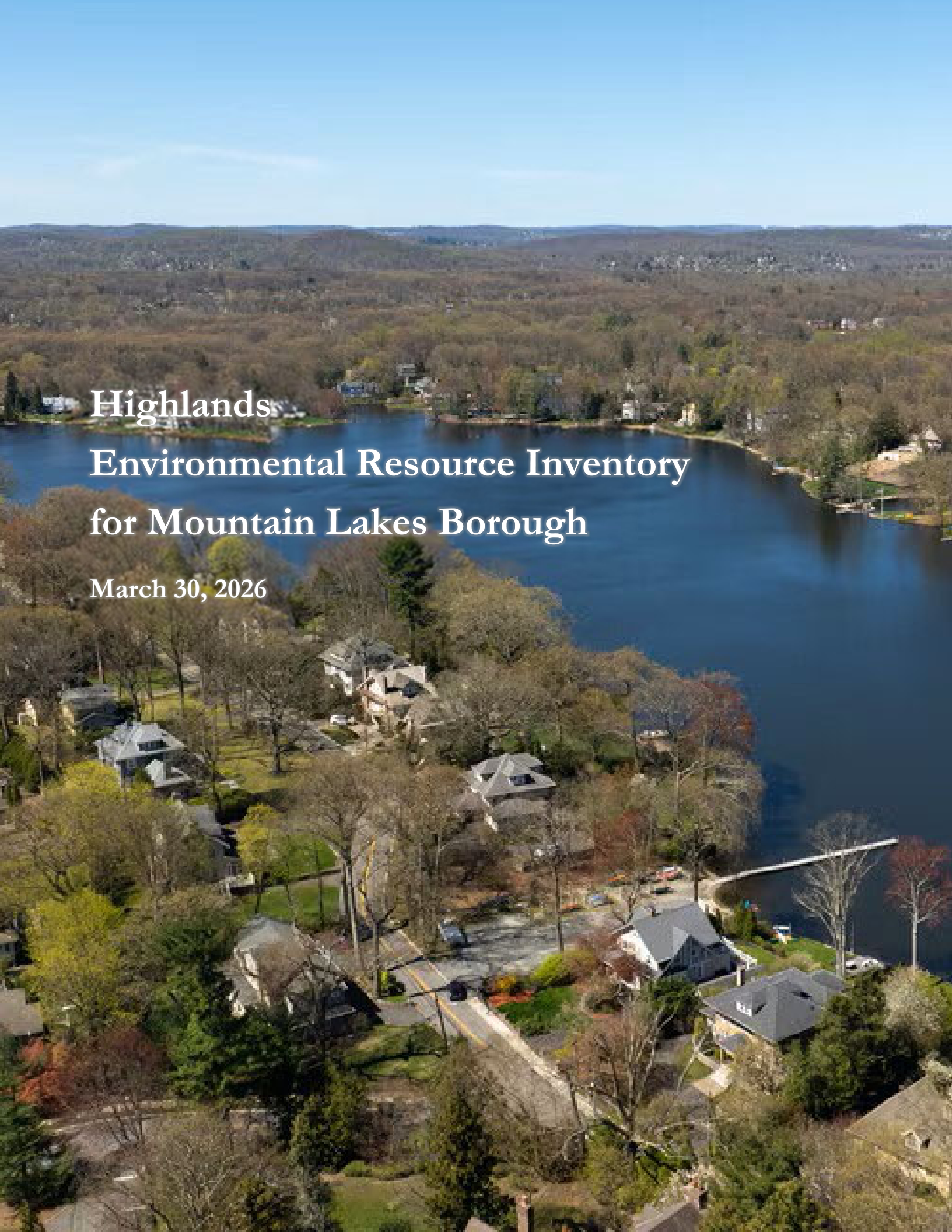


Highlands Environmental Resource Inventory for Mountain Lakes Borough

March 30, 2026

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Cover image: Aerial view of the Borough of Mountain Lakes. Homes.com. https://www.homes.com/mountain-lakes-nj/condos-for-sale/.

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Purpose and Scope

An Environmental Resource Inventory (ERI), sometimes called a Natural Resource Inventory, identifies and depicts the natural and cultural resources present in a community. Natural resources maps and accompanying narratives provide the basis for inventorying a community's natural resource components and provide the base source for resource conservation. Identifying a community's natural resources is the first step toward establishing mechanisms for their protection. As an integral component of a master plan, an ERI functions as the basis for the development of natural resources protection ordinances.

This ERI was created in part using information from the Highlands Region Interactive Environmental Resource Inventory application (www.highlandsERI.com), because Mountain Lakes Borough is located within the Highlands Region of New Jersey.

Although the Highlands region covers less than 15% of the state's land area, it provides drinking water to more than 300 municipalities that are home to 70% of New Jersey's population. For this reason, the region requires special protection. Recognizing the significant natural, cultural, and agricultural value of the region, the State Legislature of New Jersey passed the New Jersey Highlands Water Protection and Planning Act (Highlands Act) in 2004 to protect both the natural resources and the economic vitality of communities within the region. This protection is achieved through a combination of regional planning and regulatory provisions administered jointly through implementation of the Highlands Regional Master Plan (RMP) and the New Jersey Department of Environmental Protection (NJDEP) Highlands Rules.

The RMP provides a framework for implementing the Highlands Act at the local level. Programs outlined in the RMP include the management of Natural Resources; Water Resources and Utilities; Agricultural Resources; Historic, Cultural, Archaeological and Scenic Resources; Transportation; Sustainable Economic Development; and Air Quality. The RMP also outlines a program to guide municipalities and counties in the region through its implementation. Conformance with the RMP involves the revision of local planning and regulatory documents to integrate the land use provisions and resource management protections of the Highlands Act, so that those documents align with the goals, policies, and objectives of the RMP.

Because this ERI was created using the Highlands Region Interactive ERI, the information and data contained within are consistent with the Highlands Act and RMP. Adoption of an ERI that includes RMP-aligned consideration of Highlands resources is a requirement for municipalities and counties conforming with the RMP. It provides critical support to the Conservation Plan Element of the municipal master plan related to the implementation of resource protection requirements in the land use ordinance and health codes.

History of Mountain Lakes

The Borough of Mountain Lakes, which occupies 2.91 square miles, was one of New Jersey's first planned communities, incorporated by the State Legislature on March 3, 1924. In the southern area of the Borough, New Jersey State Route 46 runs from east to west; Boulevard (Morris County Route 618) spans from the northernmost border to Route 46 in the south. Located off Boulevard are several lake communities which are characterized by hilly terrain and roads designed to fit these contours, dense vegetation, and historic buildings and architecture. Despite the Borough's small geographic area, there are a variety of unique resources, including lakes, clusters of open space, and an abundance of trees.

The existing residential communities were first developed by Herbert J. Hapgood, who was influenced by the Arts and Crafts movement in the early 1900s. This movement emphasized traditional craftsmanship and practicality that resulted in hundreds of Hapgood Homes, which remain standing today. In the 1920s, the Belhall Company took over development within the municipality, continuing Hapgood's legacy by ensuring that development occurred in a manner that respected the Borough's lakes and topography. Hydrologic and topographic resources were, and continue to be, some of the Borough's predominant and defining characteristics.

Mountain Lakes has a long history of identifying, protecting, and enjoying its natural resources. The 2012 Environmental Resource Inventory is a comprehensive document that includes a detailed background and important context to the Borough's resources. This 2026 ERI serves to provide updated information on the Borough's resources and contextualize the Borough's recently approved Petition for RMP Conformance.

Mountain Lakes Master Plan

Environmental stewardship has been central to Mountain Lakes since the municipality was founded. The Borough was designed as a planned community that respected natural topography, preserved wooded landscapes, and incorporated a connected system of lakes as defining features of the built environment. That early vision continues to shape the Borough's planning philosophies.

Over time, the Master Plan and related ordinances have reinforced this commitment by protecting steep slopes, regulating stormwater, preserving open space, and advancing lake and watershed protection measures. The Environmental Commission and Planning Board have consistently relied on the Environmental Resource Inventory (ERI) to inform development review and policy decisions.

The Borough adopted a comprehensive Environmental Resource Inventory in 2012, documenting local geology, hydrology, lake ecology, soils, and watershed conditions. That document captured valuable institutional knowledge about the Borough's natural systems and provided important historical context for environmental decision-making.

The 2026 ERI builds upon that foundation. While it incorporates updated mapping, Highlands Regional Master Plan requirements, and current water resource data, it reflects the same underlying objective: to understand and protect the natural systems that define Mountain Lakes.

Together, the 2012 and 2026 ERIs provide both historical perspective and contemporary analysis. The current document updates data and regulatory context while continuing the Borough's long-standing tradition of environmentally informed planning.

Land Use/Land Cover

Land Use/Land Cover 2020

The land use of Mountain Lakes Borough (**Figure 1**) is described as follows:

- Urban: 1,022.0 acres (54.9%)
- Forest: 551.1 acres (29.6%)
- Water: 158.8 acres (8.5%)
- Wetlands: 122.4 acres (6.6%)
- Barren Land: 6.8 acres (0.4%)

Land Use/Land Cover (2020) data provide comprehensive and detailed mapping of land use/land cover in the natural and built environments. This data is derived from 2020 orthophotography.

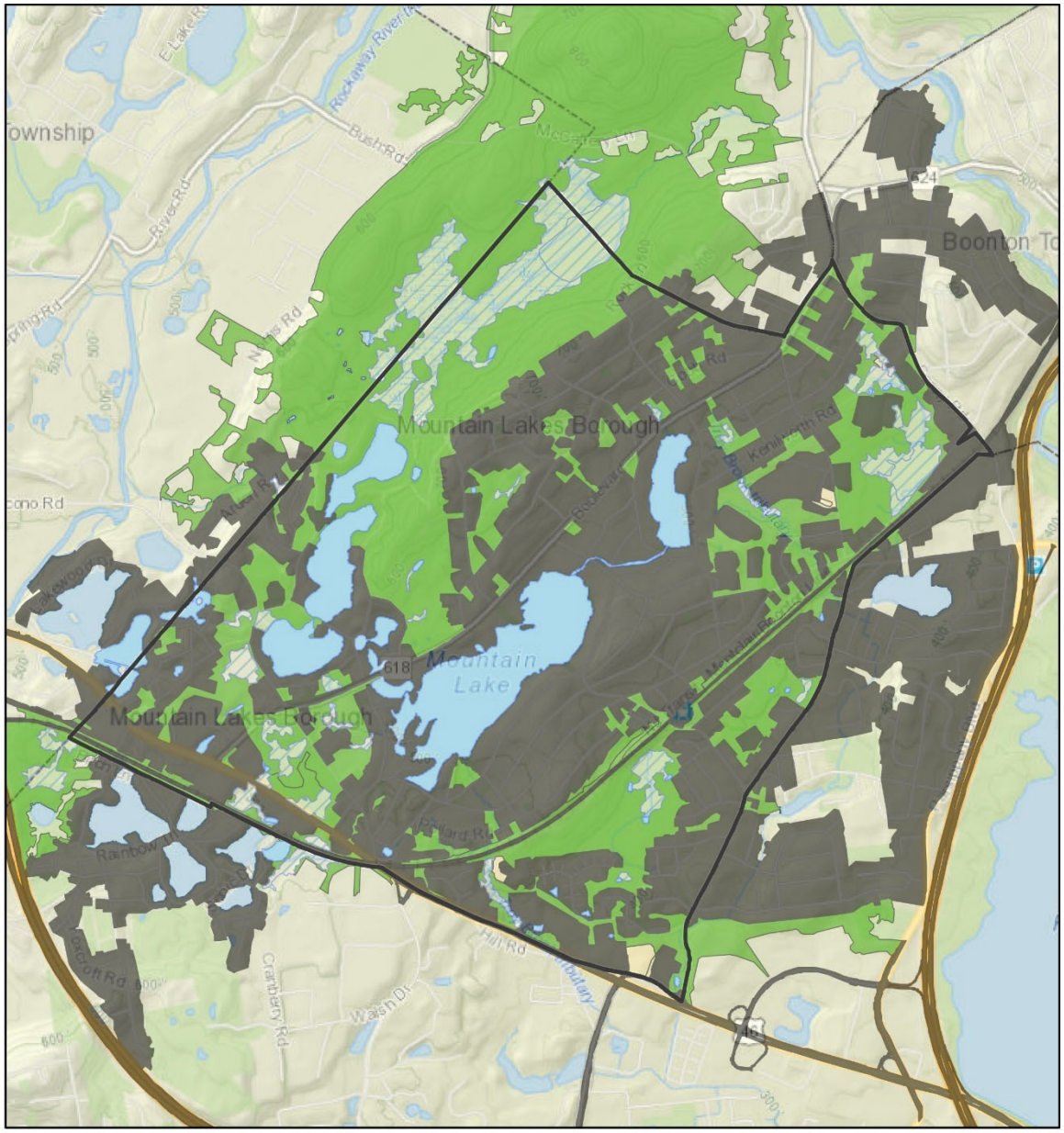
Computed Change in Land Use/Land Cover from 2002 to 2015

Based on a review of 2002 and 2015 NJDEP Land Use/Land Cover datasets, land use/land cover in Mountain Lakes Borough has changed as follows:

- A total of 82.2 acres (4.4%) has changed from the "Forest" land use/land cover classification in 2002 to the "Water" land use/land cover classification in 2015.
- A total of 156.1 acres (8.4%) has changed from the "Forest" land use/land cover classification in 2002 to the "Urban" land use/land cover classification in 2015.
- A total of 33.5 acres (1.8%) has changed from the "Urban" land use/land cover classification in 2002 to the "Forest" land use/land cover classification in 2015.
- A total of 16.2 acres (0.9%) has changed from the "Urban" land use/land cover classification in 2002 to the "Wetlands" land use/land cover classification in 2015.
- A total of 0.3 acres (0.0%) has changed from the "Forest" land use/land cover classification in 2002 to the "Barren Land" land use/land cover classification in 2015.

Comparison of land use between 2002 and 2015 provides an important opportunity to assess how land use/land cover has changed between these years. Land use/land cover data from 2002 is used as baseline data, representing pre-Highlands Act (August 2004) conditions.

Figure 1. Land Use/Land Cover



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Topography

Steep Slope Protection Area

A total of 399.4 acres, or 21.5%, of Mountain Lakes Borough is located within a Steep Slope Protection Area (**Figure 2**), as follows:

- Severely Constrained: 362.2 acres (19.5%)
- Moderately Constrained: 37.1 acres (2.0%)

Steep slopes within the Highlands Region play an important ecological, recreational, scenic, and functional role. Steep slopes and rocky ridgelines provide specialized habitats that are home to rare plant and animal species. Areas of steep slopes also provide popular recreational opportunities, including hiking, climbing, and wildlife observation. Additionally, ridgelines, hillsides, and associated steep slopes provide scenic views and vistas, which contribute to the rural character of the Highlands Region and help to define the landscape.

Disturbance of areas containing steep slopes can trigger erosion and sedimentation, thereby resulting in the loss of topsoil. Silting of wetlands, lakes, ponds, and streams damages and degrades these aquatic habitats, especially trout streams that are found throughout the Highlands and receive the state's highest water quality protections. These processes, when severe, can also result in land slumping and landslides that can damage both developed property and ecosystems.

The severity and extent of slopes, soil characteristics, and land cover all affect the potential for damage from the disturbance of steep slopes. The identification and classification of steep slopes is, therefore, important in order to effectively manage critical natural resources in the Highlands Region. Accordingly, Steep Slope Protection areas have been defined by the Highlands Council. These are classified as described below.

> **Severely Constrained Slopes** — All lands with slopes of 20 percent or greater, and lands within riparian areas with slopes of 10 percent or greater
>
> **Moderately Constrained Slopes** — All non-riparian area lands having a slope of 15 percent to less than 20 percent that are forested
>
> **Constrained Slopes** — All non-riparian area lands having a slope of 15 percent to less than 20 percent that are non-forested with one or more of the following characteristics:
>
> - Highly susceptible to erosion;
> - Shallow depth to bedrock; and
> - A soil capability class indicative of wet or stony soils.
>
> **Limited Constrained Slopes** — All non-riparian area lands having a slope of 15 percent to less than 20 percent that are non-forested, not highly susceptible to erosion, and do not have a shallow depth to bedrock or a soil capability class indicative of wet or stony soils.

Figure 2. *Slopes*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Hydrology

An aquifer is an underground formation of permeable rock or unconsolidated materials that can yield significant quantities of water to wells and springs. The rate of recharge is not the same for all aquifers since it depends on the ability of the rock to transport water (e.g., porous sandstone facilitates faster recharge compared to dense granite).

Aquifers are typically equated to the type of geologic formation in which they exist. Aquifers in New Jersey are classified as either bedrock or surficial.

Bedrock Aquifers

A total of 1,861.1 acres, or 100.0 percent, of Mountain Lakes Borough is underlain by bedrock aquifers (**Figure 3**), as follows:

- Igneous and metamorphic rocks: 1,709.4 acres
- Brunswick aquifer: 151.7 acres

Bedrock aquifers are, as the name implies, geologic bedrock units that have porosity and permeability such that they meet the definition of an aquifer (able to release water in quantities sufficient to supply reasonable amounts to wells). Water in these units is in the spaces between the rock grains (such as sand grains) or in the fractures within the more solid rock. Bedrock aquifers are fairly well defined in terms of their areal extent, and the units are considered to be connected hydrologically throughout their occurrence.[1]

Surficial Aquifers

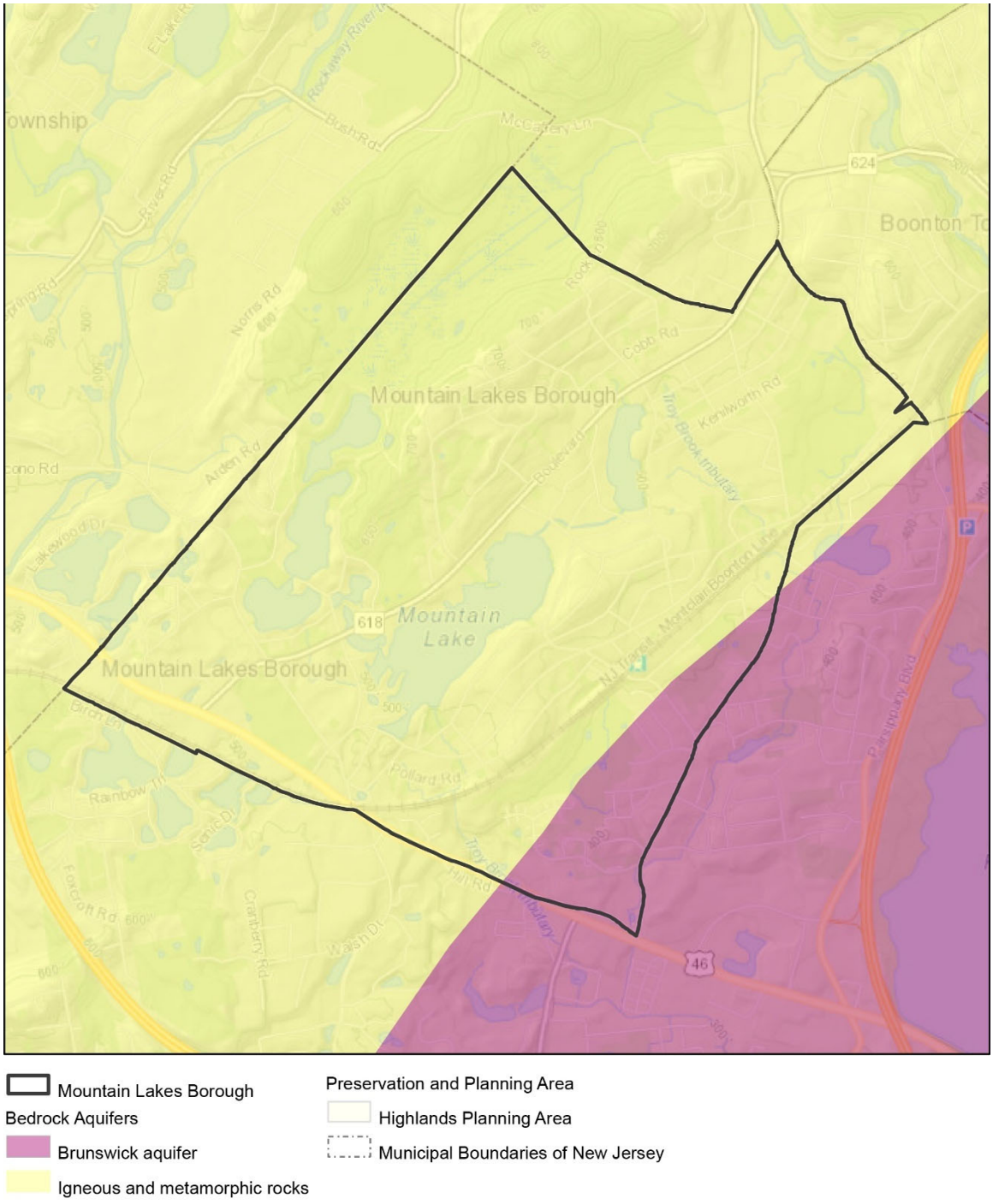
Surficial aquifers are formed from unconsolidated materials such as sand, gravel, or glacial sediment (e.g., surficial aquifers contain water primarily in the spaces between sand and gravel particles).

A total of 783.7 acres, or 42.1%, of Mountain Lakes Borough is underlain by surficial aquifers (**Figure 4**), as follows:

- Morainic Deposits: 642.6 acres
- Till: 107.1 acres
- Sand and Gravel: 34.0 acres

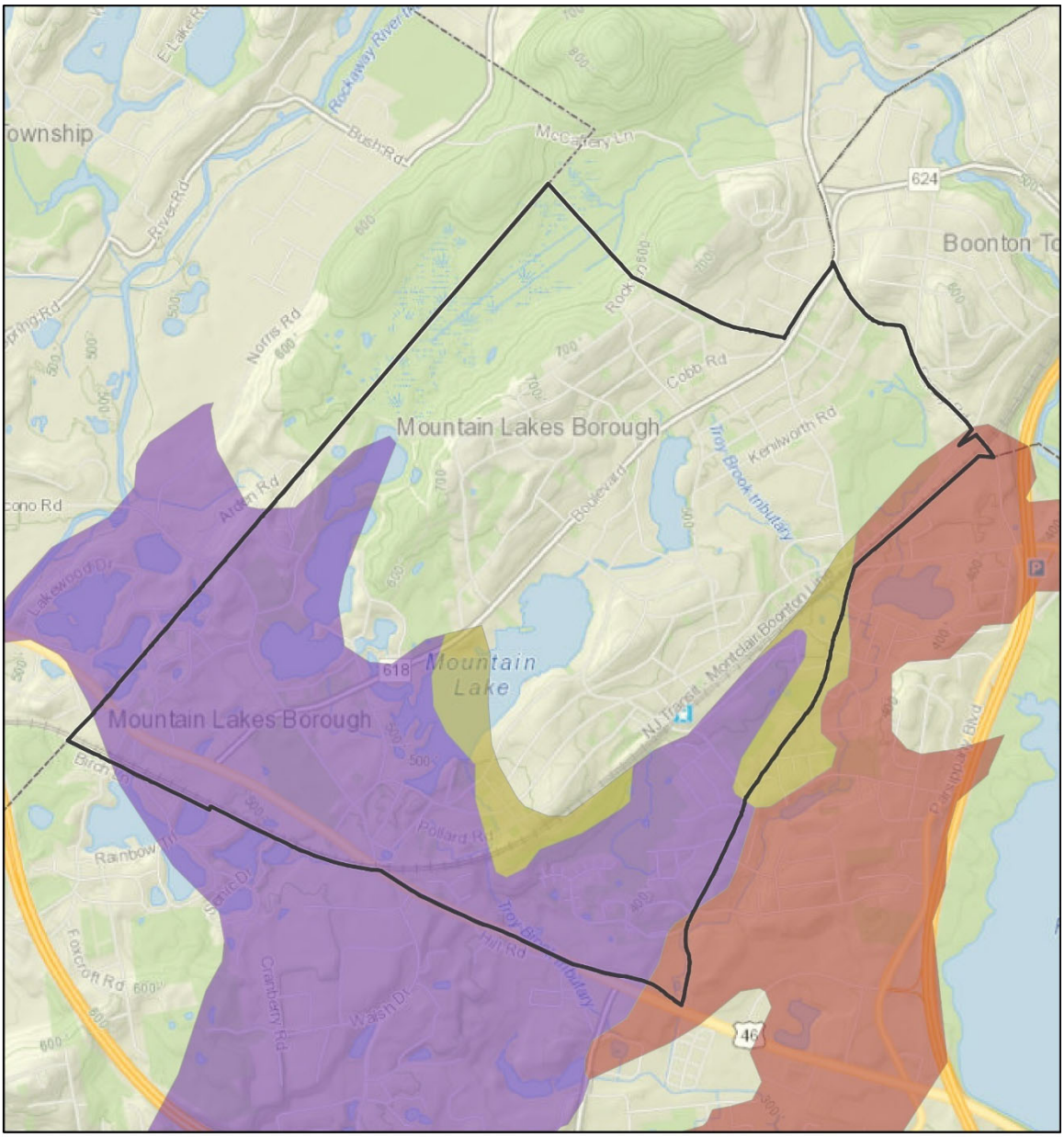
[1] NJ Geologic Survey (NJGS).

Figure 3. *Bedrock Aquifers*



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Figure 4. *Surficial Aquifers*



Mountain Lakes Borough

Surficial Aquifers

- Morainic Deposits
- Sand and Gravel
- Till

Preservation and Planning Area

- Highlands Planning Area
- Municipal Boundaries of New Jersey

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Lakes and Lake Management

The Borough of Mountain Lakes is defined by its interconnected system of man-made lakes constructed in the early 20th century as part of Herbert J. Hapgood's planned community design. These lakes were intentionally integrated into the Borough's topography and drainage patterns and remain central to the Borough's ecological, recreational, and aesthetic character, and comprise approximately 8.5 percent of the total area. Lakes within the Borough include:

- **Mountain Lake:** At approximately 79.8 acres, Mountain Lake is the largest waterbody in the Borough. It receives upstream flow from smaller lakes and tributaries and functions as a central hydrologic node within the lake system. Due to its size and depth profile, it is subject to thermal stratification during the summer months, which can influence dissolved oxygen levels.
- **Crystal Lake:** This lake functions as an upstream component in the lake chain and is influenced by residential runoff and adjacent watershed characteristics. Management efforts have focused on shoreline stabilization and nutrient control.
- **Wildwood Lake:** This lake has historically experienced seasonal aquatic vegetation growth and sedimentation accumulation typical of smaller impounded waterbodies.
- **Sunset Lake:** Sunset Lake is smaller in size and hydrologically responsive to storm events. Its water quality is directly influenced by upstream conditions and localized runoff inputs.
- **Birchwood Lake:** This lake experiences episodic algae events and benefits from watershed-based nutrient management practices.
- **Shadow Lake, Cove Lake, and Grunden's Pond:** These smaller waterbodies serve important ecological and hydraulic roles within the Borough's drainage network and contribute cumulatively to downstream water quality.
- The Borough also has additional, smaller, unnamed waterbodies.

The Borough has historically maintained an active lake management program overseen by municipal leadership and advisory bodies. Lake management strategies have included:

- Professional water quality monitoring;
- Phosphorus reduction initiatives;
- Targeted aquatic vegetation management;
- Sediment assessment;
- Public education regarding fertilizer use;
- Riparian buffer promotion;
- Stormwater management improvements; and
- Adoption of a phosphorus fertilizer ordinance in advance of statewide requirements, demonstrating proactive nutrient control policy.

Long-term lake health depends on continued coordination between stormwater management, land use regulation, shoreline protection, and resident stewardship. The Borough's lake management decisions are guided by an understanding that:

- External nutrient loading must be minimized;
- Internal nutrient cycling from sediments must be monitored; and
- Watershed-scale improvements provide greater benefit than isolated in-lake treatments.

The Borough recognizes shifting climate patterns. As these climate patterns shift and precipitation intensity increases, lake systems may experience increased stormwater inflows, greater sediment transport, warmer surface water temperatures, and expanded growing seasons for aquatic vegetation. Because of this, adaptive management strategies should therefore include:

- Continued watershed nutrient reduction;
- Stormwater retrofit projects;
- Green infrastructure integration;
- Periodic sediment evaluation; and
- Long-term monitoring programs.

Sustaining the ecological integrity of the Borough's lake system remains central to preserving Mountain Lakes' environmental character and community identity.

Category 1 Waterways

Mountain Lakes Borough contains 1.1 miles of one or more C-1 waterways (**Figure 6**). There is one (1) C-1 waterway in the Borough, which is the Rockaway River UNT. This spans 1.1 miles within the Borough.

Policies regarding surface water classifications and surface water quality criteria that are necessary to protect the quality of New Jersey's surface waters are found in the Surface Water Quality Standards (SWQS), established under the New Jersey Administrative Code at N.J.A.C. 7:9B. Waterways designated as Category 1 (C-1) have Exceptional Ecological Significance, are an Exceptional Fisheries Resource, are defined as having an Exceptional Water Supply Significance, or have Exceptional Recreational Significance. Additionally, within the Highlands Region, C-1 waterways are typically capable of supporting reproductive populations of trout and other species that are highly dependent upon exceptional water quality. The C-1 classification signifies the highest level of protection for waterways throughout the Highlands and the rest of New Jersey.

Streams

Mountain Lakes Borough contains multiple streams totaling 7.8 miles in length. Among the streams are:

- **Troy Brook tributary:** 5.4 miles
- **Un-coded tributary:** 1.2 miles
- **Rockaway River tributary:** 5,275.8 feet
- **Troy Brook**: 1,305.9 feet

Prime Groundwater Recharge Areas

A total of 1,513.7 acres, or 81.3% of Mountain Lakes Borough, provides an average groundwater recharge rate of 13.6 inches per year. Prime Groundwater Recharge Areas cover 968.2 acres, or 52.0 percent, of the Mountain Lakes Borough (**Figure 5**).

Groundwater recharge is the process by which surface water, from lakes, streams, or rainwater runoff, flows or seeps downwards beneath the ground surface, saturating soil or rock. Groundwater is contained in porous rocks and sediments. Where such water-holding rocks or unconsolidated materials yield a usable quantity of water, it is called an aquifer. Aquifers are the source from which drinking water is drawn through wells.

A Groundwater Recharge Area is a place where water is able to seep into the ground and refill an aquifer because no confining layer is present. While all Ground Water Recharge Areas are necessary for a healthy aquifer, this dataset highlights Prime Groundwater Recharge Areas (PGWRA), which are those areas that, when combined, most efficiently provide 40 percent or more of the total recharge volume for each HUC14 subwatershed.

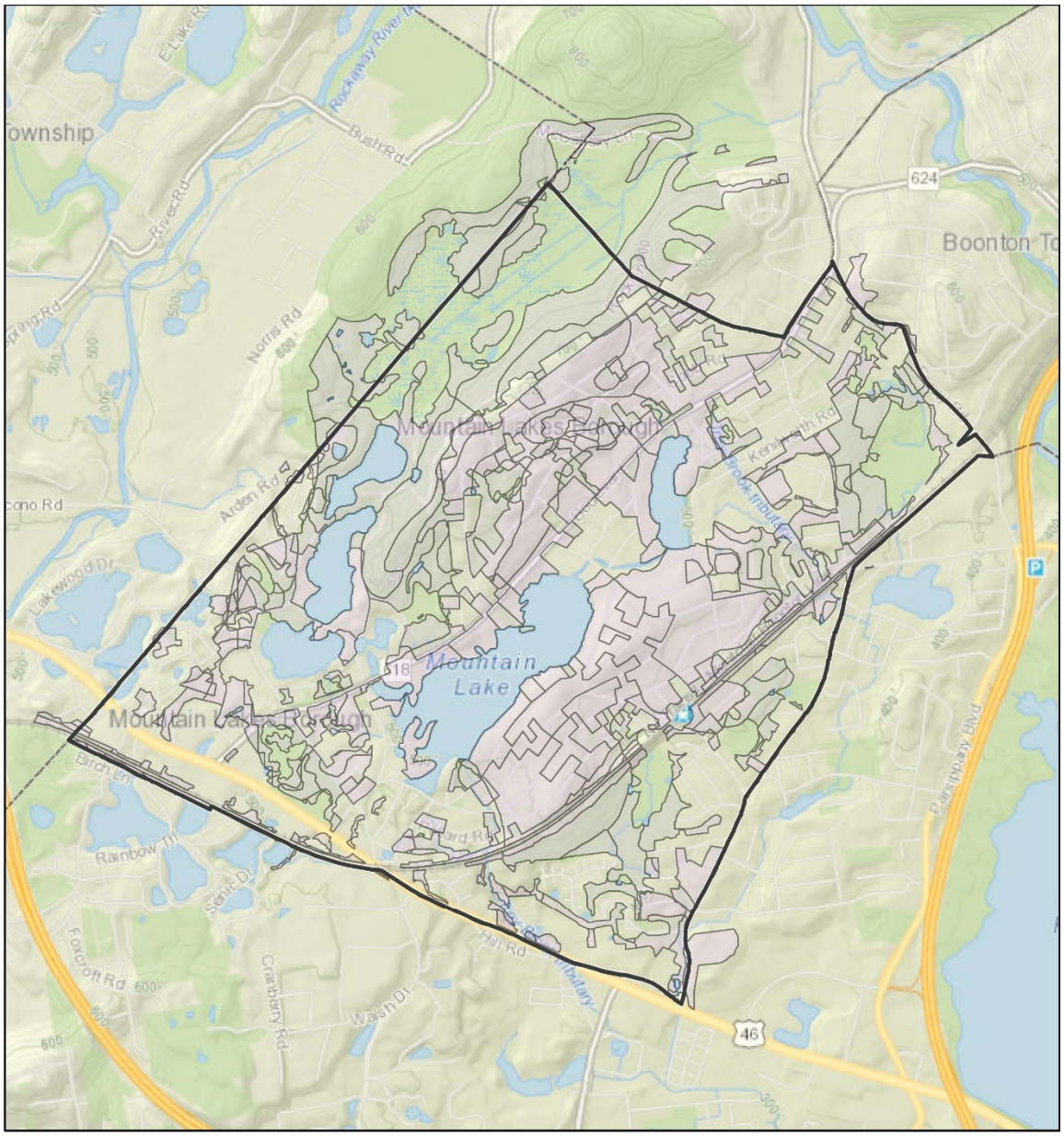
Prime Groundwater Recharge Areas are not stand-alone features, but instead are totally interrelated to local anthropogenic, ecological, geological, and hydro-geological conditions, which function as constraints that control the degree of infiltration and hence the volume of water that is recharged to groundwater base flow and aquifer systems. Changes in anthropogenic factors, particularly land use, greatly affect the degree of infiltration and water quality within a groundwater recharge area by changing the ecological, geological, and hydro-geological constraining factors.

Highlands Open Water Protection Areas

A total of 1,080.2 acres, or 58.0%, of Mountain Lakes Borough is located within an Open Water Protection Area (**Figure 6**).

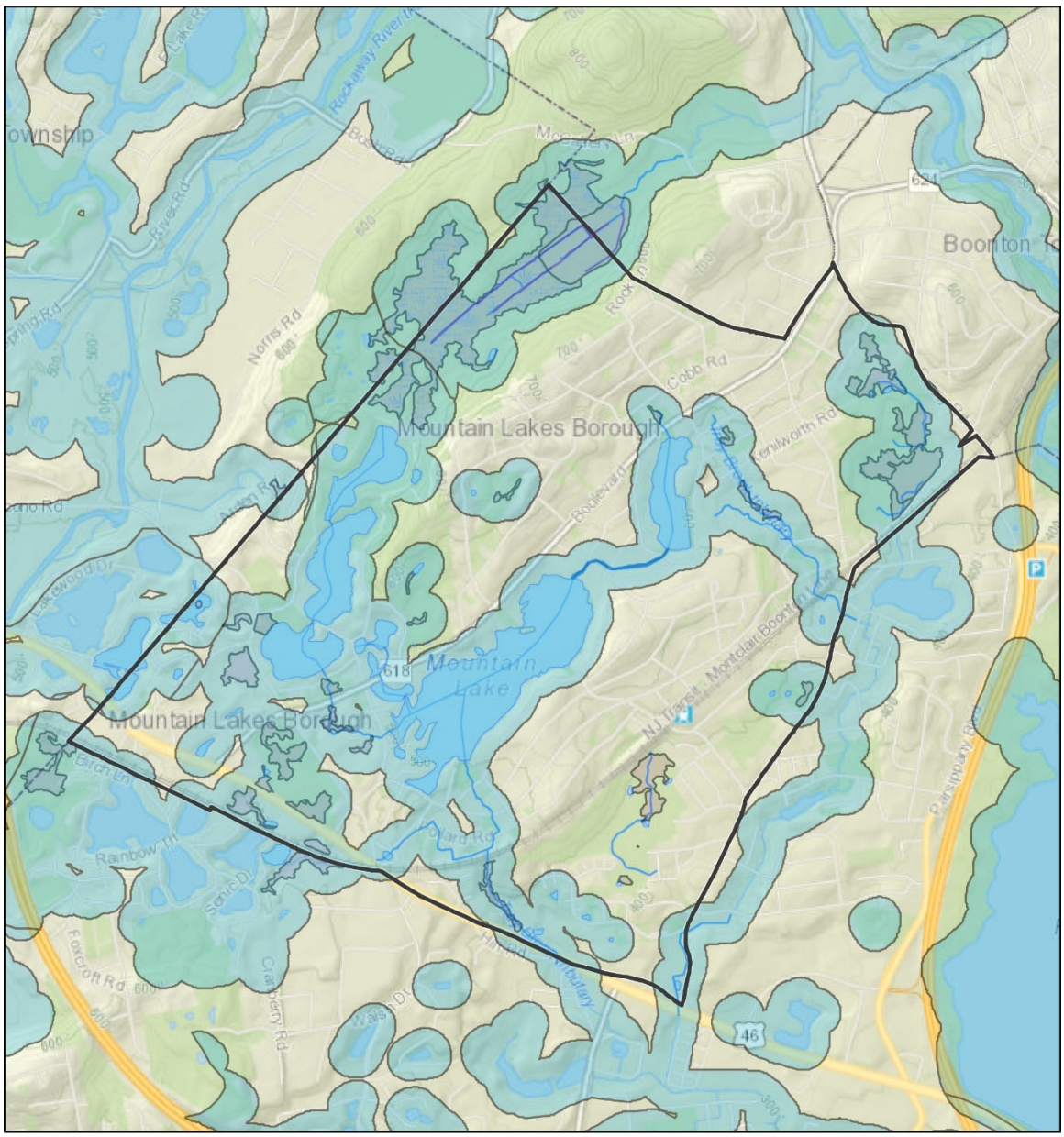
The Highlands Open Waters Protection Area is a 300-foot buffer around Highlands Open Waters, which are defined by the Highlands Act as all springs, streams (including intermittent, ephemeral, and perennial streams), wetlands, and bodies of surface water, whether natural or artificial (excluding swimming pools), that are located wholly or partially within the boundaries of the Highlands Region. Highlands Open Waters buffers provide or contribute to habitat, stormwater and floodwater management and filtration, water quality protection, temperature moderation, aquatic ecosystem integrity, and channel integrity.

Figure 5. *Prime Groundwater Recharge Areas*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Figure 6. *Open Waters*



Mountain Lakes Borough
Category 1 Waterways
Highlands Open Water Protection Areas

Waterbodies
Lake/Pond
Reservoir

Stream/River
Wetlands
Streams

Preservation and Planning Area
Highlands Planning Area
Municipal Boundaries of New Jersey

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Integrated List of Waters (2016)

The 2016 Integrated Report assesses subwatersheds at the HUC14 level for attainment of each of several designated uses. Designated Uses include Aquatic Life (general), Aquatic Life (trout), Recreation, Public Water Supply, Shellfish Harvest, and Fish Consumption. The Integrated List lists the attainment of HUC14s of designated uses based on three categories as follows:

- **Fully Supporting**: The designated use is assessed and attained, and all other designated uses in the assessment unit are assessed and attained. (Note: The fish consumption use is not used for this determination based on USEPA guidance.)
- **Non-Supporting:** The designated use is not attained. The watershed is impaired or threatened for the designated use by a pollutant(s) that may or may not require a Total Maximum Daily Load.
- **Insufficient Data**: Insufficient or no data are available to determine if the designated use is attained.

Mountain Lakes Borough is within four (4) subwatersheds, and scores are shown below:

- **Troy Brook (above Reynolds Ave)** subwatershed (HUC14 02030103020080) has an Aquatic Life (General) value of Non-Support, an Aquatic Life (Trout) value of NA, a Recreation value of Insufficient Data, a Public Water Supply value of Full Support, and a Fish Consumption value of Non-Support.
- **Rockaway R (Boonton dam to Stony Brook)** subwatershed (HUC14 02030103030150) has an Aquatic Life (General) value of Full Support, an Aquatic Life (Trout) value of Insufficient Data, a Recreation value of Full Support, a Public Water Supply value of Non-Support, and a Fish Consumption value of Non-Support.
- **Den Brook** subwatershed (HUC14 02030103030120) has an Aquatic Life (General) value of Non-Support, an Aquatic Life (Trout) value of Insufficient Data, a Recreation value of Insufficient Data, a Public Water Supply value of Non-Support, and a Fish Consumption value of Insufficient Data.
- **Rockaway R** (Stony Brook to BM 534 brdg) subwatershed (HUC14 02030103030140) has an Aquatic Life (General) value of Non-Support, an Aquatic Life (Trout) value of NA, a Recreation value of Insufficient Data, a Public Water Supply value of Non-Support, and a Fish Consumption value of Non-Support.

Water quality affects drinking water, recreation, ecosystems, and aesthetic beauty. The most common parameters that indicate poor surface and groundwater quality are fecal coliform bacteria, phosphorus, temperature, arsenic, and nitrate-nitrogen. These and other contaminants can either cause health risks if ingested or harm native biota.

Water quality is influenced by the type and intensity of land use adjacent to and upstream of the water body. Pollutants are contributed to the environment from a wide variety of nonpoint sources (NPS), including human development (through stormwater and residential runoff, septic systems, fertilizer applications on lawns, and Brownfields or contaminated sites), domestic or captive animals, agricultural practices (crop farming, livestock, and manure applications), and wildlife (large

populations). Pollutants from these sources can reach water bodies directly, through overland runoff, or through stormwater conveyance facilities. Point sources also exist, primarily wastewater treatment plants serving communities or industrial facilities. Each potential source will respond to one or more management strategies designed to eliminate or reduce that source of pollution. Each management strategy has one or more entities that can take the lead responsibility to affect the strategy. Various funding sources are available to assist in accomplishing the management strategies.

Section 303(d) of the Federal Water Pollution Control Act (33 U.S.C. 1313(c)), commonly known as the Clean Water Act, requires states to identify "Impaired Waters" where specific designated uses are not fully supported. Known as the 303(d) list, this list identifies the name of the water body and the pollutant or pollutants causing the water body to be listed as impaired. Section 305(b) of the Clean Water Act also requires states to periodically assess and report on the overall quality of their waters. With guidance from USEPA, in 2002, the NJDEP integrated the 303(d) report with the 305(b) report into one report titled the New Jersey Water Quality Monitoring and Assessment Report (Integrated Report).

Total Maximum Daily Load

Mountain Lakes Borough is located within four (4) subwatersheds that have Total Maximum Daily Load (TMDL) requirements for:

- **Troy** Brook (above Reynolds Ave): Total Phosphorus (TMDL established in 2008) & Mercury (TMDL established 2010)
- **Rockaway R (Boonton dam to Stony Brook):** Total Phosphorus (TMDL established in 2008) & Mercury (TMDL established 2010)
- **Den Brook:** Total Phosphorus (TMDL established in 2008)
- **Rockaway** R (Stony Brook to BM 534 brdg): Mercury (TMDL established in 2010) & Total Phosphorus (TMDL established 2008)

Net Water Availability

Mountain Lakes Borough is in four (4) subwatersheds (**Figure 7**), which have net water availability values calculated as follows:

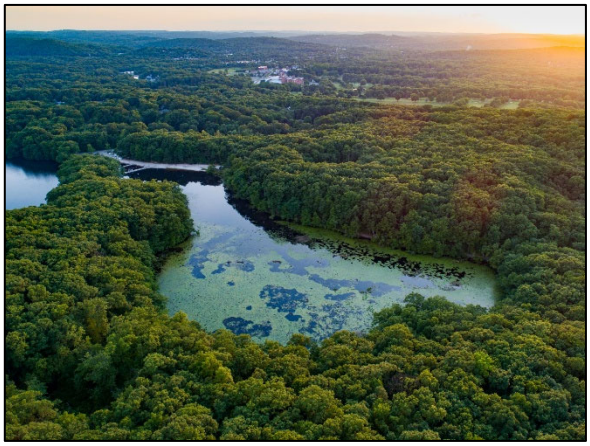
- **Troy Brook (above Reynolds Ave)** subwatershed (HUC14 02030103020080) has a calculated net water availability of -7.1 MGD.
- **Rockaway R (Boonton dam to Stony Brook)** subwatershed (HUC14 02030103030150) has a calculated net water availability of 0.0 MGD.
- **Den Brook** subwatershed (HUC14 02030103030120) has a calculated net water availability of 0.1 MGD.
- **Rockaway R (Stony Brook to BM 534 brdg)** subwatershed (HUC14 02030103030140) has a calculated net water availability of -2.1 MGD.

A central goal of the Highlands Council Regional Master Plan (RMP) is to determine the amount and type of human development and activity that the Highlands Region ecosystem can sustain while still

maintaining the overall ecological values thereof, with special consideration for surface and groundwater quality and supply. Accordingly, the RMP provides a Net Water Availability analysis, which quantifies the available water resources in the region. The Net Water Availability analysis identifies areas where water resources are or are not sufficient to support existing and future human and ecological uses.

Where Net Water Availability is positive, it is assumed there is water available beyond existing demands. This availability must not be exceeded, so that new deficits are avoided in the future. Where Net Water Availability is negative, existing uses are exceeding sustainable supplies, and the subwatershed is deemed to be a Current Deficit Area. In addition, maintenance of stream flows within any HUC14 subwatersheds upstream of a Current Deficit Area is necessary without further impairing the ecological health of the stream. Where water resources are stressed, additional planning and mitigation are necessary.

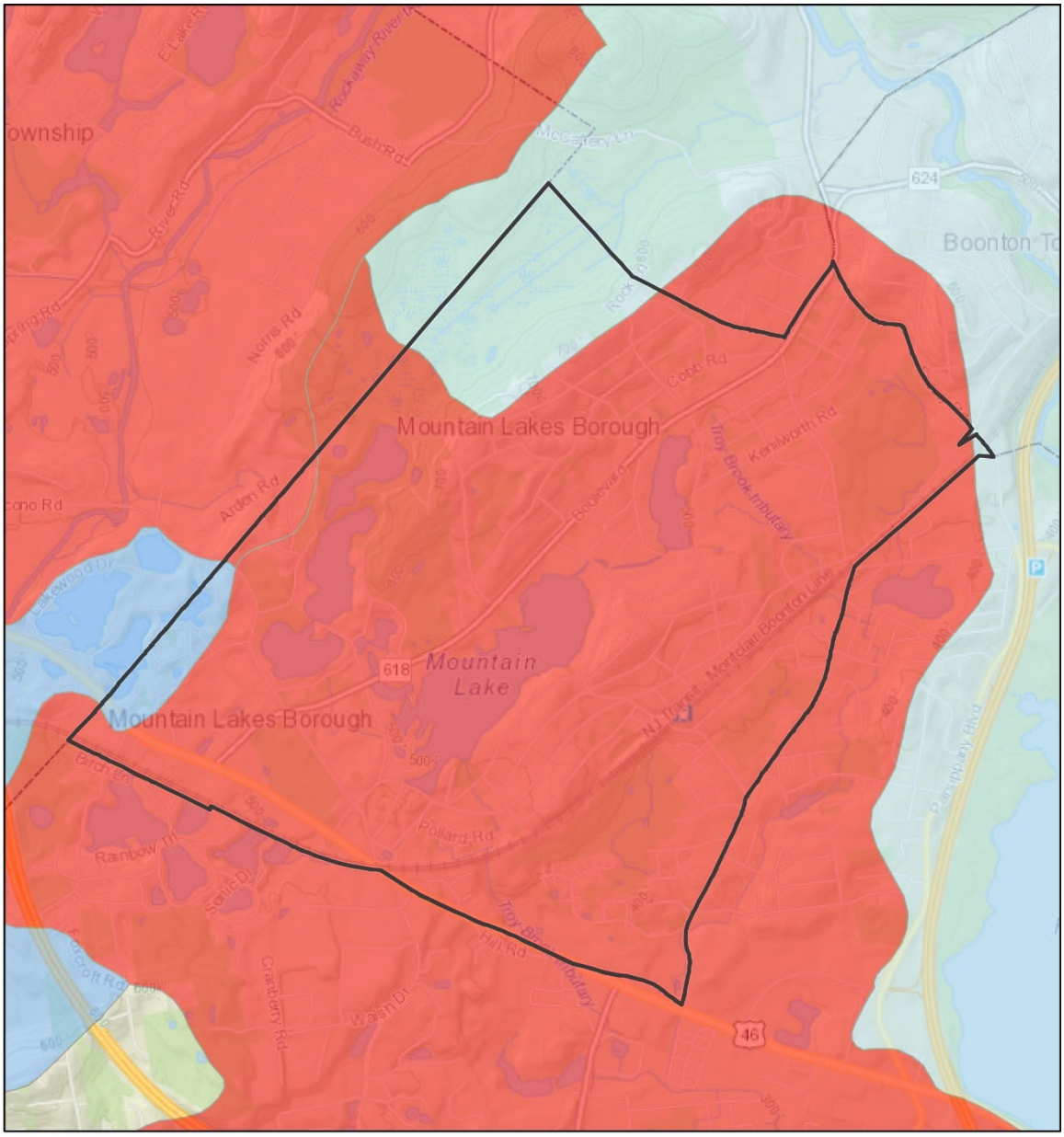
The Net Water Availability analysis examines stream base flows as a surrogate for water sustainability because the protection of base flow is critical to maintaining healthy aquatic ecosystems and protecting potable surface water supplies, particularly during periods of drought. Overuse of water can reduce base flows, impair ecological function and integrity, and reduce the reliability of potable water supplies.[2]



Polillio, Joe (2018). Drone Photography in Mountain Lakes, New. https://www.aerojo.com/aerial-photography-in-mountain-lakes-new-jersey/.
by Joe Polillio | Jul 9, 2018

[2] NJ Highlands Water Protection and Planning Council.

Figure 7. *Net Water Availability*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Subwatersheds (HUC11)

Mountain Lakes Borough is in two (2) HUC11 subwatersheds, as follows:

- **Rockaway River** (02030103030)
- **Whippany River** (02030103020)

As defined by the New Jersey Department of Environmental Protection, a watershed is "the area of land that drains into a body of water such as a river, lake, stream or bay. It is separated from other systems by high points in the area such as hills or slopes. It includes not only the waterway itself but also the entire land area that drains to it."

Watersheds are delineated and identified by means of the Hydrologic Unit Code (HUC) system, which was developed by the United States Geological Survey for delineating and identifying drainage areas. The system starts with the largest possible drainage areas and progressively smaller subdivisions of the drainage area are delineated and numbered in a nested fashion. So, for example, "HUC11" denotes a watershed identified by an 11-digit code, while a HUC14 is a smaller area than a HUC11, and is more local in scale.

In New Jersey, HUC11 subwatersheds are a summarization of HUC14 subwatersheds. In total, there are a total of 152 HUC11 subwatersheds, which range in size from 3.2 to 348.6 square miles, throughout the state. The Highlands Region contains 33 subwatersheds at the HUC11 level, and 183 HUC14 subwatersheds.

Surface Water Classification

Surface waters in Mountain Lakes (**Figure 8**) have the following classifications:

- **FW2-NT** (7.0 miles)
- **FW2-NTC1** (1.1 miles)

The Surface Water Quality Standards (SWQS) are rules established in New Jersey (N.J.A.C. 7:9B) to protect the integrity of the state's surface waters. The SWQS encompasses policies, surface water classifications, and water quality criteria to ensure that surface waters are suitable for designated uses like swimming, drinking water, and fishing. They also safeguard waters for specific uses such as trout production and maintenance.

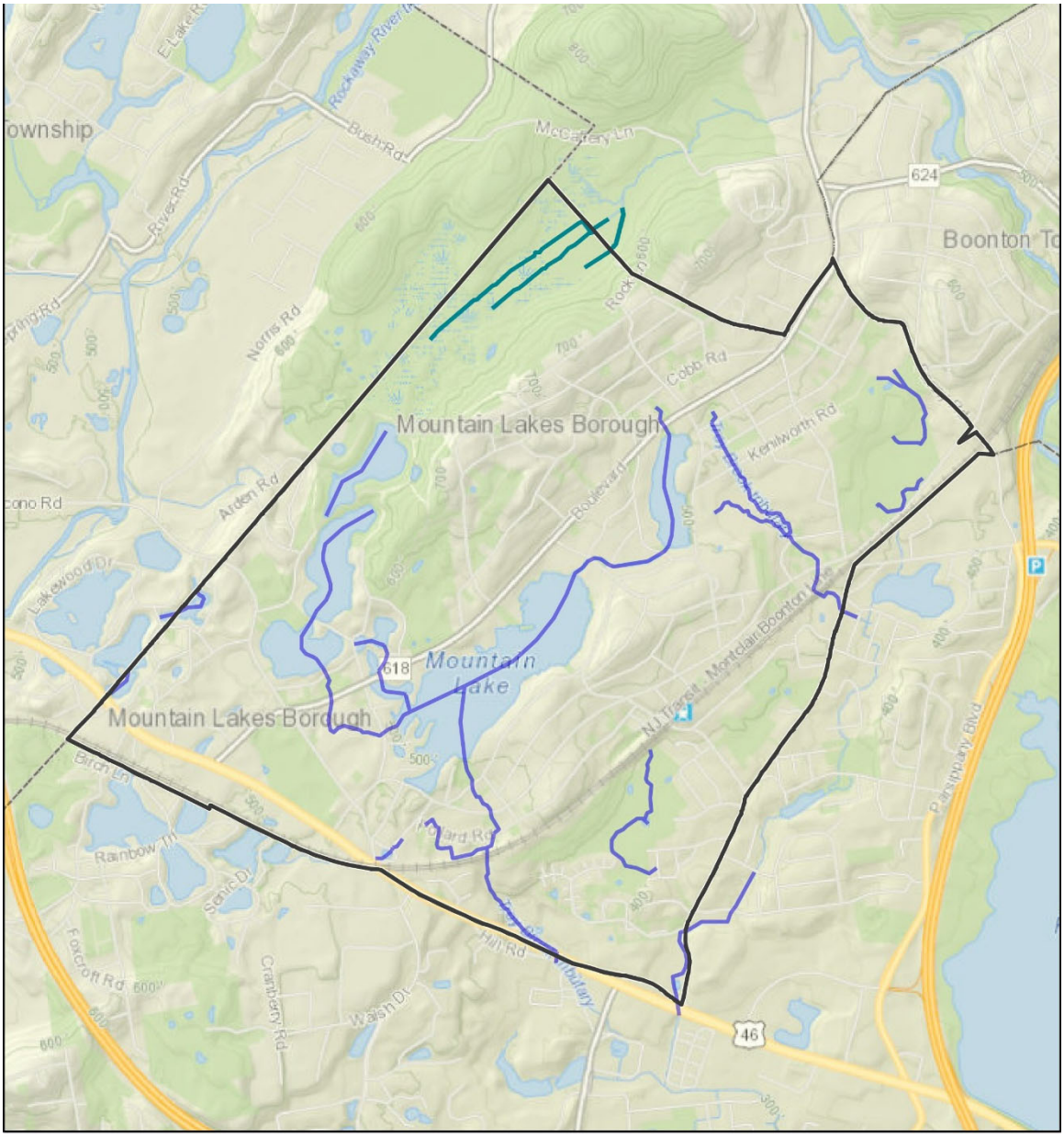
Surface water classifications identify the designated uses applicable to each water body. Freshwaters are divided into two (2) categories: FW1 and FW2. FW1 waters are free from wastewater discharges and are protected from development due to their ecological value. FW2 waters include all other freshwaters, except Pinelands (PL) waters. The potential of FW2 waters to support trout, which thrive at colder stream temperatures, are further characterized as trout production (FW2-TP), trout maintenance (FW2-TM), or non-trout (FW2-NT). Trout are important biological indicators of high-water quality, and the ability of waterways to support reproducing trout populations is recognized and

protected through NJDEP regulatory programs. Category One (C1) waterways are further protected due to their exceptional ecological relevance, recreational value, water supply significance, or fishery resources. C1 waterways are protected against any discernible change in the present water quality.

The federal Clean Water Act requires each state to address impaired or 'unhealthy' waterbodies through the development of Total Maximum Daily Loads (TMDL). TMDLs identify the source of impairment by pollutant type, classify the pollutant source as either point (e.g., municipal wastewater treatment plant discharges) or nonpoint source (e.g., excess fertilizer from residential or agricultural runoff), and quantify the necessary water quality improvements to meet the SWQS and make the waters swimmable, fishable, and/or safe for drinking. TMDLs aim to address pollutant sources and improve water quality in impaired waterbodies. State waters are regularly assessed to determine if SWQS are met, and impaired waters that do not meet the standards or support designated uses are placed on the 303(d) List of Water Quality Limited Waters.[3]

[3] NJ Department of Environmental Protection, Bureau of Environmental Analysis, Restoration and Standards (NJDEP, BEARS).

Figure 8. *Surface Water Classifications*



Water Quality Management Planning Areas

Mountain Lakes Borough is in the Northeast Water Quality Management Planning Area (WQMPA) (**Figure 9**).

The State of New Jersey is divided into 12 Water Quality Management Plan (WQMP) Areas, four (4) of which are located within the Highlands Region. An areawide Water Quality Management Plan (WQMP) was prepared by designated planning agencies pursuant to the Water Quality Planning Act (WQPA; N.J.S.A. 58:11A-1 et seq.) for each of WQMP area.

Water Source Areas

Mountain Lakes Borough is within two (2) Water Source Areas (**Figure 10**), which serve the following systems:

- **Passaic Valley Water Commission**: 3,722.1 acres
- **United Water/Jersey City**: 191.7 acres

A surface water source area represents the surface ground area where water will flow overland past the intake location. The Water Source Areas that are reflected in this dataset were delineated from the intake location or a controlling structure, such as a dam or weir, to the headwaters of all tributaries upstream of the intake.

Water Source Areas include areas for each active public (including community and non-community) surface water intake and for all wells considered under the direct influence of surface water. There are 61 Water Source Areas in the State of New Jersey; a total of 27 of these areas are found within the Highlands Region.

Figure 9. *Water Quality Management Planning Areas*

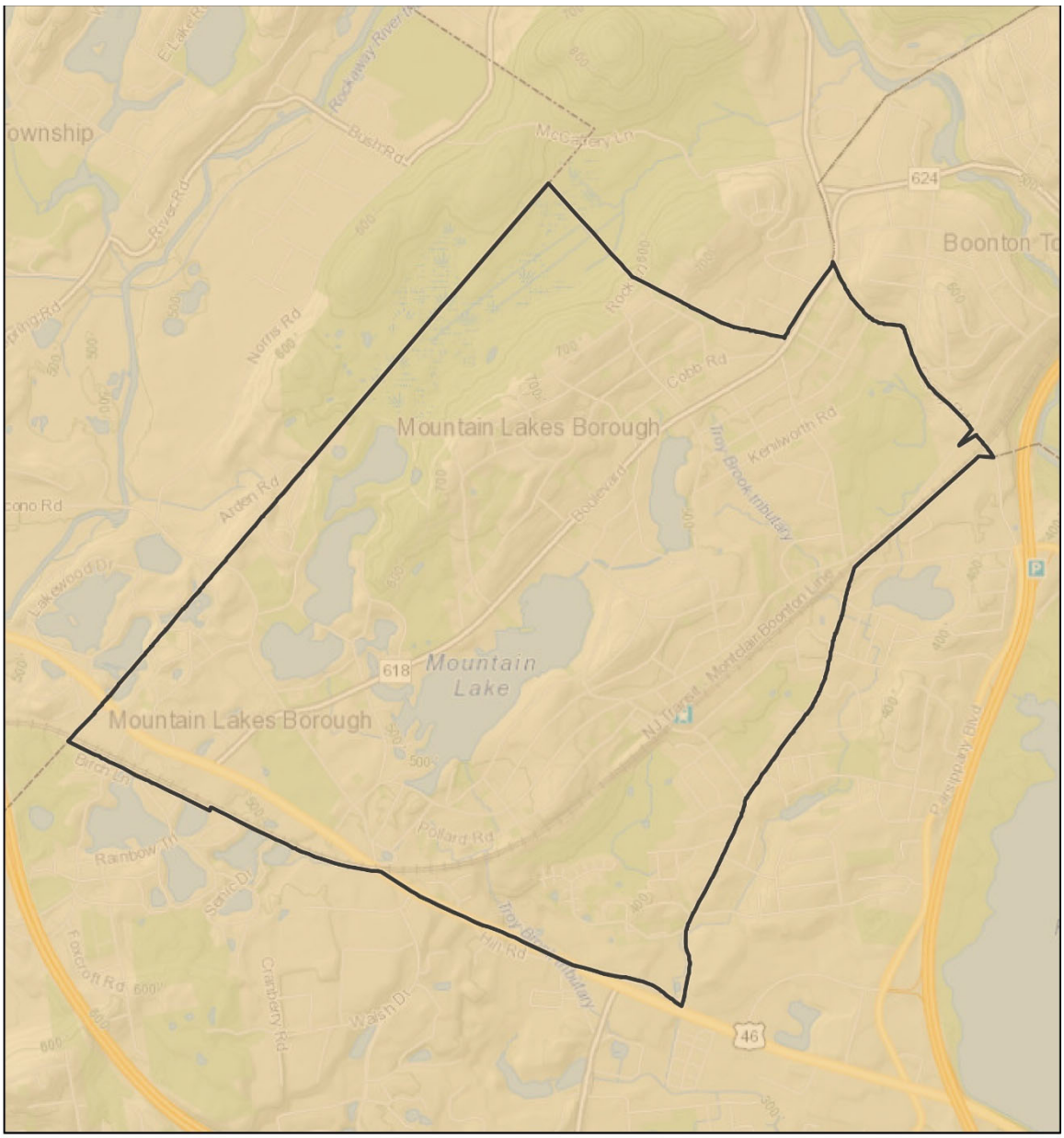
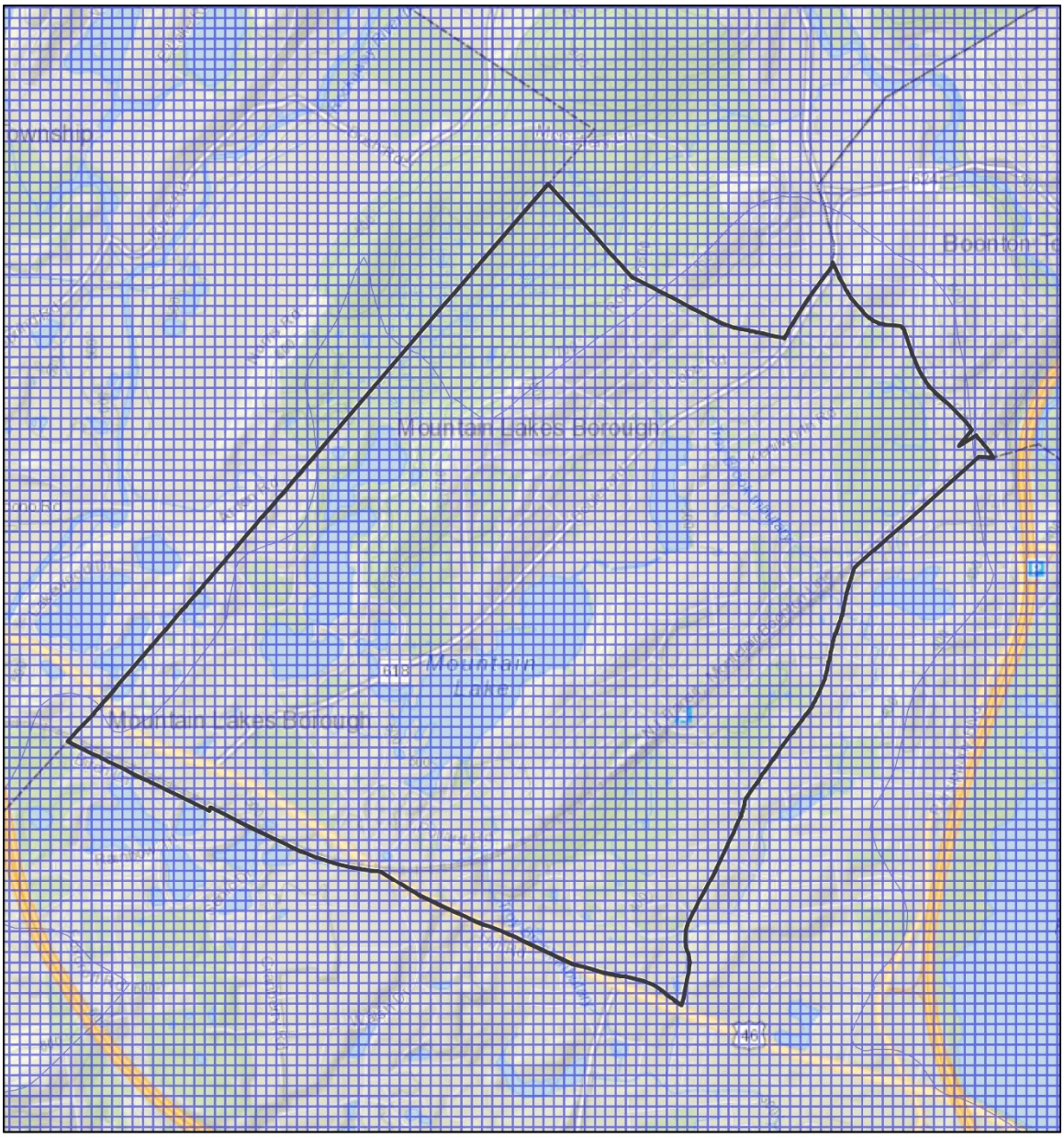


Figure 10. *Water Source Areas*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Waterbodies

Mountain Lakes Borough contains 44 waterbodies, totaling 158.8 acres (8.5%).[4] Among the waterbodies are:

- **Mountain Lake:** 79.8 acres
- **Crystal Lake:** 20.3 acres
- **Wildwood Lake:** 15.6 acres
- **Sunset Lake:** 15.3 acres
- **Birchwood Lake:** 13.6 acres
- **Unnamed:** 11.2 acres
- **Great Bay:** 2.2 acres
- **Troy Brook tributary:** 0.7 acres

Waterbodies include lakes, ponds, and other terrestrial waterbodies (excluding streams, rivers, and other waterways, which are addressed separately). These features provide habitat, have recreational and scenic value, perform important ecological functions, and are critical environmental resources.

Watershed Management Areas

Mountain Lakes Borough is located within the Upper Passaic, Whippany, and Rockaway Watershed Management Area.

As defined by the New Jersey Department of Environmental Protection, a watershed is, "the area of land that drains into a body of water such as a river, lake, stream, or bay. It is separated from other systems by changes in topography, such as hills or slopes. It includes not only the waterway itself but also the entire land area that drains to it."

New Jersey's subwatersheds are divided among 20 Watershed Management Areas (WMAs), with restoration efforts and characteristics specific to each. Eight (2) of the 20 WMAs are located wholly or partly within the Highlands Region. These are as follows:

- **Upper Delaware River** — WMA 1
- **Wallkill River** — WMA 2
- **Pompton, Pequannock, Wanaque, Ramapo Rivers** — WMA 3
- **Lower Passaic and Saddle Rivers** — WMA 4
- **Upper Passaic, Whippany, and Rockaway Rivers** — WMA 6
- **North and South Branch (Upper) Raritan River** — WMA 8
- **Main Stem (Lower) Raritan River** — WMA 9
- **Central Delaware Tributaries** — WMA 11

[4] USGS National Hydrography Dataset (NHD).

Watershed Values

Mountain Lakes Borough is in four (4) subwatersheds, which have watershed values as follows:

- **Troy Brook (above Reynolds Ave)** subwatershed (HUC14 02030103020080) has a watershed value of **Low**.
- **Rockaway R (Boonton dam to Stony Brook)** subwatershed (HUC14 02030103030150) has a watershed value of **Moderate**.
- **Den Brook** subwatershed (HUC14 02030103030120), which has a watershed value of Low
- **Rockaway R** (Stony Brook to BM 534 brdg) subwatershed (HUC14 02030103030140) has a watershed value of **Low**.

A watershed is an area of land that drains downslope to the lowest point. Water moves through a network of drainage pathways, both underground and on the surface, and these pathways converge into streams and rivers, which become progressively larger (i.e., higher order) as the water moves downstream and the size of the contributing drainage area increases. Because water moves downstream, any activity that affects the water quality, quantity, or rate of movement at one location can affect locations downstream.

Land use disturbances in watersheds can have significant negative impacts on wetland or stream morphology, vegetation, flood abatement, water chemistry, and aquatic biota. The extent of forest is an important indicator of watershed condition due to its strong association with water quality and as an indicator of the extent of alteration of a watershed due to past and current human activity. Habitat quality represents the percentage of a subwatershed that contains habitat for species of concern, including rare, threatened, or endangered species. Habitat quality is used as an indicator of the biological diversity of a watershed (i.e., the more habitat that supports a species of concern, the higher the quality of habitat within a watershed).

The New Jersey Highlands Council assesses watershed integrity as a means of evaluating the integrity and protection needs of the Highlands Open Waters. Watershed values are reported at the subwatershed level (HUC14). These are by indicators such as percent developed lands, habitat quality, percent total forest, percent core forest, proportion of total forest, and are provided as "Low," "Moderate," and "High."

- **High Watershed Value** describes subwatersheds that contain predominantly forest lands and include a significant portion of the watershed that is high-quality habitat. A high-value watershed typically consists of limited pre-existing developed land within the watershed.
- **Moderate Watershed Value** describes subwatersheds that contain forest lands and some habitat suitable for rare, threatened, or endangered species, but typically also contain developed lands.
- **Low Watershed Value** describes subwatersheds that contain a low proportion of forest lands, a low proportion of habitat suitable for rare, threatened, or endangered species, and typically consist of higher levels of developed lands.

Wellhead Protection Areas for Public Community Water Supply Wells

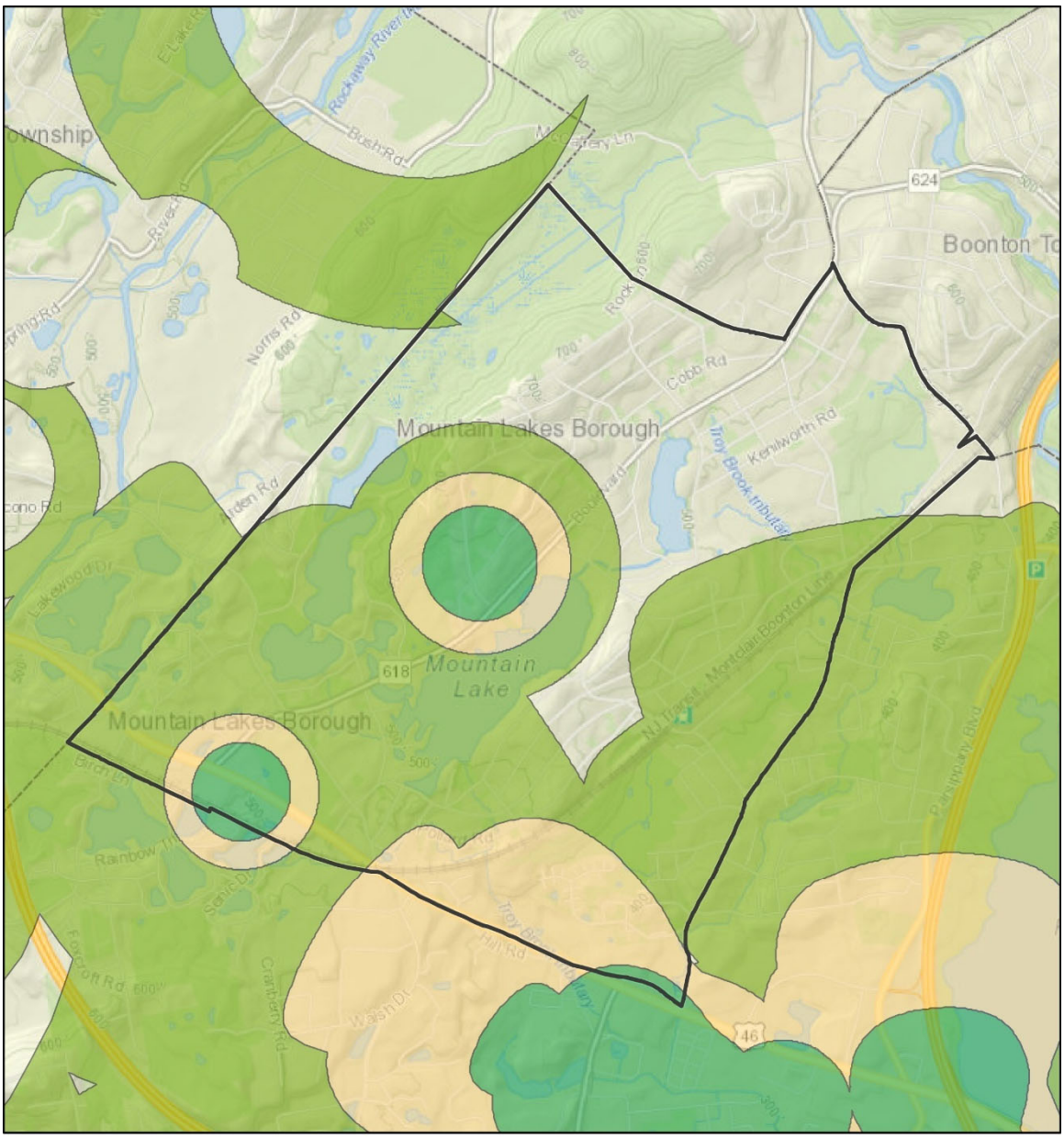
A total of 1,203.5 acres, or 64.7%, of Mountain Lakes Borough is located within a wellhead protection area as follows (**Figure 11**):

- **3.0:** 860.1 acres
- **2.0:** 255.2 acres
- **1.0:** 88.2 acres

A Wellhead Protection Area (WHPA) is defined as the surface and subsurface area surrounding a public water supply well, through which contaminants are reasonably likely to move toward and reach the well. More specifically, a WHPA is an area modeled around an unconfined Public Community Water Supply (PCWS) well in New Jersey that delineates the horizontal extent of groundwater captured by a well pumping at a specific rate over two-, five-, and twelve-year periods (classified as Tier 1, Tier 2 and Tier 3, respectively) for unconfined wells and a fifty foot radius delineated around each confined PCWS well (e.g., this corresponds to the water purveyor-controlled wellhead area as defined in the Safe Drinking Water Regulations [see NJAC 7:10-11.7(b)1]).

WHPA delineations are created in compliance with the Safe Drinking Water Act Amendments of 1986 and 1996 as part of the Source Water Area Protection Program (SWAP). The delineations are the first step in defining the sources of water to a public supply well. Within these areas, potential contamination will be assessed, and appropriate monitoring will be undertaken as subsequent phases of the NJDEP SWAP.

Figure 11. *Wellhead Protection Areas*



Mountain Lakes Borough

Wellhead Protection Areas for Public Community Water Supply Wells

- 12-Year Travel Time
- 5-Year Travel Time
- 2-Year Travel Time

Preservation and Planning Area

- Highlands Planning Area
- Municipal Boundaries of New Jersey

This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Wellhead Protection Areas for Public Non-Community Water Supply Wells

Mountain Lakes Borough is not within a wellhead protection area for any public non-community water supply wells.

A Public Non-Community Water Supply Well is a public water supply well used by individuals other than year-round residents for at least sixty days of the year. A non-community water supply well can be either transient or non-transient. A non-transient non-community water supply well serves at least twenty-five of the same people over a period of six (6) months during the year, such as schools, factories, and office buildings. A transient non-community water supply well is a well that serves year-round for at least 60 days of the year but does not serve the same individuals during that time period. Transient non-community water supply wells include rest stop areas, restaurants, and motels.

Public Non-Community Well Head Protection Area delineations are conducted in response to the Safe Drinking Water Act Amendments of 1986 and 1996 as part of the Source Water Area Protection Program (SWAP). The delineations are the first step in defining the sources of water to a public supply well. Within these areas, potential contamination will be assessed, and appropriate monitoring will be undertaken as subsequent phases of the New Jersey Department of Environmental Protection SWAP.

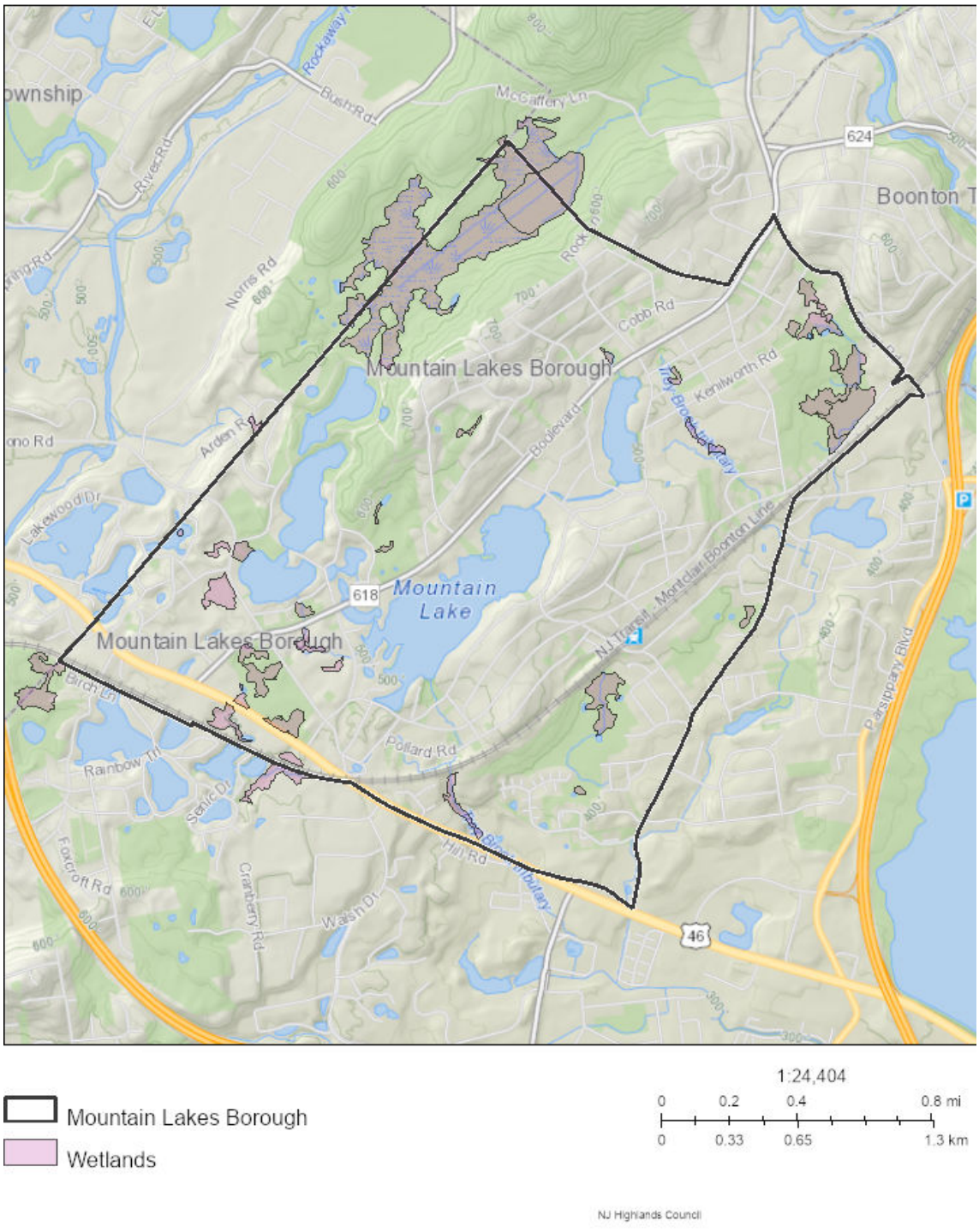
Wetlands

A total of 122.4 acres, or 6.6%, of Mountain Lakes Borough contains mapped wetland areas as of 2015 (**Figure 12**).

Wetlands are important natural resources that contribute significantly to an area's social, economic, and environmental health. Among the services they provide are filtration of chemicals, pollutants, and sediments from water, flood control, critical habitat for wildlife, and recreation and tourism.

The New Jersey Department of Environmental Protection (NJDEP) regulates many activities in a wetland, including removing vegetation, filling, and placing obstructions. Depending on the environmental value of a particular wetland, there may also be a transition area, or buffer, around the wetland that will require a waiver issued by the NJDEP for any activity within that zone. The RMP and Highlands Act include wetlands in its definition of Highlands Open Waters and thus they are afforded a 300-foot protection area (see Highlands Open Waters Protection Area).

Figure 12. *Wetlands*



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Geology

Carbonate Rock Areas

There is no mapped carbonate rock in Mountain Lakes.

Surficial Geology

Mountain Lakes is comprised of the following surficial geologic formations (**Figure 13**):

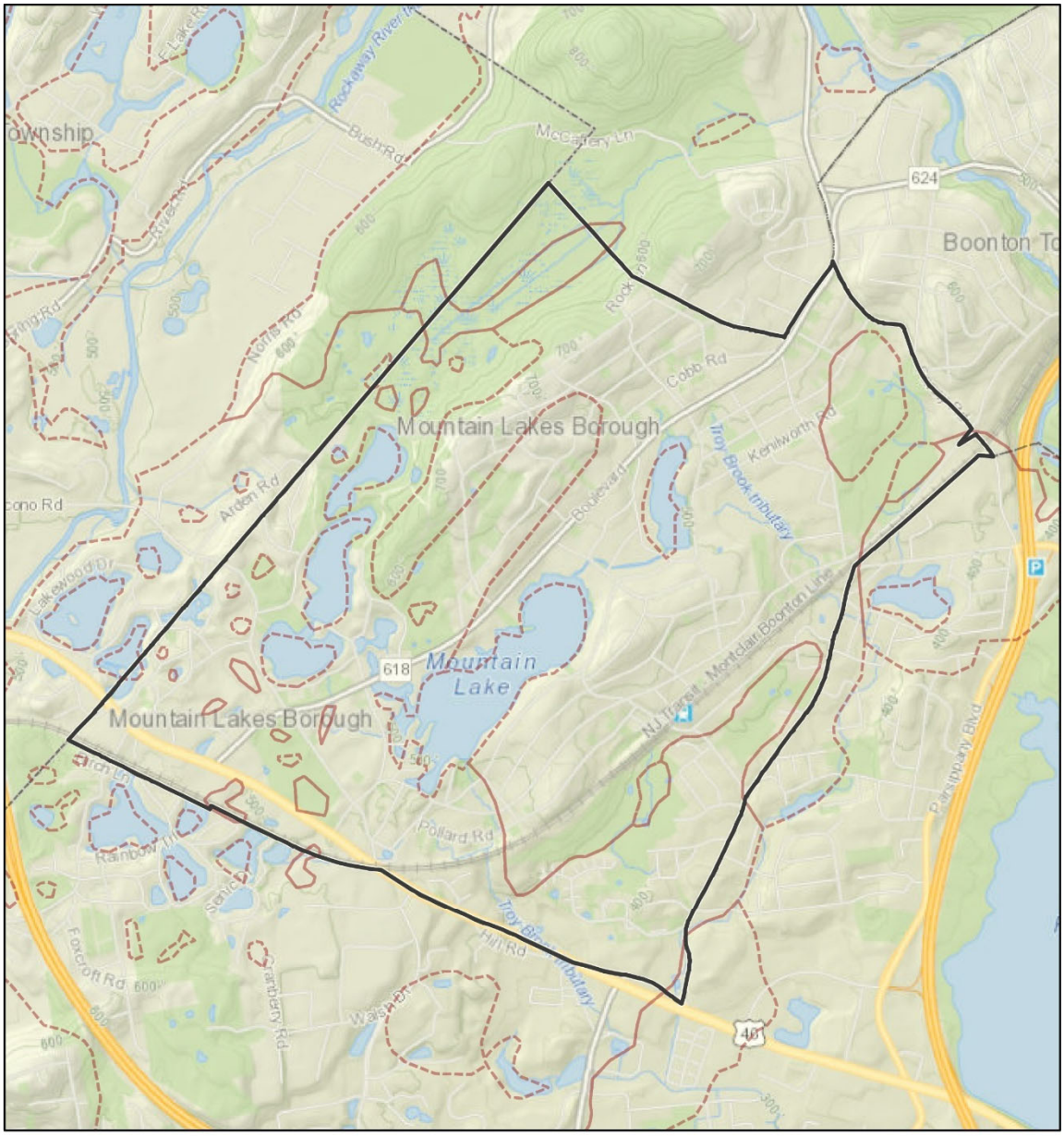
- **Netcong Till** (Qwtn): 835.7 acres, or 44.9%
- **Late Wisconsin Terminal Moraine Deposits, Netcong Till** (Qwmtn): 794.4 acres, or 42.7%
- **Swamp and Marsh Deposits** (Qs): 72.6 acres, or 3.9%
- **Late Wisconsin Glacial Delta Deposits** (Qwde): 18.5 acres, or 1.0%

Surficial geology is the unconsolidated sedimentary materials overlaying bedrock formations and is the parent material for soils. Bedrock geology is the consolidated, underlying rock that extends deep into the Earth's crust.

The properties of strata (e.g., layers) of surficial geology determine the physical extent of aquifers and the chemical quality of the water they yield. The strata also control how groundwater recharges and moves through the aquifers, how contaminants seep into and move through soil and groundwater, and where natural hazards like radon, sinkholes, and seismic instability may occur. Finally, these properties establish where geologic resources such as sand, gravel, peat, clay, quarry rock, and mineral ores are located. Geologic properties also determine the suitability of an area for the use of septic systems, the management of stormwater and surface runoff, and the stability of foundations for buildings, bridges, tunnels, and other structures.[5]

[5] NJ Geological Survey (NJGS).

Figure 13. *Surficial Geology*



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Physiographic Provinces

Mountain Lakes Borough is located within the following physiographic provinces:

- Highlands
- Piedmont

New Jersey's landscape is divided into four (4) distinctive regions known as physiographic provinces, each of which is characterized by unique geologic processes and landforms. Physiographic provinces classify landscapes based on terrain texture, rock type, and geologic structure and history. These attributes play an important role in determining the natural resources of an area. In New Jersey, beginning in the northwest and proceeding to the southeast, these provinces are identified as: Valley and Ridge; Highlands; Piedmont; and Coastal Plain. The Valley and Ridge, Highlands, and Piedmont provinces are all found within the Highlands Region.

- **Valley and Ridge** — The Valley and Ridge province is characterized by steep-sided, linear ridges and broad valleys. It is underlain by folded and faulted Paleozoic sedimentary rocks of Cambrian to Middle Devonian age (i.e., 540 to 374 million years old) and, to a minor extent, the earliest Silurian-aged igneous rocks.
- **Highlands Province** — The Highlands province is characterized by rugged topography consisting of a series of discontinuous, rounded ridges separated by deep, narrow valleys. The Highlands province is mainly underlain by highly metamorphosed igneous and sedimentary rocks of Middle Proterozoic age (i.e., 1.2 billion to about 900 million years old). There are also small areas of Late Proterozoic age metasedimentary rocks and diabase dikes. Many of the elongate northeast-trending valleys within the Highlands are underlain by sedimentary rocks like those in the Valley and Ridge Province. Middle Paleozoic sandstone and quartzite form some of the higher ridges in the Highlands province.
- **Piedmont Province** — The Piedmont Province is mainly underlain by slightly folded and faulted sedimentary rocks of Triassic and Jurassic age (i.e., 240 to 140 million years old) and igneous rocks of Jurassic age. Highly folded and faulted lower Paleozoic sedimentary rocks along the northwestern margin in the Clinton and Peapack areas, as well as at several smaller areas, are included as part of the Piedmont.

Soil Survey Geographic (SSURGO) Database

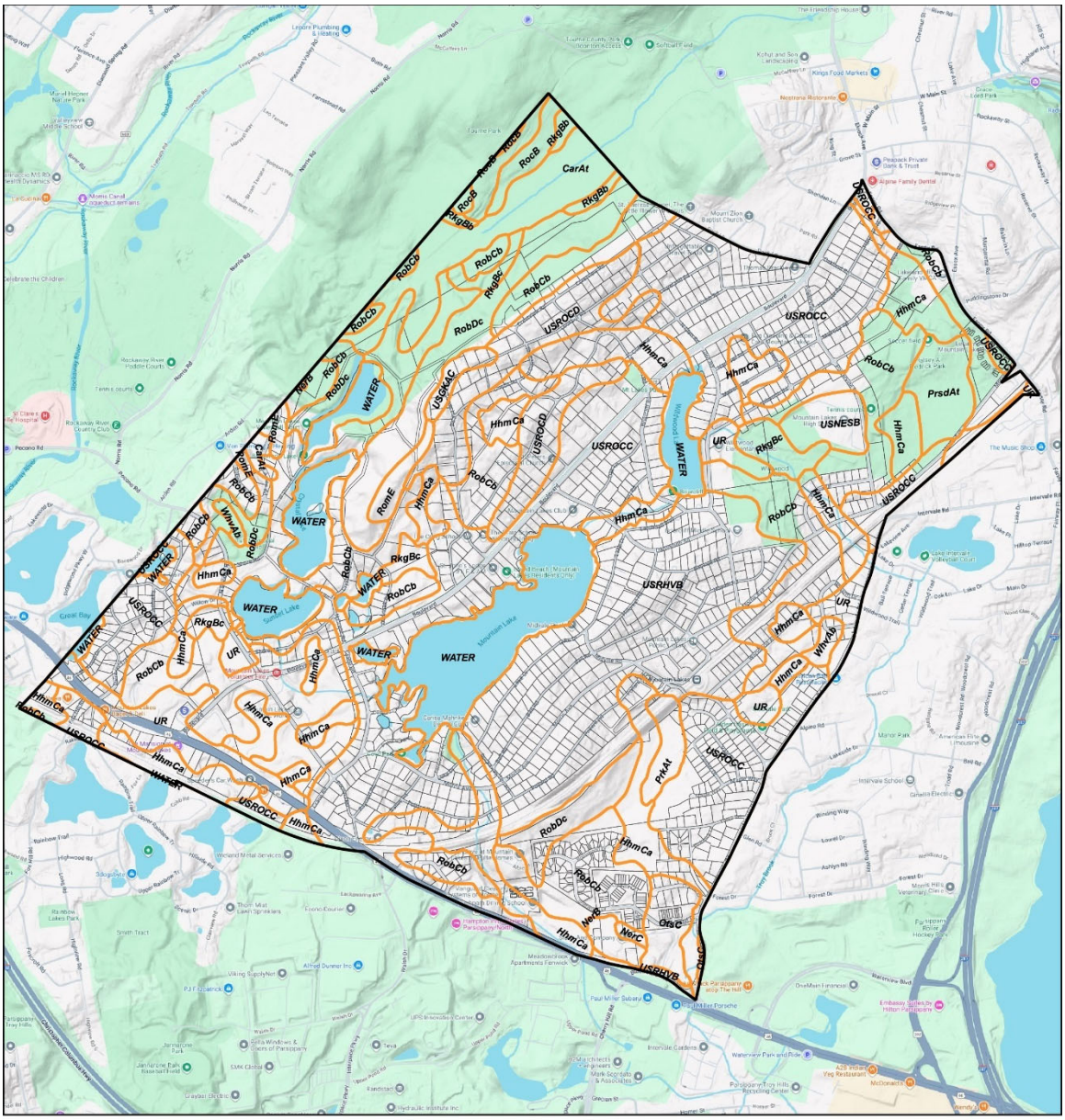
The soil composition of Mountain Lakes (**Figure 14**) is described as follows:

- **Urban land-Rockaway complex**, 3 to 15 percent slopes (USROCC): 451.2 acres (24.2%)
- **Rockaway sandy loam**, 8 to 15 percent slopes, very stony (RobCb): 383.9 acres (20.6%)
- **Hibernia loam**, 3 to 15 percent slopes, stony (HhmCa): 212.4 acres (11.4%)
- **Urban land-Riverhead complex**, 3 to 8 percent slopes (USRHVB): 211.9 acres (11.4%)
- **Water** (WATER): 147.4 acres (7.9%)
- **Rockaway sandy loam**, 15 to 25 percent slopes, extremely stony (RobDc): 107.4 acres (5.8%)
- **Urban land-Rockaway complex,** 15 to 25 percent slopes (USROCD): 75.3 acres (4.0%)
- **Urban land** (UR): 68.6 acres (3.7%)
- **Carlisle muck**, 0 to 2 percent slopes, frequently flooded (CarAt): 55.2 acres (3.0%)
- **Ridgebury loam**, 0 to 8 percent slopes, extremely stony (RkgBc): 27.3 acres (1.5%)
- **Preakness dark surface variant sandy loam**, 0 to 3 percent slopes, frequently (PrsdAt): 22.6 acres (1.2%)
- **Otisville gravelly loamy sand**, 3 to 15 percent slopes (OtsC): 17.4 acres (0.9%)
- **Urban land-Neshaminy complex**, 0 to 8 percent slopes (USNESB): 16.7 acres (0.9%)
- **Rockaway-Rock outcrop complex**, 25 to 45 percent slopes (RomE): 12.2 acres (0.7%)
- **Rockaway gravelly sandy loam,** 3 to 8 percent slopes (RocB): 11.6 acres (0.6%)
- **Preakness sandy loam,** 0 to 3 percent slopes, frequently flooded (PrkAt): 11.2 acres (0.6%)
- **Netcong gravelly sandy loam,** 3 to 8 percent slopes (NerB): 6.9 acres (0.4%)
- **Whitman loam,** 0 to 3 percent slopes, very stony (WhvAb): 6.8 acres (0.4%)
- **Urban land-Gladstone complex,** 8 to 15 percent slopes (USGKAC): 6.8 acres (0.4%)
- **Ridgebury loam,** 0 to 8 percent slopes, very stony (RkgBb): 6.5 acres (0.3%)
- **Netcong gravelly sandy loam,** 8 to 15 percent slopes (NerC): 1.7 acres (0.1%)

The Soil Survey Geographic (SSURGO) Database contains information about soil as collected by the National Cooperative Soil Survey over the course of a century. The SSURGO is updated by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS).

The NRCS plots soils by map units, with the names of each map unit being based on the characteristics of the dominant soils within that unit. Each unit may contain one (1) to three (3) major components and some minor components.

Figure 14. *Soil Survey*



Mountain Lakes Borough

Soil Survey Geographic (SSURGO) Database

This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Agriculture

Important Farmland Soils

Though Mountain Lakes is not actively being used for any agricultural purposes, a total of 67.7 acres, or 3.6 percent, of the Borough's land contains Important Farmland Soils. The Highlands RMP considers four (4) soil types as Important Farmland Soils: Prime, Statewide Importance, Unique, and Locally Important soils. These soils are critical agricultural resources within the Highlands Region. The primary factor used in determining important farmland is soil quality, which is measured based on land capability classes, important farmland classes, and soil productivity rating.[6]

Illustrated in **Figure 15**, Important Farmland Soils present in the Borough are as follows:

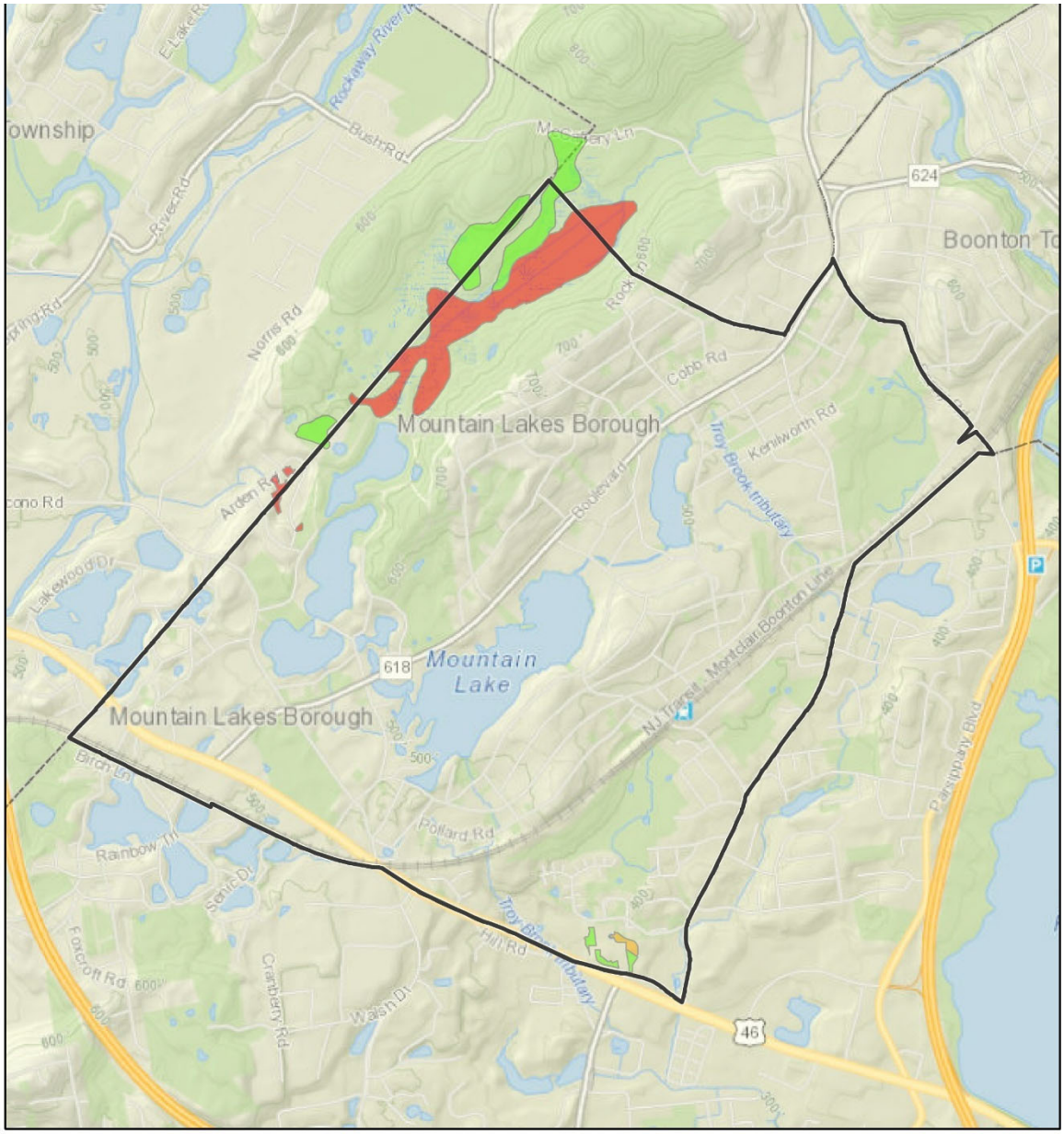
Code	Type	Description
NerB	Netcong gravelly sandy loam, 3 to 8 percent slopes	All areas are prime farmland
NerC	Netcong gravelly sandy loam, 8 to 15 percent slopes	Farmland of statewide importance, if drained; Farmland of statewide importance
CarAt	Carlisle much, 0 to 2 percent slopes, frequently flooded	Farmland of unique importance
RocB	Rockaway gravelly sandy loam, 3 to 8 percent slopes	All areas are prime farmland

The 2012 ERI provides a thorough discussion of the geologic history of the region and includes detailed summaries of every type of soil within the Borough, including those not classified as Important Farmland Soils. For purposes of this section, only Important Farmland Soils are described below (all information is from the USDA National Cooperative Soil Survey):

- **Rockaway Series:** The Rockaway series consists of very deep well or moderately well drained soils. They are moderately deep to a fragipan[7] in the lower part of the subsoil. The soils formed in till on uplands. Slope ranges from 3 to 60 percent. Permeability is moderately rapid or moderate above the fragipan and slow or very slow in the fragipan. A seasonal perched water table is at a depth of 1 ½ to 2 ½ feet for short periods. The slowly permeable fragipan and perched water table limit the use of these soils for onsite septic filter fields. These soils are surrounded by rough and rocky areas that make accessibility for development costly or economically prohibitive.
- **Netcong Series:** The Netcong series consists of deep, well drained soils on uplands. They formed in glacial till[8]. Netcong soils have very dark grayish brown gravelly sandy loam (Ap horizons, dark yellowish brown and strong brown gravelly sandy loam B horizons which have inclusions of gravelly loam and light yellowish brown sandy loam C horizons.
- **Carlisle Series:** The Carlisle series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials in depressions within lake plains, outwash plains, till plains, flood plains, and moraines.

[6] Natural Resources Conservation Service (NRCS).
[7] Fragipans are dense, subsurface soil layers that significantly restrict water flow and root penetration.
[8] Glacial till is unsorted glacial sediment.

Figure 15. *Important Farmland Soils.*



Mountain Lakes Borough

Important Farmland Soils

All areas are prime farmland

Farmland of statewide importance, if drained; Farmland of statewide importance

Farmland of unique importance

Preservation and Planning Area

Highlands Planning Area

Municipal Boundaries of New Jersey

This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Open Space

Preserved Lands

Mountain Lakes Borough contains 326.9 acres of land devoted to open space and/or recreation (**Figure 16**). These areas are classified as follows:

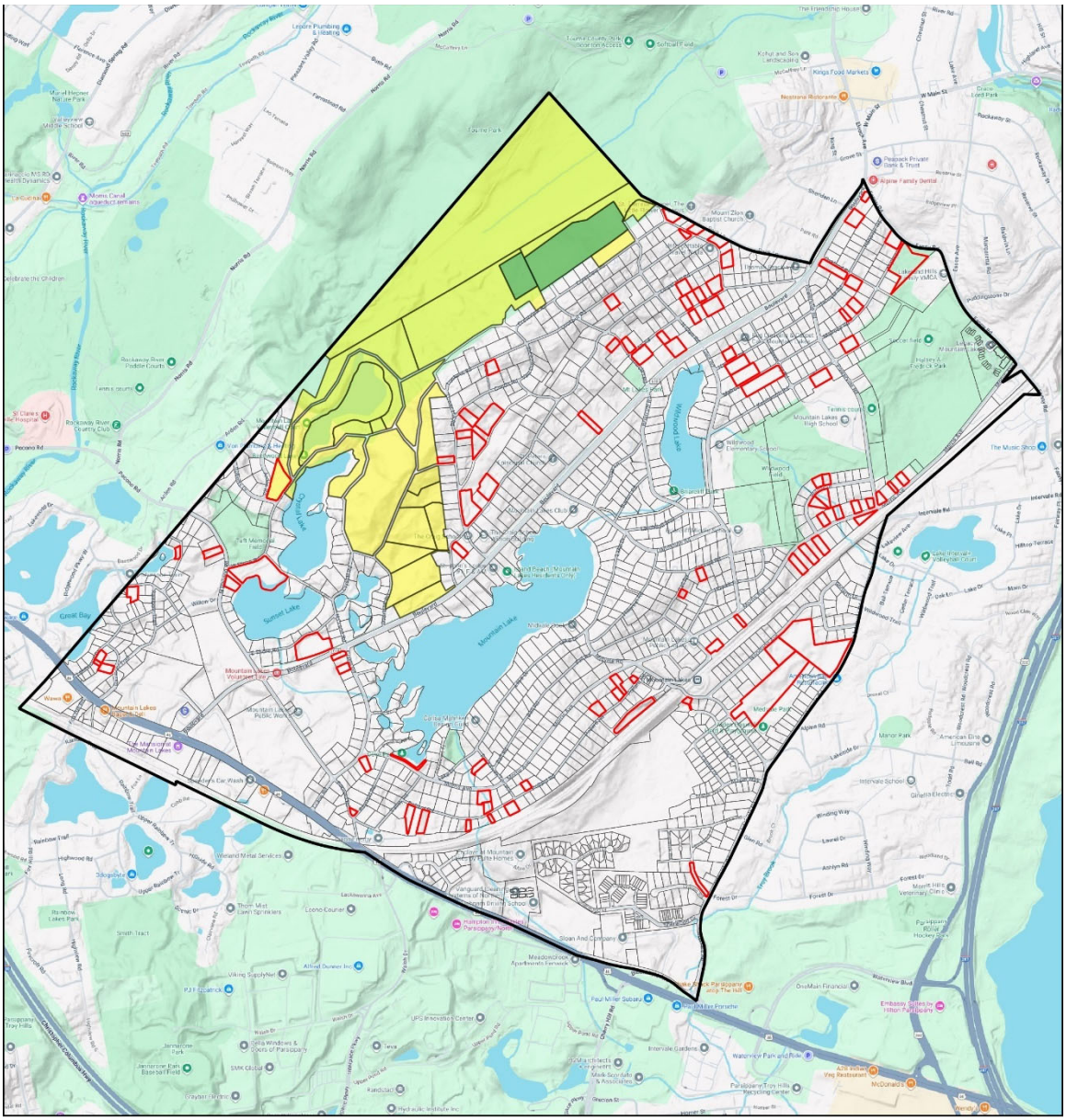
- **Municipal:** 307.7 acres
- **County:** 19.2 acres

The Highlands RMP and the Land Preservation and Stewardship Technical Report describe how the Highlands Council evaluates the status of land preservation within the Highlands Region. The technical report records the public and private resources that provide existing recreation and preserved lands for the Highlands Region. This inventory is a catalog of the public and private land and water areas that have been preserved for conservation and recreation or are presently protected as open space and recreation facilities. The inventory considers significant recreation and conservation resources in the Highlands Region, including:

- Public and private land and water areas maintained as conservation areas dedicated to the preservation of natural and cultural resources
- Public and private land and water areas available for active and passive recreation
- Lands that provide access to inland water bodies
- Other public or private lands that may not be directly accessible to the public but that enhance the open space system in the Highlands Region

In Mountain Lakes, Morris County has preserved the Tourne County Park (19.2 acres). The Borough itself owns and maintains the Richard Wilcox Municipal Park, in addition to 94 pocket parks, ranging in size from 0.11 acres to 8.01 acres.

Figure 16. *Open Space*



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Climate

Climate Norms (1981 through 2010)

The Borough of Mountain Lakes is characterized by the following climate conditions:

Climate Condition	Status
Mean annual temperature	50.4°F
Mean temperature of the warmest month (July)	72.5°F
Mean temperature of the coldest month (January)	28.2°F
Winter (Dec to Feb) mean temperature	29.8°F
Summer (Jun to Aug) mean temperature	70.3°F
Extreme minimum temperature over 30 years	-19.8°F
Extreme maximum temperature over 30 years	100.8°F
Mean annual precipitation	50.5 in.
Mean summer (May to Sep) precipitation	22.7 in.
Winter (Dec to Feb) precipitation	10.4 in.
Precipitation as snow	2.7 in.
Summer (Jun to Aug) precipitation	13.7 in.
Degree-days below 32°F (total number of chilling degree days from 1981 through 2010)	297.6 days
Degree-days above 41°F (total number of growing degree days from 1981 through 2010)	2,707.0 days
Degree-days below 64.4°F (total number of days below 64.4°F from 1981 through 2010)	3,214.9 days
Degree-days above 64.4°F (total number of days above 64.4°F from 1981 through 2010)	415.3 days
Average date of the beginning of the frost-free period (Julian Date, number of days since start of year)	125.2 (early May)
Average date of the end of the frost-free period (Julian Date, number of days since start of year)	281.7 (early October)
Average length of frost-free period (number of days between the beginning and end of the frost-free period)	156.4 days
Hargreave's reference evaporation	916.5
Hargreave's climatic moisture index	114.5
Mean annual solar radiation (megajoule per square meter and per day)	13.4 MJ m-2/d-1
Mean annual relative humidity (percent)	60.2
Data Source: AdaptWest Project	

Climate norms are based on long-term average historical values from 1981 through 2010 and provide a window into what type of conditions may be generally anticipated at present. They do not provide a means of prediction, nor do they capture anomalies that may occur in day-to-day weather. Through 2010, Mountain Lakes has experienced a mean annual temperature of 50.4°F, with the mean warmest

month being July, and the coldest month being January. The mean temperature of winters in the Borough is 29.8°F, and summers have a mean temperature of 70.3°F.

This information provides an important reference, particularly for identifying anticipated conditions that will impact stormwater management, stream flows, groundwater recharge, and water supply/availability. Expected rainfall, dates of last freeze or first frost, and the average growing season vary across the Highlands Region. While actual experienced conditions will change from year to year, identifying long-term norms provides a reliable baseline for consideration by decision-makers.

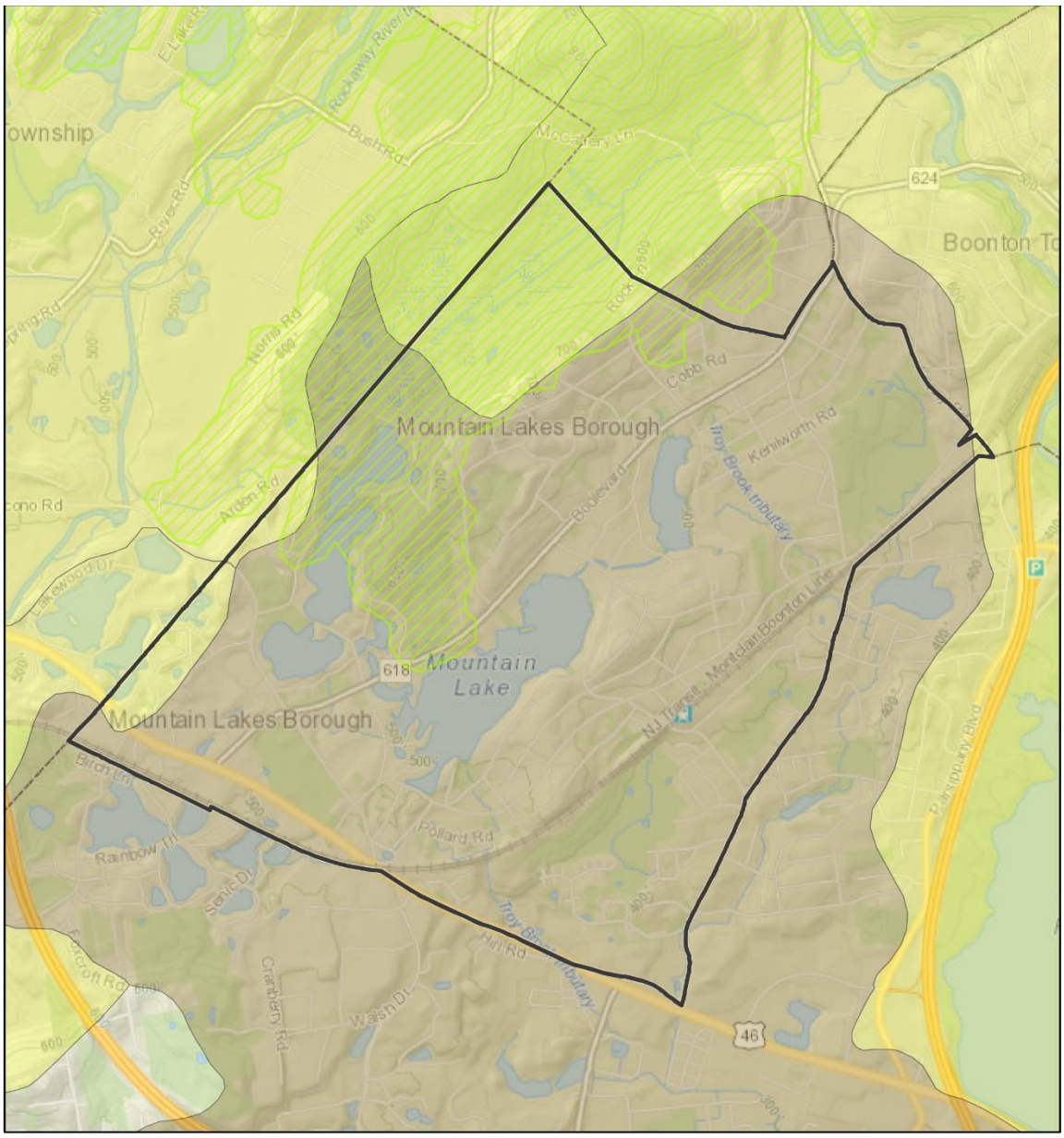
Conservation

Forest Resource Area

To identify where regionally significant forests are located within the Highlands Region, the Highlands Council assesses the ecological integrity of forests through the examination of landscape-level characteristics at both the forest patch and subwatershed (HUC14) level using measures of forest fragmentation. The result of this assessment is the spatial delineation of the Forest Resource Area within the Highlands Region. The Forest Resource Area includes the forests that are most suited to support ecological processes. The Forest Resource Area also includes high ecological value forest areas, including those forested areas that exhibit the least fragmentation and are vital for the maintenance of ecological processes.

A total of 346.5 acres, or 18.6%, of Mountain Lakes is located within the Forest Resource Area (**Figure 17**). This area is primarily the Tourne County Park in the northwestern area of the Borough, as well as the Richard Wilcox Municipal Park (the forested area between Crystal Lake and Tower Hill Road). A portion of Tourne County Park is preserved in the Borough, and the remainder extends into Denville Township and Boonton Township. Additionally, as discussed in the earlier **Open Space** section of this document, there are nearly 100 pocket parks in the Borough.

Figure 20. *Forest Resource Area and Forest Integrity Score*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council.

Forest Integrity Score

Mountain Lakes Borough is in 4 subwatersheds, which have forest integrity scores as follows:

- **Den Brook** subwatershed (HUC14 02030103030120) has a forest integrity value of **Moderate.**
- **Rockaway R (Boonton dam to Stony Brook)** subwatershed (HUC14 02030103030150) has a forest integrity value of **Moderate.**
- **Rockaway R (Stony Brook to BM 534 brdg)** subwatershed (HUC14 02030103030140) has a forest integrity value of **Moderate.**
- **Troy Brook (above Reynolds Ave)** subwatershed (HUC14 02030103020080) has a forest integrity value of **Low.**

The New Jersey Highlands Council assesses forest cover integrity scores at the subwatershed level (HUC14). Subwatersheds are evaluated based on forest patch size, total forest area, core forest area, mean distance to the closest patch, and proportion of total forest. The evaluation of these factors provides an accurate subwatershed rank based on forest integrity values and are provided as "Low," "Moderate," and "High."

- **High Forest Integrity** describes subwatersheds that are predominantly forested, including areas with a high proportion of forest cover consisting of high core forest area, large patch size, and a low distance to the nearest patch.
- **Moderate Forest Integrity** describes subwatersheds that are predominantly forested, but do not exhibit a high proportion of forest cover, core forest area, or patch size, and have an increase in distance to the nearest patch.
- **Low Forest Integrity** describes subwatersheds that are predominantly non-forested or include low values for proportion of forest cover and patch size, or a high distance to the nearest patch.

Total Forest Area (2020)

As of 2015, over half of the area in the Highlands Region was forested. Forests help protect water quality by capturing rainfall, recharging groundwater aquifers, filtering nutrients, preventing soil erosion, and reducing runoff. Forests also moderate temperature, filter the air of pollutants, and help combat global climate change. Moreover, forests provide habitat to plants and animals, and preserve biodiversity.

Forests also function as surface water filtration systems, protecting the integrity of vital water supplies. The positive correlation between forest cover and surface water quality is well documented in scientific literature. Larger forest tracts forming the core of the Highlands Region protect natural communities by reducing anthropogenic effects and protecting area-sensitive wildlife species.

The Highlands Region has a variety of forest areas, which are classified as follows:

- **Deciduous forest, non-evergreen species**
- **Coniferous forest, cone-bearing, evergreen species**
- **Mixed forest**
- **Deciduous brush/shrubland**
- **Mixed deciduous/coniferous brush/shrubland**
- **Old field**

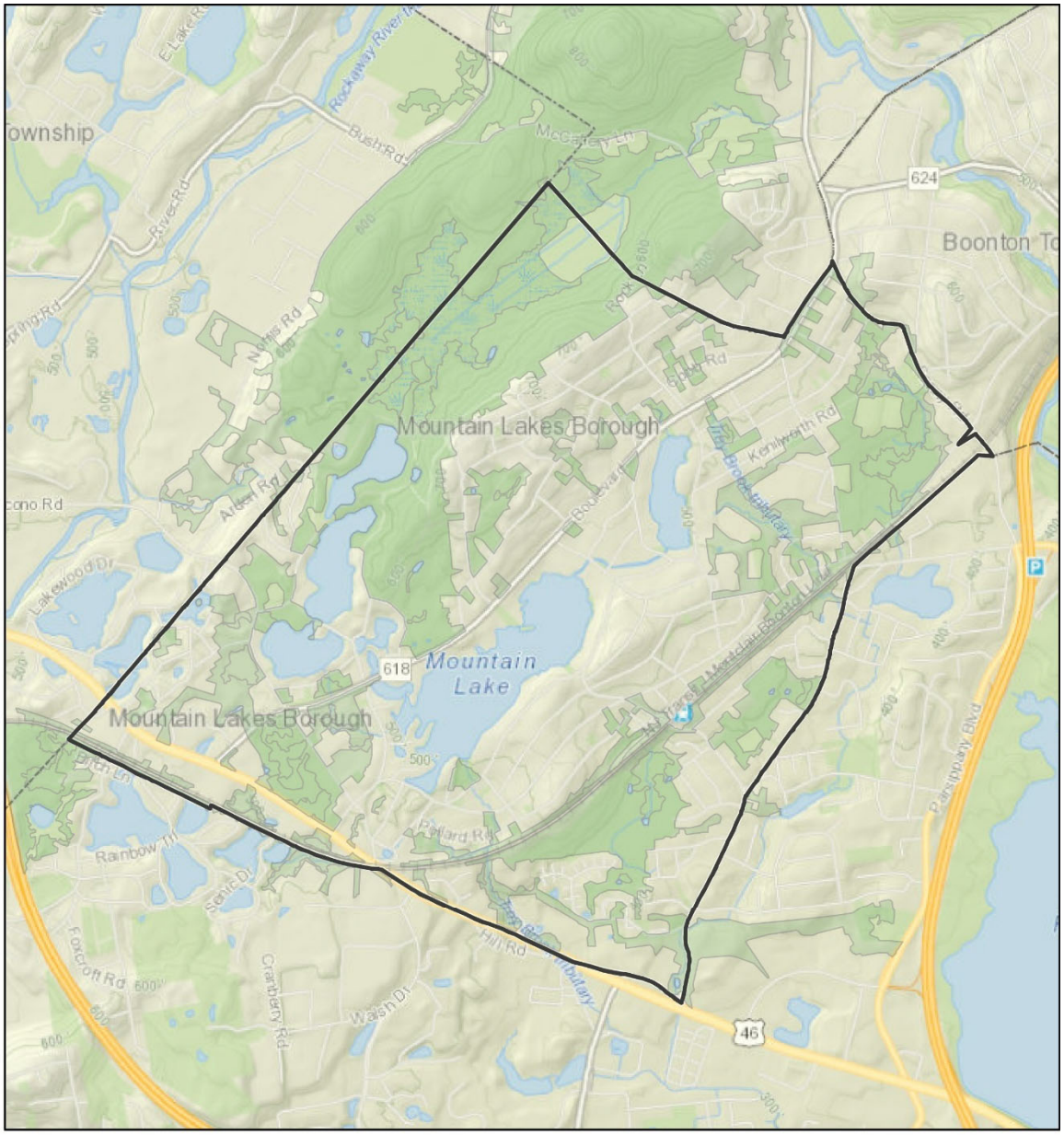
Within the Highlands Region, some deciduous forests are characterized by greater than 50% crown closure; however, most are less than 50% closed. Trees in these forests have an average height of at least 20 feet. Coniferous forests are generally at least 75% evergreen species. Brushland, whether deciduous, coniferous, or mixed, is generally no greater than 20 feet in height. Old field designation includes open areas that have less than 25 percent brush cover. The predominant cover types are grasses, herbaceous species, tree seedlings, and/or saplings.[9]

A total of 659.1 acres, or 35.4%, of Mountain Lakes Borough is located within a forested area (**Figure 18**).

- **Deciduous Forest** (>50% Crown Closure): 530.4 acres (28.5%)
- **Deciduous Wooded Wetlands**: 99.8 acres (5.4%)
- **Deciduous Brush/Shrubland:** 15.2 acres (0.8%)
- **Deciduous Scrub/Shrub Wetland**s: 8.2 acres (0.4%)
- **Deciduous Forest** (10-50% Crown Closure): 5.4 acres (0.3%)
- **Mixed Forest** (>50% Deciduous With >50% Crown Closure): 0.1 acres (0.0%)

[9] NJ Highlands Water Protection and Planning Council.

Figure 26. *Total Forest Area*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Riparian Areas

Riparian Areas serve as an interface between surface water bodies (e.g., streams, rivers, lakes, or reservoirs) and terrestrial ecosystems. Riparian Areas are hydrologically connected to surface water through overland surface runoff, hydric soils, wetlands, or subsurface flow. They moderate fluctuations in water temperature, help maintain groundwater recharge and stream base flow, stabilize stream banks, and provide flood storage areas.

During high flow or overland runoff events, riparian areas reduce erosion and sediment loads to surface water and remove excess nutrients and contaminants from floodwater. Riparian Areas also provide habitat for a variety of animal species and support terrestrial and aquatic food webs through the deposition of woody debris. The effectiveness of riparian areas is influenced by their size, intensity, type of land use, and riparian corridor condition (e.g., soils, slope, vegetation, wetlands, and floodplain).

Anthropogenic disturbance to riparian areas often significantly alters the movement and storage of water that is critical to ecological functions. Land use changes, impervious (i.e., paved) surfaces, and riparian vegetation removal decrease infiltration rates within riparian areas and increase overland storm or floodwater runoff. Overland surface or floodwater runoff within disturbed riparian areas may negatively affect downstream aquatic ecosystem health.[10]

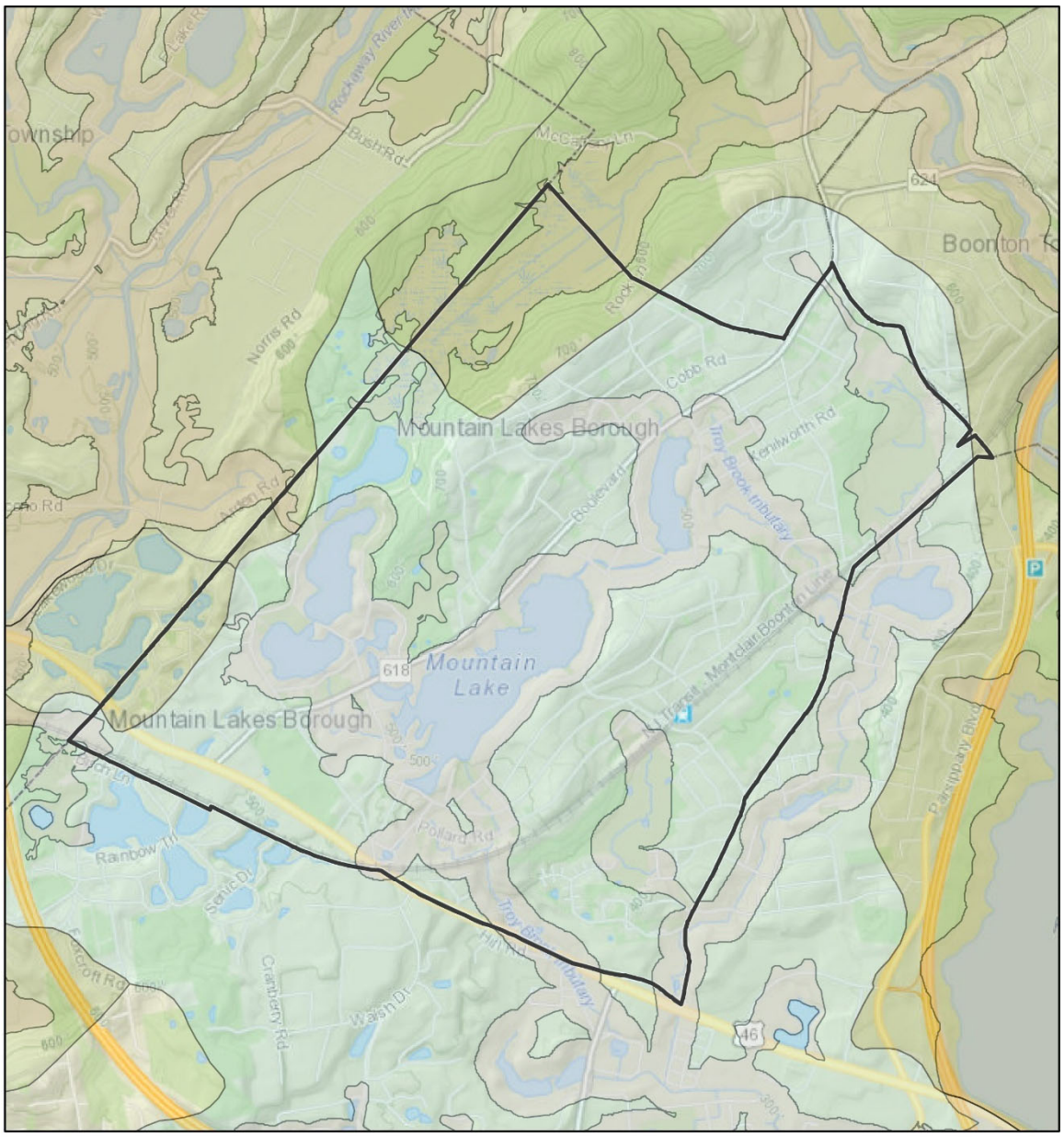
A total of 759.7 acres, or 40.8%, of Mountain Lakes Borough is comprised of Riparian Areas (**Figure 19**).

The Highlands Regional Master Plan identifies Riparian Areas as the integration of flood-prone areas, riparian soils, wetlands and streams, and wildlife corridors. Specifically, they include:

- **Flood Prone Areas:** defined as United States Geological Survey documented and undocumented flood-prone areas and Federal Emergency Management Agency 100-year floodplain
- **Riparian Soils:** a soil exhibiting a shallow depth to the seasonal high-water table, or alluvial soil
- **Wetlands and Streams:** all mapped streams and wetlands that are adjacent to a stream, as identified in the Highlands Open Water Inventory
- **Wildlife Corridors:** a 300-foot corridor on each mapped stream bank or from the stream centerline if no stream bank is mapped

[10] NJ Highlands Water Protection and Planning Council.

Figure 29. *Riparian Areas*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Riparian Integrity Score

Mountain Lakes Borough is in four (4) subwatersheds, which have riparian integrity scores as follows:

- **Den Brook** subwatershed (HUC14 02030103030120) has a riparian integrity score of **High.**
- **Rockaway R (Boonton dam to Stony Brook)** subwatershed (HUC14 02030103030150) has a riparian integrity score of **High.**
- **Rockaway R** (Stony Brook to BM 534 brdg) subwatershed (HUC14 02030103030140) has a riparian integrity score of **High.**
- **Troy Brook** (above Reynolds Ave) subwatershed (HUC14 02030103020080) has a riparian integrity score of **Low.**

The New Jersey Highlands Council assesses riparian area integrity as an area's ability to provide water protection and ecological function. These functions include nutrient and sediment filtration, stream bank stabilization, wildlife migration corridors and habitat, storm water and floodwater storage, and stream water quality protection.

Riparian Integrity Scores are reported at the subwatershed level (HUC14). Subwatersheds are evaluated based on the land conditions that impact the riparian area within the subwatershed and are provided as "Low," "Moderate," and "High."

- **High Riparian Integrity** describes subwatersheds with Riparian Areas that exhibit predominantly natural vegetation, including high-quality habitat for water/wetland dependent species, and a generally low incidence of impervious area, agricultural uses, and/or road crossings.
- **Moderate Riparian Integrity** describes subwatersheds with Riparian Areas that contain a higher incidence of impervious area, agricultural uses, and road crossings, and a reduced proportion of natural vegetation, including high-quality habitat for water/wetland dependent species.
- **Low Riparian Integrity** describes subwatersheds with Riparian Areas that contain a high proportion of impervious area, agricultural uses, and road crossings, and minimal natural vegetation, including high-quality habitat for water/wetland dependent species.[11]

A Highlands-funded Lake Restoration Management Study is being conducted at the time of this report.

Watershed Values

The New Jersey Highlands Council assesses watershed integrity as a means of evaluating the integrity and protection needs of the Highlands Open Waters. Mountain Lakes Borough is in four (4) subwatersheds (**Figure 20**), which have watershed values as follows:

[11] NJ Highlands Water Protection and Planning Council.

- **Den Brook subwatershed** (HUC14 02030103030120) has a watershed value of **Low.**
- **Rockaway R (Boonton dam to Stony Brook)** subwatershed (HUC14 02030103030150) has a watershed value of **Moderate.**
- **Rockaway R (Stony Brook to BM 534 brdg**) subwatershed (HUC14 02030103030140) has a watershed value of **Low.**
- **Troy Brook (above Reynolds Ave)** subwatershed (HUC14 02030103020080) has a watershed value of **Low.**

A watershed is an area of land that drains downslope to the lowest point. Water moves through a network of drainage pathways, both underground and on the surface, and these pathways converge into streams and rivers, which become progressively larger (i.e., higher order) as the water moves downstream and the size of the contributing drainage area increases. Because water moves downstream, any activity that affects the water quality, quantity, or rate of movement at one location can affect locations downstream.

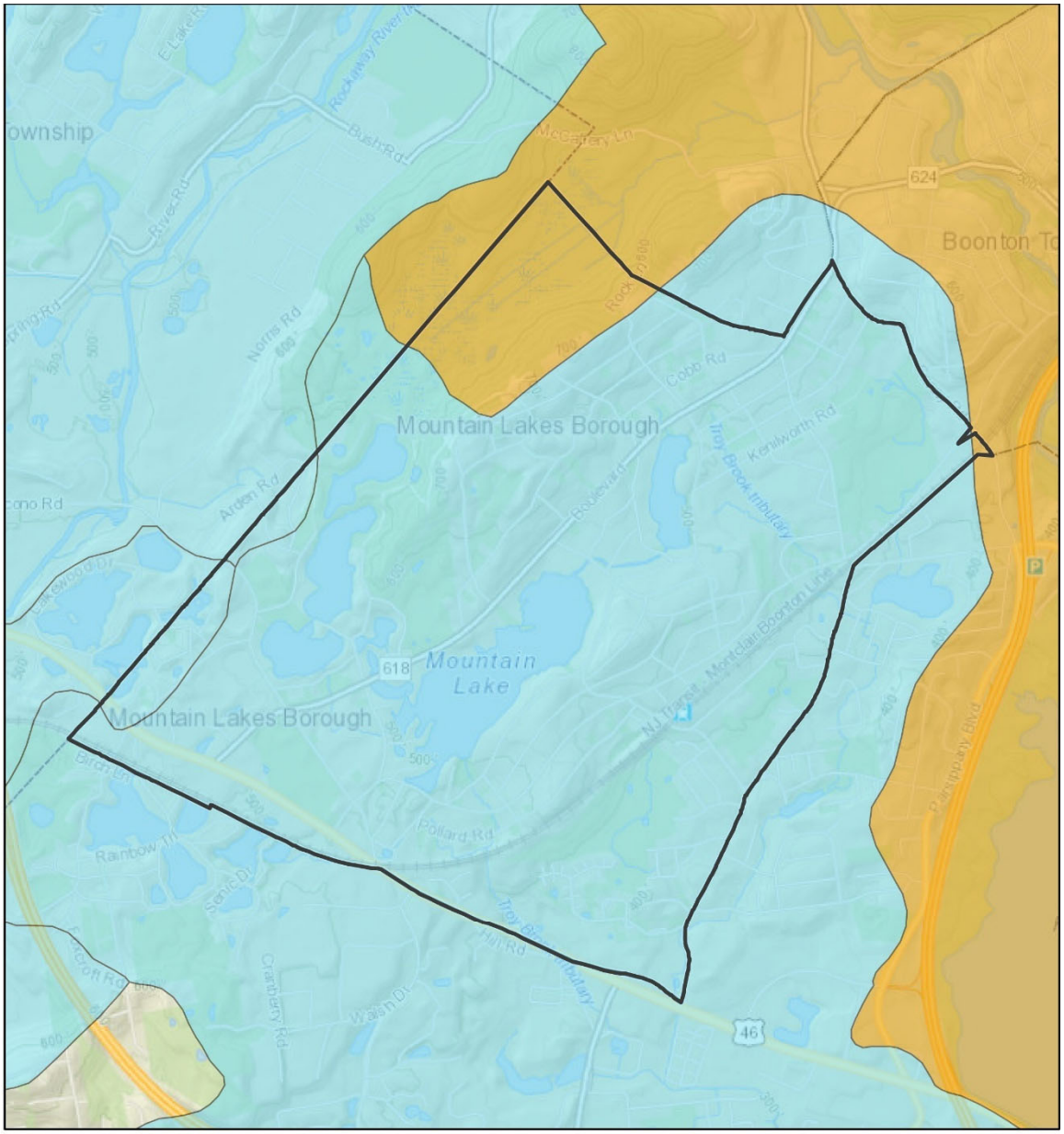
Land use disturbances in watersheds can have significant negative impacts on wetland or stream morphology, vegetation, flood abatement, water chemistry, and aquatic biota. The extent of forest is an important indicator of watershed condition due to its strong association with water quality and as an indicator of the extent of alteration of a watershed due to past and current human activity. Habitat quality represents the percentage of a subwatershed that contains habitat for species of concern, including rare, threatened, or endangered species. Habitat quality is used as an indicator of the biological diversity of a watershed (i.e., the more habitat that supports a species of concern, the higher the quality of habitat within a watershed).

Watershed values are reported at the subwatershed level (HUC14). These are by indicators such as percent developed lands, habitat quality, percent total forest, percent core forest, and proportion of total forest and are provided as "Low," "Moderate," and "High."[12]

- **High Watershed Value** describes subwatersheds that contain predominantly forest lands and include a significant portion of the watershed that is high-quality habitat. A high-value watershed typically consists of limited pre-existing developed land within the watershed.
- **Moderate Watershed Value** describes subwatersheds that contain forest lands and some habitat suitable for rare, threatened, or endangered species, but typically also contain developed lands.
- **Low Watershed Value** describes subwatersheds that contain a low proportion of forest lands, a low proportion of habitat suitable for rare, threatened, or endangered species, and typically consist of higher levels of developed lands.

[12] NJ Highlands Water Protection and Planning Council

Figure 20. *Watershed Values*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Scenic Resources

A total of 19.2 acres, or 1.0%, of Mountain Lakes (**Figure 21**) contains the following scenic resources:

- **Tourne County Park:** 19.2 acres

Scenic resources within the Highlands Region are a subset of preserved and protected lands. The goals associated with protecting scenic resources are to maintain the visual integrity and scenic beauty of noteworthy viewsheds and natural and cultural features of regional significance in the Highlands Region. The Highlands Council identified a baseline of scenic resources, totaling 131 scenic resource areas. These include National Park Service National Historic Landmarks and publicly owned parks, forests, and recreation areas.[13]

Critical Wildlife Habitat

Of the Highlands Region's approximately 860,000 acres, there are approximately 522,000 acres (or 61% of the Region) that function as habitat for rare, threatened, or endangered species. The Highlands Council utilized the New Jersey Department of Environmental Protection's Endangered and Nongame Species Program (NJDEP-ENSP) Landscape Project dataset to delineate suitable critical wildlife habitat for species of concern within the Highlands Region. NJDEP-ENSP developed Landscape Model (Version 3.3) as a landscape-level approach for the Highlands Region to identify areas of habitat based upon documented occurrences of rare, threatened and endangered wildlife species. Specifically, it identifies the locations and types of critical wildlife habitat that are critically important to maintaining biological diversity in the Highlands Region.[14]

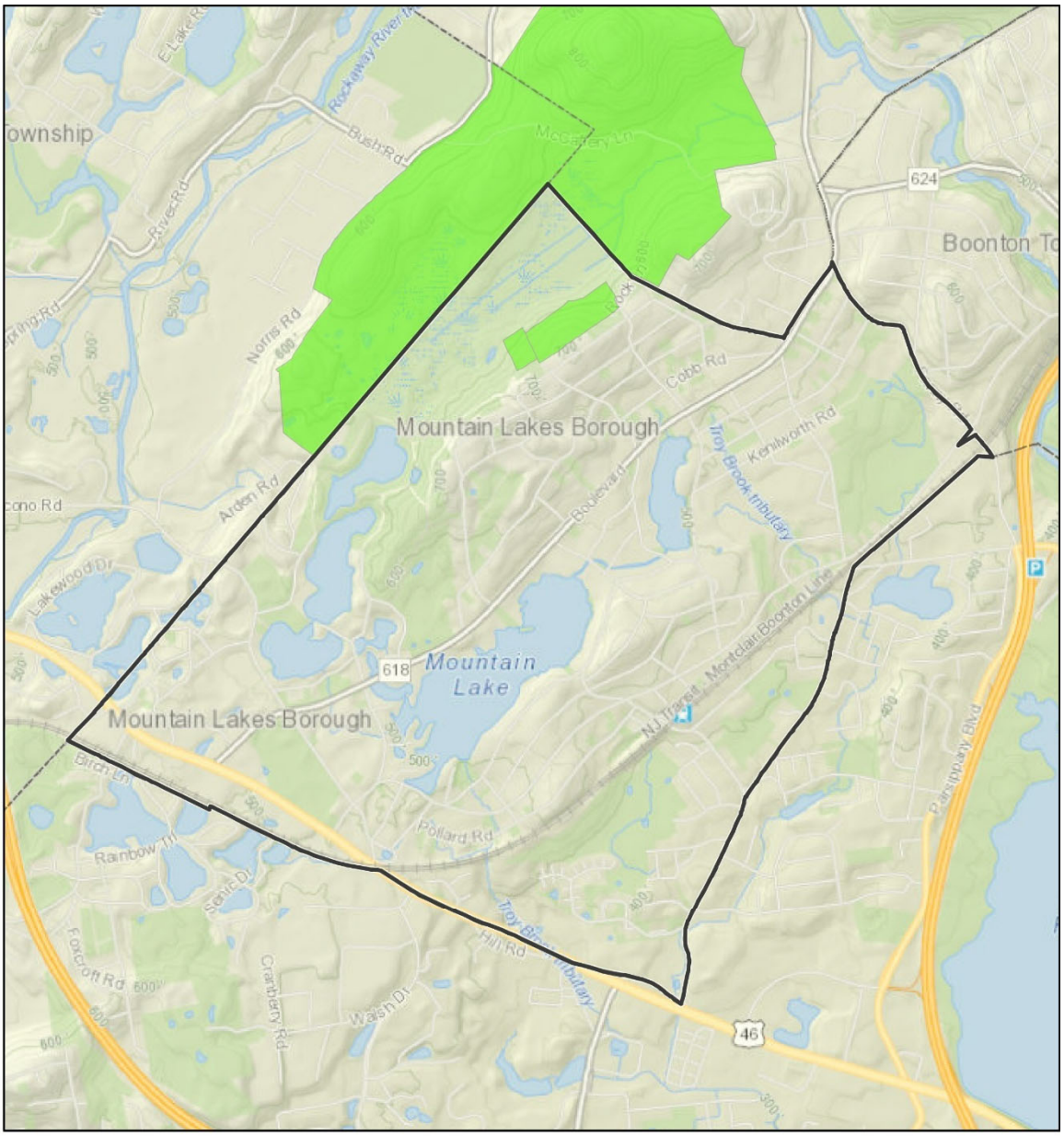
A total of 646.4 acres, or 34.7%, of Mountain Lakes Borough contains Critical Wildlife Habitat (**Figure 22**). Endangered, threatened, and special concern species documented in this habitat include:

- **Bald Eagle** (Haliaeetus leucocephalus)
- **Barred Owl** (Strix varia)
- **Bobcat** (Lynx rufus)
- **Great Blue Heron** (Ardea herodias)
- **Northern Goshawk** (Accipiter gentilis)
- **Red-headed Woodpecker** (Melanerpes erythrocephalus)
- **Wood Thrush** (Hylocichla mustelina)
- **Wood Turtle** (Glyptemys insculpta)

Most of the Critical Wildlife Habitat in the Borough is located in Tourne County Park and the municipal park in the northwestern area of the Borough. The Halsey A. Fredrick Park is in the northeastern area of the Borough and also contains a large area of Critical Wildlife Habitat.

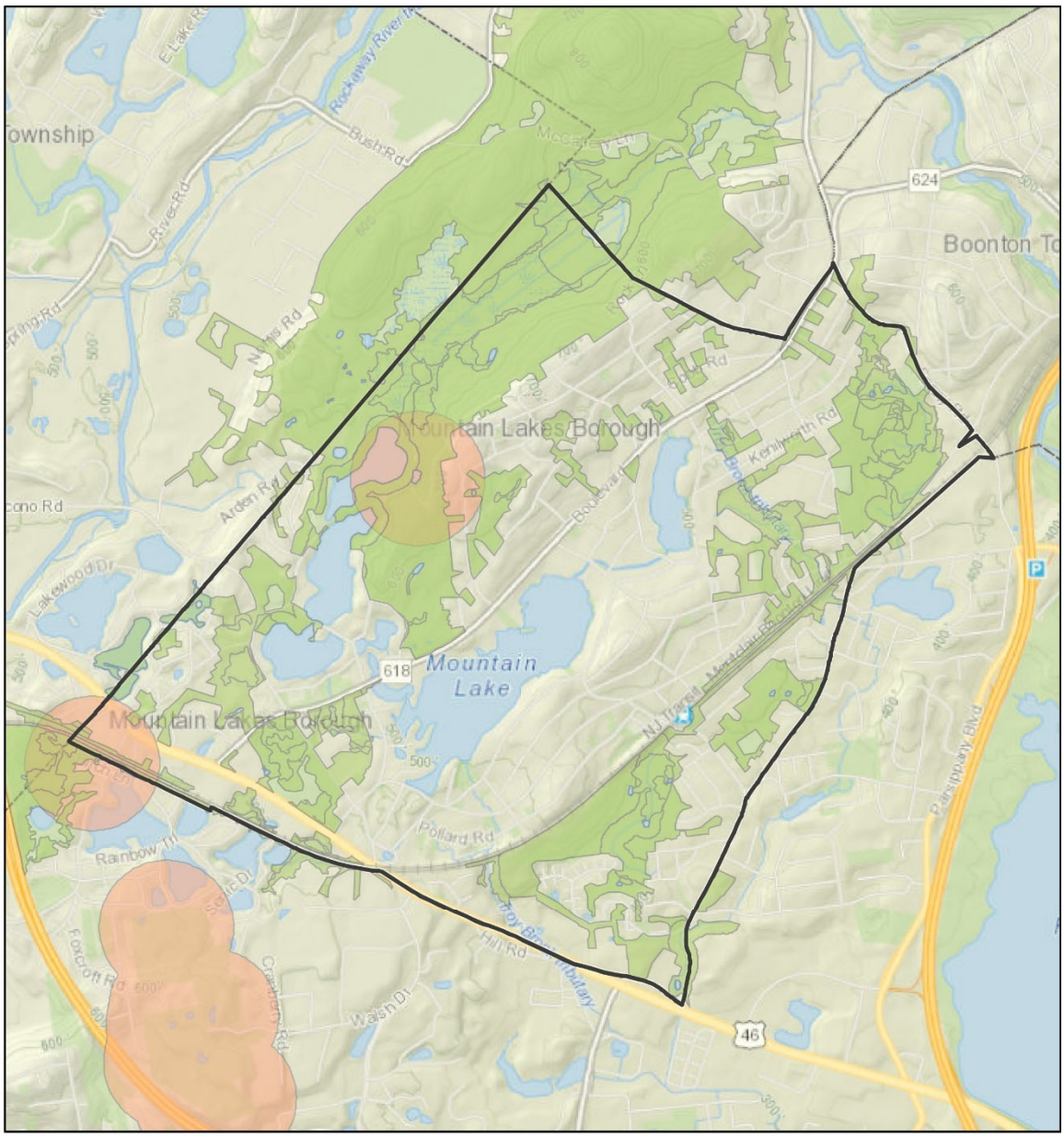
[13] NJ Highlands Water Protection and Planning Council
[14] NJ Highlands Water Protection and Planning Council.

Figure 36. *Scenic Resources*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Figure 40. *Critical Habitat*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Vegetation and Invasive Species

Vegetation

Forest cover remains one of the Borough's most important ecological assets and plays a direct role in protecting water quality within the lake system and downstream watersheds. Mountain Lakes is characterized by a predominantly forested landscape typical of the Highlands and northern Piedmont physiographic provinces. Native vegetation in the Borough reflects glacial soils, rolling topography, and proximity to surface water. Dominant forest communities include:

- Oak–hickory upland forests;
- Mixed hardwood stands;
- Red maple and sweetgum associations in lower elevations;
- Riparian corridors dominated by sycamore, willow, and ash (historically); and
- Wetland communities containing skunk cabbage, sedges, and buttonbush.

These native plant communities provide:

- Habitats for birds, mammals, reptiles, amphibians, and pollinators;
- Streambank stabilization and erosion control;
- Nutrient uptake and stormwater filtration;
- Shade that moderates lake and stream temperatures; and
- Carbon sequestration and climate resilience.

Invasive Species

Like many communities in northern New Jersey, Mountain Lakes faces ecological pressure from non-native invasive plant species. Invasive species are plants introduced from other regions that spread aggressively and outcompete native vegetation. Common invasive species observed in the Borough and surrounding region include:

- **Japanese knotweed** (*Fallopia japonica*)
- **Garlic mustard** (Alliaria petiolata)
- **Multiflora rose** (*Rosa multiflora*)
- **Japanese barberry** (*Berberis thunbergii*)
- **Tree-of-heaven** (Ailanthus altissima)
- **Purple loosestrife** (*Lythrum salicaria*)
- **Eurasian watermilfoil** (in lake environments).

These species can displace native plants, reduce biodiversity, alter soil chemistry, increase erosion risk, contribute to tick habitats, and degrade aquatic ecosystems. In lake environments, invasive aquatic plants can form dense mats that reduce dissolved oxygen levels, impair recreational use, and alter fish habitat.

Management and Stewardship

Effective invasive species management requires early detection and rapid response, targeted removal efforts, public education, use of native species in landscaping, and coordination with watershed and lake management initiatives. Residents can play an important role in invasive species management by avoiding planting known invasive species (**Appendix B**), properly disposing of yard waste, and maintaining riparian buffers. On the municipal side, planning tools, including tree protection ordinances, buffer requirements, and stormwater management regulations (**Appendix C**), are in place to maintain a healthy native plant community.

Confirmed Vernal Pool with 300-Meter Buffer

There is a total of 90.5 acres of confirmed vernal pools, each with a 300-meter buffer in Mountain Lakes. Vernal pools are certified, or confirmed, by the NJDEP. They are unique ecosystems that provide critical breeding habitat for a variety of amphibian and invertebrate species; contribute significantly to local biodiversity by supporting plants, animals, and invertebrates that would otherwise not occur in the landscape; and contribute significant amounts of food to adjacent habitats.

Protecting vernal pools and adjacent habitat from development is important for maintaining ecological integrity and providing amphibian and invertebrate breeding habitat. Lands adjoining vernal pools are also important to protect the ecological integrity of these sites and provide for the life requisites of amphibians during the breeding and non-breeding season. The 300-meter buffer around each pool will help protect and promote the biodiversity of vernal pools and address the habitat requirements of vernal pool-breeding wildlife.[15]

[15] NJ Highlands Water Protection and Planning Council.

Terrestrial Wildlife Habitat Cores and Corridors in New Jersey; Connecting Habitat Across New Jersey

Mountain Lakes contains one or more terrestrial wildlife habitat cores and corridors, or intersecting road segments that serve as road barrier mitigation opportunities (**Figure 23**), as mapped by CHANJ. These are as follows:

- **A Core:** 190.7 acres (10.2%)
- **A Corridor:** 116.7 acres (6.3%)
- **A Road:** 0.5 acres, (0.0%); this roadway barrier is assessed by CHANJ as having a Moderate threat

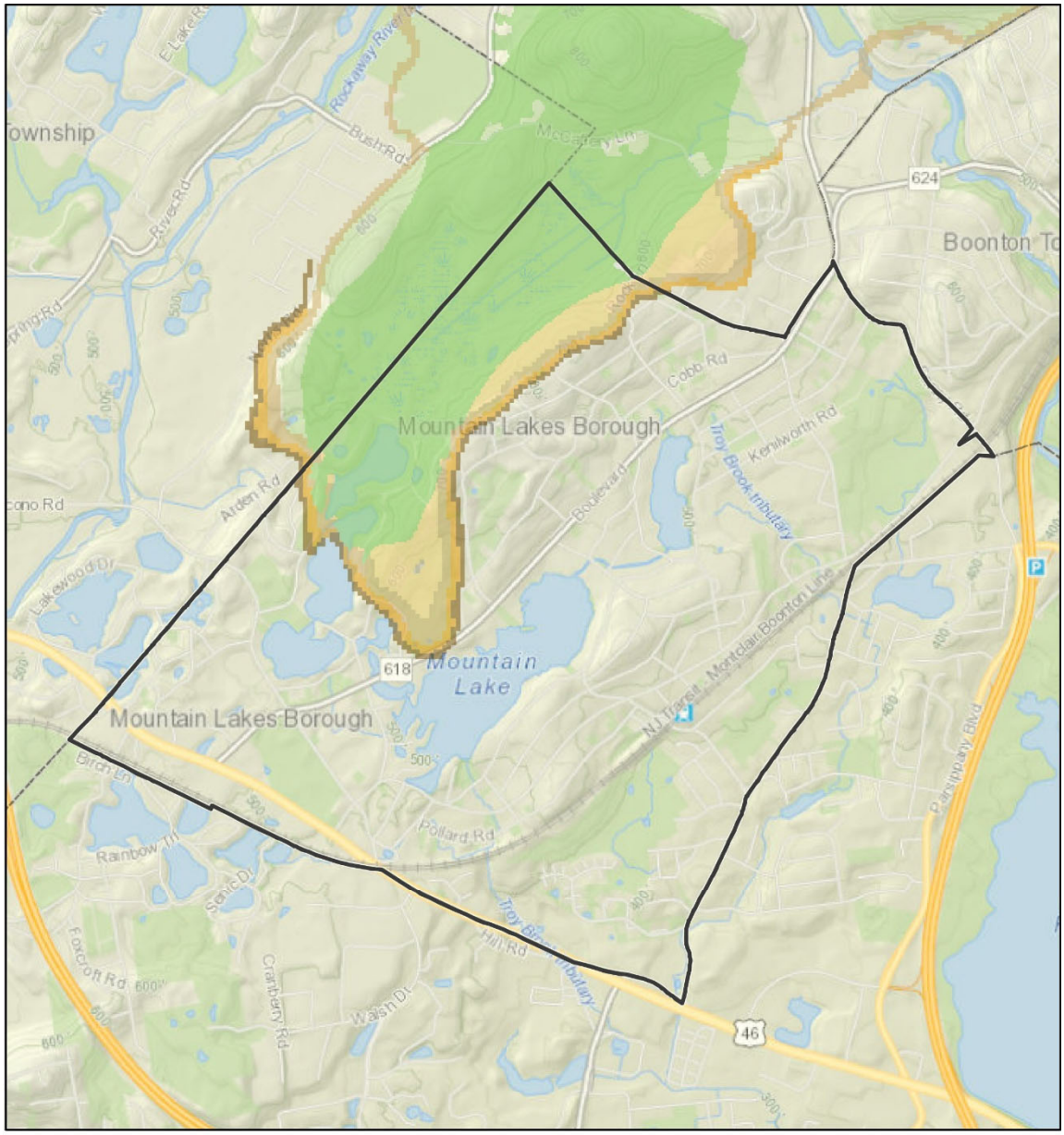
Connecting Habitat Across New Jersey (CHANJ) represents a statewide habitat connectivity plan, developed in collaboration with a multi-partner, multi-disciplinary working group representing over 40 different agencies across the state. The project is designed to:

- Prioritize land protection
- Inform habitat restoration and management
- Guide mitigation of barrier impacts on wildlife and habitats

One of the key products of CHANJ is digital geographic data representing terrestrial wildlife habitat cores and corridors, as well as intersecting road segments that serve as road barrier mitigation opportunities.[16]

[16] NJ Fish and Wildlife, Endangered and Non-Game Species Program, Connecting Habitat Across New Jersey (NJFW, ENSP, CHANJ)

Figure 44. *Terrestrial Wildlife Habitat Cores and Corridors (CHANJ)*



Highlands Administrative Layers

Conservation Priority Areas

A total of 8.1 acres, or 0.4%, of Mountain Lakes Borough is located within a Conservation Priority Area.

Conservation Priority Areas provide an initial prioritization mechanism for future land preservation activities in the Highlands Region that is consistent with the resource protection goals of the Highlands Council Regional Master Plan. To determine the priority areas for land conservation, the Highlands Council used 33 ecological indicators to determine areas with the highest ecological resource values. The following ecological resources were included: forests; watershed condition; critical habitat; prime groundwater recharge areas; open waters and riparian areas; and steep slopes. The ecological resource values are not weighted, but rather are scored as an additive process (i.e., an area containing three resources would receive a score of three).

Lake Management Area

A total of 903.2 acres, or 48.5%, of Mountain Lakes Borough is located within a Lake Management Area. The Highlands Council Regional Master Plan provides for the protection and enhancement of lakes and their environs, including lake communities.

Addressing land uses within lake communities allows for the following potential opportunities: to improve community value; to protect the cultural and historic resources often associated with lake communities; to protect natural resources and enhance and restore the quality of lake environments in the Region; and, in some cases, to allow for infill development where appropriate.

Overdeveloped, damaged, and poorly managed shoreland areas can result in the degradation of water quality, harm the lake ecosystem, decrease natural aesthetic values, and cause an overall loss of property values for lake communities. Lakes can be harmed by pollutant sources in the watershed area draining to them. Polluted lakes can, in turn, damage downstream streams and rivers. Most existing lake communities are fully built out, predate modern environmental protection requirements, and have limited potential for major land use changes.

Land Use Capability Zones

Mountain Lakes Borough falls into the following Land Use Capability Zones and Sub-Zones:

- **Existing Community Zone:** 621.0 acres (33.4%)
- **Lake Community Subzone:** 578.2 acres (31.1%)
- **Existing Community Environmentally Constrained Subzone:** 121.0 acres (6.5%)
- **Protection Zone:** 222.9 acres (12.0%)

The Highlands Council developed Land Use Capability Zone mapping, pursuant to the requirements of the Highlands Act, as a comprehensive statement of policies for planning and managing the development and use of land.

The Land Use Capability Zone Map divides the Highlands Region into three (3) distinct zones, within which are four (4) sub-zones, as follows:

- **Protection Zone**
- **Wildlife Management Sub-Zone**
- **Conservation Zone**
- **Conservation Environmentally Constrained Sub-Zone**
- **Existing Community Zone**
- **Existing Community Environmentally Constrained Sub-Zone**
- **Lake Community Sub-Zone**

Protection Zone (PZ) — The PZ consists of high resource value lands that are important to maintaining water quality, water quantity, and sensitive ecological resources and processes. Land acquisition is a priority in the PZ and development activities will be extremely limited; any development will be subject to stringent limitations on consumptive and depletive water use, degradation of water quality, and impacts to environmentally sensitive lands.

Wildlife Management Sub-Zone (WM) — The WM Sub-Zone consists of all National Wildlife Refuges managed by the United States Fish and Wildlife Service and Wildlife Management Areas administered by the New Jersey Department of Environmental Protection, Division of Fish & Wildlife's Bureau of Land Management. These areas are part of a network of lands and waters for conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats and permit compatible wildlife-dependent recreational uses, such as hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Conservation Zone (CZ) — The CZ consists of areas with significant agricultural lands and interspersed with associated woodlands and environmental features that should be preserved when possible.

Conservation Zone - Environmentally Constrained Sub-Zone (CZ-EC) — The CZ-EC consists of significant environmental features within the Conservation Zone that should be preserved and protected from non-agricultural development.

Existing Community Zone (ECZ) — The ECZ consists of areas with regionally significant concentrated development signifying existing communities. These areas tend to have limited environmental constraints due to previous development patterns and may have existing infrastructure that can support development and redevelopment provided that such development is compatible with the protection and character of the Highlands environment.

Environmentally Constrained Sub-Zone (ECZEC) - The ECZEC consists of significant environmental features within the Existing Community Zone that should be protected from further fragmentation. They serve as regional habitat "steppingstones" to larger contiguous critical habitat and forested areas Development is constrained through restrictions on the extension or creation of water supply and wastewater services.

Lake Community Sub-Zone (LCZ) — The LCZ consists of patterns of community development around lakes that are within the ECZ and within 1,000 feet of lakes. This sub-zone has unique policies to prevent degradation of water quality and watershed pollution, harm to lake ecosystems, and promote natural aesthetic values within the Existing Community Zone.

The Highlands Region

The 2004 Highlands Water Protection and Planning Act (P.L. 2004, c.120) delineated the boundaries of the New Jersey Highlands Region, dividing it into two (2) distinct parts, the **Preservation Area** and the **Planning Area**, and specifying that the Preservation Area was of exceptional natural resource value that required stringent protection. For this reason, Preservation Area lands were immediately subject to the standards in the Highlands Act and were further protected by the development of the NJDEP Highlands Rules (N.J.A.C. 7:38) adopted in 2005.

The Highlands Region is 859,268 acres and spans seven counties and 88 municipalities. The Preservation Area consists of 415,000 acres across 52 municipalities, while the Planning Area consists of 444,268 acres across 83 municipalities. There are five (5) municipalities located entirely within the Preservation Area, 47 municipalities that are in both the Preservation and Planning Areas, and 36 municipalities that have land only in the Planning Area.

The Borough of Mountain Lakes is located entirely within the Highlands Planning Area, where conformance is entirely voluntary. The Highlands Council approved the Borough's Petition for Plan Conformance in 2024, bringing the municipality into conformance with the Highlands RMP.

New Jersey State Planning Areas

Mountain Lakes is located within **Metropolitan Planning Area (Planning Area 1)**.

The 2001 New Jersey State Development and Redevelopment Plan (The State Plan) was created to help stem uncontrolled development and direct investments in infrastructure, land preservation, and state programs to encourage sustainable patterns of land use in the state. The State Plan indicates areas that are suitable for high-density development, moderate development, and where development should be discouraged through the designation of numbered Planning Areas and the identification of "centers."

Planning Area 1 (Metropolitan Planning Area) and Planning Area 2 (Suburban Planning Area), along with designated centers, are intended to be places where appropriate levels of development should be encouraged, and infrastructure investments should be made. Planning Areas 3 (Fringe Planning Area), 4 (Agricultural), 4B (Agricultural-Environmentally Sensitive), and 5 (Environmentally Sensitive) are areas of the state where significant growth (outside of designated centers) should be discouraged.

While conformance with the State Plan is advisory, these State Planning Area designations are used to guide broader state policies. In general, sewer and water infrastructure will be limited to Planning Areas 1, 2, and within designated centers. Many incentive programs designed to spur economic activity and support the extension of utilities are only available within these growth areas. Conversely, state investments in Farmland Preservation and Land Conservation are targeted towards 4, 4B, and 5. The intention is to align policies that either encourage or limit development with the vision of New Jersey's future, as outlined in the State Plan.

In accordance with the Highlands Act, however, for municipalities in the Planning Area that have chosen to conform with the RMP, RMP designations apply.

History and Culture

Historic Districts

A total of 1,449.9 acres, or 77.9%, of Mountain Lakes Borough is located within the following historic districts:

- **Delaware, Lackawanna and Western Railroad Boonton Branch Historic District**
- **Mountain Lakes Historic District**

Historic Districts possess a significant concentration, linkage, or continuity of buildings, sites, structures, or objects united historically or aesthetically by plan or physical development. Historic District status is granted by the New Jersey State Historic Preservation Office (SHPO).

This dataset represents the polygon boundaries of historic districts that:

- Are designated National Historic Landmarks;
- Are included in the New Jersey or National Registers of Historic Places;
- Have been determined eligible for inclusion in the New Jersey or National Registers of Historic Places through federal or state processes administered by the SHPO;
- Have been designated as local districts by a local government; and/or
- Have been identified through a modern cultural resource survey or other documentation on file at the SHPO.

The SHPO is still in the process of comprehensively digitizing the last two categories that are listed above; thus, they may not yet be reflected in the dataset.

Inclusion of a particular district in this dataset does not preclude the existence of other historic districts that are as yet unidentified, unrecorded, or undocumented.

Historic Properties

Mountain Lakes Borough contains 1,050 historic properties (**Figure 24**). Historic Properties are buildings, sites, structures, or objects that are evaluated as historically significant. Designation is recorded by the New Jersey State Historic Preservation Office (SHPO).

The dataset provided in **Appendix A** represents historic properties that:

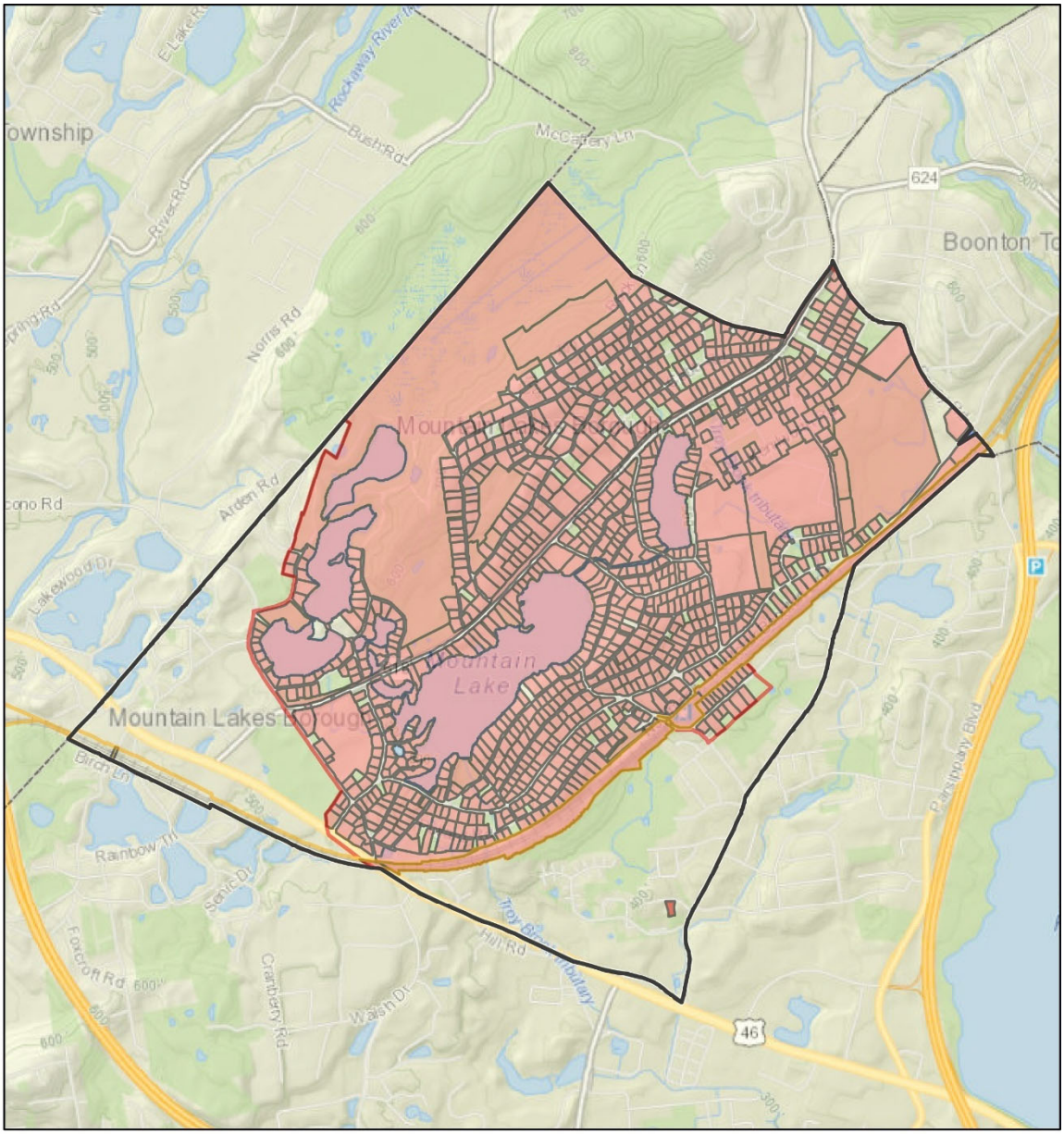
- Are designated National Historic Landmarks;
- Are included in the New Jersey or National Registers of Historic Places;
- Have been determined eligible for inclusion in the New Jersey or National Registers of Historic Places through federal or state processes administered by SHPO;
- Have been designated as local landmarks by a local government; and/or
- Have been identified through a modern cultural resource survey or other documentation on file at the SHPO.

Inclusion of a particular property in this dataset does not preclude the existence of other historic properties that are as yet unidentified, unrecorded, or undocumented.



Mountain Lakes Railroad Station. Skylands Visitor. https://njskylands.com/tn_mountainlakes_112.

Figure 48. *Historic and Cultural Resources*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Natural Hazards

Wildfire Fuel Hazard

Mountain Lakes Borough has a variable wildfire fuel hazard (**Figure 25**). Mountain Lakes Borough includes sub-areas with the following wildfire fuel hazards:

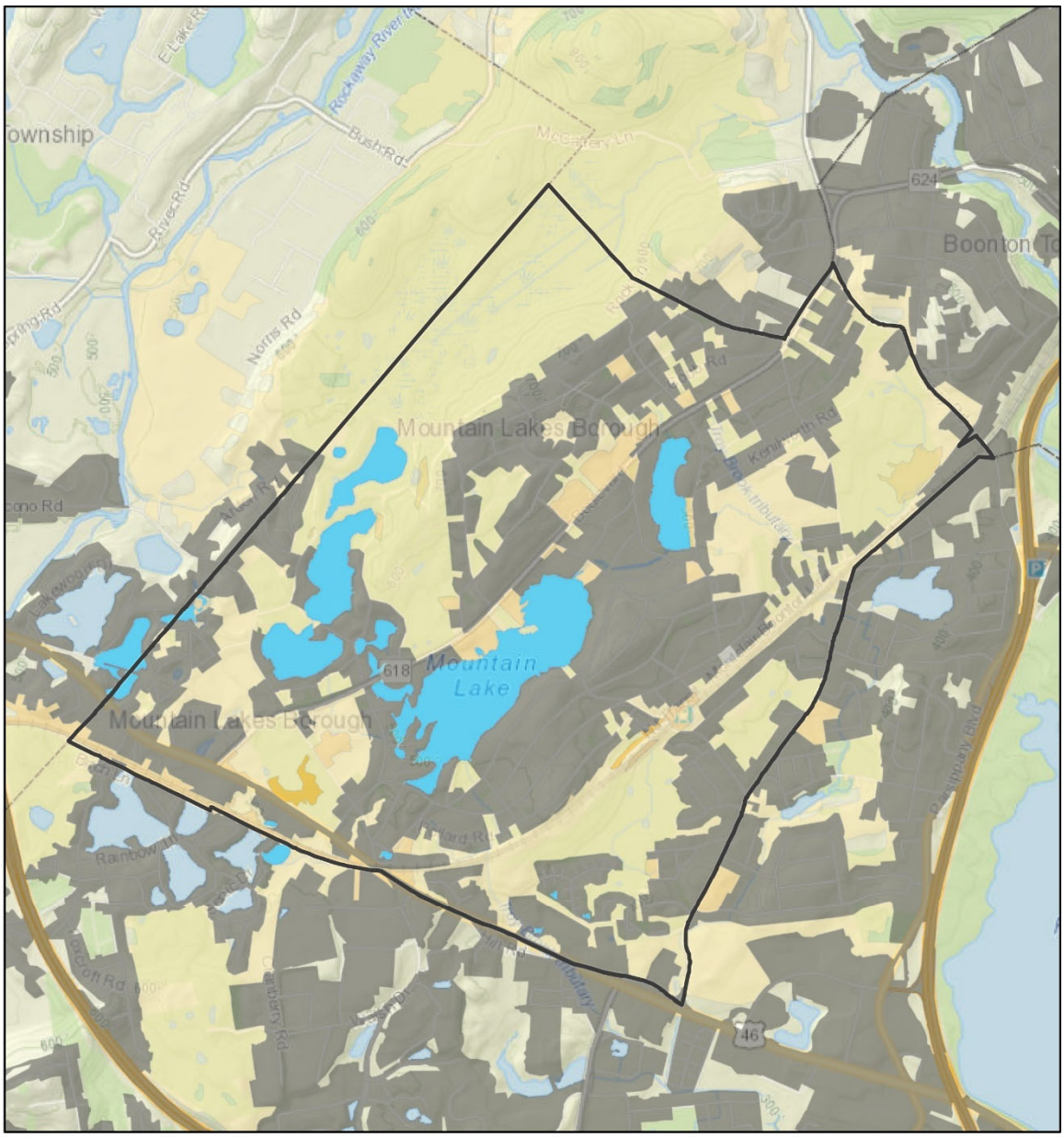
- **Low:** 38.8%
- **Moderate:** 4.1%
- **High:** 0.3%
- **Urban:** 48.7%
- **Barren Land**: 0.1%
- **Water:** 8.0%

The New Jersey Forest Fire Service (NJFFS) developed the wildfire fuel hazard ranking based on the NJDEP's 2002 Land Use/Land Cover and the 2002 10-meter Digital Elevation Grid datasets. In areas with a land use/land cover derived ranking of 1-4 and a slope of 30% or higher, the wildfire fuel hazard was increased by one value.

The ranking system is as follows:

- **0: Water**
- **1: Low**
- **2: Moderate**
- **3: High**
- **4: Very High**
- **5: Extreme**
- **6: Urban**
- **7: Agriculture**
- **8: Barren Land**

Figure 52. *Wildfire Fuel Hazard*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Contamination/Pollution (incl., Potential and Monitoring Sites)

Current Known Extent of Groundwater Contamination

Mountain Lakes Borough does not contain, nor is it contained within, any Current Known Extent of groundwater contamination area. Currently Known Extent (CKE) of groundwater contamination are geographically defined areas within which the local groundwater resources are known to be compromised because the water quality exceeds drinking water and groundwater quality standards for specific contaminants. Historically, several CKEs have also been identified as Well Restriction Areas (WRAs).

Known Contaminated Sites

A total of five (5) Known Contaminated Sites are located within Mountain Lakes (**Figure 26**), as follows:

- **B & V Tailoring & Cleaning** (Case No.: 127072) - Status: Active
- **Dixon Brothers Oil Co** (Case No.: 8821) - Status: Active
- **Faithful Source Book Store** (Case No.: 25340) - Status: Active
- **Mountain Lakes Gulf** (Case No.: 26487) - Status: Active
- **Speedway 3463** (Case No.: 8796) - Status: Active

The Known Contaminated Sites List includes those sites and properties within the State where contamination of soil or groundwater has been confirmed at levels equal to or greater than applicable standards.

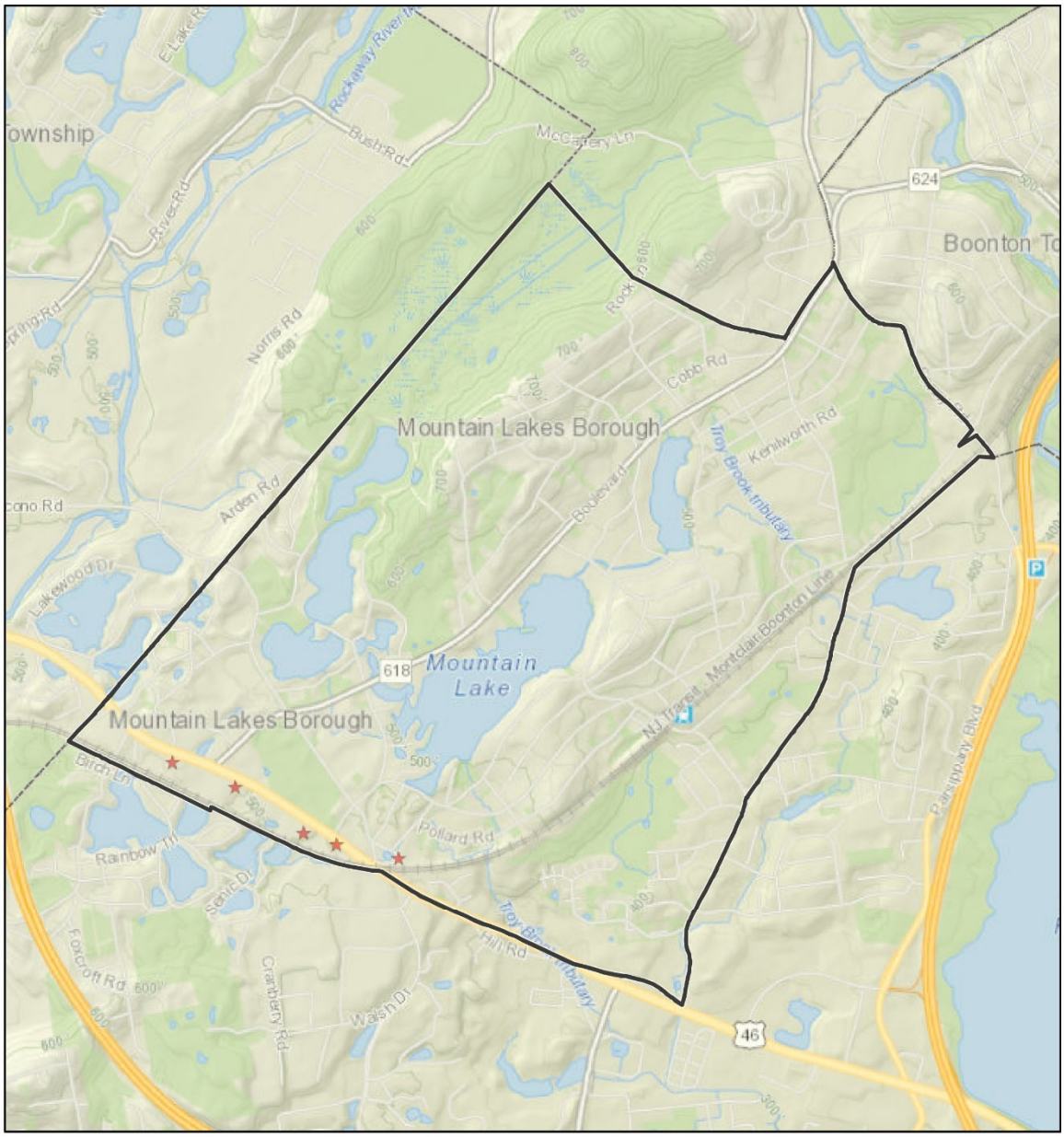
Known Contaminated Sites may include:

- Active sites with known contamination (e.g., these sites have one or more active cases with any number of pending and closed cases)
- Pending sites with confirmed contamination (e.g., these sites have one or more pending cases, no active cases, and any number of closed cases)
- Closed sites with remediated contamination (e.g., these sites have only closed cases; sites in this category have no active or pending cases)

Though not within Mountain Lakes, the Borough's Water Utility detected a Running Annual Average level of Perfluorooctanoic Acid ("PFOA") from the Denville Wellfield Treatment Plant (specifically, Well #4), which exceeded the statewide standard.[17] Well #4 was shut down in 2023, pending remediation. Remediation of Well #4 is currently being remediated as of March 2026.

[17] The Borough's Water Utility detected PFOA at 17 parts per trillion at Well #4, where 13 parts per trillion is the drinking water standard in New Jersey.

Figure 56. *Contamination and Pollution*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Energy

Electric Utilities Territories

Mountain Lakes Borough is located within the Jersey Central Power & Light service territory (**Figure 27**).

Critical Infrastructure

Sewer Service Area

A total of 1,332.7 acres, or 71.6%, of Mountain Lakes Borough is located within the sewer service area (**Figure 28**).

Sewer Service Area is defined at N.J.A.C. 7:15 as the land area identified in an areawide Water Quality Management Plan from which wastewater generated is conveyed to, or has been determined to be eligible, to pursue a permit to connect to a domestic treatment works or industrial treatment works. Inclusion in a sewer service area does not guarantee that capacity exists or will exist to provide treatment for all flow from that area. The Sewer Service Area includes areas that are currently served (connected to) by permitted wastewater treatment facilities, as well as areas of permitted discharges to surface or groundwater.

Figure 60. *Energy*

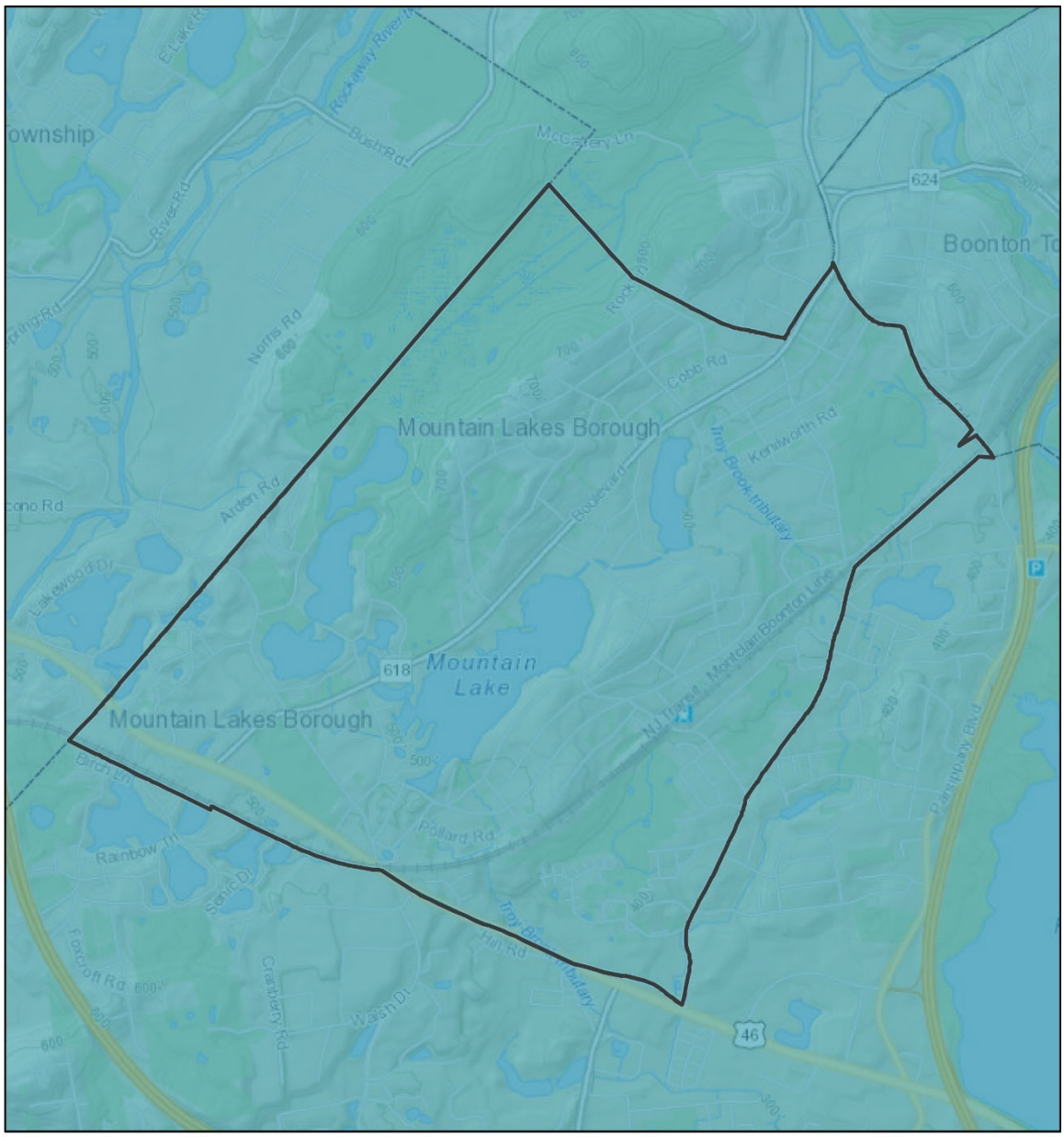
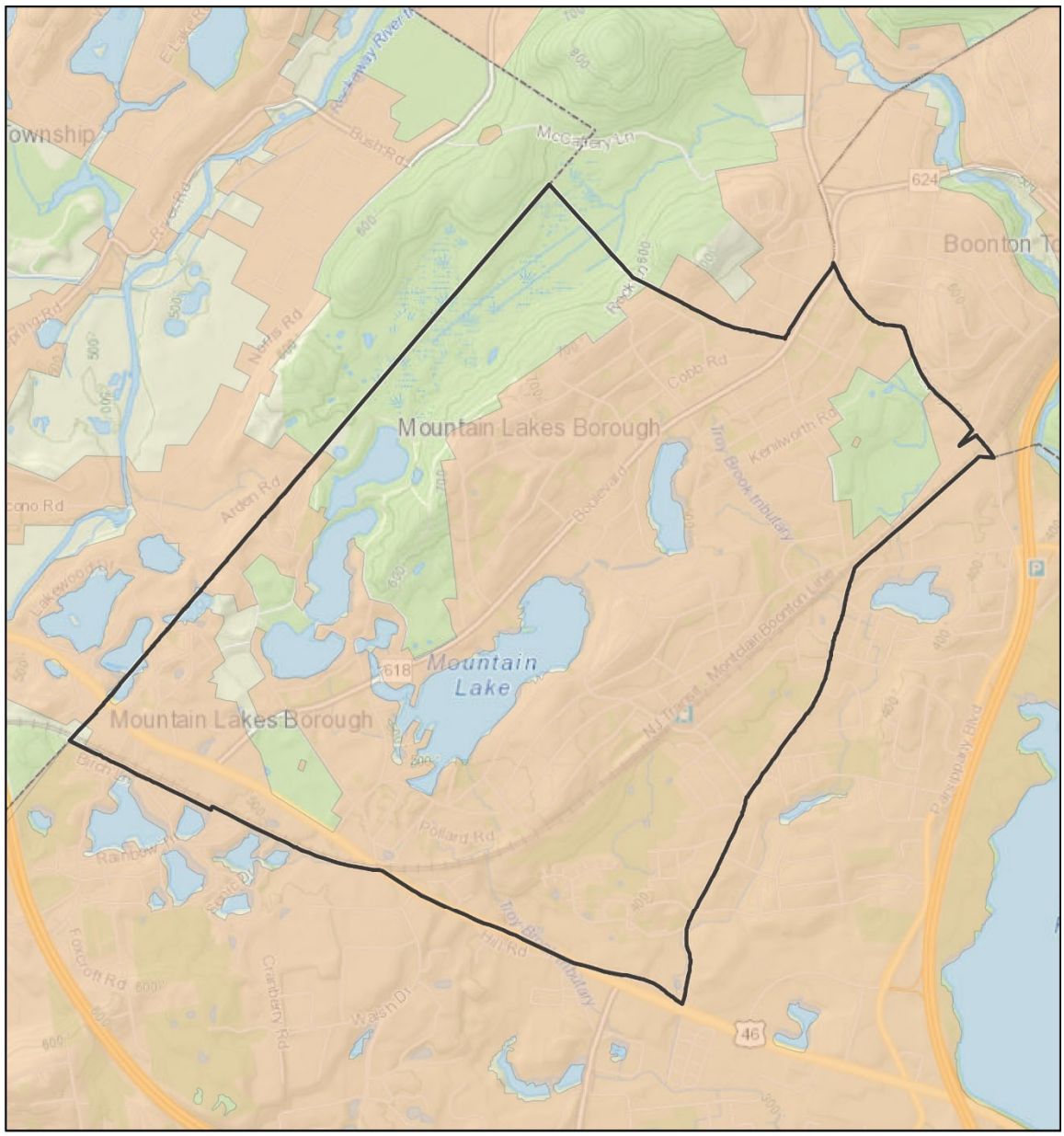


Figure 64. *Wastewater*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Transportation

New Jersey Statewide Trails

Mountain Lakes contains multiple trails, totaling 5.5 miles in length. Trails included are:

- **Boulevard Trolley Trail:** 2.0 miles
- **White Trail:** 4,249.6 feet
- **Red Trail:** 3,432.1 feet
- **Blue Trail:** 3,120.6 feet
- **Blue/Red Trail:** 2,250.5 feet
- **Sled Run:** 2,041.5 feet
- **Birchwood Loop:** 2,027.0 feet
- **Purple Trail:** 509.7 feet
- **Pink Trail:** 343.5 feet
- **Additional Unnamed Trails:** 435.0 feet

Trails are an essential part of every community in New Jersey, providing not only outdoor recreation but connecting residents with local culture and history, natural phenomena, businesses, and each other. This dataset was compiled using trails data from several agencies via the NJ Geospatial Forum and is intended as an authoritative source of trail locational information. Management of trails remains with the individual managing agencies.

There is a total of over 3,800 miles of mapped hiking trails across New Jersey, with over 500 mapped miles within the Highlands Region.

Transit Score

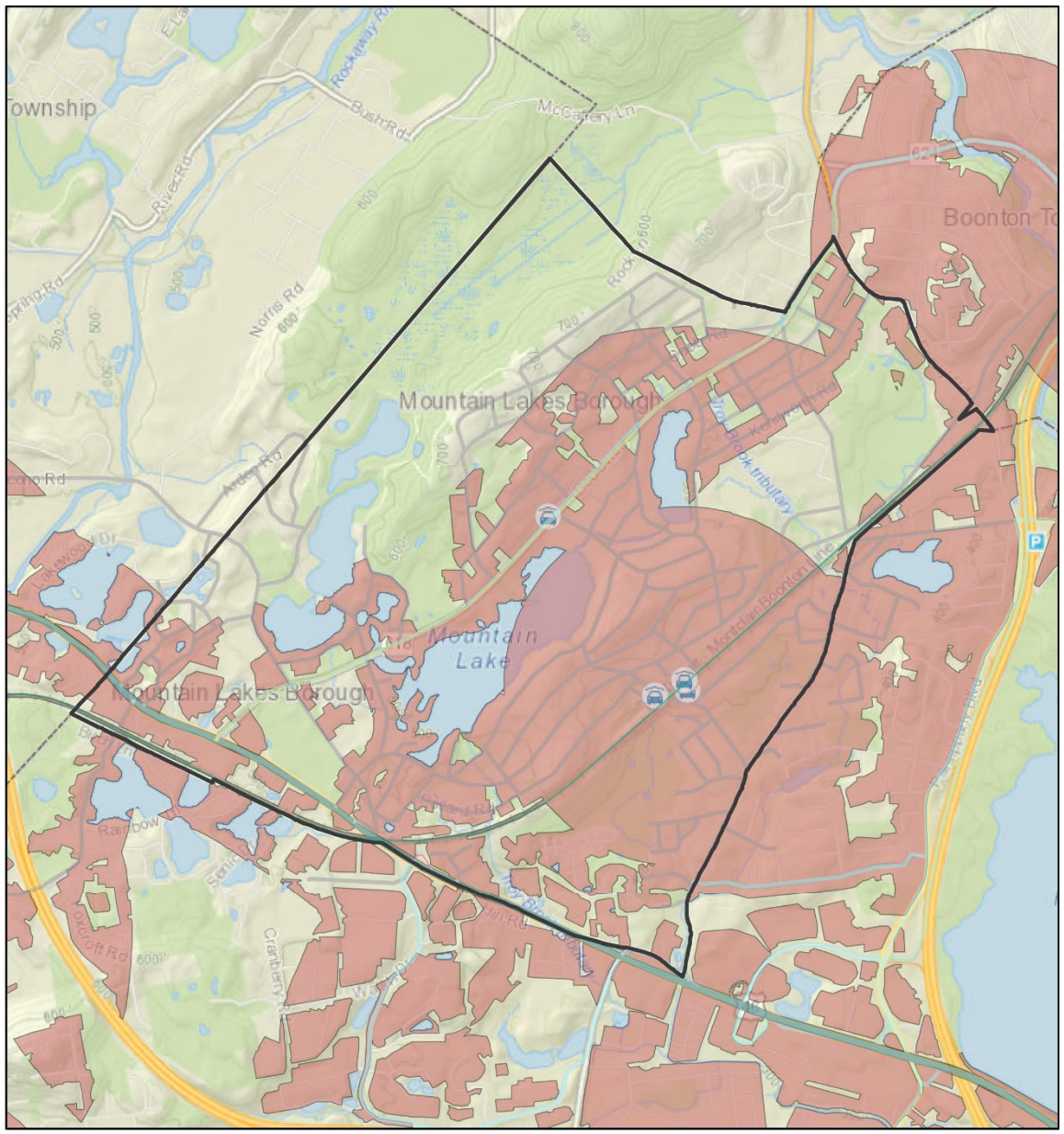
In total, 961.7 acres, or 51.7%, of Mountain Lakes Borough is located within a transit-rich area with a minimum score of at least three (3) points (**Figure 29**).

The Highlands RMP provides policies designed to encourage the use of smart growth principles and promote an integrated approach to addressing transportation and land use planning. To quantify these smart growth principles, the RMP Transportation System Preservation and Enhancement Technical Report (2008) considered the six (6) indicators listed below.

- Proximity to transportation corridors (e.g., includes lands within a 0.25-mile buffer of certain and significant roadways)
- Proximity to interchanges and intersections
- Train station within one mile
- Train station within one-half mile
- Proximity to a park and ride facility
- Proximity to bus routes

A point score allocation was made to each of the aforementioned indicators. These ranged from 0.5 points for park and ride facilities to up to four points for train stations within one-half mile. "Transit Rich" areas with a total point score of at least three (3) are reflected in this dataset.

Figure 68. *Transportation*



This map was developed using the New Jersey Highlands Water Protection and Planning Council Geographic Information System digital data, but this secondary product has not been verified by the NJ Highlands Council

Appendix A: Historic Properties

NAME	ADDRESS
0 Morris Avenue	0 Morris Avenue
0 Pocono Road	0 Pocono Road
1 Briarcliff Road	1 Briarcliff Road
1 Cobb Road	1 Cobb Road
1 East Shore Road	1 East Shore Road
1 Elm Road	1 Elm Road
1 Esplanade	1 Esplanade
1 Hillcrest Road	1 Hillcrest Road
1 Hillside Terrace	1 Hillside Terrace
1 Raynold Road	1 Raynold Road
1 Rock Lane	1 Rock Lane
10 Boulevard	10 Boulevard
10 Condit Road	10 Condit Road
10 Cove Place	10 Cove Place
10 Crystal Road	10 Crystal Road
10 Hanover Road	10 Hanover Road
10 Hillcrest Road	10 Hillcrest Road
10 Lake Drive	10 Lake Drive
10 Lookout Road	10 Lookout Road
10 North Crane Road	10 North Crane Road
10 North Glen Road	10 North Glen Road
10 Rockaway Terrace	10 Rockaway Terrace
10 Tower Hill Road	10 Tower Hill Road
10 Valley Road	10 Valley Road
10 Wilcox Drive	10 Wilcox Drive
10 Woodland Avenue	10 Woodland Avenue
100 Ball Road	100 Ball Road
100 Boulevard	100 Boulevard
100 Fanny Road	100 Fanny Road
100 Hanover Road	100 Hanover Road
100 Lake Drive	100 Lake Drive
100 Laurel Hill Road	100 Laurel Hill Road
100 Pollard Road	100 Pollard Road
101 Ball Road	101 Ball Road
101 Boulevard	101 Boulevard
101 Kenilworth Road	101 Kenilworth Road
102 Hanover Road	102 Hanover Road
103 Boulevard	103 Boulevard
104 Briarcliff Road	104 Briarcliff Road

NAME	ADDRESS
104 Hanover Road	104 Hanover Road
104 Lake Drive	104 Lake Drive
104 Laurel Hill Road	104 Laurel Hill Road
104 Pollard Road	104 Pollard Road
105 Briarcliff Road	105 Briarcliff Road
105 Kenilworth Road	105 Kenilworth Road
105 Lake Drive	105 Lake Drive
106 Ball Road	106 Ball Road
106 Kenilworth Road	106 Kenilworth Road
106 Lookout Road	106 Lookout Road
107 Boulevard	107 Boulevard
107 Hanover Road	107 Hanover Road
109 Ball Road	109 Ball Road
109 Hanover Road	109 Hanover Road
109 Laurel Hill Road	109 Laurel Hill Road
11 Barton Road	11 Barton Road
11 Briarcliff Road	11 Briarcliff Road
11 Cobb Road	11 Cobb Road
11 Crestview Road	11 Crestview Road
11 Crystal Road	11 Crystal Road
11 Fernwood Place	11 Fernwood Place
11 Hillcrest Road	11 Hillcrest Road
11 Howell Road	11 Howell Road
11 Lake Drive	11 Lake Drive
11 Lake End Place	11 Lake End Place
11 Larchdell Way	11 Larchdell Way
11 Martins Lane	11 Martins Lane
11 North Glen Road	11 North Glen Road
11 North Pocono Road	11 North Pocono Road
11 Oak Lane	11 Oak Lane
11 Point View Place	11 Point View Place
11 Powerville Road	11 Powerville Road
11 Raynold Road	11 Raynold Road
11 Valley Road	11 Valley Road
11 Van Duyne Road	11 Van Duyne Road
11 Wilcox Drive	11 Wilcox Drive
11 Woodland Avenue	11 Woodland Avenue
110 Ball Road	110 Ball Road
110 Boulevard	110 Boulevard
110 Kenilworth Road	110 Kenilworth Road
110 Lake Drive	110 Lake Drive

NAME	ADDRESS
110 Lookout Road	110 Lookout Road
111 Boulevard	111 Boulevard
111 Briarcliff Road	111 Briarcliff Road
111 Kenilworth Road	111 Kenilworth Road
111 Lookout Road	111 Lookout Road
111 Melrose Road	111 Melrose Road
111 Morris Avenue	111 Morris Avenue
111 Pollard Road	111 Pollard Road
112 Briarcliff Road	112 Briarcliff Road
112 Pollard Road	112 Pollard Road
112 Powerville Road	112 Powerville Road
114 Ball Road	114 Ball Road
115 Ball Road	115 Ball Road
115 Boulevard	115 Boulevard
115 Briarcliff Road	115 Briarcliff Road
115 Kenilworth Road	115 Kenilworth Road
115 Lake Drive	115 Lake Drive
116 Briarcliff Road	116 Briarcliff Road
116 Kenilworth Road	116 Kenilworth Road
116 Lake Drive	116 Lake Drive
116 Laurel Hill Road	116 Laurel Hill Road
116 Pollard Road	116 Pollard Road
117 Morris Avenue	117 Morris Avenue
119 Lookout Road	119 Lookout Road
12 Baldwin Lane	12 Baldwin Lane
12 Briarcliff Road	12 Briarcliff Road
12 Crane Road	12 Crane Road
12 Glen Road	12 Glen Road
12 Hillcrest Road	12 Hillcrest Road
12 North Briarcliff Road	12 North Briarcliff Road
12 Overlook Road	12 Overlook Road
12 Raynold Road	12 Raynold Road
12 Romaine Road	12 Romaine Road
120 Ball Road	120 Ball Road
120 Kenilworth Road	120 Kenilworth Road
120 Lake Drive	120 Lake Drive
120 Lookout Road	120 Lookout Road
120 Morris Avenue	120 Morris Avenue
121 Ball Road	121 Ball Road
121 Kenilworth Road	121 Kenilworth Road
121 Laurel Hill Road	121 Laurel Hill Road

NAME	ADDRESS
121 Pollard Road	121 Pollard Road
121 Powerville Road	121 Powerville Road
122 Ball Road	122 Ball Road
122 Kenilworth Road	122 Kenilworth Road
122 Pollard Road	122 Pollard Road
122 Powerville Road	122 Powerville Road
123 Lake Drive	123 Lake Drive
124 Ball Road	124 Ball Road
124 Lake Drive	124 Lake Drive
125 Ball Road	125 Ball Road
125 Boulevard	125 Boulevard
125 Hanover Road	125 Hanover Road
125 Kenilworth Road	125 Kenilworth Road
125 Lake Drive	125 Lake Drive
127 Ball Road	127 Ball Road
127 Morris Avenue	127 Morris Avenue
128 Kenilworth Road	128 Kenilworth Road
128 Pollard Road	128 Pollard Road
129 Kenilworth Road	129 Kenilworth Road
129 Pollard Road	129 Pollard Road
13 Elm Road	13 Elm Road
13 Laurel Hill Road	13 Laurel Hill Road
13 Rock Lane	13 Rock Lane
13 Valley Road	13 Valley Road
130 Ball Road	130 Ball Road
130 Boulevard	130 Boulevard
130 Kenilworth Road	130 Kenilworth Road
130 Lake Drive	130 Lake Drive
130 Laurel Hill Road	130 Laurel Hill Road
130 Melrose Road	130 Melrose Road
130 Morris Avenue	130 Morris Avenue
130 Pollard Road	130 Pollard Road
131 Ball Road	131 Ball Road
131 Kenilworth Road	131 Kenilworth Road
131 Lake Drive	131 Lake Drive
131 Laurel Hill Road	131 Laurel Hill Road
132 Lake Drive	132 Lake Drive
133 Lake Drive	133 Lake Drive
133 Pollard Road	133 Pollard Road
134 Morris Avenue	134 Morris Avenue
135 Lake Drive	135 Lake Drive

NAME	ADDRESS
135 Laurel Hill Road	135 Laurel Hill Road
135 Morris Avenue	135 Morris Avenue
135 Pollard Road	135 Pollard Road
136 Ball Road	136 Ball Road
136 Kenilworth Road	136 Kenilworth Road
136 Lookout Road	136 Lookout Road
136 Pollard Road	136 Pollard Road
137 Ball Road	137 Ball Road
137 Boulevard	137 Boulevard
137 Lookout Road	137 Lookout Road
138 Lake Drive	138 Lake Drive
139 Kenilworth Road	139 Kenilworth Road
14 Barton Road	14 Barton Road
14 Crestview Road	14 Crestview Road
14 Dartmouth Road	14 Dartmouth Road
14 Laurel Hill Road	14 Laurel Hill Road
14 Morris Avenue	14 Morris Avenue
14 Oak Lane	14 Oak Lane
14 Pollard Road	14 Pollard Road
14 Wilcox Drive	14 Wilcox Drive
140 Ball Road	140 Ball Road
140 Boulevard	140 Boulevard
140 Kenilworth Road	140 Kenilworth Road
140 Laurel Hill Road	140 Laurel Hill Road
141 Laurel Hill Road	141 Laurel Hill Road
141 Lookout Road	141 Lookout Road
142 Morris Avenue	142 Morris Avenue
143 Kenilworth Road	143 Kenilworth Road
144 Boulevard	144 Boulevard
144 Kenilworth Road	144 Kenilworth Road
144 Lookout Road	144 Lookout Road
145 Kenilworth Road	145 Kenilworth Road
145 Lake Drive	145 Lake Drive
145 Morris Avenue	145 Morris Avenue
146 Lake Drive	146 Lake Drive
146 Pollard Road	146 Pollard Road
147 Boulevard	147 Boulevard
147 Laurel Hill Road	147 Laurel Hill Road
148 Laurel Hill Road	148 Laurel Hill Road
148 Lookout Road	148 Lookout Road
15 Ball Road	15 Ball Road

NAME	ADDRESS
15 Barton Road	15 Barton Road
15 Cobb Road	15 Cobb Road
15 Cove Place	15 Cove Place
15 Crestview Road	15 Crestview Road
15 Dartmouth Road	15 Dartmouth Road
15 East Shore Road	15 East Shore Road
15 Hanover Road	15 Hanover Road
15 Howell Road	15 Howell Road
15 Lake Drive	15 Lake Drive
15 Laurel Hill Road	15 Laurel Hill Road
15 Lookout Road	15 Lookout Road
15 Lowell Avenue	15 Lowell Avenue
15 Melrose Road	15 Melrose Road
15 North Crane Road	15 North Crane Road
15 Point View Place	15 Point View Place
15 Pollard Road	15 Pollard Road
15 Powerville Road	15 Powerville Road
15 Raynold Road	15 Raynold Road
15 Tower Hill Road	15 Tower Hill Road
15 Wilcox Drive	15 Wilcox Drive
15 Woodland Avenue	15 Woodland Avenue
150 Boulevard	150 Boulevard
150 East Shore Road	150 East Shore Road
150 Lake Drive	150 Lake Drive
150 Laurel Hill Road	150 Laurel Hill Road
150 Morris Avenue	150 Morris Avenue
151 Lake Drive	151 Lake Drive
151 Lookout Road	151 Lookout Road
153 Laurel Hill Road	153 Laurel Hill Road
155 Boulevard	155 Boulevard
156 Laurel Hill Road	156 Laurel Hill Road
156 Pollard Road	156 Pollard Road
157 Lake Drive	157 Lake Drive
157 Morris Avenue	157 Morris Avenue
158 Lake Drive	158 Lake Drive
159 Laurel Hill Road	159 Laurel Hill Road
16 Dartmouth Road	16 Dartmouth Road
16 Hillcrest Road	16 Hillcrest Road
16 Laurel Hill Road	16 Laurel Hill Road
16 Midvale Road	16 Midvale Road
16 Overlook Road	16 Overlook Road

NAME	ADDRESS
16 Rockaway Terrace	16 Rockaway Terrace
160 Laurel Hill Road	160 Laurel Hill Road
160 Morris Avenue	160 Morris Avenue
161 Boulevard	161 Boulevard
161 Lake Drive	161 Lake Drive
161 Morris Avenue	161 Morris Avenue
162 Lake Drive	162 Lake Drive
165 Laurel Hill Road	165 Laurel Hill Road
165 Morris Avenue	165 Morris Avenue
166 Laurel Hill Road	166 Laurel Hill Road
169 Morris Avenue	169 Morris Avenue
17 Briarcliff Road	17 Briarcliff Road
17 Condit Road	17 Condit Road
17 Crane Road	17 Crane Road
17 Crystal Road	17 Crystal Road
17 Dartmouth Road	17 Dartmouth Road
17 Fernwood Place	17 Fernwood Place
17 Larchdell Way	17 Larchdell Way
17 Oak Lane	17 Oak Lane
17 Rock Lane	17 Rock Lane
17 Woodland Avenue	17 Woodland Avenue
170 Boulevard	170 Boulevard
170 Laurel Hill Road	170 Laurel Hill Road
170 Morris Avenue	170 Morris Avenue
171 Boulevard	171 Boulevard
172 East Shore Road	172 East Shore Road
174 Laurel Hill Road	174 Laurel Hill Road
175 Morris Avenue	175 Morris Avenue
176 Lake Drive	176 Lake Drive
176 Morris Avenue	176 Morris Avenue
177 Lake Drive	177 Lake Drive
178 Boulevard	178 Boulevard
178 Morris Avenue	178 Morris Avenue
179 Lake Drive	179 Lake Drive
18 Ball Road	18 Ball Road
18 Bellvale Road	18 Bellvale Road
18 Condit Road	18 Condit Road
18 Hillcrest Road	18 Hillcrest Road
18 Lake Drive	18 Lake Drive
18 Larchdell Way	18 Larchdell Way
18 Lookout Road	18 Lookout Road

NAME	ADDRESS
18 Raynold Road	18 Raynold Road
18 Wilcox Drive	18 Wilcox Drive
180 East Shore Road	180 East Shore Road
180 Morris Avenue	180 Morris Avenue
181 Boulevard	181 Boulevard
181 Morris Avenue	181 Morris Avenue
183 Laurel Hill Road	183 Laurel Hill Road
184 Laurel Hill Road	184 Laurel Hill Road
185 Morris Avenue	185 Morris Avenue
186 Boulevard	186 Boulevard
188 Morris Avenue	188 Morris Avenue
19 Barton Road	19 Barton Road
19 East Shore Road	19 East Shore Road
19 Glen Road	19 Glen Road
19 Midvale Road	19 Midvale Road
19 Raynold Road	19 Raynold Road
19 Rockaway Terrace	19 Rockaway Terrace
19 Valley Road	19 Valley Road
19 Wilcox Drive	19 Wilcox Drive
190 Laurel Hill Road	190 Laurel Hill Road
192 Boulevard	192 Boulevard
194 Morris Avenue	194 Morris Avenue
195 Boulevard	195 Boulevard
196 Morris Avenue	196 Morris Avenue
2 Ball Road	2 Ball Road
2 Crestview Road	2 Crestview Road
2 Esplanade	2 Esplanade
2 North Crane Road	2 North Crane Road
2 Park Lane	2 Park Lane
2 Point View Place	2 Point View Place
2 Woodland Avenue	2 Woodland Avenue
20 Condit Road	20 Condit Road
20 Crane Road	20 Crane Road
20 Glen Road	20 Glen Road
20 Hanover Road	20 Hanover Road
20 Laurel Hill Road	20 Laurel Hill Road
20 Lookout Road	20 Lookout Road
20 North Briarcliff Road	20 North Briarcliff Road
20 Oak Lane	20 Oak Lane
20 Overlook Road	20 Overlook Road
20 Pollard Road	20 Pollard Road

NAME	ADDRESS
20 Raynold Road	20 Raynold Road
20 Tower Hill Road	20 Tower Hill Road
200 Boulevard	200 Boulevard
201 Laurel Hill Road	201 Laurel Hill Road
201 Morris Avenue	201 Morris Avenue
202 Morris Avenue	202 Morris Avenue
203 Boulevard	203 Boulevard
203 Laurel Hill Road	203 Laurel Hill Road
203 Morris Avenue	203 Morris Avenue
204 Boulevard	204 Boulevard
208 Boulevard	208 Boulevard
208 Morris Avenue	208 Morris Avenue
209 Morris Avenue	209 Morris Avenue
21 Ball Road	21 Ball Road
21 Cobb Road	21 Cobb Road
21 Crystal Road	21 Crystal Road
21 Dartmouth Road	21 Dartmouth Road
21 Fernwood Place	21 Fernwood Place
21 Hanover Road	21 Hanover Road
21 Hillcrest Road	21 Hillcrest Road
21 Larchdell Way	21 Larchdell Way
21 Lookout Road	21 Lookout Road
21 Melrose Road	21 Melrose Road
21 North Glen Road	21 North Glen Road
21 Pollard Road	21 Pollard Road
21 Woodland Avenue	21 Woodland Avenue
210 Laurel Hill Road	210 Laurel Hill Road
211 Morris Avenue	211 Morris Avenue
212 Morris Avenue	212 Morris Avenue
215 Laurel Hill Road	215 Laurel Hill Road
215 Morris Avenue	215 Morris Avenue
216 Morris Avenue	216 Morris Avenue
219 Laurel Hill Road	219 Laurel Hill Road
22 Bellvale Road	22 Bellvale Road
22 Boulevard	22 Boulevard
22 Crane Road	22 Crane Road
22 Larchdell Way	22 Larchdell Way
22 Valley Road	22 Valley Road
22 Woodland Avenue	22 Woodland Avenue
220 Morris Avenue	220 Morris Avenue
221 Morris Avenue	221 Morris Avenue

NAME	ADDRESS
225 Boulevard	225 Boulevard
23 Briarcliff Road	23 Briarcliff Road
23 Crane Road	23 Crane Road
23 Fernwood Place	23 Fernwood Place
23 Oak Lane	23 Oak Lane
23 Woodland Avenue	23 Woodland Avenue
235 Boulevard	235 Boulevard
236 Morris Avenue	236 Morris Avenue
237 Morris Avenue	237 Morris Avenue
238 Boulevard	238 Boulevard
239 Boulevard	239 Boulevard
24 Ball Road	24 Ball Road
24 Beechway Road	24 Beechway Road
24 Dartmouth Road	24 Dartmouth Road
24 Glen Road	24 Glen Road
24 Hanover Road	24 Hanover Road
24 Hillcrest Road	24 Hillcrest Road
24 Oak Lane	24 Oak Lane
24 Overlook Road	24 Overlook Road
24 Raynold Road	24 Raynold Road
24 Woodland Avenue	24 Woodland Avenue
240 Boulevard	240 Boulevard
241 Morris Avenue	241 Morris Avenue
244 Boulevard	244 Boulevard
245 Boulevard	245 Boulevard
247 Rock Lane	247 Rock Lane
248 Morris Avenue	248 Morris Avenue
249 Morris Avenue	249 Morris Avenue
25 Beechway Road	25 Beechway Road
25 Cobb Road	25 Cobb Road
25 Condit Road	25 Condit Road
25 Crystal Road	25 Crystal Road
25 Glen Road	25 Glen Road
25 Hanover Road	25 Hanover Road
25 Hillcrest Road	25 Hillcrest Road
25 Lake Drive	25 Lake Drive
25 Lake End Place	25 Lake End Place
25 Larchdell Way	25 Larchdell Way
25 Lookout Road	25 Lookout Road
25 Melrose Road	25 Melrose Road
25 Raynold Road	25 Raynold Road

NAME	ADDRESS
25 Valley Road	25 Valley Road
250 Boulevard	250 Boulevard
250 Rock Lane	250 Rock Lane
251 Boulevard	251 Boulevard
251 Morris Avenue	251 Morris Avenue
254 Boulevard	254 Boulevard
255 Boulevard	255 Boulevard
255 Morris Avenue	255 Morris Avenue
256 Boulevard	256 Boulevard
26 Condit Road	26 Condit Road
26 Crane Road	26 Crane Road
26 Crestview Road	26 Crestview Road
26 Dartmouth Road	26 Dartmouth Road
26 Howell Road	26 Howell Road
26 Lake Drive	26 Lake Drive
26 Melrose Road	26 Melrose Road
26 Pollard Road	26 Pollard Road
260 Boulevard	260 Boulevard
261 Morris Avenue	261 Morris Avenue
264 Morris Avenue	264 Morris Avenue
27 Briarcliff Road	27 Briarcliff Road
27 Dartmouth Road	27 Dartmouth Road
27 Glen Road	27 Glen Road
27 Howell Road	27 Howell Road
27 Woodland Avenue	27 Woodland Avenue
270 Boulevard	270 Boulevard
270 Morris Avenue	270 Morris Avenue
275 Morris Avenue	275 Morris Avenue
28 Bellvale Road	28 Bellvale Road
28 Hanover Road	28 Hanover Road
28 Hillcrest Road	28 Hillcrest Road
28 Lake Drive	28 Lake Drive
28 Lookout Road	28 Lookout Road
28 North Glen Road	28 North Glen Road
28 West Shore Road	28 West Shore Road
280 Boulevard	280 Boulevard
280 Morris Avenue	280 Morris Avenue
281 Morris Avenue	281 Morris Avenue
284 Boulevard	284 Boulevard
284 Morris Avenue	284 Morris Avenue
289 Boulevard	289 Boulevard

NAME	ADDRESS
289 Morris Avenue	289 Morris Avenue
29 Ball Road	29 Ball Road
29 Condit Road	29 Condit Road
29 Crystal Road	29 Crystal Road
29 Dartmouth Road	29 Dartmouth Road
29 Hillcrest Road	29 Hillcrest Road
29 Lake Drive	29 Lake Drive
29 Lowell Avenue	29 Lowell Avenue
29 North Glen Road	29 North Glen Road
29 Oak Lane	29 Oak Lane
29 Pollard Road	29 Pollard Road
290 Boulevard	290 Boulevard
290 Morris Avenue	290 Morris Avenue
293 Boulevard	293 Boulevard
293 Morris Avenue	293 Morris Avenue
294 Boulevard	294 Boulevard
294 Morris Avenue	294 Morris Avenue
297 Morris Avenue	297 Morris Avenue
298 Boulevard	298 Boulevard
3 Barton Road	3 Barton Road
3 Fernwood Place	3 Fernwood Place
3 Hanover Road	3 Hanover Road
3 Hillside Terrace	3 Hillside Terrace
3 Lake Drive	3 Lake Drive
3 Larchdell Way	3 Larchdell Way
3 Lowell Avenue	3 Lowell Avenue
3 Park Lane	3 Park Lane
3 Powerville Road	3 Powerville Road
30 Ball Road	30 Ball Road
30 Cobb Road	30 Cobb Road
30 Dartmouth Road	30 Dartmouth Road
30 Glen Road	30 Glen Road
30 Howell Road	30 Howell Road
30 Lake Drive	30 Lake Drive
30 Laurel Hill Road	30 Laurel Hill Road
30 Lookout Road	30 Lookout Road
30 Melrose Road	30 Melrose Road
30 Oak Lane	30 Oak Lane
30 Powerville Road	30 Powerville Road
30 Tower Hill Road	30 Tower Hill Road
30 Valley Road	30 Valley Road

NAME	ADDRESS
30 Wilcox Drive	30 Wilcox Drive
300 Morris Avenue	300 Morris Avenue
302 Boulevard	302 Boulevard
302 Morris Avenue	302 Morris Avenue
303 Morris Avenue	303 Morris Avenue
31 Ball Road	31 Ball Road
31 Cobb Road	31 Cobb Road
31 Condit Road	31 Condit Road
31 Glen Road	31 Glen Road
31 Hanover Road	31 Hanover Road
31 Howell Road	31 Howell Road
31 Lookout Road	31 Lookout Road
31 Melrose Road	31 Melrose Road
31 North Pocono Road	31 North Pocono Road
31 Raynold Road	31 Raynold Road
31 Woodland Avenue	31 Woodland Avenue
310 Morris Avenue	310 Morris Avenue
311 Morris Avenue	311 Morris Avenue
312 Boulevard	312 Boulevard
314 Boulevard	314 Boulevard
317 Morris Avenue	317 Morris Avenue
32 Condit Road	32 Condit Road
32 Hanover Road	32 Hanover Road
32 Overlook Road	32 Overlook Road
32 Tower Hill Road	32 Tower Hill Road
32 Woodland Avenue	32 Woodland Avenue
320 Morris Avenue	320 Morris Avenue
321 Morris Avenue	321 Morris Avenue
324 Boulevard	324 Boulevard
324 Morris Avenue	324 Morris Avenue
329 Morris Avenue	329 Morris Avenue
33 Briarcliff Road	33 Briarcliff Road
33 Crane Road	33 Crane Road
33 Crystal Road	33 Crystal Road
33 East Shore Road	33 East Shore Road
33 Hanover Road	33 Hanover Road
33 Hillcrest Road	33 Hillcrest Road
33 Lake Drive	33 Lake Drive
33 Laurel Hill Road	33 Laurel Hill Road
33 Melrose Road	33 Melrose Road
33 Oak Lane	33 Oak Lane

NAME	ADDRESS
330 Boulevard	330 Boulevard
330 Morris Avenue	330 Morris Avenue
331 Morris Avenue	331 Morris Avenue
333 Boulevard	333 Boulevard
336 Boulevard	336 Boulevard
337 Morris Avenue	337 Morris Avenue
338 Morris Avenue	338 Morris Avenue
34 Briarcliff Road	34 Briarcliff Road
34 Cobb Road	34 Cobb Road
34 Crane Road	34 Crane Road
34 Crestview Road	34 Crestview Road
34 Hillcrest Road	34 Hillcrest Road
34 Howell Road	34 Howell Road
34 Lake Drive	34 Lake Drive
34 Pollard Road	34 Pollard Road
34 West Shore Road	34 West Shore Road
34 Wilcox Drive	34 Wilcox Drive
340 Boulevard	340 Boulevard
340 Morris Avenue	340 Morris Avenue
341 Boulevard	341 Boulevard
341 Morris Avenue	341 Morris Avenue
344 Morris Avenue	344 Morris Avenue
345 Morris Avenue	345 Morris Avenue
348 Morris Avenue	348 Morris Avenue
35 Cobb Road	35 Cobb Road
35 Crystal Road	35 Crystal Road
35 Dartmouth Road	35 Dartmouth Road
35 Howell Road	35 Howell Road
35 North Briarcliff Road	35 North Briarcliff Road
35 Oak Lane	35 Oak Lane
35 Pollard Road	35 Pollard Road
35 Woodland Avenue	35 Woodland Avenue
350 Boulevard	350 Boulevard
351 Morris Avenue	351 Morris Avenue
36 Boulevard	36 Boulevard
36 Glen Road	36 Glen Road
36 Midvale Road	36 Midvale Road
360 Morris Avenue	360 Morris Avenue
361 Morris Avenue	361 Morris Avenue
362 Morris Avenue	362 Morris Avenue
365 Boulevard	365 Boulevard

NAME	ADDRESS
365 Morris Avenue	365 Morris Avenue
37 Ball Road	37 Ball Road
37 Howell Road	37 Howell Road
37 Lake Drive	37 Lake Drive
37 North Pocono Road	37 North Pocono Road
37 Raynold Road	37 Raynold Road
370 Morris Avenue	370 Morris Avenue
376 Morris Avenue	376 Morris Avenue
379 Morris Avenue	379 Morris Avenue
38 Ball Road	38 Ball Road
38 Cobb Road	38 Cobb Road
38 Lake Drive	38 Lake Drive
38 Lookout Road	38 Lookout Road
38 Pollard Road	38 Pollard Road
38 Tower Hill Road	38 Tower Hill Road
38 Wilcox Drive	38 Wilcox Drive
380 Morris Avenue	380 Morris Avenue
381 Morris Avenue	381 Morris Avenue
388 Morris Avenue	388 Morris Avenue
39 Ball Road	39 Ball Road
39 Briarcliff Road	39 Briarcliff Road
39 Condit Road	39 Condit Road
39 Dartmouth Road	39 Dartmouth Road
39 Laurel Hill Road	39 Laurel Hill Road
39 Lookout Road	39 Lookout Road
39 North Pocono Road	39 North Pocono Road
39 West Shore Road	39 West Shore Road
39 Woodland Avenue	39 Woodland Avenue
390 Morris Avenue	390 Morris Avenue
396 Morris Avenue	396 Morris Avenue
4 Crane Road	4 Crane Road
4 Hillcrest Road	4 Hillcrest Road
4 Lake End Place	4 Lake End Place
4 Lookout Road	4 Lookout Road
4 Park Lane	4 Park Lane
4 Point View Place	4 Point View Place
4 Valley Road	4 Valley Road
40 Condit Road	40 Condit Road
40 Crestview Road	40 Crestview Road
40 Dartmouth Road	40 Dartmouth Road
40 East Shore Road	40 East Shore Road

NAME	ADDRESS
40 Glen Road	40 Glen Road
40 Hillcrest Road	40 Hillcrest Road
40 Melrose Road	40 Melrose Road
40 Overlook Road	40 Overlook Road
40 Raynold Road	40 Raynold Road
40 West Shore Road	40 West Shore Road
400 Boulevard	400 Boulevard
401 Morris Avenue	401 Morris Avenue
404 Morris Avenue	404 Morris Avenue
41 Crane Road	41 Crane Road
41 Glen Road	41 Glen Road
41 Howell Road	41 Howell Road
41 Lake Drive	41 Lake Drive
41 Laurel Hill Road	41 Laurel Hill Road
41 Lookout Road	41 Lookout Road
41 Lowell Avenue	41 Lowell Avenue
41 Melrose Road	41 Melrose Road
41 North Briarcliff Road	41 North Briarcliff Road
41 North Pocono Road	41 North Pocono Road
41 Raynold Road	41 Raynold Road
41 Wilcox Drive	41 Wilcox Drive
410 Morris Avenue	410 Morris Avenue
416 Morris Avenue	416 Morris Avenue
42 Pollard Road	42 Pollard Road
42 Wilcox Drive	42 Wilcox Drive
43 Howell Road	43 Howell Road
43 Pollard Road	43 Pollard Road
43 West Shore Road	43 West Shore Road
43 Woodland Avenue	43 Woodland Avenue
430 Morris Avenue	430 Morris Avenue
44 Ball Road	44 Ball Road
44 Crane Road	44 Crane Road
44 Glen Road	44 Glen Road
44 Hanover Road	44 Hanover Road
44 Hillcrest Road	44 Hillcrest Road
44 Lake Drive	44 Lake Drive
44 Lookout Road	44 Lookout Road
44 Melrose Road	44 Melrose Road
44 Midvale Road	44 Midvale Road
44 Tower Hill Road	44 Tower Hill Road
45 Briarcliff Road	45 Briarcliff Road

NAME	ADDRESS
45 Crane Road	45 Crane Road
45 Hanover Road	45 Hanover Road
45 Howell Road	45 Howell Road
45 Lowell Avenue	45 Lowell Avenue
45 Pollard Road	45 Pollard Road
46 Crane Road	46 Crane Road
46 Dartmouth Road	46 Dartmouth Road
46 Lake Drive	46 Lake Drive
46 Pollard Road	46 Pollard Road
46 Tower Hill Road	46 Tower Hill Road
46 Wilcox Drive	46 Wilcox Drive
47 Bellvale Road	47 Bellvale Road
47 Cobb Road	47 Cobb Road
47 Condit Road	47 Condit Road
47 Crestview Road	47 Crestview Road
47 Howell Road	47 Howell Road
47 Lookout Road	47 Lookout Road
47 North Pocono Road	47 North Pocono Road
47 Powerville Road	47 Powerville Road
48 Ball Road	48 Ball Road
48 Condit Road	48 Condit Road
48 Crestview Road	48 Crestview Road
48 Glen Road	48 Glen Road
48 Laurel Hill Road	48 Laurel Hill Road
48 Overlook Road	48 Overlook Road
48 West Shore Road	48 West Shore Road
49 Briarcliff Road	49 Briarcliff Road
49 Lake Drive	49 Lake Drive
49 Melrose Road	49 Melrose Road
49 Pollard Road	49 Pollard Road
49 Tower Hill Road	49 Tower Hill Road
5 Ball Road	5 Ball Road
5 Cobb Road	5 Cobb Road
5 Condit Road	5 Condit Road
5 Cove Place	5 Cove Place
5 Crane Road	5 Crane Road
5 Crestview Road	5 Crestview Road
5 East Shore Road	5 East Shore Road
5 Glen Road	5 Glen Road
5 Laurel Hill Road	5 Laurel Hill Road
5 Lookout Road	5 Lookout Road

NAME	ADDRESS
5 Point View Place	5 Point View Place
5 Pollard Road	5 Pollard Road
5 Rock Lane	5 Rock Lane
5 Wilcox Drive	5 Wilcox Drive
50 Bellvale Road	50 Bellvale Road
50 Boulevard	50 Boulevard
50 Dartmouth Road	50 Dartmouth Road
50 Hanover Road	50 Hanover Road
50 Hillcrest Road	50 Hillcrest Road
50 Lake Drive	50 Lake Drive
50 Lookout Road	50 Lookout Road
50 Pollard Road	50 Pollard Road
50 Tower Hill Road	50 Tower Hill Road
51 Bellvale Road	51 Bellvale Road
51 Glen Road	51 Glen Road
51 Hanover Road	51 Hanover Road
51 North Briarcliff Road	51 North Briarcliff Road
51 Pocono Road	51 Pocono Road
52 Briarcliff Road	52 Briarcliff Road
52 Crane Road	52 Crane Road
52 Laurel Hill Road	52 Laurel Hill Road
52 Melrose Road	52 Melrose Road
53 Crestview Road	53 Crestview Road
53 Lake Drive	53 Lake Drive
53 Pollard Road	53 Pollard Road
54 Cobb Road	54 Cobb Road
54 Crane Road	54 Crane Road
54 Crestview Road	54 Crestview Road
54 West Shore Road	54 West Shore Road
55 Bellvale Road	55 Bellvale Road
55 Cobb Road	55 Cobb Road
55 Condit Road	55 Condit Road
55 Lake Drive	55 Lake Drive
55 Lookout Road	55 Lookout Road
55 Pocono Road	55 Pocono Road
55 Tower Hill Road	55 Tower Hill Road
56 Bellvale Road	56 Bellvale Road
56 Pollard Road	56 Pollard Road
57 Briarcliff Road	57 Briarcliff Road
57 Crane Road	57 Crane Road
57 Melrose Road	57 Melrose Road

NAME	ADDRESS
57 Powerville Road	57 Powerville Road
58 Briarcliff Road	58 Briarcliff Road
58 Melrose Road	58 Melrose Road
58 Pocono Road	58 Pocono Road
59 Briarcliff Road	59 Briarcliff Road
59 Crestview Road	59 Crestview Road
59 Hanover Road	59 Hanover Road
59 Laurel Hill Road	59 Laurel Hill Road
59 Pollard Road	59 Pollard Road
6 Ball Road	6 Ball Road
6 Cove Place	6 Cove Place
6 Crystal Road	6 Crystal Road
6 Glen Road	6 Glen Road
6 Hanover Road	6 Hanover Road
6 Larchdell Way	6 Larchdell Way
6 North Crane Road	6 North Crane Road
6 Raynold Road	6 Raynold Road
6 Tower Hill Road	6 Tower Hill Road
6 Van Duyne Road	6 Van Duyne Road
6 Wilcox Drive	6 Wilcox Drive
6 Woodland Avenue	6 Woodland Avenue
60 Boulevard	60 Boulevard
60 Crane Road	60 Crane Road
60 Hanover Road	60 Hanover Road
60 Lake Drive	60 Lake Drive
60 Laurel Hill Road	60 Laurel Hill Road
60 Melrose Road	60 Melrose Road
60 Midvale Road	60 Midvale Road
60 Pocono Road	60 Pocono Road
606 Rockaway Terrace	606 Rockaway Terrace
61 Bellvale Road	61 Bellvale Road
61 Lake Drive	61 Lake Drive
61 Lookout Road	61 Lookout Road
61 Tower Hill Road	61 Tower Hill Road
62 Crestview Road	62 Crestview Road
62 Pocono Road	62 Pocono Road
62 Pollard Road	62 Pollard Road
62 Tower Hill Road	62 Tower Hill Road
63 Ball Road	63 Ball Road
63 Briarcliff Road	63 Briarcliff Road
63 Crane Road	63 Crane Road

NAME	ADDRESS
63 Laurel Hill Road	63 Laurel Hill Road
63 Melrose Road	63 Melrose Road
63 Pollard Road	63 Pollard Road
64 Boulevard	64 Boulevard
64 Briarcliff Road	64 Briarcliff Road
64 Lake Drive	64 Lake Drive
64 Melrose Road	64 Melrose Road
64 North Glen Road	64 North Glen Road
65 Bellvale Road	65 Bellvale Road
65 Crestview Road	65 Crestview Road
65 Lake Drive	65 Lake Drive
65 Melrose Road	65 Melrose Road
65 North Glen Road	65 North Glen Road
66 Ball Road	66 Ball Road
66 Pollard Road	66 Pollard Road
67 Ball Road	67 Ball Road
67 Briarcliff Road	67 Briarcliff Road
67 Crane Road	67 Crane Road
67 Lookout Road	67 Lookout Road
68 Crestview Road	68 Crestview Road
68 Lookout Road	68 Lookout Road
69 Bellvale Road	69 Bellvale Road
69 Lookout Road	69 Lookout Road
69 Tower Hill Road	69 Tower Hill Road
7 Barton Road	7 Barton Road
7 Crystal Road	7 Crystal Road
7 Elm Road	7 Elm Road
7 Larchdell Way	7 Larchdell Way
7 North Crane Road	7 North Crane Road
7 Point View Place	7 Point View Place
7 Powerville Road	7 Powerville Road
7 Wilcox Drive	7 Wilcox Drive
7 Woodland Avenue	7 Woodland Avenue
70 Boulevard	70 Boulevard
70 Crane Road	70 Crane Road
70 Hanover Road	70 Hanover Road
70 Kenilworth Road	70 Kenilworth Road
70 Pollard Road	70 Pollard Road
70 Tower Hill Road	70 Tower Hill Road
71 Ball Road	71 Ball Road
71 Briarcliff Road	71 Briarcliff Road

NAME	ADDRESS
71 Crane Road	71 Crane Road
71 East Shore Road	71 East Shore Road
71 Hanover Road	71 Hanover Road
71 Kenilworth Road	71 Kenilworth Road
71 Lake Drive	71 Lake Drive
71 Pocono Road	71 Pocono Road
72 Boulevard	72 Boulevard
72 Briarcliff Road	72 Briarcliff Road
73 Cobb Road	73 Cobb Road
73 Pollard Road	73 Pollard Road
74 Ball Road	74 Ball Road
74 Hanover Road	74 Hanover Road
74 Kenilworth Road	74 Kenilworth Road
74 Melrose Road	74 Melrose Road
74 Tower Hill Road	74 Tower Hill Road
75 Bellvale Road	75 Bellvale Road
75 Crestview Road	75 Crestview Road
75 Pollard Road	75 Pollard Road
76 Bellvale Road	76 Bellvale Road
76 East Shore Road	76 East Shore Road
76 Kenilworth Road	76 Kenilworth Road
76 Pollard Road	76 Pollard Road
77 Ball Road	77 Ball Road
77 Boulevard	77 Boulevard
77 Briarcliff Road	77 Briarcliff Road
77 Cobb Road	77 Cobb Road
77 Hanover Road	77 Hanover Road
77 Tower Hill Road	77 Tower Hill Road
78 Cobb Road	78 Cobb Road
78 Crestview Road	78 Crestview Road
78 Lake Drive	78 Lake Drive
78 Laurel Hill Road	78 Laurel Hill Road
78 Lookout Road	78 Lookout Road
78 Tower Hill Road	78 Tower Hill Road
79 Lake Drive	79 Lake Drive
79 Laurel Hill Road	79 Laurel Hill Road
8 Barton Road	8 Barton Road
8 Cobb Road	8 Cobb Road
8 Crestview Road	8 Crestview Road
8 Dartmouth Road	8 Dartmouth Road
8 Elm Road	8 Elm Road

NAME	ADDRESS
8 Larchdell Way	8 Larchdell Way
8 Laurel Hill Road	8 Laurel Hill Road
8 Morris Avenue	8 Morris Avenue
8 Oak Lane	8 Oak Lane
8 Woodland Avenue	8 Woodland Avenue
80 Ball Road	80 Ball Road
80 Boulevard	80 Boulevard
80 Cobb Road	80 Cobb Road
80 Hanover Road	80 Hanover Road
80 Laurel Hill Road	80 Laurel Hill Road
80 Melrose Road	80 Melrose Road
80 Pocono Road	80 Pocono Road
80 Pollard Road	80 Pollard Road
81 Ball Road	81 Ball Road
81 Boulevard	81 Boulevard
81 Cobb Road	81 Cobb Road
81 Crane Road	81 Crane Road
81 Glen Road	81 Glen Road
81 Hanover Road	81 Hanover Road
81 Lake Drive	81 Lake Drive
81 Morris Avenue	81 Morris Avenue
82 Briarcliff Road	82 Briarcliff Road
82 Kenilworth Road	82 Kenilworth Road
82 Lake Drive	82 Lake Drive
82 Pocono Road	82 Pocono Road
83 Glen Road	83 Glen Road
83 Lookout Road	83 Lookout Road
84 Ball Road	84 Ball Road
84 Crane Road	84 Crane Road
84 Crestview Road	84 Crestview Road
84 Hanover Road	84 Hanover Road
84 Lookout Road	84 Lookout Road
84 Melrose Road	84 Melrose Road
84 Pocono Road	84 Pocono Road
84 Pollard Road	84 Pollard Road
85 Boulevard	85 Boulevard
85 Cobb Road	85 Cobb Road
85 Crane Road	85 Crane Road
85 Laurel Hill Road	85 Laurel Hill Road
85 Pollard Road	85 Pollard Road
86 Ball Road	86 Ball Road

NAME	ADDRESS
86 Hanover Road	86 Hanover Road
86 Lake Drive	86 Lake Drive
87 Ball Road	87 Ball Road
87 Hanover Road	87 Hanover Road
88 Boulevard	88 Boulevard
88 Pollard Road	88 Pollard Road
89 Ball Road	89 Ball Road
89 Boulevard	89 Boulevard
89 Crestview Road	89 Crestview Road
89 Hanover Road	89 Hanover Road
89 Kenilworth Road	89 Kenilworth Road
89 Lake Drive	89 Lake Drive
89 Melrose Road	89 Melrose Road
9 Briarcliff Road	9 Briarcliff Road
9 Cobb Road	9 Cobb Road
9 Condit Road	9 Condit Road
9 Elm Road	9 Elm Road
9 Hanover Road	9 Hanover Road
9 Laurel Hill Road	9 Laurel Hill Road
9 Oak Lane	9 Oak Lane
9 Point View Place	9 Point View Place
9 Rock Lane	9 Rock Lane
9 Van Duyne Road	9 Van Duyne Road
90 Briarcliff Road	90 Briarcliff Road
90 Crestview Road	90 Crestview Road
90 Hanover Road	90 Hanover Road
90 Kenilworth Road	90 Kenilworth Road
90 Melrose Road	90 Melrose Road
90 Tower Hill Road	90 Tower Hill Road
91 Crane Road	91 Crane Road
91 Crestview Road	91 Crestview Road
91 East Shore Road	91 East Shore Road
91 Kenilworth Road	91 Kenilworth Road
91 Lookout Road	91 Lookout Road
91 Melrose Road	91 Melrose Road
91 Morris Avenue	91 Morris Avenue
91 Pocono Road	91 Pocono Road
92 Lake Drive	92 Lake Drive
92 Laurel Hill Road	92 Laurel Hill Road
93 Ball Road	93 Ball Road
93 Briarcliff Road	93 Briarcliff Road

NAME	ADDRESS
94 Boulevard	94 Boulevard
94 Melrose Road	94 Melrose Road
95 Ball Road	95 Ball Road
95 Boulevard	95 Boulevard
95 Briarcliff Road	95 Briarcliff Road
95 Cobb Road	95 Cobb Road
95 Hanover Road	95 Hanover Road
95 Lake Drive	95 Lake Drive
95 Laurel Hill Road	95 Laurel Hill Road
95 Melrose Road	95 Melrose Road
96 Briarcliff Road	96 Briarcliff Road
96 Lake Drive	96 Lake Drive
96 Lookout Road	96 Lookout Road
96 Powerville Road	96 Powerville Road
97 Kenilworth Road	97 Kenilworth Road
98 Crestview Road	98 Crestview Road
98 Lookout Road	98 Lookout Road
98 Melrose Road	98 Melrose Road
99 Briarcliff Road	99 Briarcliff Road
99 Lake Drive	99 Lake Drive
99 Laurel Hill Road	99 Laurel Hill Road
99 Morris Avenue	99 Morris Avenue
99 Pocono Road	99 Pocono Road
Barton Road Bridge (Morris County Bridge 1400-155)	Barton Road over canal
Boulevard Bridge (Cove Dam) (Morris County Bridge 1400-168)	Boulevard over Shadow Lake stream
Boulevard Bridge (Morris County Bridge 1400-167)	Boulevard over Wildwood Lake tributary
Boulevard Bridge (Morris County Bridge 1400-169)	Boulevard over Sunset Lake tributary
Boulevard Bridge (Morris County Bridge 1400-170	Boulevard over Sunset Lake tributary
Boulevard Path	Elcock Road to Pocono Road
Briarcliff Park	Briarcliff Road
Briarcliff Road Bridge (Morris County Bridge 1400-154)	Briarcliff Road over canal
Community Church of Mountain Lakes	48 Briarcliff Road; 00 and 38 Barton Road
Cove Lake	000 COVE LAKE
Cove Place Bridge (Morris County Bridge 1400-153)	Cove Place over Mountain Lake tributary
Crane Road Bridge (Morris County Bridge 1400-166)	Crane Road over Mountain Lake tributary
Crystal Lake	000 CRYSTAL LAKE
Crystal Lake Dam	Sunset Road over Troy Brook tributary
Crystal Lake Dike	Sunset Road
Crystal Lake Island	Crystal Lake
DL&WBB/Midvale Road Bridge	NJ Transit Boonton Line, Milepost 31.2 over Midvale Road
DL&WBB/US Route 46 Bridge	NJ Transit Boonton Line, Milepost 32.11 over US Route 46

NAME	ADDRESS
Esplanade	Between Crane Road and Elm Road
Fox Hill Road/DL&WBB Bridge	Fox Hill Road over NJ Transit Boonton Line, Milepost 32.93
Frank B. Kaufmann Park	Boulevard and Briarcliff Road
Glen Road North Bridge	Glen Road North over stream
Grimes Farm (Jonathan Grimes Homestead)	Craven Road
Grunden's Pond Dam	350 BLVD
Halsey A. Frederick Memorial Park	Kenilworth Road
Hanover Road Bridge (Morris County Bridge 1400-163)	Hanover Road over stream
Island Beach Park (Island)	Mountain Lake
Island Beach Park (Playground)	Boulevard
Kenilworth Road Bridge (Morris County Bridge 1400-160)	Kenilworth Road over Mountain Lake tributary
Lake Drive Bridge (Morris County Bridge 1400-156)	Lake Drive over Troy Brook
Lake Drive Bridge (Morris County Bridge 1400-158)	Lake Drive over Mountain Lake tributary
Land around Borough Hall and DPW	Pocono Road
Lyman Wilson Park, Specimen Grove	Boulevard and Pocono Road
Melrose Road Bridge (Morris County Bridge 1400-161)	Melrose Road over stream
Melrose Road Bridge (Morris County Bridge 1400-162)	Melrose Road over stream
Memorial Park	Lake Road
Midvale Boat Dock	Lake Road
Morris Avenue Bridge (Morris County Bridge 1400-103)	Morris Avenue over Troy Brook tributary
Morris Avenue Bridge (Morris County Bridge 1400-363)	Morris Avenue over Mountain Lake tributary
Mountain Lake	between County Route 618 and Lake Drive
Mountain Lake Dam	Fernwood Place over Troy Brook tributary
Mountain Lakes Station	99 Midvale Road
Olive Lake	000 SHADOW LAKE & OLIVE
Park and basketball courts	Romaine Road
Park Lane Bridge	Park Lane over stream
Parkland	Crestview Road
Parkland	Crane Road and US 46
Parkland	Pocono Road
Parkland	East Shore Road
Parkland	Midvale Road
Parkland	Powerville Road
Parkland	Pocono Road
Parkland	Powerville Road (entire right-of-way)
Parkland	Powerville Road
Parkland	Tower Hill Road
Parkland	Laurel Hill Road
Parkland	Tower Hill Road
Parkland / Sled Run	Tower Hill Road
Pollard Road Bridge (Morris County Bridge 1400-359)	Pollard Road over Troy Brook tributary

NAME	ADDRESS
Pollard Road Bridge (Morris County Bridge 1400-360)	Pollard Road over Mountain Lake tributary
Pollard Road Bridge (Morris County Bridge 1400-361)	Pollard Road over Mountain Lake tributary
Railroad Bed	Delaware, Lackawanna and Western railroad Boonton Line
Reservoir Lake (Grunden's Pond)	000 RESERVOIR LAKE
Richard M. Wilcox Park and Parkland	000 CRESTVIEW RD
Romaine Parking Lot	Midvale and Romaine Roads
School Lands	Powerville and Briarcliff Roads
Shadow Lake	000 SHADOW LAKE & OLIVE
Shadow Lake Dam	Park Lane over Troy Brook tributary
St. Peter's Episcopal Church Mountain Lakes	215 Boulevard
Sunset Dam	000 SUNSET LAKE
Sunset Lake	000 SUNSET LAKE
Sunset Road / Crystal Road Bridge (Sunset Spillway)	Sunset Road / Crystal Road over spillway
The Cove	Morris Avenue
The Pit	Bellvale Road
Thorleif Fliflet Bird Sanctuary	Lake Drive
Valley Road / Pocono Road Bridge	Valley Road / Pocono Road over stream
Water Tanks	Lookout Road
Well Number 2	Tower Hill Road
Wilcox Road Bridge (Morris County Bridge 1400-364)	Wilcox Road over stream
Wildwood Dam	000 WILDWOOD LAKE
Wildwood Dike	000 WILDWOOD LAKE
Wildwood Lake	000 WILDWOOD LAKE
Wooded land w/ stucco, stone and brick pier	Boulevard

Appendix B: Recommended Native Plant Species for Mountain Lakes

The following native species are well-suited to the soils, hydrology, and climate conditions of Mountain Lakes Borough. These plants support pollinators, birds, and wildlife while improving stormwater management and lake protection. Selection of native species over non-native ornamentals helps preserve biodiversity and reduce the spread of invasive species.

Upland Shade Trees (Canopy)

These species are appropriate for residential yards, street plantings (where suitable), and forest restoration. Oaks, in particular, are keystone species that support hundreds of native insect species and provide essential wildlife habitat.

- **White Oak** (*Quercus alba*)
- **Red Oak** (*Quercus rubra*)
- **Black Oak** (*Quercus velutina*)
- **Shagbark Hickory** (*Carya ovata*)
- **Tulip Tree** (*Liriodendron tulipifera*)
- **American Beech** (*Fagus grandifolia*)
- **Sugar Maple** (*Acer saccharum*)
- **Red Maple** (*Acer rubrum*)
- **Black Gum** (Tupelo) (*Nyssa sylvatica*)

Understory Trees and Large Shrubs

These species are suitable for layered forest edges and residential landscaping.

- **Serviceberry** (*Amelanchier canadensis*)
- **Eastern Redbud** (*Cercis canadensis*)
- **Flowering Dogwood (***Cornus florida*)
- **Witch Hazel** (*Hamamelis virginiana*)
- **American Hornbeam** (*Carpinus caroliniana*)
- **Sassafras** (*Sassafras albidum*)

Native Shrubs (Wildlife & Buffer Plantings)

Ideal for replacing invasive shrubs such as barberry or multiflora rose, provide berries for birds, and dense structure for nesting habitat.

- **Highbush Blueberry** (*Vaccinium corymbosum*)
- **Spicebush** (*Lindera benzoin*)
- **Winterberry Holly** (*Ilex verticillata*)
- **Arrowwood Viburnum** (*Viburnum dentatum*)
- **Red Chokeberry** (*Aronia arbutifolia*)
- **New Jersey Tea** (*Ceanothus americanus*)
- **Sweet Pepperbush** (*Clethra alnifolia*)

Riparian and Lakeshore Plants

These species are appropriate for shoreline stabilization and nutrient buffering and help filter runoff, stabilize banks, and improve lake water quality.

- **Buttonbush** (*Cephalanthus occidentalis*)
- **Red Osier Dogwood** (*Cornus sericea*)
- **Swamp Milkweed** (*Asclepias incarnata*)
- Blue Flag Iris (*Iris versicolor*)
- **Soft Rush** (*Juncus effusus*)
- **Joe-Pye Weed** (*Eutrochium purpureum*)
- **Cardinal Flower** (*Lobelia cardinalis*)

Pollinator-Friendly Perennials

These species are well-suited for sunny yards, meadow plantings, and rain gardens. Goldenrod and asters are especially important as late-season nectar sources.

- **Purple Coneflower** (*Echinacea purpurea*)
- **Black-eyed Susan** (*Rudbeckia hirta*)
- **Wild Bergamot** (*Monarda fistulosa*)
- **Butterfly Weed** (*Asclepias tuberosa*)
- **Goldenrod** (*Solidago spp.*)
- **New England Aster** (*Symphyotrichum novae-angliae*)
- **Little Bluestem** (*Schizachyrium scoparium*)

Rain Garden and Stormwater Species

The following species are suitable for managing runoff in residential settings, and tolerate periodic inundation and drought cycles.

- **Switchgrass** (*Panicum virgatum*)
- **Fox Sedge** (*Carex vulpinoidea*)
- **Blue Vervain** (*Verbena hastata*)
- **Culver's Root** (*Veronicastrum virginicum*)
- **Virginia Sweetspire** (*Itea virginica*)

Species to Avoid (Common Invasives)

Replacing invasive ornamentals with native species significantly improves habitat quality and reduces long-term maintenance costs. Borough residents are encouraged to avoid planting:

- **Japanese Barberry**
- **Multiflora Rose**
- **Burning Bush**
- **Norway Maple**
- **Tree-of-heaven**
- **Japanese Knotweed**
- **English Ivy**
- **Purple Loosestrife**
- **Eurasian Watermilfoil** (aquatic)

Appendix C: Conservation Ordinances

Chapter 102 of the Borough's Code is entitled Environmental Regulations[18] and includes several ordinances which promulgate the Borough's philosophy on environmental protection. These ordinances are as follows:

- **Article II** Environmental Impact Statement
- **Article III** Soil Moving
- **Article IV** Soil Erosion and Sediment Control
- **Article V** Surface Water Management for Non-Major Applications
- **Article VI** Wellhead Protection Area Regulations
- **Article VII** Preservation and Protection of Trees

The Borough also has several Conservation Zones: Conservation Zones C-1 and C-2. These zones encompass certain Borough-owned parks and open space areas. The intent of these zones is to preserve open space and be used for recreation and conservation of the following natural resources:

- Major existing or potential groundwater resources
- Erosion-prone soils, especially in steep areas of 15% or more grade and where surface water sedimentation may occur
- Ecologically important wetlands, which also serve as natural stormwater detention facilities
- Woodlands which provide environmental and aesthetic benefits

[18] The Borough Code can be accessed here: https://ecode360.com/8630970