

Village of New Paltz's Drinking Water Source Protection Program (DWSP2) Plan

System Name: New Paltz (Village) Water District

Community: Village of New Paltz

Prepared by: Hudson Valley Regional Council

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List of Abbreviations

AL – Action Level

AST – Aboveground Storage Tank

DOT – Department of Transportation

DPW – Department of Public Works

DWSP2 – Drinking Water Source Protection Program

HAA5 – Haloacetic Acids Five: Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, and Dibromoacetic Acid

HVRC – Hudson Valley Regional Council

MCL – Maximum Contaminant Level

MCLG – Maximum Contaminant Level Goal

MGD – Million Gallons per Day PWS – Public Water System

NaCl – Sodium Chloride

NTU – Nephelometric Turbidity Unit

NYC DEP – New York City Department of Environmental Protection

NYS DEC – New York State Department of Environmental Conservation

NYS DOH – New York State Department of Health

PCS – Potential Contaminate Source

PFHxS – Perfluorohexane Sulfonate

PFOS – Perfluorooctanoic Acid

ROI – Radius of Influence

SUNY – State University of New York

SWAP – Source Water Assessment Program

SWOT – Strengths, Weaknesses, Opportunities, & Threats

THM – Tihalomethanes

TT – Treatment Technique

UST – Underground Storage Tank

WQIP – Water Quality Improvement Project

Introduction

This Drinking Water Source Protection Program (DWSP2) Plan was prepared by the Hudson Valley Regional Council to protect the local source water for the Village of New Paltz using the DWSP2 Framework. It was completed in August 2023. The plan evaluates this community water supply, including surface sources (the reservoirs owned by the Village of New Paltz at 194 Mountain Rest Road in the Town of New Paltz) and the ground sources (two wells that have been drilled for potential use by the Village at the Moriello Park in the Village at 32 Mulberry Street).

The Public Water System (PWS) name for the source is New Paltz (Village) Water District, ID NY5503379. The reservoirs on Mountain Rest Road were developed to supply New Paltz with drinking water and to supplement the system's reliance upon water from the New York City Department of Environmental Protection's (NYC DEP) water supply, in the mid-20th Century.

New Paltz's municipal water system serves Village residents and many others across our region. The Village of New Paltz population is 8,323, according to the July 2022 Census estimate, with 1,127 water meter connections for homes and businesses. The Town of New Paltz water districts serve a portion of the residential and commercial properties outside the Village boundaries through 270 metered connections. New Paltz Central's K-12 school district (1,811 students as of the 2021-22 school year) encompasses all or parts of eight municipalities, including the Town and Village of New Paltz and Towns of Gardiner, Esopus, Rochester, Rosendale, Lloyd, and Plattekill. Municipal water is used at New Paltz High School, Duzine Elementary, and New Paltz Middle School. But all four K-12 school buildings, including Lenape Elementary, depend on municipal water since they each rely on New Paltz Middle School's central kitchen for food preparation. SUNY New Paltz is the region's only public residential university, and it uses New Paltz's municipal water exclusively in all of its academic and residential buildings, as well as for irrigation. Its total enrollment is approximately 8,000.

In preparing this plan, the Village of New Paltz utilized its previous Source Water Assessment Program (SWAP) Plan undertaken for the Village. In addition, the Village of New Paltz worked with the Hudson Valley Regional Council and its technical assistance team, including LaBella Engineering, formerly Chazen Engineering, and Fairweather Consulting, to get the most out of their source water protection efforts. The development of the DWSP2 Plan was approximately a 1-year process and implementation of the DWSP2 Plan began in October 2022, with completion of a berm near Reservoir 4.

This plan was assembled based upon the New York State DWSP2 Framework released in December 2019. The planning process followed the steps outlined in that Framework:

- Form a Stakeholder Group
- Establish Goals and Formulate a Vision
- Develop an Overview of the Water System
- Prepare a Drinking Water Source Protection Map
- Create a Potential Contaminant Source Inventory
- Identify Protection and Management Methods
- Develop an Implementation Timeline
- Designate a Plan Management Team

This planning document provides a summary of the results of each of these steps.

Climate Smart Principles in the Planning Process

This plan has been assembled in the context of the Village of New Paltz as a New York State Climate Smart Communities Bronze Certified community, advancing plans to diversify its source waters to address variable water supply conditions anticipated as our climate changes. Specifically, the Village recently completed a review of its own reservoirs in light of changing rainfall patterns. They determined that the addition of flashboards and the potential expansion of Reservoir 3 could retain the anticipated greater stormwater flows which would help the Village get through dry periods between anticipated greater volume storm events.

The DWSP2 watershed plan for the reservoir watersheds will ensure protection of these source water improvements. The Village is evaluating when to act on the flashboard and reservoir capacity expansion recommendations. In addition, to be less dependent on stormwater runoff into surface reservoirs, the Village is shifting a share of its source water supplies to groundwater by drilling wells at the Mountain Rest Road property and at the Moriello Park property. These wells and their recharge areas are addressed in the DWSP2 plan.

Groundwater supplies are considered more stable than surface water sources during the extended dry periods predicted by climate models. Finally, the Village intends to maintain its historic customer relationship with NYC DEP by purchasing any additional water required from the NYC reservoir network, ensuring capacity to meet the Village's peak water demands. Collectively, the Village's use of its own new groundwater wells, its own four reservoirs on Mountain Rest Road, and NYC DEP water purchases is expected to assure New Paltz residents a flexible and resilient source water strategy responsive to climate change.

Stakeholder Group

1.1 Form a Stakeholder Group

A stakeholder group was formed for this effort and consists of people from varying backgrounds and perspectives. In consultation with the Hudson Valley Regional Council, the Mayor and Village Board reviewed a list of groups from which to seek representation, including: the business community; the agricultural community; those of diverse ages; a science educator; among others. The stakeholders selected and willing to participate fall into some of these categories provided. A full list of Stakeholder group members and their affiliations can be found in Table 1-1. During the December 2021 meeting, stakeholders Brandon Bera and Ted Nitza were nominated as co-chairs to lead the stakeholders on project guidance and reaching objectives within the DWSP2 timeline.

A planning group met monthly in between stakeholder group meetings and included the co-chairs, Hudson Valley Regional Council project coordinator Chana Friedenberg, Clerk to the Village Board Ariana Basco and others to ensure targets were met and the group was prepared for subsequent stakeholder group meetings. The planning group also visited the water treatment facility on Mountain Rest Road for direct observation of the system in operation. In addition, Chana Friedenberg made a public presentation via Zoom to a joint meeting of the Village and Town boards in March to fill in the public on our project and progress.

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Table 1.1: Stakeholder Group Names and Affiliations	
<u>Name</u>	<u>Affiliation</u>
Brandon Bera	SUNY New Paltz, Chemistry Department
Nathan Ganio	Business Owner & Resident
Ted Nitza	Town Representative
Fiona Bohan	Village Resident
Anabel Evans	New Paltz High School Student
Emma Hines	SUNY New Paltz Student
John Lawlor	Village Department of Public Works
William Wheeler-Murray	Village Trustee
Timothy Rose	Ulster County Department of Health
Marie Wachol	Town Resident
Alex Wojcik	Village Trustee
Tim Rogers	Village Mayor
Johnathan Kolb	Village Resident, Environmental Policy Board Member
Table 1.1A: Meeting Dates and Summary of Topics Covered at Stakeholder Meetings	
<u>Date</u>	<u>Topic(s) Covered</u>
9/10/2020	Project overview, background information on Village water system
10/8/2020	Introduction to Strengths, Weaknesses, Opportunities, & Threats mapping; presentation of source map drafts
11/12/2020	Presentation of watershed threat maps
12/14/2020	Completed SWOT, Goals & Vision, nominated co-chairs
1/14/2021	Revised Goals & Vision, Introduction to Protection & Management methods
2/8/2021	Reviewed potential contaminant sources inventory, started discussing protection methods
3/11/2021	In-depth discussion on protection methods, political will, continued stakeholder outreach
4/8/2021	Reviewed more protection methods and potential contaminant sources
5/13/2021	Discussed vulnerability of one of the reservoirs to potential contamination, the existence of a gas station within the critical area for well region, and possible zoning updates
6/10/2021	Introduced step 4 to the stakeholder group, updated maps, considered security in the publication of the plan, grant possibilities
7/8/2021	Updated stakeholder group on new findings after visit to reservoirs, reprioritized protection methods, brainstormed potential plan management team members
8/12/2021	Review of Plan Contents and Implementation Process.

1.2 Establishing Goals and Formulating a Vision

The stakeholder group met to establish goals and formulate a vision. It was established that the strongest motivations for creating this DWSP2 Plan were protecting existing sources of drinking water, expanding drinking water source capacity, and preventing increases in costs pertaining to development, protection, and quantity. With these in mind, four goals were outlined for the Village of New Paltz’s DWSP2 Plan and these can be found in Table 1.2 below. The overall vision statement for the Village of New Paltz’s DWSP2 is also found in Table 1.2.

Table 1.2: Vision & Goals for the Village of New Paltz’s Drinking Water Source Protection Plan
PLAN VISION:
It is our vision to make the Village of New Paltz a more resilient and sustainable community by providing clarity regarding issues and opportunities involved in water source protection in ways that: 1) minimizes risks of disruption of water sources; 2) provides effective protection of water sources with minimal unexpected disruptions or delays in evaluating development projects.
PLAN GOALS:
Maximize the diversity of water sources
Minimize the capital construction costs required to protect water sources
Improve the ability of the community to operate the water system so that it minimizes the burden placed on water sources
Become a more resilient and sustainable community

Drinking Water Source Assessment

2.1 Water System Overview

An overview of the water system was prepared in consultation with the Village of New Paltz and can be found in Table 2.1. This overview was completed on August 27, 2021 and should be re-evaluated every five years, as the plan itself is updated.

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Table 2.1: Overview of the Water System	
Water system name:	New Paltz (Village) Water District
NYS PWS ID:	NY5503379
Type of water system:	Community
Name of the communities served by the system:	Village of New Paltz, Town of New Paltz Water Districts & SUNY New Paltz
Population served by the system:	Village of New Paltz: 8,323 (July 2022 Census) SUNY New Paltz: 7,757 (Total Enrollment, Fall 2019 Data) SUNY New Paltz Faculty: 667 (full time & part time) Town of New Paltz with 270 metered connections: approximately 400-500 people New Paltz Central School District: 1,811 (2021-2022 school year)
Number of service connections:	Village: 1127, Town: 270, SUNY New Paltz: 53
Summary of wells, intakes, infiltration galleries, and/or springs including name, depth, screen length and pumping rates where applicable:	<p>The Town of New Paltz owns 61.1 acres under long-term lease to the Village, on which there are 4 small “run of stream” reservoirs. Municipal ownership includes more than 300 feet around Reservoirs 1, 2, and 3. At 1.5 acres, Reservoir 4 is the largest reservoir.</p> <p>The Village of New Paltz has drilled and set 6 groundwater wells that will offset the cost of buying NYC DEP water. Historically, the village purchases 60% of the water produced from NYC DEP, the other 40% comes from upland surface water reservoirs on the water treatment plant property.</p>
General treatment information:	The Village of New Paltz water treatment plant is currently using a new microfiltration system with chlorine disinfection that went online in the spring of 2020.
Summary of hydrogeographic setting of drinking water sources including watershed information and/or type of aquifer and aquifer materials	See Table 2.2.

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<p>Water quality summary including any known ambient water quality information, finished water detections, and/or history of maximum contaminant level (MCL) violations:</p>	<p>The assessment area for this drinking water source contains no discrete potential contaminant sources and none of the land cover contaminant prevalence ratings are above 'low'. However, the high mobility of microbial contaminants in reservoirs results in this drinking water intake having 'medium-high' susceptibility ratings for protozoa and enteric bacteria and viruses. Furthermore, some reservoirs are highly susceptible to water quality problems caused by phosphorus additions. Note this is an auxiliary source and is both filtered and disinfected to ensure that the finished water meets New York State's drinking water standards for microbial contamination.</p> <p>See Table 2.1A for the results of the 2021 Water Quality assessment for the Village of New Paltz.</p>		
<p>Water quantity summary:</p>	<p>Current Water Withdrawal Permit Expiration Date(s)</p>	<p>07/04/2033</p>	
	<p>Total Permitted Water Withdrawal Capacity</p>	<p>0.443</p>	<p>MGD</p>
	<p>Average Daily Water Demand</p>	<p>0.712</p>	<p>MGD</p>
	<p>Maximum Daily Water Demand (Unofficial 3-day average in 2020 peak month: January)</p>	<p>0.780</p>	<p>MGD</p>
	<p>Daily Water Losses</p>	<p>213,568</p>	<p>gal</p>

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Table 2.1A: Detected Contaminants in Village of New Paltz Water							
Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg/Max) (Range)	Unit Measure -ment	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Inorganic Contaminants							
Copper	No	2020	.2* Range .001 - .00573- 1.56	mg/l	1.3	1.3	Corrosion of galvanized pipes; erosion of natural deposits
Lead	No	2020	0.0023** Range .001-.0438	mg/l	1.5	AL- 1.5	Corrosion of household plumbing systems; Erosion of natural deposits
Barium	No	12/28/20	.0150	mg/l	2	2	Erosion of natural deposits
Toluene	No	2/6/20	.7	ug/L	n/a	5	Leaks from gasoline tanks; Discharge from petroleum factories. Leaching of solvent from lining of potable water tanks.
o-Xylene	No	2/10/20	.50	ug/L	n/a	5	Leaks from gasoline tanks; Discharge from petroleum factories. Leaching of solvent from lining of potable water tanks.
Ethylbenzene	No	3/9/20	2.31	ug/L	n/a	5	Discharge from petroleum refineries; Leaks from gasoline tanks.
Disinfection Byproducts							
THM	No	3/3/21 3/10/21 5/19/21 5/19/21 8/10/21 8/11/21 9/22/21 9/22/21 9/22/21 10/26/21 10/26/21 12/08/21 12/08/21 Range Annual AVG	25.0 24.8 65.6 63.4 129.3 84.5 24.0 <0.5 42.6 50.5 69.2 31.3 25.5 0.5-129.3 50.93	ug/l	N/A	80	By-product of drinking water chlorination
HAA5	No	3-3/21 3/10/21 5/19/21 5/19/21 8/10/21 8/11/21	17.6 24 76 76 108.8 102.4	ug/l	N/a	60	By-product of drinking water chlorination

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		9/22/21	54				
		9/22/21	<1.0				
		9/22/21	43.0				
		10/26/21	39.0				
		10/26/21	27.5				
		12/8/21	27.0				
		12/08/21	22.5				
		Range	1.0-108.8				
		Annual AVG	44.92				
Microbiological Contaminants							
Turbidity	No	1/16	.29(1)	NTU	N/a	TT=<5NTU	Soil Runoff
Turbidity	No	6/16	100%	NTU	N/a	TT=95% of samples <0.5 NTU	Soil Runoff
Total Organic Carbon	No	2021 Influent Entry Point	Range- <u>1.4 thru 3.11</u> Range- 1.32 thru 2.74	mg/l	N/A	TT	Naturally present in the environment.
Synthetic Organic Contaminants including Pesticides and Herbicides							
Perfluorooctanoic Acid (PFOS)	No	1/5/2021	Aqueduct - 0.772 Pond 1 - 1.35	ng/l	n/a	10	Released into the environment from widespread use in commercial and industrial applications.
PFHxS	No	1/5/2021	Pond 1 - 0.752 Pond 2 - 0.796	ng/l	n/a	10	Released into the environment from widespread use in commercial and industrial applications.
Perfluorooctanoic Acid (PFOS)	No	5/18/2021	Pond 1 - 1.39 Pond 2 - 2.32	ng/l	n/a	10	Released into the environment from widespread use in commercial and industrial applications.
Bis(2-ethylhexyl) phthalate	No	3/17/21	0.597	ug/l	0.571	6	Used in plastic products such as polyvinyl chloride, plastic toys, vinyl upholstery, adhesives and coatings. Compounds likely to be released to the environment during production and waste disposal of these products. Also used in inks, pesticides, cosmetics and vacuum pump oil.
<p>Source: Annual Drinking Water Quality Report for 2021 Village of New Paltz Water</p> <p>*The level presented represents the 90th percentile of the 20 sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the copper values detected at your water system. In this case, 20 samples were collected at your water system and the 90th percentile value was .372 mg/l. The action level for copper was not exceeded at any of the sites tested.</p> <p>**The level presented represents the 90th percentile of the 20 samples collected, which was .006 mg/l. The action level for lead was not exceeded at any of the sites tested.</p>							

2.2 Drinking Water Source Protection Map

Source water for the Village of New Paltz system comes from surface water reservoirs and groundwater wells at the following locations:

- **Mountain Rest Road Property**
 - Reservoir 1
 - Reservoir 2
 - Reservoir 3
 - Reservoir 4
 - Well 1
 - Well 5
 - Well 6
 - Well 7
- **Moriello Park Property**
 - Well 2
 - Well 3

The numbering of the wells here is not sequential across the properties as the wells were numbered based on drilling locations. Only some of those drilling locations were successful and became wells, others (like location 4 at Mountain Rest Road and location 1 at Moriello Park) were not.

See Appendix B for attached Figures A, B, C, and D for the Critical and Source Water area maps for the two watershed areas, Moriello Park and Mountain Rest Road:

- **Figure A: Moriello Park Drinking Water Source Map**
- **Figure B: Moriello Park Drinking Water Source Land Use Map**
- **Figure C: Mountain Rest Road Drinking Water Source Map**
- **Figure D: Mountain Rest Road Drinking Water Source Land Use Map**

The maps were created in ArcGIS by LaBella Engineering, formerly Chazen Engineering. LaBella also provided the hydrogeological analyses throughout the section and in Table 2.2.

The map in Figure A shows the location of two groundwater wells that the Village of New Paltz has drilled on the Moriello Park property it owns within the Village. The ROI around these wells determined from pumping test records form the basis for the immediate wellfield contribution area. The full watershed upgradient of the ROI of the wells is then delimited in light blue. General directions of groundwater migration through the watershed and toward the wells (as identified through LaBella's analysis) are indicated by blue arrows.

Note that almost all the groundwater in the watershed migrates through and under the protected forestland of the Millbrook Preserve before continuing west to under the wellhead area. The travel time of groundwater through most of the watershed, eventually migrating to the wellheads, is relatively leisurely, providing ample time, in most cases, to address any contamination threats which might arise within watershed areas along the Interstate highway, the community's commercial corridor, or most of residential areas in the watershed before they might reach the well heads. Consequentially, only an area

immediately east of the well heads (delimited in orange in Figure A) does not pass under the Millbrook Preserve, and likely has travel times of 5 years or less during which groundwater migrates directly toward the wellfield. This area was identified as the Critical Area for special focus or concern for the Moriello Park planning process. Only within the Critical Area do groundwater contamination events pose a much more immediate threat to the wells.

The map in Figure C shows the four reservoirs and wells owned and maintained by the Village of New Paltz on Mountain Rest Road in the Town of New Paltz. It includes the radii of influence (ROI) for the wells at maximum permitted withdrawal rates (delimited in orange) and the combined contribution recharge areas for all the wells and the watersheds for Reservoir 4 (delimited in a deep pink) and the watershed for reservoirs 1, 2 and 3 (delimited in green). The well ROI were determined from pumping test data.

These areas (i.e., the combined wellfield recharge areas and reservoir watersheds) were identified as the focus for watershed protection efforts for the reservoirs and wells on site. Because of the fast-flowing stream travel time to the reservoirs, the entire reservoir watershed was included in the Critical Area. Focusing on combined watershed areas enabled the planning process to concentrate on threats or disturbances that are most likely to have an immediate and/or substantial impact on the quality and quantity of the drinking water available from the Mountain Rest Road property.

The stakeholder groups also reviewed land use in the vicinity of the water sources. A land use map of the Moriello Park site is provided in Figure B and a land use map for the Mountain Rest Road site is provided in Figure D.

Table 2.2: Hydrogeographic Setting		
Protection Areas	Description	Delineation Method
Ownership and Control Area (for groundwater) and Control and Monitoring Area (for surface water)	<p>Reservoir Site: The Town of New Paltz owns 61.1 acres under long-term lease to the Village, on which there are 4 small “run of stream” reservoirs and 3 wells. Municipal ownership includes 200 feet around each well and more than 300 feet around Reservoirs 1, 2, and 3. At 1.5 acres, Reservoir 4 is the largest reservoir; it approaches within 50 feet of a County Road (Mountain Rest Road). A fourth well is on a 2.4 acre parcel abutting the Town parcel with 200 foot ownership around the well.</p> <p>Moriello Park: The Town and Village of New Paltz collectively own the 12.78 acre Moriello Park. The Town owns an additional 2 acres abutting the Park to the north. The Moriello Park wells lie near this common property line on Park property. 200 feet of municipal/park ownership is assured around each well.</p>	Parcel Boundaries

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Protection Areas	Description	Delineation Method
Critical Area	<p>Reservoir Site: The reservoirs are situated on a rising ridgeline with a 0.34 square mile watershed flowing to Reservoirs 1, 2 and 3 (220 acres approx.) and a 0.27 square mile watershed flowing to Reservoir 4 (175 acres approx.). The combined watersheds in their entireties are considered critical areas. The recharge areas for the 4 wells fall largely within the same acreage so separate calculation of wellfield critical areas is unnecessary.</p> <p>Moriello Park: The two wells draw water from bedrock fractures. The Critical area consists of the 1,000 foot radius (Radius of Influence, ROI) determined around the wells and the topographic recharge areas east of this ROI within a travel time reasonably estimated to be less than 5 years.</p>	Other
Source Water Area	<p>Reservoir Site: Same as Critical Area, see above.</p> <p>Moriello Park: Balance of ROI watershed flowing toward Moriello Park. Method: Pour-point analysis.</p>	Other

2.3 Potential Contaminant Source Inventory

A potential contaminant source inventory was prepared by the stakeholder group in consultation with LaBella and can be found in Table 2.3 below.

In the Mountain Rest Road watershed, the highest potential contaminant risk is a roadway spill north and east of the reservoirs. The surface topography indicates that such a spill would move directly through the watersheds toward either Reservoirs 1-3, or Reservoir 4, depending on where the spill were to occur. The Village Department of Public Works has indicated that through a combination of earthworks and valving, any spills from the road, or the culverts running under it, immediately uphill of Reservoir 4 are already diverted around the reservoir. Specifically, this diversion captures stormwater from the first culvert under Mountain Rest Road located uphill from the reservoir gate, but not the next culverts up the road. As indicated by the Department of Public Works, its' system prevents surface water from the nearest stretch of Mountain Rest Road from entering the reservoirs, reducing the threat of both road de-icing contamination as well any chemical or petroleum spill which might occur on the portion of the road immediately uphill of the gate near Reservoir 4.

There was stakeholder agreement that two road-related potential contaminant sources remain for the reservoirs. First, the road passes less than 100 feet from Reservoir 4 but lacks grading or other barriers to a contaminant directly entering Reservoir 4. Secondly, de-icing chemicals or a road-based chemical or petroleum accident further up Mountain Rest Road could result in contaminants flowing down the

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watershed into Reservoir 4 or Reservoirs 1-3. This will be addressed in the following section, Identify Protection and Implementation Strategies.

Another potential contaminant source is a golf course in the watershed of Reservoirs 1-3. This is identified as the Smiley Brothers, Inc. Golf Course. There are also a few domestic septic systems associated with low-density residential development in the Reservoir 4 watershed. Finally, there are sources of potential contamination from limited other land uses. In each case, further examination indicated they posed little threat, particularly given the fact that, despite these potential contaminants being in place for decades, little evidence of associated contamination has appeared in water quality tests for the reservoirs.

The Village maintains a police pistol range near Reservoir 2. The stakeholder team discussed concerns raised about lead contamination from spent ammunition associated with the practice shooting range use by the New Paltz Police Department. Water quality samples have not identified any contamination from this long-standing activity, which occurs typically not more than once a month and for which berms separate the target practice area from the reservoirs, limiting potential contaminants from entering the reservoir. Therefore, this further investigation suggested the shooting range, the golf course, and the limited residential dwellings only indicate minor threats.

In the Moriello Park watershed, potential contaminants include road salt, residential septic systems, chemicals associated with a gasoline filling station, and chemical bulk storage associated with operation of the Moriello Park community pool. Each potential source, or source category, was discussed in detail by the committee. As was the case with the Mountain Rest Road sources, testing of the Moriello Park wells show no evidence of danger from the identified potential contaminants even though they are associated with activities of long standing in the watershed and critical area. Thus, they currently pose low risks to the water supply in question.

The stakeholder team has determined that the overall risk of contamination to the Mountain Rest watershed and the Moriello Park watershed is low. However, there is still risk of contamination. The identified potential contaminants and their prioritization related to both the Mountain Rest Road reservoirs and wells and Moriello Park wells are addressed in the Identify Protection and Implementation Strategies section.

Table 2.3: Potential Contaminant Source Inventory			
Potential Source	Contaminant(s) of Concern	Protection Area(s) Impacted	Relevant Information
Mountain Rest Road Property			
Road Spill	Fuel, Cargo	Reservoir Critical Area. Main roads shown on Land Use Map.	Reservoir 4 is most vulnerable in the area below the existing system for stormwater diversion (immediately adjacent to Reservoir 4). Reservoirs 1-3 are vulnerable to spills further to the north of Mountain Rest Road.
Road Salt	Salt (NaCl), other deicing chemicals	Reservoir Critical Areas for both Reservoir 3 and 4.	Routine Village water treatment plant sampling data from the Reservoirs suggest current best practices are not leading to salt overages. Main roads shown on Land Use Map.

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Potential Source	Contaminant(s) of Concern	Protection Area(s) Impacted	Relevant Information
Mountain Rest Road Property			
Golf Course	Pesticides, Herbicides, other lawn and garden chemicals	Golf course is up watershed from Reservoirs 1, 2 and 3.	Routine Village water treatment plant sampling has not identified pesticides or herbicides so existing practices appear acceptable. Golf course shown on Land Use Map.
Septic	Fecal Bacteria	Reservoir critical area.	Low hazard since existing treatment includes disinfection for coliform and net septic density is low. Parcels with septic systems are shown on Land Use Map.
On-site fuel storage at the Water Treatment Plant	Fuel Oil Storage, Generator Fuel (Diesel) Storage	Reservoir 4.	An underground heating oil tank has been replaced with an above ground storage tank with appropriate secondary containments.
On-site chemical bulk storage at the Water Treatment Plant	Production Chemical Bulk Storage: Chlorine, sodium hydroxide, sodium thiosulfate, citric acid, poly aluminum chloride, [toxic sludge waste generated onsite]	Reservoir Critical Area.	Routine water treatment plant sampling shows no impact. Water treatment plant chemicals are stored in secondary containment.
Residential Land Uses	Pesticides, Herbicides, other lawn and garden chemicals	Reservoir 4.	Water treatment plant samples identified no adverse impact.
Police shooting range	Lead, and Reservoir well 5 wellhead damage	Reservoir site, well 5.	The police shooting range training area lies near Reservoir 2 and Well 5. Lead has not been detected in drinking water samples and site use is not shared with other police departments. Berms separate the target area from the Reservoirs. Physical protection of wellhead will be done through maintenance of the property. Location not listed on map for privacy.

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

Potential Source	Contaminant(s) of Concern	Protection Area(s) Impacted	Relevant Information
Moriello Park Property			
Road Salt	Salt (NaCl)	Moriello Ownership, control area, and full watershed.	Snow cleared from village properties is stored in Moriello Park and can contribute to salt in watershed. Water quality samples from the wells indicate current practices are not contaminating the wells. Main roads listed on Land Use Map.
Gas Station	Gasoline	Moriello wellfield critical area.	Water treatment plant samples show no adverse impacts and chemicals are listed and regulated. The nearest gas station is scheduled to be relocated. Locations listed on Water Source Map.
Septic	Fecal Bacteria	Moriello Critical Area.	Low hazard since existing treatment includes disinfection for coliform, moderate septic density.
Residential Land Uses	Pesticides, Herbicides, other lawn and garden chemicals	Moriello Critical Area.	Water treatment plant samples identified no adverse impact.
Chemical Bulk Storage	Chlorine at the municipal pool	Moriello Critical Area.	Chemicals are listed, regulated, and stored securely.

Protection and Implementation Strategies

3.1 Protection and Management Methods

The stakeholder group has assembled a variety of protection strategies to address the potential contaminants defined in section 2.3. Given the overall low level of threat posed by the potential contaminants, the primary focus of this effort was to maintain or minimize the current level of risk through effective planning and training of the public, emergency responders, and staff. Some specific preventative measures and/or actions were also identified.

For the Mountain Rest Road watershed, a major focus is on minimizing the risk of contamination by a chemical spill on Mountain Rest Road. Protection strategies include: emergency spill response planning for the site, providing documentation and training to staff operating the water system on how to limit contamination by diverting spills, reviewing existing berms and drainage on the site to ensure that they are capable of diverting spills, and working with the County to review guard rails and grading on Mountain Rest Road to minimize the risk of accidents that could lead to spills. Recommendations also include

conducting regular site maintenance of the New Paltz Police pistol range to ensure that lead and other heavy metals from accumulated bullets are not entering the reservoir system.

For the Moriello Park watershed, it is recommended that ongoing monitoring of the salt (NaCl) concentrations in the groundwater continues. This will allow response to any change in sodium or chloride concentrations in the groundwater that may be attributed to road salt.

For both watersheds, it is recommended that the Village and Town consider a public education program, making users of the watersheds aware of their proximity to a drinking water source while maintaining location privacy necessary for security. The public education program will inform users of best management practices to maintain water quality. Upon reviewing the zoning for both Moriello Park and Mountain Rest Road properties, no further regulatory approaches appear to be required as the areas are sufficiently protected under current zoning.

A full list of recommendations is found in Table 3.1.

3.2 Develop an Implementation Timeline

Section B in the combined Table 3.1 & 3.2 contains a timeline for each identified protection and/or management method, along with a timeline for each of the identified strategies. For each initiative, a project leader and/or partners are identified. The initiatives are also phased in over a three-year time period, with some initiatives beginning immediately and others phased in over the first three years following adoption of the plan.

The Plan Management Team was tasked with developing an outline with specific tasks to ensure implementation. This outline is reflected in the Project Profiles section.

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

3.1: Protection and Management Methods & 3.2: Implementation Steps								
Priority Issue	Priority Level	A. Recommended Protection & Management Methods				B. Implementation Steps		
		Targeted Potential Contaminant Source(s)	Goal	Protection Method and/or Management Method	Potential Cost	Potential Funding Sources	Project Leader and Partnerships Needed	Time to Completion
Mountain Rest Road Property								
1. Staff awareness of connections among reservoirs in order to limit contamination during an incident	High	Contamination to the reservoirs should spill infiltrate system and move from an upper reservoir to another and then into the water plant	Increase preparedness for a potential emergency contamination	Documented emergency protocols for water treatment plant and processes for bypassing reservoirs as necessary.	\$ 5,000	In-house (Village) and volunteer assistance	Village Board	Less than 1 year for planning and then ongoing training
2. Potential Contaminant Spill	Medium	Spills that enter the reservoirs	Impact mitigation and rapid cleanup	Spill response plan	\$ 5,000 planning; \$ 10,000 implementation	Municipal and County	Village Board, and Town Board	Within 5 years with ongoing training
3. Quality of Water from Smiley Brothers, Inc. Golf Course Entering Reservoirs 1, 2, 3	High	Surface water runoff from golf course toward Reservoirs 1-3, at Mohonk Mountain House	Minimize risk of potential contamination of reservoirs from golf course runoff	Continue periodic sampling; periodic coordination with Smiley Brothers Inc. as needed	\$ 1,000	In-house (Village)	Smiley Brothers Inc., and Village Board	Less than 1 year for initial planning and then ongoing

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

Priority Issue	Priority Level	A. Recommended Protection & Management Methods				B. Implementation Steps		
		Targeted Potential Contaminant Source(s)	Goal	Protection Method and/or Management Method	Potential Cost	Potential Funding Sources	Project Leader and Partnerships Needed	Time to Completion
Mountain Rest Road Property								
4. Road Chemical / Gasoline Spill at the margins of Reservoir 4 along Mountain Rest Road	High	Hazardous materials, gasoline and other contaminants that could result from a spill on County Route 6 near the Reservoirs.	Bypass and redirect spill immediately adjacent to reservoir 4 (below the gate)	Berms and drainage corrections	\$ 25,000	Done in-kind by village DPW; excavator purchased for project	Village DPW	Berm Completed in approx. 1 year
5. Road Chemical / Gasoline Spill West of the Former Ski Lodge	Medium	Hazardous materials, gasoline and other contaminants that could result from a spill higher up the road along County Route 6 with potential flows into Reservoirs.	Limit contaminant spills into streams feeding the reservoirs	Coordination with County on speed limits, guard rails, grading, berming and other measures to reduce risk of spills.	\$ 20,000	County	Village Board, Town Board, and County DOT	Approx. 1 year for planning then within 5 years
6. Municipal Pistol Range	Low	Heavy metals from accumulated bullets entering groundwater and stormwater runoff	Prevent dissolved lead contamination in water supply	Regular site maintenance to remove spent bullets; regular monitoring to ensure low-intensity use of site	\$ 2,000	Police Department	Town Board and Village Board	Approx. 1 year for planning then ongoing training and maintenance

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

Priority Issue	Priority Level	A. Recommended Protection & Management Methods				B. Implementation Steps		
		Targeted Potential Contaminant Source(s)	Goal	Protection Method and/or Management Method	Potential Cost	Potential Funding Sources	Project Leader and Partnerships Needed	Time to Completion
Mountain Rest Road Property								
7. Management of Chemicals and Fuel Sources at Water Treatment Plant	High	Fuels and other chemicals used in operating water treatment plant	Prevent contamination of source water	No underground storage tanks along with provision of secondary containment for above ground storage	\$ 2,500	Operational budget	Village Board	Less than 1 year for planning and then ongoing training
8. Public Awareness Leading to Watershed Protection	Medium	Fecal Bacteria, Pesticides, Herbicides, other lawn and garden chemicals, and any unwanted contamination of source water in Reservoir 4 and the Reservoir Critical Area	Clean water	Education for Village & Town; mailings; etc.	\$ 5,000	Hudson River Estuary Program; Hudson River Greenway	Village Board	Approx. 1 year for planning then ongoing
Moriello Park Property								
9. Potential Salt Threats to Water Quality	High	Road Salt	Reduce NaCl concentration in drinking water	Monitor salt in groundwater with consideration to current municipal salt storage practices and road salting practices	\$ 10,000	Village & Town Operations	Municipal Leadership	Within 5 years with ongoing monitoring

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

Priority Issue	Priority Level	A. Recommended Protection & Management Methods				B. Implementation Steps		
		Targeted Potential Contaminant Source(s)	Goal	Protection Method and/or Management Method	Potential Cost	Potential Funding Sources	Project Leader and Partnerships Needed	Time to Completion
Moriello Park Property								
10. Public Awareness Leading to Watershed Protection	Medium	Gasoline, Fecal Bacteria, Pesticides, Herbicides, other lawn and garden chemicals, chlorine at the municipal pool, and any unwanted contamination of source water in the Moriello Park Critical Area	Clean water	Education for Village & Town; Road signage; Mailings; etc.	\$ 5,000	Hudson River Estuary Program; Hudson River Greenway	Mill Brook Preserve Inc.	Approx. 1 year for planning then ongoing

Progression and Maintenance

4.1 Designate a Plan Management Team

The establishment of a Plan Management Team is recommended to guide the implementation of the DWSP2 Plan. The team will meet regularly and document ideas on how to pursue the process of implementation, their progress, and accomplishments, as well as report to HVRC and governing bodies on a semi-annual basis. The Plan Management Team will submit meeting minutes as a progress report to the DEC. A list of recommended Plan Management Team members can be found in Table 4.1. The precise process by which members are placed on the team should be left to each respective jurisdiction (i.e., the Village, the Town and SUNY New Paltz). The plan for Plan Management Team turnover is that the members will be reviewed during Village’s annual reorganization in early June. This may move to January as elections recently moved from Spring to November to be in line with general elections.

Table 4.1: Recommended Composition of Plan Management Team	
Designee from Village Board	Mayor Tim Rogers
Designee from Village Environmental Policy Board & Town Environmental Conservation Board	Ted Nitza
Designee from Town Board	TBD*
Designee from Wallkill River Watershed Alliance	Martha Cheo
Designee from SUNY New Paltz	Brandon Bera
Designee from Water System Operations, DPW	John Lawlor

* We are still seeking out these positions and will update DWSP2 Plan as they come in

It is recommended that the DWSP2 Plan is available as a PDF on the Village website. Based on the findings, it is suggested that the plan be incorporated in the Village Comprehensive Plan and reviewed and updated as that plan is updated, with a recommendation that this take place every five years.

Contact information: Mayor’s Office (845)255-1413

Project Profiles

The project profiles detailed here expand upon Table 3.1 in the report and the data summary for each of the protection and management methods. They address each of the contaminants of concern outlined in Table 2.3 and are meant to be a guide for protection and management methods and implementation timeline and steps. Each project profile outlines the issue and includes the implementation timeline and steps, potential contaminant source, goals and priorities, costs of the project, and potential funding sources and partners.

Each Profile is listed in the order that the Protection and Management Methods appear in Table 3.1, with the exception of priority issues that include contact with the same entities. Those issues were combined for succinctness. Priority Issue 1 and Priority Issue 7 both involve contact with the Water Treatment Plant and were combined into Project Profile 1. Priority Issue 8 and Priority Issue 10 both involve public outreach and education surrounding watershed protection and were combined into Project Profile 7.

The priority level of the Profile is listed as either high, medium, or low. Costs are broken down into low, medium, and high. Low-cost projects are generally under \$2,000 – \$3,000 and may be completed within the Village's budget. Medium (above \$3,000 but under \$10,000) and High-cost projects (above \$10,000) might be best suited for a capital project or grant. The timelines are broken down into short, medium, and long-term projects. Short term projects can be done immediately, medium is within 5 years, and long-term are more than 5 years from now. Some projects are ongoing and listed as such.

Project Profile 1: Water Treatment Plant Operation Communication and Maintenance

TARGETED POTENTIAL CONTAMINANT SOURCE: Chemical Spills that Infiltrate the Reservoir System and Move into the Water Plant, and Management of Fuels and Other Chemicals Used in Operating Water Treatment Plant

Infiltrated Chemical Spills

The interconnection of the reservoir system is beneficial in the transportation of water to the Village. If a contaminant enters one of the reservoirs, without proper and/or rapid response, this contaminant could infiltrate the whole water treatment plant, leaving environmental and health impacts throughout. Ensuring Water Treatment Plant staff are aware of the emergency response protocols to isolate affected reservoirs from the treatment plant will allow them to mitigate the contaminant rapidly and effectively.

Water Treatment Plan Operation Chemicals

Fuels, such as heating oil and diesel, and other chemicals used in operating the water treatment plant pose a threat to the nearby reservoirs. These chemicals include the production chemicals chlorine, sodium hydroxide, sodium thiosulfate, citric acid, poly aluminum chloride, and toxic sludge waste generated onsite. Improper maintenance of hazardous chemicals could lead to an unexpected release of these chemicals into the water supply at the treatment plant.

It is noted that a heating oil underground storage tank (UST) has been replaced with a heating oil aboveground storage tank (AST) with appropriate secondary containments. Maintenance of the AST should be ensured to prevent any spills from entering the reservoir critical area.

GOALS AND PRIORITIES:

- Strengthen partnership between Village of New Paltz and Water Treatment Plant Operator.
- Increase preparedness for a potential emergency contamination incident by increasing staff awareness of the connections between the reservoirs and the water treatment plant.
- Ensure proper management and storage of hazardous chemicals at the Water Treatment Plant
- Reduce risk of contamination to source water and limit the extent of the contamination during an incident.

Priority Level: High

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

- Build staff awareness of connections between water sources, to plan for potential incidents.
- Provide training for water treatment plant employees to ensure emergency protocols and process for bypassing reservoirs is understood.
- Document and label various valves so the purpose they serve is clear.
- Ensure that all ASTs at the Water Treatment Plant are located within a secondary containment tank and that all chemicals at the Water Treatment Plant are stored properly.

POTENTIAL COSTS:

Estimated cost: \$5,000

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

Potential costs include ongoing staff trainer and trainee time; staff time to document and label location and purpose of valves within the plant; training on proper containment and storage of chemicals; updating of the Material Safety Data Sheet, and storage containers; maintenance of ASTs and associated piping; regular inspections of the facility to ensure all chemicals are handled properly and that no spills have occurred; cost of enhanced filtration materials for the Water Treatment Plant as necessary during an emergency.

Cost Classification: Low

POTENTIAL FUNDING SOURCES:

- Internally (Village of New Paltz)
 - Staff time and volunteer assistance.
- Water Treatment Plant operational budget

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Plan Management Team
- Village of New Paltz
- Water Treatment Plant Operator

SUGGESTED TIMELINE:

Short Term: less than 1 year for planning

Ongoing: Communication and training. This includes initial training and at least one annual training. It also includes additional training when roles or responsibilities change and/or when policies or procedures are significantly updated.

POTENTIAL BARRIERS:

- Communication with private entity
- Staff turnover may hamper ongoing training and cause loss of vital knowledge
- Cost of materials
- Remediation costs if needed

IMPLEMENTATION STEPS:

1. Plan Management Team and Village of New Paltz draft and send communication to Water Treatment Plant Operator detailing water quality concerns to strengthen partnerships.
2. Meet with Water Treatment Plant Operator.
3. Review Water Treatment Plant plans and operation information. Gain understanding of current practices around chemical storage, maintenance, and emergency response including reservoir isolation and bypass options.
4. Work with Water Treatment Plant Operator to streamline emergency management protocols in case of an internal or external spill. Ensure Water Treatment Plant is using best management practices for chemical storage.
5. Incorporate new training procedures into internal staff training manual.
6. Water Treatment Plant train staff on emergency protocols at intervals discussed in the ongoing suggested timeline section.
7. Work with Water Treatment Plant to remediate any spills or hazards as needed.
8. Continue to utilize and update the PCS inventory to track chemical storage facilities of concern and maintain communication with Water Treatment Plant.

Project Profile 2: Spill Response Plan

TARGETED POTENTIAL CONTAMINANT SOURCE: Spills that Enter the Reservoirs

Any chemical spill on a roadway near the reservoir system could run off into the water and affect the quality of the Village of New Paltz's drinking water. The most common cause of these spills is motor vehicle accidents. Contaminants such as fuel oil, gasoline, diesel, and other regulated and unregulated materials are identified as a concern. Additionally, an increase in intensity and/or frequency of precipitation events can increase the amount of stormwater runoff coming off the road. This increases the likelihood of a roadway spill reaching the reservoirs.

GOALS AND PRIORITIES:

- Mitigate impact of hazardous spills on reservoir system.
- Prepare for rapid cleanup of hazardous spills.
- Protect the drinking water sources from contaminants of concern.
- Enhance the knowledge of Village employees on the importance of protecting the quality of the reservoirs.

Priority Level: Medium

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

- Identify areas of concern on roadways near the reservoir system.
- Identify potential contaminants of concern.
- Train staff on spill response plan.
- Identify actions that could be taken to mitigate impacts from roadway spills.
- Create comprehensive spill response plan.

POTENTIAL COSTS:

Estimated Costs: \$5,000 for planning, \$10,000 for implementation

Potential costs include staff time for planning and developing the spill response actions, staff trainer, and trainee time for plan implementation.

Cost Classification: Medium

POTENTIAL FUNDING SOURCES:

- Municipal Budget
- County Budget
- NYS DEC Hudson River Estuary Local Stewardship Planning Grant
 - Funds for water quality improvement planning and design and source water protection.

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Village of New Paltz
 - Department of Public Works
 - Fire Department
- Plan Management Team

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

- Ulster County
- NYS DEC

SUGGESTED TIMELINE:

Short Term: approximately 1 year for initial planning

Medium Term: For spill response plan writing from emergency protocols and implementation.

Ongoing: Staff training on emergency protocols. This includes initial training and at least one annual training. It also includes additional training when roles or responsibilities change and/or when policies or procedures are significantly updated.

POTENTIAL BARRIERS:

- Difficulty in planning for every type of spill
- Staff turnover may hamper ongoing training
- Potential efficiency issues in intermunicipal collaboration
- Cost of emergency cleanup supplies
- Lack of specific funding

IMPLEMENTATION STEPS:

1. Plan Management Team to work with Village to plan for scenarios in which a spill occurs on roadways near reservoir and recharge areas.
2. Identify target areas near the reservoir system where a spill is likely to occur.
3. Identify potential contaminants of concern and best practice methods for cleaning a spill.
4. Detail protocols if spill occurs.
5. Train staff on emergency protocols at frequency identified in the ongoing suggested timeline section.
6. Apply for funding.
7. Create Emergency Management Plan using detailed emergency protocols.

Project Profile 3: Ensuring Water Quality Protection from Mohonk Golf Course Areas

TARGETED POTENTIAL CONTAMINANT SOURCE: Surface Water Runoff from Golf Course at Mohonk Mountain House Toward Reservoirs 1-3

Surface water runoff from Mohonk Golf Course, owned by Smiley Brothers Inc., could introduce contaminants into the reservoir system through both surface water runoff and groundwater. Contaminants of most concerns are pesticides and fertilizers, which introduce nitrogen and phosphorus into the reservoir system. The increased nitrogen and phosphorus in the reservoir system can lead to harmful algal blooms, which often produce a toxin that is harmful to health.

It is noted that at the time of this report, Smiley Brothers Inc., does not use fertilizers on their course due to potential water quality concerns. However, continued communication and routine water quality testing at the Water Treatment Plant will enable the Village of New Paltz to stay informed if this were to change.

GOALS AND PRIORITIES:

- Minimize risk of potential contamination of reservoirs from golf course runoff.
- Protect the health of those utilizing the drinking water supply.
- Keep up to date with how runoff from the golf course is affecting the drinking water by performing routine water quality monitoring at the Water Treatment Plant.

Priority Level: High

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

- Maintain a good working relationship with Smiley Brothers Inc.
- Periodic coordination with Smiley Brothers Inc. as needed.
- Continue routine source water monitoring at Water Treatment Plant in order to track changes in water quality associated with pesticide and fertilizer use at Mohonk Golf Course.

POTENTIAL COSTS:

Estimated Cost: \$1,000

Potential costs include staff time to meet with Mohonk Golf Course staff, gather information, and monitor water quality at the Water Treatment Plant.

Cost Classification: Low

POTENTIAL FUNDING SOURCES:

- Municipal Budget
- Water Quality Improvement Project (WQIP) Program Grant
 - Provides funds projects that directly improve water quality.
- NYS DEC Hudson River Estuary Local Stewardship Planning Grant
 - Provides funds for water quality improvement planning and design and source water protection.

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Plan Management Team
- Smiley Brothers Inc.
- Village of New Paltz
- Water Treatment Plant
- NYS DEC

SUGGESTED TIMELINE:

Short Term: approximately 1 year for planning and initial communication with Smiley Brothers Inc.

Ongoing: Routine water quality monitoring to manage changes in nitrogen and phosphorus and continued communication with Smiley Brothers Inc.

POTENTIAL BARRIERS:

- Communication with private entity
- Inability to access/regulate private land

IMPLEMENTATION STEPS:

1. Maintain relationships with Smiley Brothers Inc. Emphasize importance of relationship with Village and Plan Management Team and effects on drinking water quality.
2. Request information on current maintenance practices at Mohonk Golf Course.
3. Communicate annually via letter or email that expresses the importance of the use of best management practices at golf course due to potential impacts to source water shed. Reach out and assist Mohonk Golf Course with understanding best management practices to avoid contamination of reservoirs.
4. Continue routine monitoring of source water quality at Water Treatment Plant to track any changes in nitrogen and/or phosphorus in the water.
5. Apply for funding if needed.
6. Assist in implementation of agreed upon best management practices.

Project Profile 4: Management of Regulated Potential Contaminant Sources within the Critical Area¹

TARGETED POTENTIAL CONTAMINANT SOURCE: Hazardous Materials, Gasoline, and Other Contaminants that Could Result from a Spill on County Route 6 Near the Reservoirs

Mountain Rest Road passes by the margins of Reservoir 4. Contaminants from a Mountain Rest Road chemical spill (i.e. hazardous materials and gasoline) could run directly in Reservoir 4. In addition to runoff from recent spills on the road, intense and/or frequent precipitation events can also wash various types of sediment materials into Reservoir 4 from other nearby sources. The materials cause environmental impacts to vegetation and wildlife in the reservoir's waters as well as increase the need for water treatment before the water can be deemed safe to consume.

GOALS AND PRIORITIES:

- To protect the drinking water in Reservoir 4 from future, potential spills on the adjacent portion of Mountain Rest Road.
- To plan for climate resilience of the water source.

Priority Level: High

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

- Construction and management of a berm to contain and redirect any potential chemical spill immediately adjacent to Reservoir 4 (below the gate) along Mountain Rest Road.

POTENTIAL COSTS:

Estimated cost: \$25,000

Potential costs include effort hours to seek out funding sources, effort hours to apply for funding, effort hours to meet with potential partnerships and subsequent progress meetings, potential site visit assessment costs, potential engineering planning costs, design, and construction, potential maintenance costs.

Cost Classification: High

POTENTIAL FUNDING SOURCES:

- Internal (Village of New Paltz)
 - Staff time to design and create berm.
- Water Quality Improvement Project (WQIP) Program Grant
 - Provides funds projects that directly improve water quality. Nonagricultural nonpoint source abatement and control is a priority for this funding program.
- NYS DEC Hudson River Estuary Local Stewardship Planning Grant
 - Provides funds for water quality improvement planning and design and source water protection.

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Plan Management Team

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- Village of New Paltz DPW
- Ulster County Department of Transportation (DOT)
- NYSDEC

SUGGESTED TIMELINE:

Short Term: This project was completed internally in under 1 year.

POTENTIAL BARRIERS:

- Lack of specific funding
- Berm size to cost ratio (most effective for the least cost)
- Maintenance costs

IMPLEMENTATION STEPS:

Methods to reduce the risk and mitigate the threat include:

1. Review specifics with Village engineering firm, determine if project is possible using village budget/staff time.
2. If so, include in Village budget or as budget amendment.
3. If not, apply for funding for berm construction.
4. Design berm with input from the Village engineering firm and plan management team.
5. Obtain berm materials.
6. Construct berm.

¹ Note that this project was completed with the construction of a berm adjacent to Reservoir 4 in 2022.

Project Profile 5: Transportation-Related Spills into Streams that Feed the Reservoirs

TARGETED POTENTIAL CONTAMINANT SOURCE: Hazardous Materials, Gasoline, and Other Contaminants that Could Result from a Spill North of the Reservoirs Along County Route 6 with Potential Flow into Reservoirs

In addition to contaminants directly entering Reservoir 4 from Mountain Rest Road, contaminant runoff into indirect feeder streams that feed the reservoirs are a concern. Hazardous materials such as gasoline, diesel, and other contaminants may enter nearby streams as a result of a spill from a motor vehicle accident on upper sections of County Route 6/Mountain Rest Rd. These contaminants would then be brought downstream into the reservoirs.

GOALS AND PRIORITIES:

- Establish a good working relationship with Ulster County
- Limit contaminant spills into streams feeding reservoirs
- Reduce contamination of reservoirs
- Protect drinking water quality and the health of those who utilize the drinking water supply

Priority Level: Medium

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

- Maintain communication with Ulster County on importance of road maintenance in watershed.
- Coordination with Ulster County on guard rails, grading, berming, and other measures to reduce risk of motor vehicle accidents and spills.

POTENTIAL COSTS:

Estimated Cost: TBD by Ulster County; approximately \$20,000

Actual cost is dependent on which measures to reduce risk are implemented, however the cost will likely be high, particularly if studies and outside help are needed to install new guard rails. Potential costs include staff time to assess the methods that would result in the most effective risk mitigation; time to create a plan on how to implement the agreed upon method(s); time for coordination between Ulster County, Town of New Paltz and Village of New Paltz; engineer review; any required construction and inspection of implementation measures; ongoing maintenance of any constructed implementation methods; ongoing assessment of implementation methods to assure effectiveness.

Cost Classification: High

POTENTIAL FUNDING SOURCES:

- Ulster County DOT
 - As County Route 6/Mountain Rest Rd is a County road, construction and installation of new guard rails could be a County investment.
- Village of New Paltz
- NYS DEC Hudson River Estuary Local Stewardship Planning Grant

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

- Provides funds for water quality improvement planning and design and source water protection.

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Ulster County DOT
- Village of New Paltz
- Town of New Paltz
- Plan Management Team

SUGGESTED TIMELINE:

Short Term: About 1 year for planning and initial communication with Ulster County and other potential partners.

Medium-term: Implementation of any projects, such as berming and grading along County Route 6, that are the outcome of communication with Ulster County.

POTENTIAL BARRIERS:

- Village does not have jurisdiction over County Road; projects depend on County cooperation.
- Cost of implementation method (guardrails, berms, and grading are costly).
- Intermunicipal coordination.

IMPLEMENTATION STEPS:

1. Reach out to Ulster County to understand current spill mitigation processes and past spills.
2. Continue communication with Ulster County on the importance of proper road maintenance in the watershed.
3. Coordinate best management practices and need for berms, guardrails, etc., as needed with Ulster County if possible.
4. Determine which implementation methods would be most effective.
5. Apply for funding.
6. Work with Ulster County to implement those methods.
7. Utilize and update PCS inventory to track spills and effectiveness of implementation methods.

Project Profile 6: Preventing Contamination in Water Supply from Municipal Pistol Range

TARGETED POTENTIAL CONTAMINANT SOURCE: Heavy Metals from Accumulated Bullets Entering Groundwater and Stormwater Runoff

The municipal pistol range for the New Paltz Police Department is located within the reservoir watershed. No heavy metals including lead have been detected in the Village's drinking water, but as a precaution there is concern that metals from accumulated spent bullets may eventually enter groundwater or stormwater, which partially feeds the reservoir system.

GOALS AND PRIORITIES:

- Prevent dissolved lead and other heavy metal contamination in water supply.
- Enhance the awareness of the Police Department on the potential threat spent ammunition poses on the public health of the community.

Priority Level: Low

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

- Good housekeeping to remove spent bullets.
- Maintain berms that prevent stormwater flow from the shooting range from directly entering reservoirs.
- Regular monitoring to ensure low-intensity use of site.
- Regular communication between the Police Department and the Village of New Paltz.

POTENTIAL COSTS:

Estimated Cost: \$2,000

Potential costs include staff time spent picking up bullets, training time, coordination and communication between the Police Department and the Village of New Paltz, any equipment needed to assist in bullet collection, and bullet disposal. Periodic touch up of the berm around the target area.

Cost Classification: Low

POTENTIAL FUNDING SOURCES:

- Police Department Budget
 - Includes staff time
- NYS DEC Hudson River Estuary Local Stewardship Planning Grant
 - Provides funds for water quality improvement planning and design and source water protection.

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Village of New Paltz Police
- Town of New Paltz
- Plan Management Team
- Water Treatment Plant Operator

SUGGESTED TIMELINE:

Short term: About 1 year for initial planning and communication with Police Department and other potential partners.

Ongoing: Training of staff and maintenance of municipal pistol range. This includes initial training and at least one annual training. It also includes additional training when roles or responsibilities change and/or when policies or procedures are significantly updated.

POTENTIAL BARRIERS:

- Ensuring bullets are removed from site continually and indefinitely with staff turnover.
- Cost of maintenance equipment.
- Efficiency when collaborating with multiple departments.
- Spent ammunition storage and disposal costs.

IMPLEMENTATION STEPS:

1. Reach out to Village Police Department to understand current processes. Confirm that no other agencies or private parties are using this facility.
2. Coordinate on best management practices and need for removal of spent bullets and monitoring to ensure low-intensity use of site.
3. Apply for funding if needed to implement management methods.
4. If authorized, conduct site visits or joint site visits to ensure proper use of site when needed.
5. Continue to test for lead in water at Water Treatment Plant to ensure this remains below regulatory limits.

Project Profile 7: Public Awareness Leading to Watershed Protection

TARGETED POTENTIAL CONTAMINANT SOURCE: Fecal Bacteria, Pesticides, Herbicides, Other Lawn and Garden Chemicals, and Any Unwanted Contamination of Source Water in Both Watershed Critical Areas; Gasoline and Chlorine at the Municipal Pool in the Moriello Park Critical Area

Reservoir and Moriello Park Critical Area:

Septic systems located within the critical areas can potentially introduce fecal bacteria into the water supply if they are not properly maintained. There is moderate septic system density in the Moriello Park wellfield Critical Area. There are very few septic systems in the Mountain Rest Critical area. This is deemed a low hazard since existing water treatment includes disinfection for coliform and the net septic density in the area is low. However, that does not mean it will not be a future concern.

Pesticides, herbicides, and other lawn and garden chemicals from residential land uses within the critical areas could impair New Paltz' drinking water, and in particular, Reservoir 4. Samples were identified and no adverse impact was reported, however, it is important to continue testing to ensure this does not change.

Any contaminant spill in any part of the watershed could eventually end up in the reservoir system or groundwater supply. With increased frequency and/or intensity of precipitation events, increased runoff will bring more contaminants into the system. Chemical storage at nearby residential properties could be a source. Any illegal dumping of chemicals, such as paint, into stormwater drains or septic systems could end up in the reservoir or groundwater system.

Moriello Park Critical Area Specific:

Gasoline spilled and/or leaking from nearby gas stations could negatively impact the groundwater associated with the Moriello Park Property. These gas stations are listed and regulated, and groundwater samples show no adverse impacts to the water. However, it is important to understand and continue to monitor the groundwater in case impacts occur in the future. The nearest gas station is scheduled to be relocated.

There is bulk storage of chlorine at the Moriello Pool, a municipal pool that is located within the Moriello Park Critical Area. The Moriello Pool is listed and regulated, and all chlorine is stored securely. Therefore, this is a low impact hazard.

GOALS AND PRIORITIES:

- Clean water
- Increases public awareness for watershed protection

Priority Level: Medium

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

- Education for Town and Village residents (i.e. road signage, mailings, etc.)

POTENTIAL COSTS:

Estimated Costs: \$5,000

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Potential costs include printing costs, signage, mailings and postage, and staff time spent planning and developing implementation methods.

Cost Classification: Medium

POTENTIAL FUNDING SOURCES:

- NYS DEC Hudson River Estuary Local Stewardship Planning Grant
 - Funds for water quality improvement planning and design and source water protection.
- Hudson River Greenway Community Grant
 - Funds natural resource protection, regional planning, and environmental education.

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Village of New Paltz
- Town of New Paltz
- Plan Management Team
- Local Environmental Groups or Organizations (i.e. Mill Brook Preserve)

SUGGESTED TIMELINE:

Short-term: Approximately 1 year for initial planning and idea identification for educational outreach

Ongoing: Continued engagement with community on the importance of source water protection through informational sessions and outreach events.

POTENTIAL BARRIERS:

- Need to maintain privacy for security reasons of exact well and reservoir locations.
- Balancing privacy with need to prevent unwanted contamination of the water system.
- Not everyone will be receptive to or understanding of the need to protect the watershed.

IMPLEMENTATION STEPS:

1. Plan Management Team meet to identify methods to educate the public on potential contaminant threats (e.g. informational newsletter, public outreach events, etc.).
2. Identify potential collaborators (e.g. local environmental groups or organizations).
3. Apply for funding, if necessary.
4. Develop informational materials that can be distributed to the public via social media, informational mailings, web postings, newspaper postings, public meetings, or workshops.

Project Profile 8: Reducing Potential Salt Threats to Water Quality

TARGETED POTENTIAL CONTAMINANT SOURCE: Road Salt

Current municipal salt storage and road salting practices have the potential to introduce salt (sodium chloride or NaCl) into the watershed at elevated levels. Elevated levels of NaCl in drinking water can be potentially hazardous, particularly to people on low sodium diets. This is of particular concern to the Moriello Park groundwater well system.

GOALS AND PRIORITIES:

- Reduce NaCl concentration in drinking water.
- Protect the public health of those who utilize the drinking water supply.

Priority Level: High

SUMMARY OF PROTECTION AND MANAGEMENT METHODS:

Methods to reduce the risk and mitigate the threat include:

- Monitor salt in groundwater with consideration to current municipal salt storage practices and road salting practices.

POTENTIAL COSTS:

Estimated Cost: \$10,000

Potential costs include staff time for assessment and planning, improved salt storage and maintenance if needed, and staff training to implement any new road salting practices developed.

Cost Classification: Medium

POTENTIAL FUNDING SOURCES:

- Village and Town Operations
- Water Quality Improvement Project (WQIP) Program Grant
 - Funds salt storage improvements to improve water quality.

POTENTIAL PARTNERSHIPS - PEOPLE AND AGENCIES INVOLVED:

- Ulster County DOT
- Village of New Paltz
- Town of New Paltz
- Plan Management Team

SUGGESTED TIMELINE:

Medium-term: Planning for reduced salt loads on roads in the Moriello groundwater recharge area.

Ongoing: Routine monitoring of water quality at Water Treatment Plant for NaCl and continued use of reduced salt loads on roads in recharge areas during winter months.

POTENTIAL BARRIERS:

- Funding for new storage/salting practices.
- Efficiency of intermunicipal cooperation

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IMPLEMENTATION STEPS:

1. Reach out to Department of Public Works (DPW), state, county and local highway departments to establish a relationship, gain information on current salt storage and road salting practices.
2. Identify areas most prone to excessive salt wash-off into streams feeding Reservoirs, or road systems in Village's source Critical Areas.
3. Identify best management practices to help limit saltuses and thereby reduce threats to the drinking water sources.
4. Educate DPW on roadway best management practices.
5. Apply for funding, if needed.
6. Implement best management practices.
7. Continue to utilize and update the PCS inventory to track specific bridges and/or roadways of concern and maintain communication with DPW.

Appendix A: DWSP2 Data Summary

Table 1.1A: Form a Stakeholder Group: This table lists the Stakeholder Group names, contact information and relevant affiliation(s).

1.1A: Form a Stakeholder Group		
<u>Name</u>	<u>Email</u>	<u>Relevant Affiliation(s)</u>
Brandon Bera	brandonbera@gmail.com	SUNY New Paltz, Chemistry Department
Nathan Ganio	nathanganio@gmail.com	Business Owner & Resident
Ted Nitza	ted.nitz83@gmail.com	Town Representative
Fiona Bohan	fiona.t.bohan@gmail.com	Village Resident
Anabel Evans	aeiou7@yahoo.com	NPHS Student
Emma Hines	emmahines2499@gmail.com	SUNY New Paltz Student
John Lawlor	jlawlor@villageofnewpaltz.org	Village DPW
William Wheeler-Murray	wmurray@villageofnewpaltz.org	Village Trustee
Timothy Rose	tiro@co.ulster.ny.us	UC DOH
Marie Wachol	home.home@verizon.net	Town Resident
Alex Wojcik	awojcik@villageofnewpaltz.org	Village Trustee
Tim Rogers	mayor@villageofnewpaltz.org	Village Mayor
Johnathan Kolb	kolbj1@hawkmail.newpaltz.edu	Village Resident, Environmental Policy Board Member

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Table 1.1B: Form a Stakeholder Group: This table lists the meeting dates and summaries of topics covered at stakeholder meetings.

1.1B: Form a Stakeholder Group	
<u>Date</u>	<u>Topic(s) Covered</u>
9/10/2020	Project overview, background information on Village water system
10/8/2020	Introduction to SWOT, presentation of source map drafts
11/12/2020	Presentation of watershed threat maps
12/14/2020	Completed SWOT, Goals & Vision, nominated co-chairs
1/14/2021	Revised Goals & Vision, Introduction to Protection & Management methods
2/8/2021	Reviewed potential contaminant sources inventory, started discussing protection methods
3/11/2021	In-depth discussion on protection methods, political will, continued stakeholder outreach
4/8/2021	Reviewed more protection methods and potential contaminant sources
5/13/2021	Discussed vulnerability of one of the reservoirs to potential contamination, the existence of a gas station within the critical area for well region, and possible zoning updates
6/10/2021	Introduced step 4 to the stakeholder group, updated maps, considered security in the publication of the plan, grant possibilities
7/8/2021	Updated stakeholder group on new findings after visit to reservoirs, reprioritized protection methods, brainstormed potential plan management team members
8/12/2021	Review of Plan Contents and Implementation Process
6/27/2023	Plan Management Team discussed Project Profiles

Table 1.2A: Establish Goals and Formulate a Vision: This table provides New Paltz’s vision for its source water protection plan.

1.2A: Establish Goals and Formulate a Vision	
<u>Vision Statement</u>	
It is our vision to make the Village of New Paltz a more resilient and sustainable community by providing clarity regarding issues and opportunities involved in water source protection in ways that: 1) minimizes risks of disruption of water sources; 2) provides effective protection of water sources with minimal unexpected disruptions or delays in evaluating development projects.	

Table 1.2B: Establish Goals and Formulate a Vision: This table lists New Paltz-specific goals for your source water protection plan below:

1.2B: Establish Goals and Formulate a Vision	
<u>Community-Specific Goals</u>	
Goal	Maximize diversity of sources
Goal	Minimize the capital construction costs required to protect water sources
Goal	Improve the ability of the community to operate the water system so that it minimizes the burden placed on water sources
Goal	Become a more resilient and sustainable community

Table: 2.1: Develop an Overview of the Water System: This table provides an overview of New Paltz’s water system.

2.1: Develop an Overview of the Water System	
Water system name:	New Paltz (Village) Water District
NYS PWS ID:	NY5503379
Type of water system (e.g. community, non-community, transient, non-transient):	Community
Name of the community, or communities, served by the system:	Village of New Paltz, Town of New Paltz Water Districts & Suny New Paltz
Population served by the system:	Village: 8,323 (July 2022 Census) SUNY New Paltz: 7,757 (Total Enrollment; Fall 2019 Data) SUNY New Paltz Faculty: 667 (full time & part time) Town of New Paltz with 270 metered connections: approximately 400-500 people New Paltz Central School District: 1,811 (2021-2022 school year)
# of service connections:	Village: 1127, Town: 270, SUNY New Paltz: 53
Summary of wells, intakes, infiltration galleries, and/or springs including name, depth, screen length and pumping rates where applicable:	The Town of New Paltz owns 61.1 acres under long-term lease to the Village, on which there are 4 small “run of stream” reservoirs. Municipal ownership includes more than 300 feet around Reservoirs 1, 2, and 3. At 1.5 acres, Reservoir 4 is the largest reservoir. The Village of New Paltz has drilled and set 6 groundwater wells that will offset the cost of buying NYC DEP water. Historically, the village purchases 60% of the water produced from NYC DEP, the other 40% comes from upland surface water reservoirs on the water treatment plant property.
General treatment information:	The New Paltz water treatment plant is currently using a new microfiltration system with chlorine disinfection that went online in the spring of 2020.
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):	See Table 2.2 A: Prepare a Drinking Water Source Protection Map
Water quality summary including any known ambient water quality information, finished water detections, and/or history of maximum contaminant level (MCL) violations¹:	The assessment area for this drinking water source contains no discrete potential contaminant sources and none of the land cover contaminant prevalence ratings are above ‘low’. However, the high mobility of microbial contaminants in reservoirs results in this drinking water intake having ‘medium-high’ susceptibility ratings for protozoa and enteric bacteria and viruses. Furthermore, some reservoirs are highly susceptible to water quality problems caused by phosphorus

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	<p>additions. Note this is an auxiliary source and is both filtered and disinfected to ensure that the finished water meets New York State’s drinking water standards for microbial contamination.</p> <p>See Table 2-1A for the results of the 2021 Water Quality assessment for the Village of New Paltz.</p> <p>Link to report: https://drive.google.com/file/d/1cdom5zK0BS-rAYB9cl-I5f8b7iT06LUK/view</p>	
<p>Water quantity summary:</p>	<p>Current Water Withdrawal Permit Expiration Date(s)</p>	<p align="center">7/4/2033</p>
	<p>Total Permitted Water Withdrawal Capacity</p>	<p align="center">0.443 MGD</p>
	<p>Average Daily Water Demand (= Yearly Usage / 365)</p>	<p align="center">0.712 MGD</p>
	<p>Maximum Daily Water Demand (Unofficial 3-day average in peak month – January 2020)</p>	<p align="center">0.780 MGD</p>
	<p>Daily Water Losses (can be obtained from Water Conservation Program form)</p>	<p align="center">213,568 MGD</p>

Table 2.2A: Prepare a Drinking Water Source Protection Map: This table provides a description of the established drinking water source protection areas, including distances and/or time of travel information.

2.2A: Prepare a Drinking Water Source Protection Map		
<u>Protection Areas</u>	<u>Description</u>	<u>Delineation Method</u>
Ownership and Control Area (for groundwater) or Control and Monitoring Area (for surface water)	<p>Reservoir Site: The Town of New Paltz owns 61.1 acres under long-term lease to the Village, on which there are 4 small “run of stream” reservoirs and 3 wells. Municipal ownership includes 200 feet around each well and more than 300 feet around Reservoirs 1, 2, and 3. At 1.5 acres, Reservoir 4 is the largest reservoir; it approaches within 50 feet of a County Road (Mountain Rest Road). A fourth well is on a 2.4-acre parcel abutting the Town parcel with 200-foot ownership around the well.</p> <p>Moriello Park: The Town and Village of New Paltz collectively own the 12.78-acre Moriello Park. The Town owns an additional 2 acres abutting the Park to the north. The Moriello Park wells lie near this common property line on Park property. 200 feet of municipal/park ownership is assured around each well.</p>	Parcel Boundaries
Critical Area	<p>Reservoir Site: The reservoirs are situated on a rising ridgeline with a 0.34 square mile watershed flowing to Reservoirs 1, 2 and 3 (220 acres approx.) and a 0.27 square mile watershed flowing to Reservoir 4 (175 acres approx.). The combined watersheds in their entirety are considered critical areas. The recharge areas for the 4 wells fall largely within the same acreage so separate calculation of wellfield critical areas is unnecessary.</p> <p>Moriello Park: The two wells draw water from bedrock fractures. The Critical area consists of the 1,000-foot radius (Radius of Influence) determined around the wells and the topographic recharge areas east of this ROI within a travel time reasonably estimated to be less than 5 years.</p>	Other
Source Water Area	<p>Reservoir Site: Same as Critical Area, see above.</p> <p>Moriello Park: Balance of ROI watershed flowing toward Moriello Park. Method: Pour-point analysis.</p>	Other

Table 2.2B: Prepare a Drinking Water Source Protection Map: This table lists sources of publicly available data used to create the source water protection maps (Figures A, B, C, and D).

2.2B: Prepare a Drinking Water Source Protection Map	
<u>URL</u>	<u>Publicly Available Data</u>
https://data.ny.gov/	<ul style="list-style-type: none"> • Bulk Storage Facilities • Solid Waste Management Facilities • Environmental Remediation Sites • Superfund Sites • Spill Incidents • Oil, Gas and Other Regulated Wells • SPDES Multi-Sector General Permit • Combined Sewer Overflows (CSOs) • Water Withdrawals by Facility • Boat Launch Sites • Inventory & Priority Waterbodies
https://gis.ny.gov/	<ul style="list-style-type: none"> • State Pollutant Discharge Elimination System • NYS DOT Facilities • NYS Tax Parcels • USGS Digital Raster Graphic Quadrangle • NYS Tax Parcels
https://mrlc.gov/	<ul style="list-style-type: none"> • NLCD Land Cover
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.conservationaleasement.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
http://www.dec.ny.gov/lands/5374.html	<ul style="list-style-type: none"> • Mines
https://www.eia.gov/	<ul style="list-style-type: none"> • Pipelines
https://www.epa.gov/	<ul style="list-style-type: none"> • TRI Basic Data Files

Table 2.2C: Prepare a Drinking Water Source Protection Map: This table provides a description of the map layers created, or acquired to create, the source water protection maps (Figures A, B, C, and D).

2.2C: Prepare a Drinking Water Source Protection Map		
Layer	Date Created or Acquired	Description
Bulk Storage Facilities - New York State (NYSDEC)	10/15/2020	Bulk Storage Facilities - New York State (NYSDEC) Obtained from NYS GIS Clearinghouse - NYS Dept. of Environmental Conservation (DEC) - Bulk Storage Sites in New York State. Source: NYS Department of Environmental Conservation, 2010. Files updated daily.
Major Oil Storage Facilities	10/15/2020	Major Oil Storage Facilities Obtained from NYS GIS Clearinghouse - NYS Dept. of Environmental Conservation (DEC) - Bulk Storage Sites in New York State. Source: NYS Department of Environmental Conservation, 2010. Files updated daily.
Petroleum Bulk Storage Facilities (i.e. gas stations)	10/15/2020	Petroleum Bulk Storage Facilities (i.e. gas stations) Obtained from NYS GIS Clearinghouse - NYS Dept. of Environmental Conservation (DEC) - Bulk Storage Sites in New York State. Source: NYS Department of Environmental Conservation, 2010. Files updated daily.
Active Landfills	10/15/2020	Active Landfills Obtained from https://data.ny.gov/Energy-Environment/Solid-Waste-Management-Facilities/2fni-raj8 Source: NYS Department of Environmental Conservation, Oct 15, 2020
Inactive Landfills (Title 12)	10/15/2020	Source: Local Knowledge
Land Application Sites	10/15/2020	Land Application Sites Obtained from https://data.ny.gov/Energy-Environment/Solid-Waste-Management-Facilities/2fni-raj8 Source: NYS Department of Environmental Conservation, Oct 15, 2020
Vehicle Dismantling Facilities (i.e., junk yards)	10/15/2020	Vehicle Dismantling Facilities (i.e. junk yards) Obtained from https://data.ny.gov/Energy-Environment/Solid-Waste-Management-Facilities/2fni-raj8 Source: NYS Department of Environmental Conservation, Oct. 15, 2020. Also Local Knowledge.
Environmental Remediation Site Boundaries	10/20/2020	Environmental Remediation Site Boundaries Obtained from http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1097 Source: New York State Department of Environmental Conservation, updated nightly. Downloaded 10/20/2020
Environmental Remediation Sites (Superfund Sites, Brownfield Sites, etc.)	10/20/2020	Environmental Remediation Sites (Superfund Sites, Brownfield Sites, etc.) Obtained from http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1097 Source: New York State Department of Environmental Conservation, 2010. Files updated daily

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Layer	Date Created or Acquired	Description
Spill Incidents	10/20/2020	Spill Incidents Obtained from https://data.ny.gov/Energy-Environment/Spill-Incidents/u44d-k5fk Source: New York State Department of Environmental Conservation, Division of Environmental Remediation, 2015. Files updated daily.
Oil, Gas, and Other Regulated Wells	10/20/2020	Oil, Gas, and Other Regulated Wells Obtained from https://www.dec.ny.gov/energy/1603.html Source: NYS Department of Environmental Conservation. Files updated nightly.
Orphan Oil and Gas Wells	10/20/2020	Orphan Oil and Gas Wells Obtained from https://data.ny.gov/Energy-Environment/Orphaned-Wells/vgue-bamz Source: NYS Department of Environmental Conservation, 2020
Mines	10/15/2020	Mines Obtained from https://www.dec.ny.gov/lands/5374.html Source: NYS Department of Environmental Conservation, 2020. Files updated nightly.
State Pollutant Discharge Elimination System Permitted (SPDES) Facilities	10/19/2020	State Pollutant Discharge Elimination System Permitted (SPDES) Facilities Obtained from http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1010 Source: New York State Department of Environmental Conservation, published 3/23/2018, updated daily
Combined Sewer Overflows (CSO's)	10/15/2020	Combined Sewer Overflows (CSO's) Obtained from https://www.dec.ny.gov/chemical/48595.html Source: New York State Department of Environmental Conservation, Division of Mineral Resources, November 10, 2020
Airports of the United States, Puerto Rico, and Virgin Islands.	10/15/2020	FAA US Airports (Enhanced) - Map Service
Transportation Corridors	10/15/2020	Server and USGS National Transportation Dataset Downloadable Data Collection
Road Maintenance Facilities (NYSDOT Facilities)	10/27/2020	Source: NYSDOT October 2020 (Ralph Hill on 10/27)
Salt and Deicers Storage (NYSDOT Facilities)	11/3/2020	Salt and Deicers Storage (NYSDOT Facilities) Obtained from https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=391 Source: NYSDOT October 2020
Pipelines	11/3/2020	The National Pipeline Mapping System (NPMS). Obtained from https://pvnpm.phmsa.dot.gov/PublicViewer/

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Layer	Date Created or Acquired	Description
New York State Boat Launches	11/3/2020	Tax Parcel Data/ OPRHP for data associated with state owned facilities
Boat Launch Sites by State Parks or Marine Facility	11/3/2020	Tax Parcel Data/ OPRHP for data associated with state owned facilities
Toxic Release Inventory (TRI) Facilities	10/27/2020	Toxic Release Inventory (TRI) Facilities Obtained from https://www.epa.gov/toxics-release-inventory-tri-program/tri-basic-data-files-calendar-years-1987-present Source: EPA, July 20, 2020
Nutrient Loading (Lakes Only) (The Waterbody Inventory /Priority Waterbodies List)	10/27/2020	Nutrient Loading (Lakes Only) (The Waterbody Inventory /Priority Waterbodies List) Obtained from http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1117. Source: NYS Department of Environmental Conservation, Division of Water, Bureau of Water Assessment and Management, 2007. Revised March 2020
National Hydrology Dataset (NHD)	3/12/2018	National Hydrology Dataset (NHD) Obtained from https://www.usgs.gov/core-science-systems/ngp/national-hydrography/access-national-hydrography-products Source: USGS NHD Data March 12, 2018
Stormwater	10/27/2020	NLCD USGS NLCD
Septic Systems	10/27/2020	Data on Private Sewer Systems in NYS Tax Parcels (Centroids) Source: NYS GIS Program Office (GPO)
Fire Training and Dedicated Fire Training Facilities	10/27/2020	Local Knowledge
Golf Courses	10/27/2020	NYS Tax Parcels Source: NYS GIS Program Office (GPO), Local Knowledge
Agricultural Activities	10/27/2020	NYSDEC. SWCD. Tax Parcel Data, Local Knowledge
Lawn and Garden Chemicals	10/27/2020	Local Knowledge
Waterfront Property Management	10/27/2020	Data on Waterfront Property Management in NYS Tax Parcels Source: NYS GIS Program Office (GPO)
Saltwater Intrusion	10/27/2020	Local Knowledge
Road Salt Application	10/27/2020	Local Knowledge

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Table 2.3: Create a Potential Contaminate Source Inventory: This table lists the potential contaminant sources for New Paltz’s two source water watersheds (Mountain Rest Road reservoirs and groundwater wells and Moriello Park groundwater wells)

2.3: Create a Potential Contaminant Source Inventory			
<u>Potential Source</u>	<u>Contaminant(s) of Concern</u>	<u>Protection Area(s) Impacted</u>	<u>Relevant Information</u>
Mountain Rest Road Property			
Road Spill	Fuel, Cargo	Reservoir Critical Area. Main roads shown on Land Use Map.	Reservoir 4 is most vulnerable in the area below the existing system for stormwater diversion (immediately adjacent to Reservoir 4). Reservoirs 1-3 are vulnerable to spills further to the north of Mountain Rest Road.
Road Salt	Salt (NaCl), other deicing chemicals	Reservoir Critical Areas for both Reservoir 3 and 4.	Routine Village water treatment plant sampling data from the Reservoirs suggest current best practices are not leading to salt overages. Main roads shown on Land Use Map.
Golf Course	Pesticides, Herbicides, other lawn and garden chemicals	Golf course is upwatershed from Reservoirs 1, 2 and 3	Routine Village water treatment plant sampling has not identified pesticides or herbicides so existing practices appear acceptable. Golf course shown on Land Use Map.
Septic	Fecal Bacteria	Reservoir critical area	Low hazard since existing treatment includes disinfection for coliform and net septic density is low. Parcels with septic systems are shown on Land Use Map.
On-site at the Water Treatment Plant	Fuel Oil Storage, Generator Fuel (Diesel) Storage	Reservoir 4	An underground heating oil tank has been replaced with an above ground storage tank with appropriate secondary containments.
On-site at the Water Treatment Plant	Production Chemicals: Chlorine, sodium hydroxide, sodium thiosulfate, citric acid, poly aluminum chloride, [toxic sludge waste generated onsite]	Reservoir Critical Area	Routine water treatment plant sampling shows no impact. Water treatment plant chemicals are stored in secondary containment.

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<u>Potential Source</u>	<u>Contaminant(s) of Concern</u>	<u>Protection Area(s) Impacted</u>	<u>Relevant Information</u>
Mountain Rest Road Property			
Residential Land Uses	Pesticides, Herbicides, other lawn and garden chemicals	Reservoir 4	Water treatment plant samples identified no adverse impact.
Police Shooting Range	Lead, and Reservoir well 5 wellhead damage	Reservoir site, well 5	The police shooting range training area lies near Reservoir 2 and Well 5. Lead has not been detected in drinking water samples and site use is not shared with other police departments. Berms separate the target area from the Reservoirs. Physical protection of wellhead will be done through maintenance of the property. Location not listed on map for privacy.
Moriello Park Property			
Road Salt	Salt (NaCl)	Moriello Ownership, control area, and full watershed	Snow cleared from village properties is stored in Moriello Park and can contribute to salt in watershed. Water quality samples from the wells indicate current practices are not contaminating the wells. Main roads listed on Land Use Map.
Gas Station	Gasoline	In Moriello wellfield critical area	Water treatment plant samples show no adverse impacts and chemicals are listed and regulated. The nearest gas station is scheduled to be relocated. Locations listed on Water Source Map.
Septic	Fecal Bacteria	Moriello Critical Area	Low hazard since existing treatment includes disinfection for coliform, moderate septic density.
Residential Land Uses	Pesticides, Herbicides, other lawn and garden chemicals	Moriello Critical Area	Water treatment plant samples identified no adverse impact.
Chemical Bulk Storage	Chlorine	Moriello Critical Area	Chemicals are listed, regulated, and stored securely.

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Table 3.1: Identify Protection and Management Methods & 3.2: Develop an Implementation Strategy Timeline: This table identifies the priority issue and potential contaminate source for each of New Paltz’s source water watersheds and outlines an implementation strategy and timeline below, including identified protection and management methods.

3.1: Identify Protection and Management Methods & 3.2: Develop an Implementation Strategy Timeline							
<u>Priority Issue</u>	<u>Targeted Potential Contaminant Source(s)</u>	<u>Goal</u>	<u>Protection Method and/or Management Method</u>	<u>Potential Cost</u>	<u>Potential Funding Sources</u>	<u>Project Leader and Partnerships Needed</u>	<u>Implementation Timing</u>
Mountain Rest Road Property							
Staff Awareness of Connections	Contamination to aqueduct, wells, or any of the reservoirs	Increase preparedness for a potential emergency contamination	Documented emergency protocols for water treatment plant	\$ 5,000	In-house (Village) and volunteer assistance	Village Board	Less than 1 year for planning and then ongoing training
Potential Contaminant Spill	Spills that enter the reservoirs	Impact mitigation and rapid cleanup	Spill response plan	\$ 5,000 planning; \$ 10,000 implementation	Municipal and County	Village Board, and Town Board	Within 5 years with ongoing training
Quality of Water from Golf Course Entering Reservoirs 1, 2, 3	Surface water runoff from golf course at Mohonk Mountain House	Minimize risk of potential contamination of reservoirs from golf course runoff	Continue periodic sampling; periodic coordination with Smiley Brothers Inc. as needed	\$ 1,000	In-house (Village)	Smiley Brothers inc., and Village Board	Less than 1 year for initial planning and then ongoing
Road Chemical / Gasoline Spill at the margins of Reservoir 4 along Mountain Rest Road	Hazardous materials, gasoline and other contaminants that result from a spill on County Route 6 near the Reservoirs.	Bypass and redirect spill immediately adjacent to reservoir 4	Berms and drainage corrections	\$ 25,000	Done in-kind by village DPW; excavator purchased for project	Village DPW	Berm Completed in approx. 1 year

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

<u>Priority Issue</u>	<u>Targeted Potential Contaminant Source(s)</u>	<u>Goal</u>	<u>Protection Method and/or Management Method</u>	<u>Potential Cost</u>	<u>Potential Funding Sources</u>	<u>Project Leader and Partnerships Needed</u>	<u>Implementation Timing</u>
Mountain Rest Road Property							
Road Chemical / Gasoline Spill West of the Former Ski Lodge	Hazardous materials, gasoline and other contaminants that could result from a spill on County Route 6 near the Reservoirs.	Limit contaminant spills into streams feeding the reservoirs	Coordination with County guard rails, grading, berming and other measures to reduce risk of spills.	\$ 20,000	This is a county road so coordination with County is needed.	Village Board, Town Board, and County DOT	Approx. 1 year for planning then within 5 years
Municipal Pistol Range	Heavy metals from accumulated bullets entering groundwater and stormwater runoff	Prevent dissolved lead contamination in water supply	Housekeeping to remove spent bullets; regular monitoring to ensure low-intensity use of site	\$ 2,000	Police Department	Town Board and Village Board	Approx. 1 year for planning then ongoing training and maintenance
Management of Chemicals and Fuel Sources at Water Treatment Plant	Fuels and other chemicals used in operating water treatment plant	Prevent contamination of source water	No underground storage tanks and secondary containment for above ground storage	\$ 2,500	Operational budget	Village Board	Less than 1 year for planning and then ongoing training
Public Awareness Leading to Watershed Protection	Any unwanted contamination of source water in the watershed	Clean water	Education for Village & Town; road signage; mailings; etc.	\$ 5,000	Hudson River Estuary Program; Hudson River Greenway	Village Board	Approx. 1 year for planning then ongoing

VILLAGE OF NEW PALTZ DRINKING WATER SOURCE PROTECTION PROGRAM PLAN

<u>Priority Issue</u>	<u>Targeted Potential Contaminant Source(s)</u>	<u>Goal</u>	<u>Protection Method and/or Management Method</u>	<u>Potential Cost</u>	<u>Potential Funding Sources</u>	<u>Project Leader and Partnerships Needed</u>	<u>Implementation Timing</u>
Moriello Park Property							
Potential Salt Threats to Water Quality	Salt	Reduce NaCl concentration in drinking water	Monitor salt in groundwater with consideration to current municipal salt storage practices and road salting practices	\$ 10,000	Village & Town Operations; Water Quality Improvement Program Salt Storage Grant	Municipal Leadership	Within 5 years with ongoing monitoring
Public Awareness Leading to Watershed Protection	Any unwanted contamination of source water in the watershed	Clean water	Education for Village & Town; Road signage; Mailings; etc.	\$ 10,000	Hudson River Estuary Program; Hudson River Greenway	Mill Brook Preserve Inc.	Approx. 1 year for planning then ongoing

Table 4.1A: Designate a Plan Management Team: This table lists the Plan Management Team names and contact information.

4.1A: Designate a Plan Management Team	
<u>Name</u>	<u>Contact Information</u>
Mayor Tim Rogers	trogers@villageofnewpaltz.org
Ted Nitza	tnitza@walden-associates.com
Brandon Bera	brandonbera@gmail.com
John Lawlor	jlawlor@villageofnewpaltz.org
Martha Cheo	marthascheo@gmail.com

Table 4.1B: Designate a Plan Management Team: This table should be used to document the Plan Management strategy for keeping the DWSP2 Plan up to date.

4.1B: Designate a Plan Management Team	
<u>Plan Management Summary</u>	
<u>Item</u>	<u>Status</u>
Designate a Plan Management Team	Complete
Determine progress report frequency (Months)	In Process
Share progress reports	In Process
Review and share the plan	In Process
Verification from NYS DOH and DEC for completeness	In Process
Create a revision schedule	

Table 4.1C: Designate a Plan Management Team: This table should be used to track updates and revisions to the DWSP2 Plan.

4.1C: Designate a Plan Management Team		
<u>Update/Revision Tracker</u>		
<u>Report</u>	<u>Date</u>	<u>Notes</u>
First report:	11/13/2023	
Update/Revision 1		
Update/Revision 2		
Update/Revision 3		
Update/Revision 4		
Update/Revision 5		
Update/Revision 6		
Update/Revision 7		
Update/Revision 8		

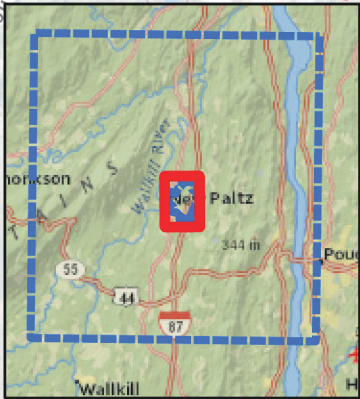
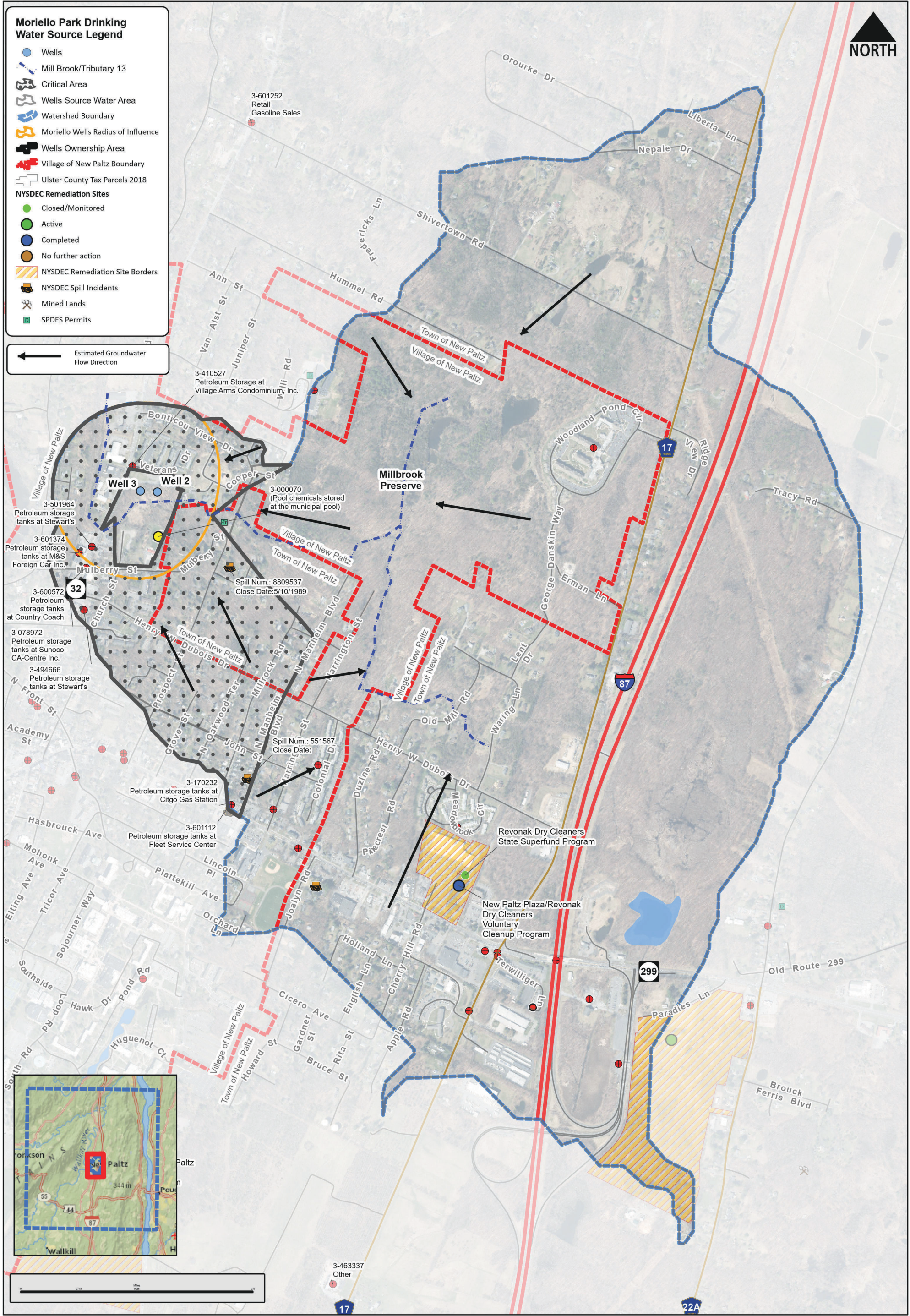
Appendix B: Source Water Protection Maps



Moriello Park Drinking Water Source Legend

- Wells
- Mill Brook/Tributary 13
- Critical Area
- Wells Source Water Area
- Watershed Boundary
- Moriello Wells Radius of Influence
- Wells Ownership Area
- Village of New Paltz Boundary
- Ulster County Tax Parcels 2018
- NYSDEC Remediation Sites**
- Closed/Monitored
- Active
- Completed
- No further action
- NYSDEC Remediation Site Borders
- NYSDEC Spill Incidents
- Mined Lands
- SPDES Permits

Estimated Groundwater Flow Direction



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New Paltz Water Protection

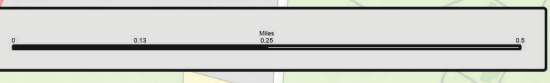
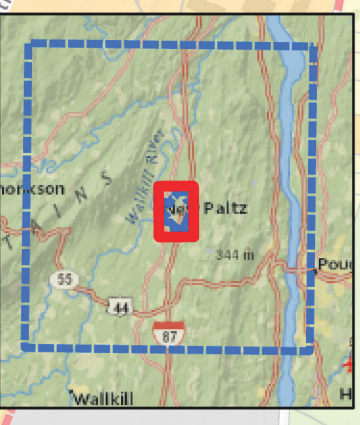
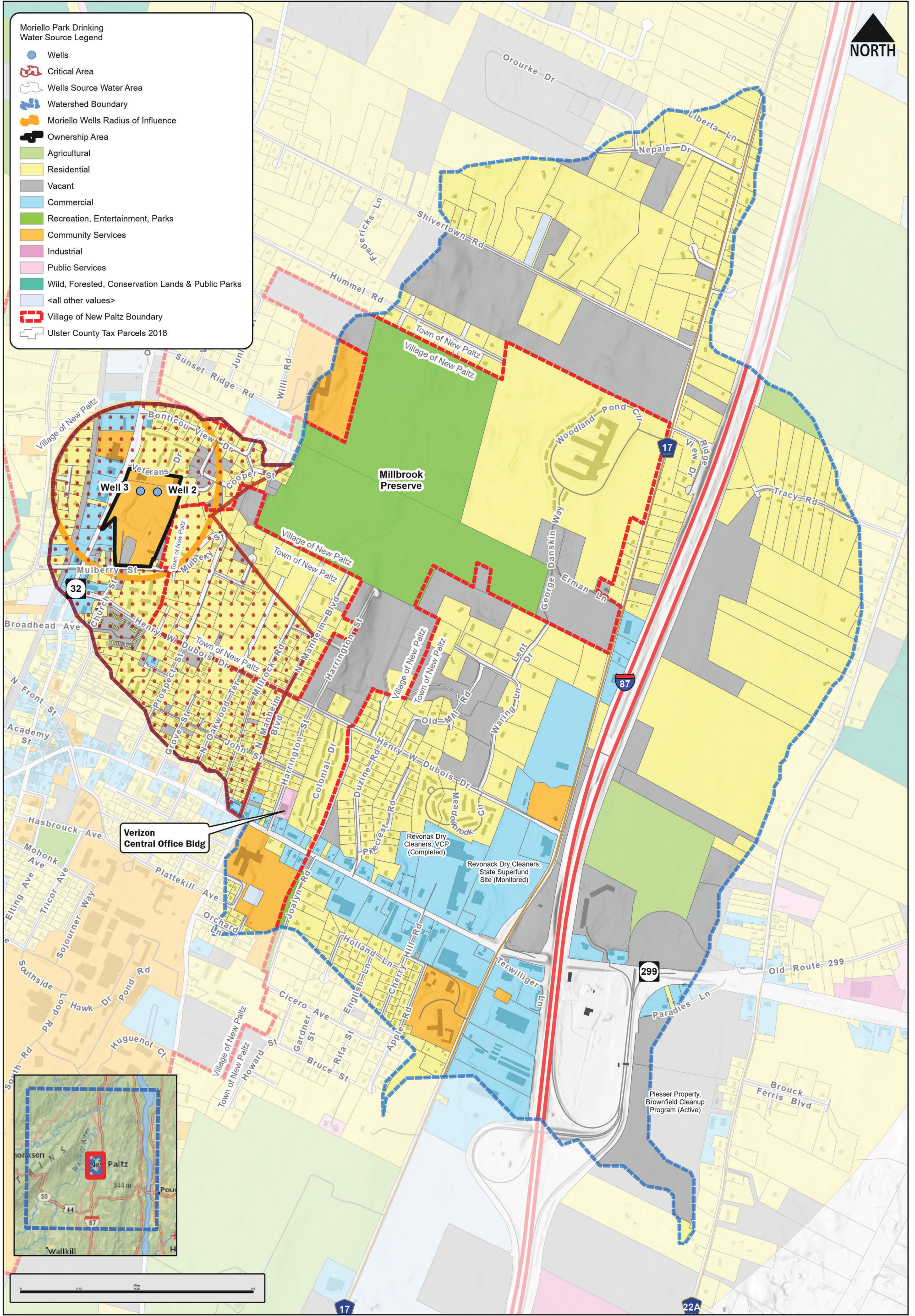
Figure A: Moriello Park Drinking Water Source Map

Town of New Paltz, Ulster County, NY

Drawn:	ANV; EJG
Date:	6/4/2021
Scale:	1:12,000
Project:	41924.01
Figure:	A



- Moriello Park Drinking Water Source Legend**
- Wells
 - Critical Area
 - Wells Source Water Area
 - Watershed Boundary
 - Moriello Wells Radius of Influence
 - Ownership Area
 - Agricultural
 - Residential
 - Vacant
 - Commercial
 - Recreation, Entertainment, Parks
 - Community Services
 - Industrial
 - Public Services
 - Wild, Forested, Conservation Lands & Public Parks
 - <all other values>
 - Village of New Paltz Boundary
 - Ulster County Tax Parcels 2018



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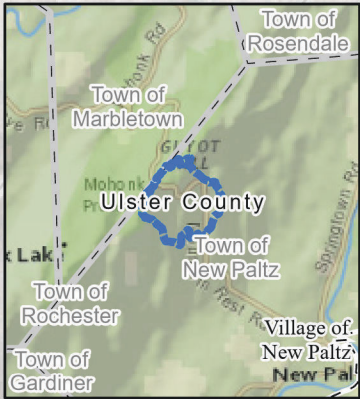
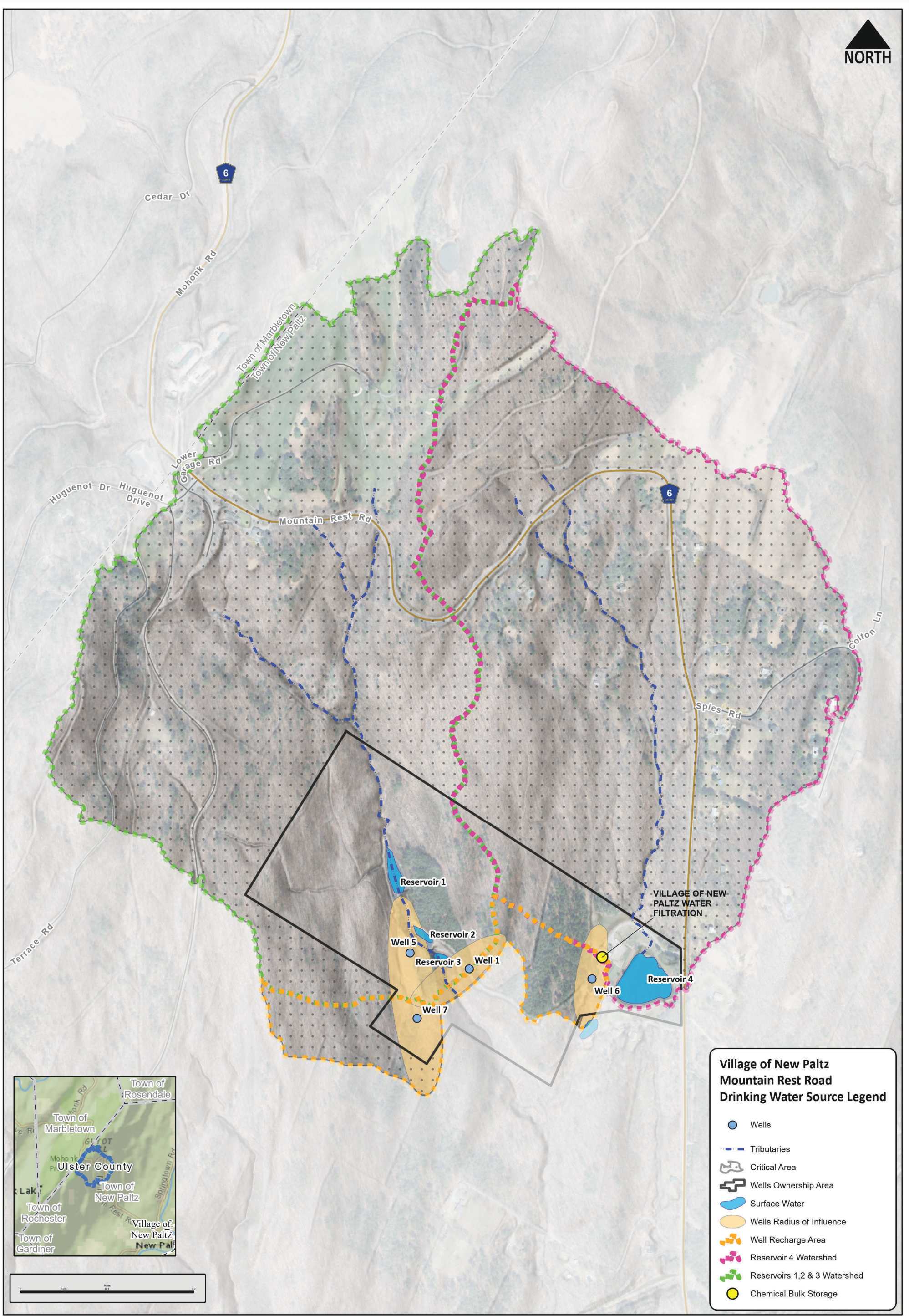
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New Paltz Water Protection

**Figure B:
Moriello Park Drinking Water Source
Land Use Map**

Town of New Paltz, Ulster County, NY

Drawn:	ANV; EJG
Date:	6/4/2021
Scale:	1:12,000
Project:	41924.01
Figure:	B



**Village of New Paltz
Mountain Rest Road
Drinking Water Source Legend**

- Wells
- Tributaries
- Critical Area
- Wells Ownership Area
- Surface Water
- Wells Radius of Influence
- Well Recharge Area
- Reservoir 4 Watershed
- Reservoirs 1, 2 & 3 Watershed
- Chemical Bulk Storage



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New Paltz Water Protection













**Figure C:
Mountain Rest Road Drinking Water
Source Map**

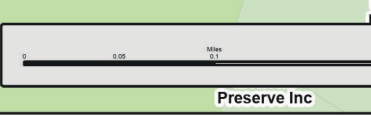
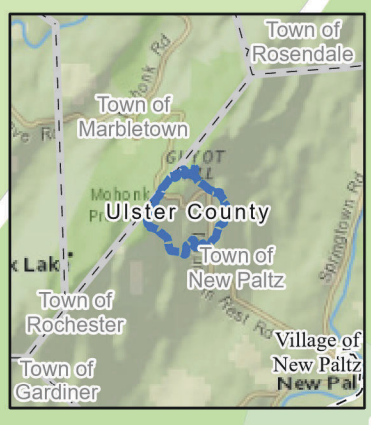
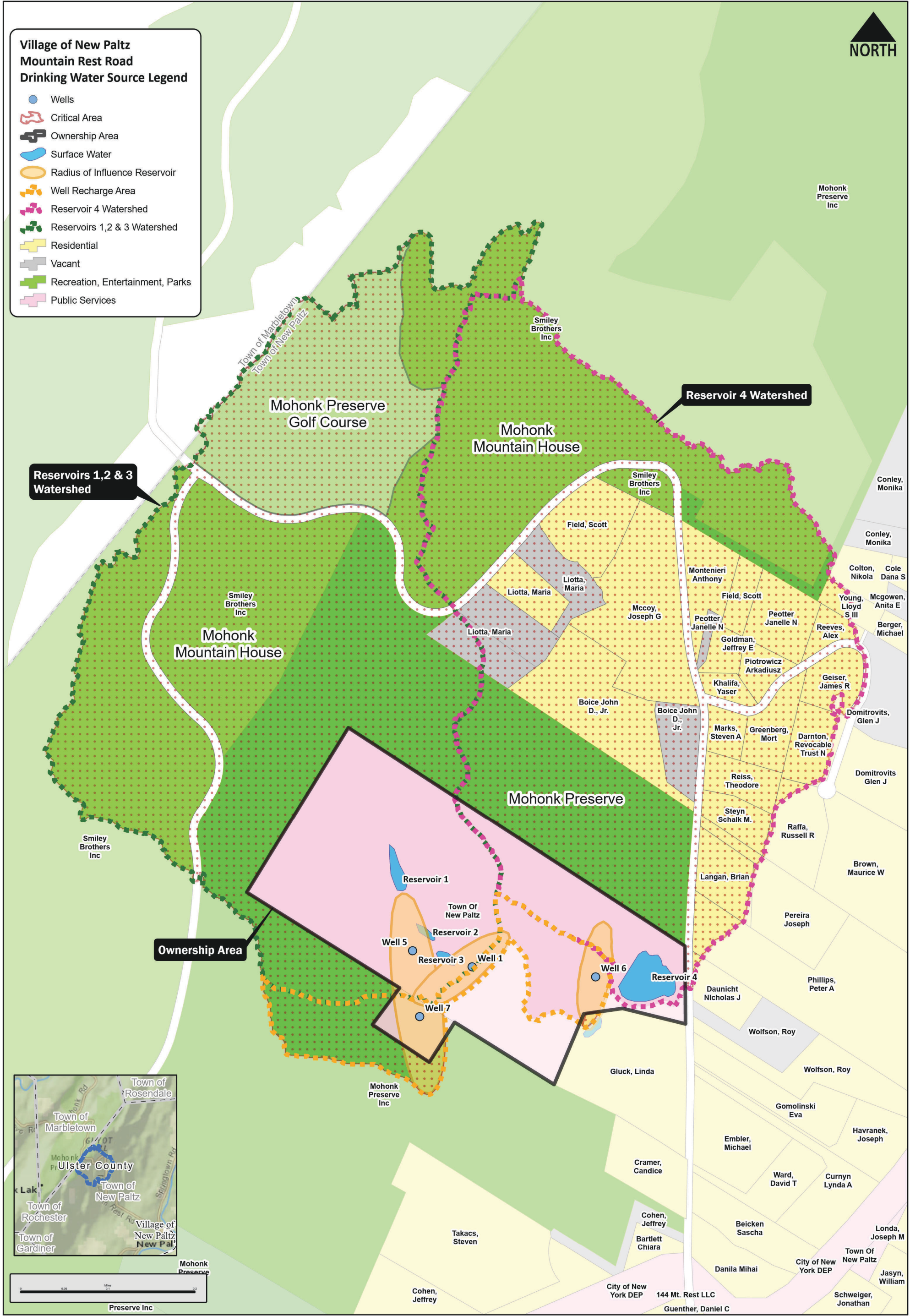
Town of New Paltz, Ulster County, NY

Drawn:	ANV; EJG
Date:	06/04/2021
Scale:	1:6,400
Project:	41924.01
Figure:	C



Village of New Paltz Mountain Rest Road Drinking Water Source Legend

-  Wells
-  Critical Area
-  Ownership Area
-  Surface Water
-  Radius of Influence Reservoir
-  Well Recharge Area
-  Reservoir 4 Watershed
-  Reservoirs 1,2 & 3 Watershed
-  Residential
-  Vacant
-  Recreation, Entertainment, Parks
-  Public Services



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New Paltz Water Protection

**Figure D:
Mountain Rest Road Drinking Water Source
Land Use Map**

Town of New Paltz, Ulster County, NY

Drawn:	ANV; EJG
Date:	06/04/2021
Scale:	1:6,400
Project:	41924.01
Figure:	D