown	41.3465647	-74.17824	13 IRENE DR	MONROE	10950	EDR HIST CLEANER	EDR Exclusive Historical Cleaners	NA	NA
MON0150	Other	Other	CONGREGATION ZERA KOIDESCH D'ROPSHITZ	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3449854	-74.178884	214 MOUNTAIN VIEW DR	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	NA
MON0155	Other	Other	PALM BROOK	Chemical	Undetermined	Source Water Area	Undetermined	Undetermined	41.3424538	-74.177675	SCHUNNEMUNK RD & DA WIEDER BLVD	MONROE	10950	FINDS	Facility Index System/Facility Registration System	NA	NA

[illegible]

[illegible]

Appendix A.7
Implementation Timeline

Priority #	Priority Issue (Indicate Area)	Targeted Potential Contaminant Source(s)	What is the Threat?	For larger public audience: Why does it matter? What is the Risk?	Goal (Reduce or Mitigate the Threat)	Protection Method and/or Management Method (Strategies to Reduce the Risk or Mitigate the Threat)	Potential Funding Sources	Project Leader and Partnerships Needed	Implementation Timing	Implementation Start Date (Month/Year)*
1	Intermunicipal Awareness, Collaboration,& Enforcement for Source Water Protection	Road Salt Storage	Deicing materials directly entering the waterbody from state, county and/or municipal road salting vehicles spreading the materials and vehicles that transport it on their vehicle (tires, frame, etc.,) as they traverse the corridor	Deicing materials from spills can contaminate the waterbody and affect the ecosystem, and alter water chemistry in ways that affects source water quality and treatment	Mitigate runoff from existing salt storage facilities specifically in the Well # 4 source water area.	Intermunicipal road salt task force among highway superintendents to review/ coordinate road salt reduction in critical areas and promote best management practices in transportation corridor roads in the source water area.	Programs: -NYS DEC WQIP Program - Other Projects -NYS DEC Non-Agricultural Nonpoint Source Planning Grant Program -National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star -Urban Waters Restoration Grant Program	Project Leader: Village of Monroe DPW Project Partners: Town of Tuxedo DPW, and Town of Monroe DPW, Village of Kiryas Joel/Town of Palm Tree DPW, Orange County DPW	4 - 7 years	January 2027
						Intermunicipal Cooperation for relocating existing salt storage facilities in appropriate areas outside of the source water area and enhancing management methods to reduce runoff from salt storage facilities.	Programs: -NYS DEC WQIP Program - Other Projects -NYS DEC Non-Agricultural Nonpoint Source Planning Program -NYS DEC/EFC Engineering Planning Grant Program -National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star and Urban Waters Restoration Program	Project Leader: Village of Monroe, Village of Kiryas Joel/Town of Palm Tree Project Partners: Town of Tuxedo, and Town of Monroe	0-3 years, (6 month target) Once initiated ongoing activity	January 2023
		Residential and Commercial Development around Well No. 4 and Mombasha Lake. Development is associated with chemical and microbial contaminants from septic systems, chemical bulk storage tanks, and oil and gas wells, spills etc.	Uncoordinated land use decisions, enforcement of municipal laws and other activities leave the Village of Monroe's water supply vulnerable.	Uncoordinated land use decisions, land management, enforcement of municipal laws and other activities leave the Village's water supply vulnerable.	Protect the drinking water source from sources of existing and new contaminants through land development regulations that prioritize drinking water quality protection, including with watercourse, wetland, buffer and steep slope protections.	Initiate Intermunicipal Cooperation and Agreements with Town of Tuxedo, Village of Kiryas Joel/Town of Palm Tree and Moodna. Continue coordination and create Intermunicipal Agreements between the Village of Monroe and Town of Monroe. Consider elements of agreement including emergency response, enforcement, zoning, watercourse, and/or other critical watershed BMP protections. Coordinate planning with consideration of new MS4 regulations.	Programs: -NYS DEC WQIP Program - Other Projects Program -NYS EFC Intermunicipal Water Infrastructure Grants Program -NYS Environmental Facilities Corporation (EFC) Green Innovation Grant Program -NYS EFC Integrated Solutions Construction Grant Program -NYS DOS Local Waterfront Revitalization Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	4 - 7 years	January 2027
						Enforce the use of the Mombasha Watershed Overlay zoning regulations when reviewing proposed construction projects within the watershed boundary and notify Village of new construction projects. Consider expansion or new overlay zone to Well No. 4 source water area.	Programs: -NYS DEC Non-Agricultural Nonpoint Source Planning -NYS EFC Intermunicipal Water Infrastructure Grants Program -NYS DOS Local Waterfront Revitalization Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	0-3 years, Once initiated ongoing activity	January 2023
						Identify contacts within the watershed and formalize an emergency communication procedure to ensure prompt response to potential water quality threats and notification to proper agencies.	Programs: -NYS DEC Non-Agricultural Nonpoint Source Planning Program -NYS DEC/EFC Engineering Planning Grant Program	Project Leader: Village of Monroe DPW Project Partners: Town of Tuxedo DPW, and Town of Monroe DPW, Village of Kiryas Joel/Town of Palm Tree DPW	0-3 years	January 2023
2	Existing development in Mombasha Lake Watershed and Well # 4 Source Water Area	Lakefront Properties	Use of fertilizers, household chemicals, etc. and improper management of boating activities can release harmful containments into the water source.	Uncoordinated or lack of enforcement of municipal laws can result in chemical, physical or biological spills or contaminants directly entering the waterbody from boats, residents, etc.	Allow recreational practices that do not harm water quality.	Creation/ enforce boating permits and enforce against use of unpermitted boats and activites on Mombasha Lake	Programs: -National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star -NYS DOS Local Waterfront Revitalization Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	0-3 years. Once initiated on ongoing activity	January 2023
		Recreational Dog Parks	Runoff from dog parks in the watershed can lead to increased levels of E.coli and coliform in the source water if not curbed.	Increased E.coli and coliform in the source water can increase the need for treatment	Reduce amount of nutrients from dog parks	Identify new locations outside of the critical area for relocation of existing dog park run in Smith Clove Park.	Programs: -NYS DEC Non-Agricultural Nonpoint Source Planning Program -NYS DEC/EFC Engineering Planning Grant Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	0-3 years	January 2023

Priority #	Priority Issue (Indicate Area)	Targeted Potential Contaminant Source(s)	What is the Threat?	For larger public audience: Why does it matter? What is the Risk?	Goal (Reduce or Mitigate the Threat)	Protection Method and/or Management Method (Strategies to Reduce the Risk or Mitigate the Threat)	Potential Funding Sources	Project Leader and Partnerships Needed	Implementation Timing	Implementation Start Date (Month/Year)*
2 (cont.)	Existing development in Mombasha Lake Watershed and Well # 4 Source Water Area	Septic Systems	Bacteria and nutrients from failing septic systems to enter the water source	Failing septic systems can allow bacteria and nutrients to enter the water source, requiring treatment	Mitigate septic system contamination within the watershed through replacement of failed systems or municipal programs for targeted maintenance.	Target sewer extensions in areas within districts but not connected/ consider new sewer district creation as warranted in critical areas.	Programs: -NYS EFC Intermunicipal Water Infrastructure Grants Program NYS EFC Water Infrastructure Improvement Act Clean Water State Revolving Fund (CWSRF)	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	7+ years	January 2030
						Apply for funding to replace septic systems within the watershed. (Responsible Management entity may be required).	Programs: -NYS DEC Non-Agricultural Nonpoint Source Planning Grant Program -NYS DEC/EFC Engineering Planning Grant Program	Project Leaders: NYSDOH, NYSDEC, Land Owners	7+ years	January 2030
						Develop communication protocol with Moodna on spills, and review information on facility maintenance schedules. Enhance raw water monitoring to ensure program is effective. Implement SOPs/ formal agreements for communication protocols and monitoring.	Programs: -NYS DEC Non-Agricultural Nonpoint Source Planning Grant Program -NYS DEC/EFC Engineering Planning Grant Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree, MOODNA	0-3 years	January 2023
3	Future development in the Mombasha Lake Watershed and Well #4 Source Water Area	All pollutants associated with new land development, including stormwater runoff. Residential, Commercial, Industrial Land Uses; chemical and microbial sources associated with development including septic systems, chemical bulk storage tanks, and oil and gas wells, etc.	Development associated with potential contaminant sources could occur in sensitive areas of the watershed and source water area with little consideration to the source water or best management practices. Continued development is likely to contribute to contamination that is already affecting water quality and treatment costs. Other contaminants, such as salt/chlorides and unregulated/ newly regulated contaminants are also identified as potential concerns.	Protection of key watershed features, such as vegetated stream buffers, wetlands and buffers, and steep slopes can enhance the natural filter provided by the natural landscape and reduce the potential for the introduction of new contamination threats.	Protect the drinking water source from sources of new contaminants through land development regulations that prioritize drinking water quality protection, including use of watercourse, wetland, buffer and steep slope protections.	Designate a Critical Environment Area for the Source Water Area to ensure SEQR projects in all watershed municipalities consider water quality in their environmental review.	Programs: -NYS DEC Non-Agricultural Nonpoint Source Planning Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree, NYSDEC	0-3 years	January 2023
						Track new capital/ construction projects within the watershed/ source water area to ensure consideration of the water source is reflected through project planning/ implementation (eg. intermunicipal coordination and planning, compliance with local codes, BMPs, ect.)	Programs: -NYS DEC Non-Agricultural Nonpoint Source Planning Grant -NYS DEC WQIP Program - Other Projects -NYS DEC/EFC Engineering Planning Grant Program	Project Leader: Village of Monroe/ Village of DPW Project Partners: Town of Tuxedo/Town of Tuxedo DPW, Town of Monroe/Town of Monroe DPW, Village of Kiryas Joel, Town of Palm Tree, Village of Kiryas Joel/Town of Palm Tree DPW, Orange County/ Orange County DPW	0-3 years	January 2023
						Update Watershed Rules and Regulations as needed to ensure the Village of Monroe has adequate authorities relative to land use and potential contaminant source regulated facilities in source water areas.	Programs: -NYS DEC Non-Agricultural Nonpoint Source Planning Grant Program -NYS DEC/EFC Engineering Planning Grant Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	7+ years	January 2030
		Climate vulnerability	Intense and/or frequent climatic events inundate flood prone areas which can bring all types of contaminants into the water source	The increase of contaminated waters could lead to higher treatment costs and pose a threat to public health.	Plan for climate resilience of the water source and reduce its impacts to the water source	Consider future risk from climate change when making source water areas investments	Programs: -NYS DEC Climate Smart Communities Grant Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	4 - 7 years	January 2027
						Continue land acquisition program. Consider open space and land use analysis and track development trends to determine priorities for conservation and strategic land acquisition.	Programs: -NYS Open Space Plan Hudson Highlands Land Trust -NYS DEC Water Quality Improvement Project (WQIP) Program - Land Acquisition for Source Water Protection -USDA National Resources Conservation Service (NRCS) Environmental -National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star Urban Waters Restoration Grant Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	0-3 years	January 2023
						Model future conditions to understand the impacts on water quality from increased temperatures, changes to precipitation and runoff patterns that will affect water quantity and quality	Programs: -NYS DEC Climate Smart Communities Grant Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	7+ years	January 2030
4	Enhanced Management of Regulated Potential Contaminant Sources in Critical Area (Mombasha Lake and Well #4)	Priority concerns include, disinfection byproducts, PFAs, turbidity, salt/chlorides, and emerging contaminants	Extensive development in the watershed is contributing to contamination that is affecting water quality and treatment costs. The sources of these water quality issues aren't known, and there is limited data on the water quality in Mombasha Lake and Well #4 aquifer	Land uses in the watershed are diverse, including residential, commercial, transportation and industrial areas that present different risks to source water quality. However, it isn't well understood which risks in the watershed are causing problems for water quality or water treatment.	Create enhanced monitoring and sampling program. Consider response and monitoring of events.	Continued cooperation to enhance monitoring of emerging contaminants and unregulated contaminants.	Programs: -EPA Environmental Education Grants -NYS DEC/EFC Engineering Planning Grant Program	Project Leader: Village of Monroe Project Partners: Town of Tuxedo, and Town of Monroe, Village of Kiryas Joel/Town of Palm Tree	0-3 years, Once initiated on ongoing activity	January 2023

Appendix A.8
Plan Management Team

Designate a Plan Mangement Team

Name	Contact Information	
	E-mail	Relevant Affiliation(s)
Bonnie Franson	planningchair@monroeny.org	Town of Monroe, Planning Board
Deborah Vilanueva	buildingclerk@tuxedogov.org	Town of Tuxedo, Representative
Ernie Mabee	waterplant@villageofmonroe.org	Water Treatment Plant Operator
John Karl	trustee.karl@villageofmonroe.org	Village of Monroe, Trustee
Kenneth English *	townsupervisor@tuxedogov.org	Town of Tuxedo, Supervisor
Neil Dwyer	mayor.dwyer@villageofmonroe.org	Village of Monroe, Mayor
Steve Gagnon	sgagnon@orangecountygov.com	Orange County Department of Health
Tanya McPhee	tmcphoe@thetownofchester.org	Moodna Joint Sewer Commissioner
Tom Rabey	trabey@monroeny.org	Town of Monroe, Water Representative
Tony Cardone	tcardone@monroeny.org	Town of Monroe, Supervisor
Ben Maldonado	ben@monroeny.org	Town of Monroe, Code Enforcement
Frank Pace*	fireinspector@villageofmonroe.org	Village of Monroe, Code Enforcement
Joe Corona*	pumajc@optonline.net	Monroe Conservation Commission
Representative(s)*		Monroe Lake Owners Association

*Will be invited to the plan management team.

Use the table below to document the Plan Management strategy for keeping the DWSP2 Plan up to date:

Plan Management Summary	
Item	Status
Designate a Plan Management Team	In Process
Determine progress report frequency	
Months	
Share progress reports	
Review and share the plan	
Verification from NYS DOH and DEC for completeness	
Create a revision schedule	

Use the table below to track updates and revisions to the DWSP2 Plan. Use the notes section to detail changes made in each update and/or revision:

Update/Revision Tracker		
Report	Date	Notes
First report:		
Update/Revision 1		
Update/Revision 2		
Update/Revision 3		
Update/Revision 4		
Update/Revision 5		
Update/Revision 6		
Update/Revision 7		
Update/Revision 8		

Appendix B

Project Profiles

Project Profile 1 - Intermunicipal Awareness, Collaboration, & Enforcement for Source Water Protection

TARGETED POTENTIAL CONTAMINANT SOURCE: Road Salt Storage; Contamination from Residential and Commercial Development around Well No. 4 and Mombasha Lake (eg. chemical and microbial contaminants from septic systems, chemical bulk storage tanks, and oil and gas wells, spills etc.)

Uncoordinated land use decisions, enforcement of municipal laws and other activities leave the Village of Monroe's water supply vulnerable. Deicing materials directly enter the waterbody from state, county and/or municipal road salting vehicles and vehicles that transport it on their vehicle (tires, frame, etc.) as they traverse the corridor.

GOALS AND PRIORITIES:

- Mitigate runoff from existing roadways and salt storage facilities specifically in the Well # 4 source water area.
- Protect the drinking water source from sources of existing and new contaminants through land development regulations that prioritize drinking water quality protection, including with watercourse, wetland, buffer, and steep slope protections.

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

1. Intermunicipal road salt task force among highway superintendents to review/ coordinate road salt reduction in critical areas and promote best management practices in transportation corridor roads in the source water area.
2. Intermunicipal Cooperation for relocating existing salt storage facilities in appropriate areas outside of the source water area and enhancing management methods to reduce runoff from salt storage facilities.
3. Initiate Intermunicipal Cooperation and Agreements with Town of Tuxedo, Village of Kiryas Joel/Town of Palm Tree and Moodna Basin Sewer Commission (Moodna). Continue coordination and create Intermunicipal Agreements between the Village of Monroe and Town of Monroe. Consider elements of agreement including emergency response, enforcement, zoning, watercourse, and/or other critical BMP protections. Coordinate planning with consideration of new MS4 regulations.
4. Enforce the use of the Mombasha Watershed Overlay zoning regulations when reviewing proposed construction projects within the source water area boundary and notify Village of new construction projects. Consider expansion or new overlay zone to Well No. 4 source water area.
5. Identify contacts within the source water area and formalize an emergency communication procedure to ensure prompt response to potential water quality threats and notification to proper agencies.

POTENTIAL COSTS:

Effort hours to apply for funding, effort hours to meet with potential partners and subsequent coordination for IMAs, efforts towards tracking construction projects and enforcing existing zoning

codes, and implementing new BMPs, effort hours to research existing conditions and potential management methods, efforts to research future issues, personnel and funding to implement new BMPs, effort hours for tracking and monitoring progress.

POTENTIAL FUNDING SOURCES:

- NYS DEC WQIP Program – Other Projects
- NYS DEC Non-Agricultural Nonpoint Source Planning Grant Program
- NYS DEC/EFC Engineering Planning Grant Program
- NYS EFC Intermunicipal Water Infrastructure Grants Program
- NYS Environmental Facilities Corporation (EFC) Green Innovation Grant Program
- NYS EFC Integrated Solutions Construction Grant Program
- NYS DOS Local Waterfront Revitalization Program
- National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star and Urban Waters Restoration Program

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Plan Management Team
- Village of Monroe/Village of Monroe DPW
- Village of Kiryas Joel, Town of Palm Tree, Town of Tuxedo, and Town of Monroe
- Village of Kiryas Joel/Town of Palm Tree DPW, Town of Tuxedo DPW, Town of Monroe DPW, Orange County DPW

SUGGESTED TIMELINE:

Intermunicipal road salt task force among highway superintendents to review/ coordinate road salt reduction in critical areas and promote best management practices in transportation corridor roads in the source water area.

- Length: Medium, 4 – 7 years

Intermunicipal Cooperation for relocating existing salt storage facilities in appropriate areas outside of the source water area and enhancing management methods to reduce runoff from salt storage facilities.

- Length: Short, 0 – 3 year (6-month target); once initiated ongoing activity.

Initiate Intermunicipal Cooperation and Agreements with Town of Tuxedo, Village of Kiryas Joel/Town of Palm Tree and Moodna. Continue coordination and create Intermunicipal Agreements between the Village of Monroe and Town of Monroe. Consider elements of agreement including emergency response, enforcement, zoning, watercourse, and/or other critical BMP protections. Coordinate planning with consideration of new MS4 regulations.

- Length: Medium, 4 – 7 years

Enforce the use of the Mombasha Watershed Overlay zoning regulations when reviewing proposed construction projects within the source water area boundary and notify Village of new construction projects. Consider expansion or new overlay zone to Well No. 4 source water area.

- Length: Short, 0 – 3 years; once initiated ongoing activity.

Identify contacts within the source water area and formalize an emergency communication procedure to ensure prompt response to potential water quality threats and notification to proper agencies.

- Length: Short, 0 – 3 years

POTENTIAL BARRIERS:

- Effective/ streamlined enforcement processes (considering both inspections and administrative processes)
- Lack of personnel to initiate and follow through on new programs
- Adequate training for enforcement staff
- Efficiency when collaborating with multiple municipalities
- Lack of funding
- Scope of intermunicipal agreements should be carefully considered as there are many elements of source water area protection where collaboration will be important.

IMPLEMENTATION STEPS:

Intermunicipal road salt task force among highway superintendents to review/ coordinate road salt reduction in critical areas and promote best management practices in transportation corridor roads in the source water area.

1. Identify contacts and decision makers for road maintenance and operations
2. Identify funding to pursue analysis and pilot new technologies/ consider future BMPs
3. Analyze information on existing conditions (existing research on road de-icing using alternative practices, inventory of existing road de-icing substances utilized, frequency, specific practices, etc.)
4. Collaborate with municipalities and conduct study to identify road salt alternatives
5. Pilot new technologies/ implement new BMPs
6. Evaluate effects of pilots/BMPs in terms of costs, water quality and effectiveness
7. If pilots/BMPs are effective, continue implementation
8. Include implementation within annual budget process and/or apply for funding

Intermunicipal Cooperation for relocating existing salt storage facilities in appropriate areas outside of the source water area and enhancing management methods to reduce runoff from salt storage facilities.

1. Identify contacts and decision makers for salt storage facility maintenance and operations
2. Analyze information on existing facility deficiencies and identify potential locations for new facilities
3. Identify funding to construct new facilities and implement additional BMPs which address runoff issues
4. Collaborate with municipalities and conduct study to identify facility construction/ additional BMPs to implement
5. Construct/ implement new facilities and new BMPs
6. Conduct and review self-assessments for new facilities and operations to measure the effectiveness of the new BMPs if they remain in the source water areas.
7. Include inspection and maintenance of new facility and BMPs within annual budget process and/or apply for additional funding.

Initiate Intermunicipal Cooperation and Agreements with Town of Tuxedo, Village of Kiryas Joel/Town of Palm Tree and Moodna. Continue coordination and create Intermunicipal Agreements between the Village of Monroe and Town of Monroe. Consider elements of agreement including emergency response, enforcement, zoning, watercourse, and/or other critical BMP protections. Coordinate planning with consideration of new MS4 regulations.

1. Plan Management Team meetings to develop consensus for IMA framework, goals, timelines, participants, etc.
2. Appear at Village/ Town Board meetings to present IMA framework and incorporate public input.
3. Collaborate with municipalities to identify site-specific management practices and quantifiable measures.
4. Negotiate the terms of the potential agreement.
5. Draft intermunicipal agreements and send to all involved parties for review.
6. Implement intermunicipal agreement and monitor progress

Enforce the use of the Mombasha Watershed Overlay zoning regulations when reviewing proposed construction projects within the source water area boundary and notify Village of new construction projects. Consider expansion or new overlay zone to Well No. 4 source water area.

1. Continue to work with contacts in municipalities on implementing existing zoning overlay; formalize procedures to notify Village of new development.
2. Review existing land use controls in the Well No. 4 source water area to identify gaps in water quality protection.
3. Identify contacts to work on expanding or creating new overlay zone for Well No 4 if gaps warrant this attention.
3. Share proposed changes with the public and regulated community.
4. Complete SEQRA and work with local boards to adopt zoning regulations changes.
5. Train review staff to implement existing/ new regulations.
6. Track implementation and share data among involved municipalities.

Identify contacts within the source water area and formalize an emergency communication procedure to ensure prompt response to potential water quality threats and notification to proper agencies.

1. Identify all types of potential threats the Village requires notification for.
2. Utilize list of potential threats; identify appropriate contacts in each neighboring municipality responsible for emergency operations and response to those threats.
3. Working with contacts, ensure Village operations team is on appropriate call lists for notification of potential water quality threats.
4. Collaborate with municipalities to identify specific response types for priority issues.
5. Prepare a Standard Operation Procedure (SOP) to guide emergency response efforts.
6. Train staff to utilize SOP
7. Include implementation, inspection, and maintenance within annual budget process and/or apply for funding.

Project Profile 2 - Existing development in Mombasha Lake and Well # 4 Source Water Areas.

TARGETED POTENTIAL CONTAMINANT SOURCE: Multiple contaminants including those from lakefront properties, parks/ dog runs , septic systems and lawn and garden chemicals from residential, institutional and business uses.

Use of fertilizers, household chemicals, etc. and improper management of boating activities can release harmful containments into the water source.

Runoff from dog parks in the source water area can lead to increased levels of E.coli and coliform in the source water if not curbed.

Chemicals, physical or biological spills can contaminate the waterbody, aquifer, and effect the ecosystem

Failing septic systems can allow bacteria and nutrients to enter the water source, requiring treatment.

GOALS AND PRIORITIES:

- Allow recreational practices that do not harm water quality.
- Reduce amount of nutrients from dog parks
- Mitigate septic system contamination within the source water area through replacement of failed systems or municipal programs for targeted maintenance.

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

1. Create/ enforce boating permits and enforce against use of unpermitted boats on Mombasha Lake
2. Identify new locations outside of the critical area for relocation of existing dog park run in Smith Clove Park.
3. Target sewer extensions in areas within districts but not connected/ consider new sewer district creation as warranted in critical areas.
4. Apply for funding to replace septic systems within the source water area. (Responsible Management entity may be required).
5. Develop communication protocol with Moodna on spills, and review information on facility maintenance schedules. Enhance raw water monitoring to ensure program is effective.
6. Implement SOPs/formal agreements for communication protocols and monitoring.

POTENTIAL COSTS:

Potential costs include: Effort hours to meet with potential partners and subsequent coordination, effort towards preparing new permits and training staff to enforce new permits, effort hours to research appropriate locations for relocation of parks, potential planning, engineering, detailed design, construction, and funds for sewers, replaced septic systems, and BMPs, maintenance personnel and funding to evaluate and maintain new BMPs, labor hours to develop SOPs, time towards developing grant applications as applicable and securing funding.

POTENTIAL FUNDING SOURCES:

- NYS DEC Non-Agricultural Nonpoint Source Planning Program
- NYS DEC/EFC Engineering Planning Grant Program
- NYS EFC Intermunicipal Water Infrastructure Grants Program
- NYS EFC Water Infrastructure Improvement Act
- Clean Water State Revolving Fund (CWSRF)
- NYS DOS Local Waterfront Revitalization Program
- National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Plan Management Team
- Village of Monroe/Village of Monroe DPW
- Village of Kiryas Joel, Town of Palm Tree, Town of Tuxedo, and Town of Monroe
- Village of Kiryas Joel/Town of Palm Tree DPW, Town of Tuxedo DPW, Town of Monroe DPW
- Moodna Basin Sewer Commission (Moodna)
- OCDPW
- NYSDOH
- NYSDEC
- Land Owners

SUGGESTED TIMELINE:

Create/ enforce boating permits and enforce against use of unpermitted boats on Mombasha Lake

- Length: Short, 0 – 3 years; once initiated on ongoing activity.

Identify new location outside of the critical area for relocation of existing dog park run in Smith Clove Park.

- Length: Short, 0 – 3 years

Target sewer extensions in areas within districts but not connected/ consider new sewer district creation as warranted in critical areas.

- Length: Long, 7+ years

Apply for funding to replace septic systems within the source water area. (Responsible Management entity may be required).

- Length: Long, 7+ years

Develop communication protocol with Moodna on spills, and review information on facility maintenance schedules. Enhance raw water monitoring to ensure program is effective. Implement SOPs/ formal agreements for communication protocols and monitoring.

- Length: Short, 0 – 3 years

POTENTIAL BARRIERS:

- Lack of funding for planning, construction, and maintenance
- Coordinating with neighboring municipalities_

- Lack of personnel to initiate and follow through on new programs
- Potential resistance to new communication protocols
- Coordination with and level of participation of multiple sewer districts

IMPLEMENTATION STEPS:

Create/ enforce boating permits and enforce against use of unpermitted boats on Mombasha Lake

1. Analyze existing conditions with regard to recreational boating on the reservoir including existing regulations and existing practices.
2. As needed, develop draft regulations restricting recreational boating on the reservoir to be added to Village/ Town municipal codes
3. Share proposed changes with the public and regulated community.
4. Complete SEQR and work with local boards to adopt changes.
5. Development inspection and enforcement procedures to monitor compliance with existing/ new regulations.
6. Track implementation and share data among involved municipalities.

Identify new locations outside of the critical area for relocation of existing dog park in Smith Clove Park.

1. Identify potential locations for new dog park
2. Identify funding to construct park and implement additional BMPs into new park design (eg. new educational signage, pet waste bags and waste receptacles as appropriate).
Restore dog run in Smith Clove Park to beneficial open space uses that are compatible with water quality protection

Target sewer extensions in areas within districts but not connected/ consider new sewer district creation as warranted in critical areas.

1. Work with existing sewer districts to identify existing infrastructure conditions
2. Utilize input from districts coupled with land use studies to prioritize areas where extensions would be most effective
3. Work with sewer districts to apply for funding for extension projects
4. Prepare/ design plans for extension projects and construct
5. Include inspection and maintenance of extension projects within annual budget process and/or apply for funding

Apply for funding to replace septic systems within the source water area. (Responsible Management entity may be required).

1. Research available funding
2. Prioritize critical area of Mombasha Lake and Well No. 4 where concentrations of septic facilities are the highest.
2. Coordinate with applicable County entities for support
3. Apply for funding for replacement projects

Develop communication protocol with *Moodna* on spills, and review information on facility maintenance schedules. Enhance raw water monitoring to ensure program is effective.

Implement SOPs/formal agreements for communication protocols and monitoring.

1. Identify all types of potential water quality threats the Village requires notification for from Moodna.
2. Working with Moodna contacts, ensure Village operations team is on appropriate call lists for notification of potential water quality threats.
3. Collaborate with Moodna to identify specific response types for priority issues.
4. Prepare a SOP in order to document emergency response efforts.
5. Train staff to utilize SOP
6. Include implementation, inspection, and maintenance within annual budget process and/or apply for funding.
7. Monitor progress of new programs through raw water testing

Project Profile 3 - Future development in the Mombasha Lake and Well

#4 Source Water Areas.

TARGETED POTENTIAL CONTAMINANT SOURCE: All pollutants associated with new land development, including stormwater runoff. Residential, Commercial, Industrial Land Uses; chemical and microbial sources associated with development including septic systems, chemical bulk storage tanks, and oil and gas wells, etc. Contaminants associated with climate vulnerability. Development associated with potential contaminant sources could occur in sensitive areas of the source water area with little consideration to the source water or best management practices. Continued development is likely to contribute to contamination that is already affecting water quality and treatment costs. Other contaminants, such as salt/chlorides and unregulated/ newly regulated contaminants are also identified as potential concerns. Intense and/or frequent climatic events inundate flood prone areas which can bring all types of contaminants into the water source.

GOALS AND PRIORITIES:

- Protect the drinking water source from sources of new contaminants through land development regulations that prioritize drinking water quality protection, including use of watercourse, wetland, buffer and steep slope protections.
- Plan for climate resilience of the water source and reduce its impacts to the water source.

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

1. Designate a Critical Environment Area for the Source Water Area to ensure SEQR projects in all municipalities consider water quality in their environmental review.
2. Track new capital/ construction projects within the source water area to ensure consideration of the water source is reflected through project planning/ implementation (eg. intermunicipal coordination and planning, compliance with local codes, BMPs, ect.)
3. Update Watershed Rules and Regulations as needed to ensure the Village of Monroe has adequate authorities relative to land use and potential contaminant source regulated facilities in source water areas.
4. Consider future risk from climate change when making source water areas investments
5. Continue land acquisition program. Consider open space and land use analysis and track development trends to determine priorities for conservation and strategic land acquisition
6. Model future conditions to understand the impacts on water quality from increased temperatures, changes to precipitation and runoff patterns that will affect water quantity and quality

POTENTIAL COSTS:

Effort hours to coordinate with various municipalities and subsequent implementation effort hours, efforts towards collaborating with state entities to designate a CEA, costs to research current conditions conduct studies/ analyses, potential land acquisition costs, effort hours for tracking/ monitoring.

POTENTIAL FUNDING SOURCES:

- NYS DEC Non-Agricultural Nonpoint Source Planning Program
- NYS DEC WQIP Program - Other Projects
- NYS DEC/EFC Engineering Planning Grant Program
- NYS DEC Climate Smart Communities Grant Program
- NYS Open Space Plan Hudson Highlands Land Trust
- NYS DEC Water Quality Improvement Project (WQIP) Program - Land Acquisition for Source Water Protection
- USDA National Resources Conservation Service (NRCS) Environmental
- National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star Urban Waters Restoration Grant Program

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Plan Management Team
- Village of Monroe/ Village of Monroe DPW
- Village of Kiryas Joel, Town of Palm Tree, Village of Kiryas Joel/Town of Palm Tree DPW
- Town of Tuxedo/ Town of Tuxedo DPW
- Town of Monroe/ Town of Monroe DPW
- Orange County/ Orange County DPW
- NYSDEC

SUGGESTED TIMELINE:

Designate a Critical Environment Area for the Source Water Area to ensure SEQR projects in all municipalities consider water quality in their environmental review.

- Length: Short, 0 – 3 years

Track new capital/ construction projects within the source water area (e.g. Route 208 Bypass project) to ensure consideration of the water source is reflected through project planning/ implementation (eg. intermunicipal coordination and planning, compliance with local codes, BMPs, ect.)

- Length: Short, 0 – 3 years

Update Watershed Rules and Regulations as needed to ensure the Village of Monroe has adequate authorities relative to land use and potential contaminant source regulated facilities in source water areas.

- Length: Long, 7+ years

Consider future risk from climate change when making source water areas investments.

- Length: Medium, 4 – 7 years

Continue land acquisition program. Consider open space and land use analysis and track development trends to determine priorities for conservation and strategic land acquisition

- Length: Short, 0 – 3 years

Model future conditions to understand the impacts on water quality from increased temperatures, changes to precipitation and runoff patterns that will affect water quantity and quality

- Length: Long, 7+ years

POTENTIAL BARRIERS:

- Efficiency when collaborating with multiple municipalities
- Lack of personnel to implement initiatives
- Lack of funding for planning, analysis, construction and maintenance
- Uncertainty with respect to climate change impacts
- New regulatory authority may be required for the Village to effectively enhance management of regulated facilities and procedures for implementing Watershed Rules and Regulations are expected to be time intensive.
- Resistance to source water protection in capital planning process.

IMPLEMENTATION STEPS:

Designate a Critical Environment Area (CEA) for the Source Water Area to ensure SEQR projects in all municipalities consider water quality in their environmental review.

1. Identify key contacts in municipalities to work on planning and implementation.
2. Communicate with participating municipalities to create an official map of the proposed CEA.
3. Prepare an inventory of any landowners and/or parties that may be impacted by the CEA designation.
4. Complete SEQR on the proposed CEA and present the potential CEA to the appropriate boards.
5. Schedule and hold a public informational meeting with all affected landowners, other interested agencies, and the public.
6. If the proposed CEA is approved, submit documentation that the area has been designated as a CEA to the NYSDEC Commissioner and other relevant parties. The designation will take effect 30 days after filing.

Track new capital/ construction projects within the source water area to ensure consideration of the water source is reflected through project planning/ implementation (eg. Intermunicipal coordination and planning, compliance with local codes, BMPs, ect.)

1. Identify key contacts proposing to undertake capital/ construction projects within the source water area.
2. Initiate collaboration efforts with key contacts early in the planning process for capital/ construction projects.
3. Review proposed plans and ensure consideration of the water source is reflected in plans and during construction (eg. Locations of project features, erosion and sedimentation controls during construction, installation of post-construction stormwater management practices/ BMPs, restoration plans, ect.).
4. Prepare an agreement with project sponsor and other interested agencies to memorialize consideration of water source/ mitigation measures that will be in place during project implementation.

5. Consider a mechanism to ensure construction activities and post-construction conditions are meeting the conditions and criteria outlined in the agreement.
6. Include inspection and maintenance of capital/ construction projects within annual budget process and/or apply for funding.

Update Watershed Rules and Regulations as needed to ensure the Village of Monroe has adequate authorities relative to land use and potential contaminant source regulated facilities in source water areas.

1. Local government drafts new or updated WRRs and submits them to DOH.
 - a. Local Governments must receive written approval of the draft from other impacted state agencies such as the DEC and AGM prior to submission to DOH.
 - b. Stakeholder and community outreach should occur and guide the development and modifications of the WRRs.
 - c. Formal adoption of the Local Government's draft is not required if your county has already established a "county small watershed agency" or a "watershed district" in accordance with County Law Article 5-D. DOH encourages your county to consult with such agency or district during the development or updating of WRRs, and prior to submitting to DOH.
 - d. Local governments are also strongly encouraged to review and incorporate any existing rules and regulations adopted under County Law § 299-p(4) pertaining to recreational use of water, and any local laws that are already promulgated for the applicable watershed.
2. DOH performs a preliminary review for completeness and to ensure other impacted state agency input.
3. DOH works with the local government to revise, as needed.
4. DOH publishes WRRs for public notice and comment.
5. DOH reviews public comments and reviews any necessary amendments with local government.
 - a. Note: if amendments are needed, another 30-day comment period is required for compliance with the State Administrative Procedure Act.
6. DOH finalizes rule.
 - a. Required: Local government publishes in a local newspaper, per PHL §1100.
 - b. Optional: Local government incorporates into local law.
7. Affidavit and WRRs are filed with county clerk's office, per PHL §1100.

Consider future risk from climate change when making source water areas investments.

1. Identify existing water supply and infrastructure conditions in regard to existing and future climate/ weather events
2. Considering modeling results, identify climate resilience priorities.
3. Apply for funding for improvement projects to address existing or potential deficiencies.
4. Prepare/ design plans for improvement projects and construct.
5. Include inspection and maintenance of improvement projects within annual budget process and/or apply for funding.

Continue land acquisition program. Consider open space and land use analysis and track development trends to determine priorities for conservation and strategic land acquisition

6. Continue to prioritize strategic land acquisition in Village planning and budging.
7. Conduct studies to identify priorities for strategic land acquisition
8. Identify funding sources
2. Identify land for acquisition and publish a notice of intention to acquire land
3. Incorporate restoration and rehabilitation design onto acquired land if needed
4. Designate methods to conserve, inspect and maintain acquired lands
5. Include inspection and maintenance of acquired land within annual budget process and/or apply for funding

Model future conditions to understand the impacts on water quality from increased temperatures, changes to precipitation and runoff patterns that will affect water quantity and quality

1. Identify funding sources to support conducting the study
2. Considering existing conditions data, and known vulnerabilities to existing storms, choose area(s) for analysis
3. Work with study team to identify climate vulnerabilities
4. Document possible outcomes of water quality/ quantity impacts
5. Consider results to increase system resiliency in long-term planning and mitigate potential negative water supply and quality impacts

Project Profile 4 - Enhanced Management of Regulated Potential Contaminant Sources in Critical Area (Mombasha Lake and Well #4)

TARGETED POTENTIAL CONTAMINANT SOURCE: Priority concerns include, disinfection byproducts, PFAs, turbidity, salt/chlorides, emerging contaminants and contaminants from Aboveground/Underground Fuel/Chemical Storage Tanks and Spills

Land uses in the source water area are diverse, including residential, commercial, transportation and industrial areas that present different risks to source water quality. However, it isn't well understood which risks in the source water area are causing problems for water quality or water treatment.

Chemical, biological or physical leaks and spills may allow contaminants to enter the waterbody directly

GOALS AND PRIORITIES:

- Create enhanced monitoring and sampling program. Consider response and monitoring of events.
- Enhanced monitoring of chemical contaminant sources in the critical area. To enhance communication with public, and operators of facilities storing large tanks or DEC staff that work with these regulated facilities to understand the nature of the threat as associated risk and response efforts.

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

1. Continued cooperation to enhance monitoring of emerging contaminants and unregulated contaminants.
2. Initiate enhanced collaboration and communication around regulated facilities within the Mombasha Lake/Well No. 4 source water areas with the surrounding towns and regulatory authorities including NYSDEC, NYSDOH and County DOH. Clarify authorities for types of contaminant sources/ facilities (eg. local vs. county/state) and delineate responsibilities for reporting/ regulating.
3. Increase chloride level monitoring in water sources
4. Review permits, prepare a monitoring and inspection plan, and consider secondary containment or remediation guidance requirements as warranted.

POTENTIAL COSTS:

Effort hours to identify appropriate contacts and coordinate with NYSDEC and NYS or County DOH regarding facilities of concerns in the source water area, effort hours to research current conditions and to research databases, potential site visit assessment costs, potential spill response costs, potential engineering planning, construction, and design costs.

POTENTIAL FUNDING SOURCES:

- EPA Environmental Education Grants
- NYS DEC/EFC Engineering Planning Grant Program
- NYS Soil and Water Conservation Committee Agricultural Nonpoint Source Abatement & Control Grant Program
- NYS DEC WQIP Program – Other Projects
- NYS DEC Non-Agricultural Nonpoint Source Planning Grant Program
- National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star and Urban Waters Restoration Grant Program

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Plan Management Team
- Village of Monroe/Village of Monroe DPW
- Village of Kiryas Joel, Town of Palm Tree, Town of Tuxedo, and Town of Monroe
- Village of Kiryas Joel/Town of Palm Tree DPW, Town of Tuxedo DPW, Town of Monroe DPW
- OCDOH
- NYSDOH
- NYSDEC

SUGGESTED TIMELINE:

Continued cooperation to enhance monitoring of emerging contaminants and unregulated contaminants.

- Length: Short, 0 – 3 years; once initiated on ongoing activity

Initiate enhanced collaboration and communication around regulated facilities within the Mombasha Lake/Well No. 4 source water areas with the surrounding towns and regulatory authorities including NYSDEC, NYSDOH and County DOH. Clarify authorities for types of contaminant sources/ facilities (eg. local vs. county/state) and delineate responsibilities for reporting/ regulating.

- Length: Short, 0 – 3 years; once initiated on ongoing activity

Increase chloride level monitoring in water sources

- Length: Short, 0 – 3 years; once initiated on ongoing activity

Review permits, prepare a monitoring and inspection plan, and consider secondary containment or remediation guidance requirements as warranted.

- Length: Medium, 4 – 7 years; once initiated on ongoing activity

POTENTIAL BARRIERS:

- Efficiency when collaborating with multiple municipalities
- Lack of personnel to implement initiatives
- Creation of effective and streamlined enforcement protocols

- Facilities that are the focus of this step are already regulated by federal, state and/ or county agencies. Striking an appropriate balance between existing regulations and enforcement procedures and what enhancements might be effective will be critical.
- Lack of funding for planning, construction, and maintenance

IMPLEMENTATION STEPS:

Continued cooperation to enhance monitoring of emerging contaminants and unregulated contaminants.

1. Consider sampling program enhancements to monitor for emerging and currently unregulated contaminants.
2. Include enhancement efforts into annual budget process and/or apply for funding to support program enhancements.
3. Designate staff to conduct enhanced sampling year-round.

Initiate enhanced collaboration and communication around regulated within the Mombasha Lake/Well No. 4 source water areas with the surrounding towns and regulatory authorities including NYSDEC, NYSDOH and County DOH. Clarify authorities for types of contaminant sources/ facilities (eg. local vs. county/state) and delineate responsibilities for reporting/ regulating.

1. Utilizing PCS inventory, continue to investigate PCS's in the critical area and determine facilities or issues that warrant further attention.
2. Based on existing regulatory authorities for facilities and issues, identify appropriate contacts at the local, county and state level.
3. Initiate contact and considering facility type, staffing, and responsibilities, determine appropriate level of coordination (e.g., annual/ biannual/ quarterly coordination, joint inspections, etc.)
4. Draft an intermunicipal or interagency agreement or other protocols to memorialize roles and agreements.
5. Adopt agreement/ implement modified protocol.
6. Monitor progress through regularly scheduled coordination mechanism (meeting, inspections or shared reporting).

Increase chloride level monitoring in water sources

1. Consider sampling program enhancements to monitor for chloride contaminants.
2. Include enhancement efforts into annual budget process and/or apply for funding to support program enhancements.
3. Designate staff to conduct enhanced sampling year-round.

Review permits, prepare a monitoring and inspection plan, and consider secondary containment or remediation guidance requirements as warranted.

1. Identify priority facilities. Utilize PCS inventory and update with DEC PBS, CBS, and spills databases to keep the list of regulated facilities within the critical area current.
2. Coordinate with applicable regulatory authority regarding existing compliance. Ensure that facilities are compliant with NY Code of Rules and Regulations (NYCRR). Bulk storage regulations can

be found in NYCRR Subchapter E. Applicable CBS regulations can be found in Parts 596-599, and PBS regulations are found in Part 613.

3. If authorized, conduct site visits or joint site visits where warranted.
4. Issue follow up to inspections regarding secondary containment or remediation if warranted.
5. Create a monitoring system to manage and track enhanced monitoring of regulated facilities.
6. Include implementation, inspection and maintenance within annual budget process and/or apply for funding.
7. Train staff on monitoring and inspection procedures.

Project Profile 5 - Erosion & Sediment Control in the Critical Area for Mombasha Lake and for Well #4 stream

TARGETED POTENTIAL CONTAMINANT SOURCE: [Dirt Roads and erosion from extreme hydrologic events especially in the southern areas of the reservoir are impacting water quality.

Priority concerns include, disinfection byproducts, turbidity, and sedimentation

While erosion is the natural process, it increases the costs of operating the water system due to suspended solids and removal of additional contaminants. The intent is to increase infiltration, decrease the velocity and erosive potential of overland flow, and mitigate potential water quality impairments from turbidity.

GOALS AND PRIORITIES:

- Reduce risk of erosion/ reduce turbidity in source water area streams and reservoir.

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

1. Survey and streambank erosion study around Lake Mombasha and Well No. 4 stream to identify and prioritize needed stabilization projects.
2. Restore and maintain dirt roads around the lake and address erosion near Well No. 4 with stabilization, restoration, increased vegetation, and riparian buffers.

POTENTIAL COSTS:

Costs to analyze current conditions to identify areas of concern, costs to stabilize lands and install new plantings/ vegetation, time towards developing grant applications as applicable and securing funding.

POTENTIAL FUNDING SOURCES:

- NYS DEC WQIP Program - Other Projects
- NYS DEC Non-Agricultural Nonpoint Source Planning Grant Program
- NYS DEC/EFC Engineering Planning Grant Program
- NYS DEC Trees for Tribes
- National Fish and Wildlife Foundation/Wildlife Habitat Council Five Star and Urban Waters Restoration Grant Program

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Village of Monroe
- Village of Kiryas Joel, Town of Palm Tree, Town of Tuxedo, and Town of Monroe
- Riverkeeper

SUGGESTED TIMELINE:

Survey and streambank erosion study around Lake Mombasha and Well No. 4 stream to identify and prioritize needed stabilization projects.

- Length: Short, 0 – 3 years

Restore and maintain dirt roads around the lake and address erosion near Well No. 4 with stabilization, restoration, increased vegetation, and riparian buffers.

- Length: Medium, 4 – 7 years

POTENTIAL BARRIERS:

- Lack of funding for planning, analysis, construction, and maintenance
- Efficiency when collaborating with multiple municipalities

IMPLEMENTATION STEPS:

Survey and streambank erosion study around Lake Mombasha and Well No. 4 stream to identify and prioritize needed stabilization projects.

1. Identify funding sources to support conducting the study
2. Identify municipalities with land area involved and engage them in study planning
3. Gather information on existing conditions
4. Identify locations of concern
5. Design a stabilization program and implement
6. Designate methods to inspect and maintain locations of concern/ stabilized lands
7. Include implementation, inspection, and maintenance within annual budget process and/or apply for additional funding.

Restore and maintain dirt roads around the lake and address erosion near Well No. 4 with stabilization, restoration, increased vegetation, and riparian buffers.

1. Identify locations of concern.
2. Secure funding, design restoration plans and implement.
3. Designate methods to inspect and maintain restored lands.
4. Include restoration implementation, inspection, and maintenance within annual budget process and/or apply for funding.

Project Profile 6 - Outreach and Education

TARGETED POTENTIAL CONTAMINANT SOURCE: Multiple contaminants including those from lakefront properties, parks/ dog runs , septic systems, and lawn and garden chemicals from residential, institutional and business uses.

Lack of understanding regarding potential residential and commercial impact on the source water and water quality can result in personal choices that harm raw water quality. Topics for outreach include enhanced awareness of the risks posed by failing septic systems, chemicals, fertilizers and runoff from recreational parks/ dog parks on the quality of the creek and reservoir. Of particular concern are also homes located directly on the shores of source water area lakes/ creeks.

GOALS AND PRIORITIES:

- Dialogue with homeowners to inform personal choices protective of water quality.
- Reduce the amount of herbicides and pesticides applied and mitigate overland flow into the waterbody
- Reduce amount of nutrients from recreational and dog parks
- Reduce the amount of nutrients from failing septic systems from entering the waterbody

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

1. Raise awareness of lakefront property owners regarding water quality concerns, and existing regulations with respect to discharges to the Lake.
2. Education and outreach on how to reduce pesticide use and alternative treatment practices.
3. Signage at the Smith Clove Dog park to emphasize how excess fecal matter and trash can affect the nearby water source.
4. Education and Outreach to educate homeowners on how to properly maintain their septic systems and existing programs that can support them.

POTENTIAL COSTS:

Effort towards engaging communities in education and outreach efforts, time towards printing educational materials/ handing out educational materials, time towards posting signage, time towards preparing for and attending community meetings and events to spread the message.

POTENTIAL FUNDING SOURCES:

- NYSP2I
- EPA Environmental Education Grants

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Plan Management Team
- Village of Monroe
- Towns of Tuxedo and Monroe, Village of Kiryas Joel/Town of Palm Tree

- Riverkeeper
- Lakefront property owners

SUGGESTED TIMELINE:

Raise awareness of lakefront property owners regarding water quality concerns, and existing regulations with respect to discharges to the Lake.

- Length: 0-2 years; once initiated on ongoing activity.

Education and outreach on how to reduce pesticide use and alternative treatment practices.

- Length: 0-2 years; once initiated on ongoing activity.

Signage at the Smith Clove Dog park to emphasize how excess fecal matter and trash can affect the nearby water source.

- Length: 0-2 years; once initiated on ongoing activity.

Education and Outreach to educate homeowners on how to properly maintain their septic systems and existing programs that can support them.

- Length: 0-2 years; once initiated on ongoing activity.

POTENTIAL BARRIERS:

- Efficiency when collaborating with multiple municipalities and stakeholder groups
- Lack of funding
- Lack of personnel
- Reaching target populations with concise message that resonates will require multiple strategies to be employed
- Landowners may resist change and enforcement efforts

IMPLEMENTATION STEPS:

Raise awareness of lakefront property owners regarding water quality concerns, and existing regulations with respect to discharges to the Lake.

1. Identify messaging needs for the broader source water communities.
2. Evaluate communication mechanisms and select mix of strategies (e.g. education materials and attendance at public meetings) to reach diverse and wide audience in the source water area.
3. Create education materials and outreach plan.
4. Partner with community groups.
5. Distribute/ present educational materials.

Education and outreach on how to reduce pesticide use and alternative treatment practices.

1. Identify target population.
2. Evaluate existing communication mechanisms currently reaching population (community newsletter, list serves, water bills, social media, municipal websites, etc.).
3. Evaluate public events and organizations that may provide opportunities or partner to raise source water protection awareness (e.g. Town Board meetings, civic associations, local environmental groups, schools, libraries, etc.)

4. Prepare educational messaging and distribution to target population via selected pathways.
5. Make presentations/ distribute educational messaging at public events.
6. Distribute/ present educational materials to homeowners.

Signage at the Smith Clove Dog park to emphasize how excess fecal matter and trash can affect the nearby water source.

1. Consider types of signage (signage on storm drains/ catch basins, on waste receptacles, near trailheads, near gated area entrances, etc.)
2. Consider messaging (e.g., "Clean Up After Your Dog"; "No Dumping, Drains to Waterbody"; "Dog Waste Bags Here").
3. Secure funding.
4. Design and procure signs.
5. Install signage at various locations throughout the dog park.

Education and Outreach to educate homeowners on how to properly maintain their septic systems and existing programs that can support them.

1. Identify target population.
2. Evaluate existing communication mechanisms currently reaching target population (community newsletter, email list serves, water bills, social media, municipal websites, etc.).
3. Evaluate public events and organizations that may partner to raise source water protection awareness (e.g. Town Board meetings, civic associations, lake associations, local environmental groups, schools, libraries, etc.)
4. Prepare educational messaging and distribution plan to target populations via selected pathways.
5. Make presentations at public meetings and events.
6. Distribute/ present educational materials to homeowners.

Appendix C

Cost Estimates

Appendix C - Preliminary Cost Estimate*

Note: These estimates are based on an opinion of time requirement. Dependent on emerging needs or altered priorities, these could change. It is recommended that dedicated staff are designated to assist with these efforts, and it is not assumed that consultants will be hired to lead these efforts. The wage rate is based on one staff person with a salary of \$77,000, including a 75% increase for staff benefits, overhead costs, etc. This cost estimate is based off of occupational wage rates estimated by NYS Department of Labor in Q1 2021 dollars for an average environmental scientist.

#	Priority Issue	Goal	Protection Method and/or Management Method	Timeline	Time Requirements	Weekly Hourly Requirements	Hours Required	Labor Cost per Hour (NYSDOL Wages)	Total Cost*
1	Intermunicipal Awareness, Collaboration & Enforcement for Source Water Protection	Mitigate runoff from existing salt storage facilities specifically in the Well # 4 source water area.	Intermunicipal road salt task force among highway superintendents to review/ coordinate road salt reduction in critical areas and promote best management practices in transportation corridor roads in the source water area.	4 - 7 years	Meetings, Coordinating timing/planning.	0.5	182	\$64.78	\$11,790.63
			Intermunicipal Cooperation for relocating existing salt storage facilities in appropriate areas outside of the source water area and enhancing management methods to reduce runoff from salt storage facilities.	0-3 years, (6 month target) Once initiated ongoing activity	Meetings, Coordinating timing/planning.	0.5	78	\$64.78	\$5,053.13
		Protect the drinking water source from sources of existing and new contaminants through land development regulations that prioritize drinking water quality protection, including with watercourse, wetland, buffer and steep slope protections.	Initiate Intermunicipal Cooperation and Agreements with Town of Tuxedo, Village of Kiryas Joel/Town of Palm Tree and Moodna. Continue coordination and create Intermunicipal Agreements between the Village of Monroe and Town of Monroe. Consider elements of agreement including emergency response, enforcement, zoning, watercourse, and/or other critical watershed BMP protections. Coordinate planning with consideration of new MS4 regulations.	4 - 7 years	Meetings with partners, Coordinating timing/planning.	0.5	182	\$64.78	\$11,790.63
			Enforce the use of the Mombasha Watershed Overlay zoning regulations when reviewing proposed construction projects within the watershed boundary and notify Village of new construction projects. Consider expansion or new overlay zone to Well No. 4 source water area.	0-3 years, Once initiated ongoing activity	Meetings for zoning, Drafting plans, site visits, source inspection.	2	312	\$64.78	\$20,212.50
			Identify contacts within the watershed and formalize an emergency communication procedure to ensure prompt response to potential water quality threats and notification to proper agencies.	0-3 years	Developing plan	1	156	\$64.78	\$10,106.25
2	Existing development in Mombasha Lake Watershed and Well # 4 Source Water Area	Allow recreational practices that do not harm water quality.	Creation/enforce boating permits and enforce against use of unpermitted boats and activites on Mombasha Lake	0-3 years. Once initiated on ongoing activity	Developing plan, Enforecement.	2	312	\$64.78	\$20,212.50
		Reduce amount of nutrients from dog parks	Identify new locations outside of the critical area for relocation of existing dog park run in Smith Clove Park.	0-3 years	Site visit, Design, Planning, Meetings.	2	312	\$64.78	\$20,212.50
		Mitigate septic system contamination within the watershed through replacement of failed systems or municipal programs for targeted maintenance.	Target sewer extensions in areas within districts but not connected/ consider new sewer district creation as warranted in critical areas.	7+ years	Meetings, Site visits, Design.	1	364	\$64.78	\$23,581.25
			Apply for funding to replace septic systems within the watershed. (Responsible Management entity may be required).	7+ years	Meetings for funding, Grant application.	0.25	91	\$64.78	\$5,895.31
			Develop communication protocol with Moodna on spills, and review information on facility maintenance schedules. Enhance raw water monitoring to ensure program is effective. Implement SOPs/ formal agreements for communication protocols and monitoring.	0-3 years	Developing plan, Meetings.	2	312	\$64.78	\$20,212.50

Appendix C - Preliminary Cost Estimate*

Note: These estimates are based on an opinion of time requirement. Dependent on emerging needs or altered priorities, these could change. It is recommended that dedicated staff are designated to assist with these efforts, and it is not assumed that consultants will be hired to lead these efforts. The wage rate is based on one staff person with a salary of \$77,000, including a 75% increase for staff benefits, overhead costs, etc. This cost estimate is based off of occupational wage rates estimated by NYS Department of Labor in Q1 2021 dollars for an average environmental scientist.

#	Priority Issue	Goal	Protection Method and/or Management Method	Timeline	Time Requirements	Weekly Hourly Requirements	Hours Required	Labor Cost per Hour (NYSDOL Wages)	Total Cost*
3	Future development in the Mombasha Lake Watershed and Well #4 Source Water Area	Protect the drinking water source from sources of new contaminants through land development regulations that prioritize drinking water quality protection, including use of watercourse, wetland, buffer and steep slope protections.	Designate a Critical Environment Area for the Source Water Area to ensure SEQR projects in all watershed municipalities consider water quality in their environmental review.	0-3 years	Developing plan, Meetings.	1	156	\$64.78	\$10,106.25
			Track new capital/ construction projects within the watershed/ source water area to ensure consideration of the water source is reflected through project planning/ implementation (eg. intermunicipal coordination and planning, compliance with local codes, BMPs, ect.)	0-3 years	Monitoring, Developing plan, Meetings for coordination.	2	312	\$64.78	\$20,212.50
			Update Watershed Rules and Regulations as needed to ensure the Village of Monroe has adequate authorities relative to land use and potential contaminant source regulated facilities in source water areas.	7+ years	Developing plan, Meetings, Enforcement.	1	364	\$64.78	\$23,581.25
		Plan for climate resilience of the water source and reduce its impacts to the water source	Consider future risk from climate change when making source water areas investments	4 - 7 years	Risk Assesment.	0.5	182	\$64.78	\$11,790.63
			Continue land acquisition program. Consider open space and land use analysis and track development trends to determine priorities for conservation and strategic land acquisition	0-3 years	Land aquisition, Monitoring development, Meetings.	2	312	\$64.78	\$20,212.50
			Model future conditions to understand the impacts on water quality from increased temperatures, changes to precipitation and runoff patterns that will affect water quantity and quality	7+ years	Develop plan, Meetings.	1	364	\$64.78	\$23,581.25
4	Enhanced Management of Regulated Potential Contaminant Sources in Critical Area (Mombasha Lake and Well #4)	Create enhanced monitoring and sampling program. Consider response and monitoring of events.	Continued cooperation to enhance monitoring of emerging contaminants and unregulated contaminants.	0-3 years, Once initiated on ongoing activity	Meetings for cooperation.	0.5	78	\$64.78	\$5,053.13
		Enhanced monitoring of chemical contaminant sources in the critical area. To enhance communication with public, and operators of facilities storing large tanks or DEC staff that work with these regulated facilities to understand the nature of the threat as associated risk and response efforts.	Initiate enhanced collaboration and communication around regulated facilities between watershed and well source water area with the surrounding towns and regulatory authorities including NYSDEC, NYSDOH and County DOH. Clarify authorities for types of contaminant sources/ facilities (eg. local vs. county/state) and delineate responsibilities for reporting/ regulating.	0-3 years, Once initiated on ongoing activity	Meetings for collaboration.	2	312	\$64.78	\$20,212.50
			Increase chloride level monitoring in water sources	0-3 years, Once initiated on ongoing activity	Monitoring.	1	156	\$64.78	\$10,106.25
			Review permits, prepare a monitoring and inspection plan, and consider secondary containment or remediation guidance requirements as warranted.	4-7 years. Once initiated on ongoing activity	Develop plan, Meetings.	0.5	182	\$64.78	\$11,790.63

Appendix C - Preliminary Cost Estimate*

Note: These estimates are based on an opinion of time requirement. Dependent on emerging needs or altered priorities, these could change. It is recommended that dedicated staff are designated to assist with these efforts, and it is not assumed that consultants will be hired to lead these efforts. The wage rate is based on one staff person with a salary of \$77,000, including a 75% increase for staff benefits, overhead costs, etc. This cost estimate is based off of occupational wage rates estimated by NYS Department of Labor in Q1 2021 dollars for an average environmental scientist.

#	Priority Issue	Goal	Protection Method and/or Management Method	Timeline	Time Requirements	Weekly Hourly Requirements	Hours Required	Labor Cost per Hour (NYSDOL Wages)	Total Cost*
5	Erosion & Sediment Control in the Critical Area for Mombasha Lake and for Well #4 stream	Reduce risk of erosion/ reduce turbidity in watershed streams and reservoir.	Survey and streambank erosion study around Lake Mombasha and Well No. 4 stream to identify and prioritize needed stabilization projects.	0-3 years	Site visits, Study, Source inspection.	5	780	\$64.78	\$50,531.25
			Restore and maintain dirt roads around the lake and address erosion near Well No. 4 with stabilization, restoration, increased vegetation, and riparian buffers.	4-7 years.	Site restoration, Vegetation, Meetings.	2	728	\$64.78	\$47,162.50
6	Outreach and Education	Dialogue with homeowners to influence personal choices protective of water quality.	Raise awareness of lakefront property owners regarding water quality concerns, and existing regulations with respect to discharges to the Lake.	0-3 years. Once initiated on ongoing activity	Community Outreach, Meetings.	2	312	\$64.78	\$20,212.50
		Reduce the amount of herbicides and pesticides applied and mitigate overland flow into the waterbody	Education and outreach on how to reduce pesticide use and alternative treatment practices.	0-3 years. Once initiated on ongoing activity	Meetings, preparing outreach material, preparing surveys, attending outreach events.	3	468	\$64.78	\$30,318.75
		Reduce amount of nutrients from recreational and dog parks	Signage at the Smith Clove Dog park to emphasize how excess fecal matter and trash can affect the nearby water source.	0-3 years. Once initiated on ongoing activity	Community Outreach, Meetings.	2	312	\$64.78	\$20,212.50
		Reduce the amount of nutrients from failing septic systems from entering the waterbody	Education and Outreach to educate homeowners on how to properly maintain their septic systems and existing programs that can support them.	0-3 years. Once initiated on ongoing activity	Meetings, preparing outreach material, preparing surveys, attending outreach events.	3	468	\$64.78	\$30,318.75
Total									\$504,500.00

*Please note the following:

- All costs are preliminary and subject to change greatly. THIS IS NOT INTENDED TO BE A FINAL EXACT ESTIMATE.
- Many efforts across various projects can be combined to save costs. For the purposes of this estimate, each project is estimated individually.
- Estimates do not include any materials or construction costs. Estimated costs only include effort hours, and time requirements are outlined above.
- For projects beyond the scope of internal resources that require contractual support, costs will be higher; excepted range is 30-70% increase from base estimates.

Appendix D

Delineation Methods

This appendix describes the approach to delineating the critical and source water for Well 4 serving the Monroe public water system, including the step-wise procedure that was employed to complete the draft delineations.

Data Constraints and Assumptions

Following discussions with NYDEC, a conservative porosity value of 0.2 was assumed for unconsolidated materials. Due to the shallow well construction depth, the well was assumed to be screened in the shallow unconsolidated aquifer. Where we did not have data available to us, we assumed that groundwater flow direction paralleled surface water flow direction.

Step-wise Procedure Employed to Complete Draft Delineations

Step 1: Selection of EPA-Derived Standardized Form

USEPA Simplified Variable Shapes were generated to function as surrogate delineations (i.e., “standardized forms” or shapes) for wells pumping under similar conditions. The standardized forms were derived via analytical models, such as the uniform-flow equation for downgradient and lateral extents and calculated Time-of-Travel (TOT) equations, such as VFE, for upgradient extents. Following the derivation of these standardized forms, pumping well discharge amounts guide the selection of the appropriate shape for each individual well. In the case of Monroe Well 4, and as per the EPA guidance, the 300 gpm (or 432,000 gpd) well withdrawal falls in the range of non-pumping (e.g., a natural spring) and below 5 megaliters per day, or approximately 1,320,000 gallons per day. For this reason, the “fingernail-shaped” standard form was chosen to represent the critical and source water areas.

Step 2: Upgradient Extent of ZOC

As per EPA guidance, the upgradient extent of the ZOC was estimated through the use of the VFE:

Volumetric Flow Equation: $r = \sqrt{(Qt/\pi nH)}$, where:

Input	Description	Unit
r =	Upgradient Extent of ZOC	feet
Q =	Pumping Rate of Well	feet ³ /day
t =	Time of Pumping	days
π =	pi	pi
n =	Porosity	% as decimal
H =	Well Screen Length	feet

For Well 4, this process was completed first for the critical area (assuming a 1-year TOT), and then a second time for the source water area (assuming a 10-year TOT). Resultant upgradient null points were estimated as follows:

Well Name	Upgradient Extent of ZOC (1-yr Critical Area)	Upgradient Extent of ZOC (10-yr Source Water Area)
Well 4	1,806 feet	5,712 feet

Step 3: Downgradient and Lateral Extents of ZOC

Because available data were insufficient to defensibly calculate the downgradient and lateral extents of the ZOC, the project team assumed that the selected EPA standardized form would be representative of pumping conditions unless an available and reliable data source invalidated this assumption. We constrained the overall size of the representative shapes based on the calculated upgradient extent of the ZOC, and assumed that the downgradient and lateral extents would size themselves proportionally. This resulted in a 1.75:1.0 upgradient-to-lateral extent ratio and a 1.75:0.75 upgradient-to-downgradient extent ratio. These ratios were applied to both the 1-year TOT critical area and the 10-year TOT source water area. Resultant lateral and downgradient null points were estimated as follows:

Well Name	Lateral Extent of ZOC (1-yr Critical Area)	Downgradient Extent of ZOC (1-yr Critical Area)	Lateral Extent of ZOC (10-yr Source Water Area)	Downgradient Extent of ZOC (10-yr Source Water Area)
Well 4	1,030 feet	777 feet	3,256 feet	2,456 feet

The 1-year Critical Area for Well 4 was extended in the northern or upgradient direction to cover the mapped unconfined aquifer.

Step 4: Topographic Considerations

Following the generation of representative shapes for the critical and source water areas, available topographic information, including USGS 7.5-minute Topographic Quadrangle map for Monroe, HUC 12 watershed boundaries as provided by USGS, and surficial hydrology lines were used to identify areas within the source water area where surface, and presumably groundwater, recharge would flow in directions not contributing to anticipated capture zones for the well. The project hydrogeologists judged that applying adjustments of this nature to the critical area would result in a lessening of conservatism unsupportive to the overall goal of source protection, therefore this approach was limited only to the source water area. For Well 4, several areas were identified where drainage divides supported trimming of the source water area. Because such a substantial amount of area within the Well 4 source water area was lost to trimmings along topographic watershed divides as described, professional judgement was used in extending the source water area in the direction of upgradient surface water recharge. The revised source water area was extended to include areas that topographically drained in the direction of suspected natural groundwater gradient.

Step 5: Geologic Mapping Considerations

Surficial geology was also considered in revising the source water area but no further trimmings of the source water area were found to be justifiable.

Sensitivity Analysis – The B&L Team performed a sensitivity analysis of key inputs for the VFE. We found that the calculation was most sensitive to the parameters of pumping rate and well screen length. As the pumping rate increased, so did the size of delineations. As stated in the “Assumptions” bullet above, for conservatism we applied maximum permitted withdrawal amounts for the pumping rate in the VFE due to a lack of meter data to approximate annualized withdrawal amounts. We also found that even slight adjustments to the well screen length resulted in substantial changes to forecasted upgradient extents of ZOCs; larger well screen lengths produced smaller distances. Fortunately, well construction information was available from the Monroe New York Well #4 Rehab Report for Well 4, so we did not need to assume a well screen interval in our calculations. No other elements of the above-described step-wise procedure lent themselves to such a sensitivity analysis.

Appendix E
Watershed Rules and Regulations, Village of Monroe

133.10 Village of Monroe. (a) *Application.* The rules and regulations set forth in this section, duly made and enacted in accordance with the provisions of sections 1100-1107 of the Public Health Law, shall apply to Mombasha Reservoir and all watercourses tributary thereto or which may ultimately discharge into said Mombasha Reservoir or which may be developed in the future to serve as sources of the water supply to the Village of Monroe.

(b) *Definitions.* (1) *Chloride salt* shall mean the solid compounds or the solutions of potassium chloride (commonly used as fertilizer), calcium chloride (commonly used for winter road maintenance) or sodium chloride (commonly used for water softener regeneration).

(2) *Herbicide* shall mean any substance used to destroy or inhibit plant growth.

(3) *Human excreta* shall mean human feces and urine.

(4) *Junkyard* shall mean an area where two or more unregistered, old or second-hand motor vehicles are being accumulated for purposes of disposal, resale of used parts or reclaiming certain materials such as metal, glass, fabric and/or the like.

(5) *Linear distance* shall mean the shortest horizontal distance from the nearest point of a structure or object to the high-water mark of a reservoir, or to the edge, margin or steep bank forming the ordinary high-water line of a watercourse.

(6) *Pesticide* shall mean any substance used to destroy or inhibit pests such as rodents and insects.

(7) *Pollutant* shall mean dredge, spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, chemical waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water.

(8) *Radioactive material* shall mean any material in any form that spontaneously emits radiation. *Radiation* shall mean ionizing radiation, that is, any alpha particle, beta particle, gamma ray, X-ray, neutron, high-speed proton, and any other atomic particle producing ionization, but shall not mean any sound or radio wave, or visible, infrared or ultraviolet light.

(9) *Refuse* shall mean all putrescible and nonputrescible solid wastes including garbage, manure, rubbish, ashes, incinerator residue, street cleanings, dead animals, offal and solid commercial and industrial wastes.

(10) *Refuse disposal area* shall mean land used for the depositing of refuse except that it shall not include the land used for the depositing of refuse from a single family, a member of which is the owner, occupant or lessee of said land, or any part of a farm on which only animal wastes resulting from the operation of such farm are deposited.

(11) *Reservoir* shall mean any natural or artificial lake or pond which is tributary to or serves as a source of the Village of Monroe water supply.

(12) *Sewage* shall mean any liquid or solid waste matter from a domestic, commercial, private or industrial establishment which is normally carried off in sewers or waste pipes.

(13) *Sewage disposal system* shall mean any system used for disposing of sewage.

(14) *Toxic chemical* shall mean any compound or substance, including but not limited to gasoline, kerosene, fuel oil, or diesel oil, which is or may be harmful or poisonous to humans.

(15) *Treatment works* shall mean any treatment plant, sewer, disposal field, lagoon, pumping station, septic system, constructed drainage ditch or surface water intercepting ditch, incinerator, area devoted to sanitary land fill, or other works not specifically mentioned in this paragraph, installed for the purpose of treating, neutralizing, stabilizing or disposing of sewage.

(16) *Water supply* shall mean the public water supply of the Village of Monroe.

(17) *Watercourse* shall mean every spring, stream, marsh, or channel of water of any kind which flows or may flow into the Village of Monroe water supply.

(18) *Watershed* shall mean the entire drainage area contributing water to the Village of Monroe water supply.

(c) General prohibitions. No person, including State agencies or political subdivisions having jurisdiction, shall perform any act or grant any permit or approval which may result in the contravention of the standards for raw water quality as contained in Part 170 of this Title.

(d) Specific prohibitions. (1) *Cemetaries*. No interment of a human body shall be made within a 250-foot linear distance of any reservoir or watercourse.

(2) *Chloride salt*. No chloride salt shall be stored within a 500-foot linear distance of any reservoir or watercourse except in weather-proof buildings or watertight vessels.

(3) *Herbicides and pesticides*. No herbicides or pesticides shall be stored, discharged, applied or allowed to enter into any reservoir or watercourse unless a permit to do so has been obtained from the appropriate State agency having jurisdiction.

(4) *Human excreta and sewage*. (i) No human excreta or sewage shall be deposited or allowed to escape into any reservoir or watercourse on the watershed.

(ii) No human excreta or sewage shall be deposited or spread upon the surface of the ground at any point on the watershed.

(iii) No human excreta or sewage shall be buried in the soil on the watershed unless deposited in trenches or pits at a linear distance of not less than 300 feet from any reservoir or watercourse and covered with not less than one foot of soil in such a manner as to effectually prevent its being washed into any reservoir or watercourse by rain or melting snow.

(iv) No privy receptacle or facilities of any kind for the deposit, movement, treatment or storage of human excreta or sewage shall be constructed, placed, maintained or allowed to remain within a 75-foot linear distance of any reservoir or watercourse.

(v) No portion of the seepage unit (tile field, seepage pit or equivalent) of a subsurface sewage disposal system shall be constructed, placed or allowed to remain within a 300-foot linear distance of any reservoir or watercourse.

(vi) Every watertight receptacle used for containing human excreta or sewage shall be emptied when the receptacle is filled to within six inches of the top.

(vii) In emptying a watertight receptacle or in transferring its contents to a transportable receptacle, all necessary care shall be exercised to prevent contamination of any reservoir or watercourse. All such transportable receptacles shall be provided with tightly fitting covers which are securely fastened when transporting wastes to the place of ultimate disposal. The contents of the watertight receptacles shall be disposed of in accordance with subparagraph (iii) of this paragraph or at a properly designed, constructed and operated sewage disposal system that has been approved by the appropriate State agency having jurisdiction over such facility.

(viii) Before any existing sewage disposal system is altered or any new sewage disposal system is constructed on the watershed, the plans in relation thereto shall have been first approved by the appropriate State agency having jurisdiction over such facility. Standards for waste treatment works as published from time to time by the appropriate State agency having jurisdiction over such facility and subparagraph (v) of this paragraph shall comprise the criteria to approve any proposed sewage disposal system.

(5) *Radioactive material.* No radioactive material shall be disposed of by burial in soil within a 500-foot linear distance of any reservoir or watercourse and not within a 1,000-foot linear distance of any reservoir, or watercourse unless authorization has been obtained from the appropriate State agency and such burial is in accordance with the provisions of Part 16 of this Title.

(6) *Recreation.* (i) Bathing and swimming. No bathing and swimming shall be allowed in any reservoir or watercourse owned by the Village of Monroe.

(ii) Boating. No gasoline powered engines will be permitted on Mombasha Reservoir. Launching of boats may only take place at a point designated by the Village of Monroe water superintendent. A permit must be obtained for boating by the Village of Monroe water superintendent. Boats must meet standards acceptable to the Village of Monroe water superintendent.

(iii) Fishing and trespassing. No fishing or trespassing shall be allowed in or upon any reservoir or watercourse owned by the Village of Monroe within a 1,000-foot linear distance of the water supply intakes except by duly authorized employees of the Village of Monroe in the performance of their duties of supervision and maintenance of the water supply. Permits for fishing in other areas of Mombasha Reservoir must be obtained by the Village of Monroe water superintendent. No fishing shall be allowed from the shoreline of Mombasha Reservoir.

(7) *Solid waste.* (i) Junkyards. No junkyard shall be located within a 500-foot linear distance of any reservoir or watercourse.

(ii) Refuse. No refuse shall be deposited on or beneath the surface of ground within a 500-foot linear distance of any reservoir or watercourse.

(iii) Refuse disposal area. No refuse disposal area shall be located within a 1,000-foot linear distance of any reservoir or watercourse.

(8) *Toxic chemicals.* No container used for the storage of toxic chemicals shall be buried beneath the surface of the ground within a 1,000-foot linear distance of any reservoir or watercourse.

(9) *Miscellaneous.* (i) Structures. No hut, tent, shelter or building of any kind, except a waterworks structure, shall be permitted on the water or ice of any reservoir or watercourse owned by the Village of Monroe.

(ii) Other wastes. No pollutant of any kind shall be discharged or allowed to flow into any reservoir or watercourse or on or beneath the surface of the ground on the watershed within 1,000 feet of any reservoir or watercourse.

(iii) Motorized equipment. No motor driven equipment shall be permitted on the water or ice of any reservoir or watercourse owned by the Village of Monroe, except by duly authorized employees of the community in the performance of their duties of supervision and maintenance of the water supply.

(e) *Inspections.* The commissioner of water supply or any person or persons charged with the maintenance or supervision of the public water supply system shall by its officers or their duly appointed representative make regular and thorough inspections of the reservoir, watercourses and watershed to ascertain whether the provisions of this section are being complied with. It shall be the duty of the aforesaid commissioner of water supply to cause copies of any rules and regulations violated to be served upon the persons violating the same together with notices of such violations. If such persons served do not immediately comply with the rules and regulations, it shall be the further duty of the aforesaid commissioner of water supply to promptly notify the State Commissioner of Health of such violations. The aforesaid commissioner of water supply shall report to the State Commissioner of Health in writing annually, prior to the 30th day of January, the results of the regular inspections made during the preceding year. The report shall state the number of inspections which were made, the number of violations found, the number of notices served, the number of violations abated and the general condition of the watershed at the time of the last inspection.

(f) *Penalties for violations.* Penalties for violations of this section shall be those specified by section 1103 of the Public Health Law.

Historical Note

Sec. repealed, new filed Sept. 7, 1977 eff. Sept. 7, 1977.

133.11 Village of Port Jervis. [Statutory authority: L. 1893, ch. 661]

(a) [*Privies adjacent to any reservoir or watercourse.*] (1) No privy or place for the deposit or storage of human excreta shall be constructed, located or maintained within 50 feet, horizontal measurement, from the high-water mark or precipitous bank of any reservoir, pond, spring, stream, ditch or watercourse of any kind, the water in which, when running, flows eventually into a reservoir of the public water supply of the Village of Port Jervis.

(2) No privy vault, pit or cesspool or nontransportable receptacle of any kind for the reception or storage of human excreta shall be constructed, located or maintained within 250 feet, horizontal measurement, from the high-water mark or precipitous bank of any pond or reservoir or within 130 feet, horizontal measurement, from the high-water mark or precipitous bank of any spring, stream, ditch or watercourse as aforesaid.

(3) Every privy or place for the deposit, reception or storage of human excreta which is constructed, located or maintained between the aforesaid limits of 50 and 250 feet, horizontal measurement, from the high-water mark or precipitous bank of any pond or reservoir or between the aforesaid limits of 50 and 130 feet, horizontal measurement, from the high-water mark or precipitous bank of any spring, stream, ditch or watercourse as aforesaid, and from which privy or place the said excreta is not at once removed automatically by means of suitable watertight pipes or conduits to some proper place of disposal beyond the maximum aforesaid limit, shall be arranged in such manner that all said excreta shall be received and temporarily retained in suitable vessels or receptacles, which shall at all times be maintained in an absolutely watertight condition and which will admit of convenient removal to some place of ultimate disposal beyond the said maximum limit.

(4) The excreta collected in the aforesaid removable receptacles shall be removed and the receptacles cleansed and deodorized as often as is necessary to keep the receptacles in proper sanitary condition and to prevent an overflow of the excreta upon the soil or upon the foundation or floor of said privy. In effecting this removal, the utmost care shall be exercised that none of the contents of the receptacles be allowed to escape while being transported from the privy to the place of ultimate disposal hereinafter specified and that the least possible annoyance or inconvenience be caused to occupants of the premises or of adjoining premises.

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