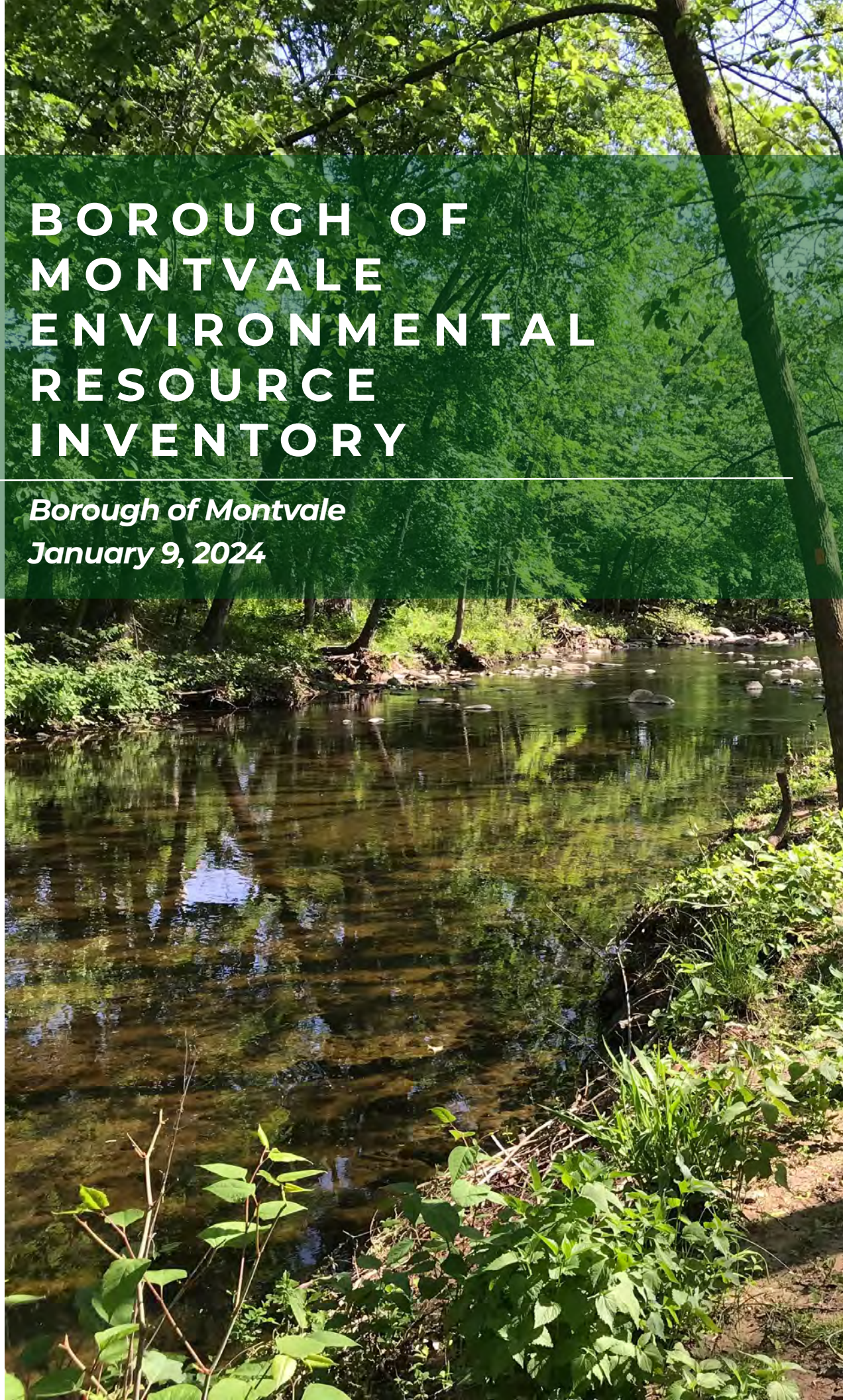
THE LAND CONSERVANCY
OF NEW JERSEY

BOROUGH OF MONTVALE ENVIRONMENTAL RESOURCE INVENTORY

Borough of Montvale

January 9, 2024



BOROUGH OF MONTVALE, BERGEN COUNTY

January 9, 2024

ENVIRONMENTAL RESOURCE INVENTORY

PREPARED BY

THE LAND CONSERVANCY OF NEW JERSEY

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This original document was appropriately signed and sealed in accordance with Chapter 41, Title 13 of the State Board of Professional Planners

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Date: January 9, 2024

ACKNOWLEDGMENTS

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Borough Council
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Planning Board
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Cover Photo:
Memorial Park, Pascack Brook
Borough of Montvale Environmental Commission

Environmental Resource Inventory

What is an Environmental Resource Inventory?

An Environmental Resource Inventory (ERI) provides the foundation for local decision-making. It details information that planners and local officials can use to craft public policy and make land use decisions that align with their community's priorities.

The ERI describes the natural and cultural resources in a given locality. Natural resources include, for example, forests, surface and ground waters, and wildlife habitat. Cultural resources include historic, scenic and recreational sites within a community.

For Montvale, the ERI has:

- **Maps** which show the location and extent of the existing resources.
- **Data** that provides additional detail about these features such as water quality or soils.
- **Report** that summarizes each of these resources in the town.

The ERI is a dynamic document which needs to be updated periodically to reflect current data and changing conditions and policies.

What is the importance of an ERI?

Incorporating the ERI into the Master Plan helps the members of the governing body, planning board, and environmental commission provide sound recommendations while reviewing proposed development applications. In this way, resources upon which the community depends are protected and integrated into the planning process.

Memorial Trail running along Pascack Brook

What are the advantages of an ERI to the community?

According to the Association of New Jersey Environmental Commissions and Sustainable Jersey, an Environmental Resource Inventory:

- Provides factual information for municipal land use planning.
- Assists in developing the land use element of the Master Plan.
- Serves as a guide during the site plan review process.
- Helps in the compilation of zoning regulations and municipal ordinances.
- Forms the basis for a land capability analysis and determining the intensity and location of development.
- Identifies sensitive areas and suitable locations for specific types of development.
- Enhances understanding of natural systems, their limitations, and opportunities for use.
- Acts as a long-term planning tool for identifying potential land use impacts and natural resource issues.
- Educates residents about their community and its environment.
- Aids in avoiding future problems and mitigating costs.
- Assists in decision-making regarding the placement of infrastructure such as roads and sewers.

Who uses the ERI?

- Environmental Commissions
- Planning Boards
- Zoning Boards
- Planners
- Engineers
- Open Space Committees
- Elected Officials
- Residents and property owners

References:
Association of New Jersey Environmental Commissions. The Environmental Resource Inventory. https://anjec.org/wp-content/uploads/2019/07/ERI-2013.pdf Accessed June 2023.

Sustainable Jersey, Natural Resource Inventory. https://www.sustainablejersey.com/actions/?type=1336777436&tx_sjcert_action%5BactionObject%5D=60&tx_ Accessed June 2023.

Executive Summary

The Borough of Montvale's commitment to natural resource protection is exemplified in the completion of this Environmental Resource Inventory. The Open Space Plan is a guide for the Borough to identify and protect land for recreation and natural resource conservation. These two documents work together to ensure comprehensive knowledge and protection of the Borough's environmental resources.

The Borough of Montvale is the northern-most town of the Pascack Valley in Bergen County. Defined by the Pascack Brook, each of the towns within the Pascack Valley reside within its watershed. Montvale has grown from an agricultural landscape and summer vacation destination, to a center for corporate headquarters, healthcare facilities, and first-class schools.

The Borough is home to eleven Category One waterways, indicating the highest level of water quality protection. Wetlands line the riparian corridors of its streams, and forests frame the boundaries of the homes within its quiet residential neighborhoods.

The Environmental Resource Inventory (ERI) is based on the best available data from federal and state resources, as well as the local municipality. Mapping and tables detail the extent of Montvale's natural resources, highlighting aspects such as geology, topography, hydrology, air quality and climate, flooding, wetlands, wildlife habitat, historic resources, public lands, land use and cover, known contaminated sites, and transportation.

Knowledge of natural resources will allow Borough officials and citizens to make informed decisions as they work to preserve and promote the beauty of Montvale and create a sustainable, resilient community within its landscape.

Huff Park, Borough of Montvale Environmental Commission

Highland Road Wetlands

Chapter 1.

Geology & Topography

Physiographic Provinces

New Jersey's landscape is divided into four distinctive regions, each characterized by unique geologic processes and landforms, known as physiographic provinces.[1]

Physiographic provinces classify landscapes based on terrain texture, rock type, 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 the Valley and Ridge, Highlands, Piedmont, and Coastal Plain Provinces. The Borough of Montvale is in the Piedmont Province (**Figure 1**).

The Piedmont Province covers 1,600 square miles, which is roughly 20% of the state.[2] The Piedmont Province's surface is generally low rolling hills marked with sudden, steep ridges, which extend across the state and includes the Palisades in the east.

According to the New Jersey Department of Environmental Protection (NJDEP) New Jersey Geological and Water Survey (NJGS), the Piedmont is mostly underlain with slightly folded and faulted sedimentary rocks of Triassic and Jurassic age (240 to 140 million years old) and igneous rocks of Jurassic age.

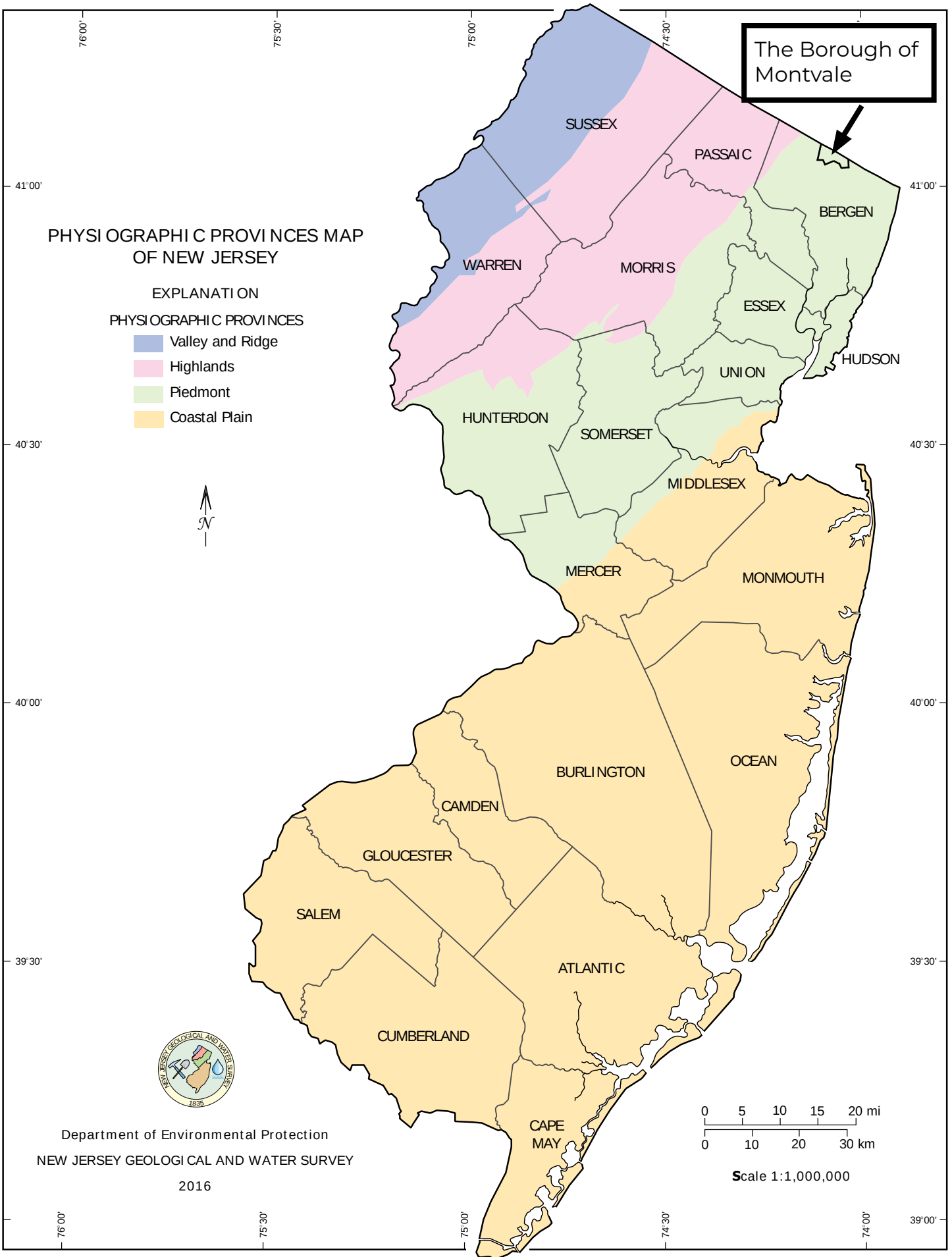


Figure 1. Physiographic Provinces in New Jersey, NJDEP. https://www.nj.gov/dep/njgs/NJMaps

Bedrock Geology

The geology of the Borough can be classified into two layers: bedrock geology, which is consolidated, underlying rock that extends deep into earth's crust; and surficial geology, the unconsolidated sedimentary materials overlaying bedrock formations that is the parent material for soils. [3, 4] According to the NJGS, the properties of these layers determine the physical extent of aquifersand the chemical quality of water they yield. They 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.[5] 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.

Map 1 shows that the bedrock geology of the Borough is entirely in the Passaic Formation. In Montvale, the Passaic Formation is divided into the Conglomerate and Sandstone facies and the Quartzite-clast Conglomerate facies (**Figure 2** and **Figure 3**).

Surficial Geology

Glacial movement physically shaped Montvale's topography.[6] When passing through a landscape, glaciers picked up debris that assisted in carving their path and sheering down ridges and cliffs.

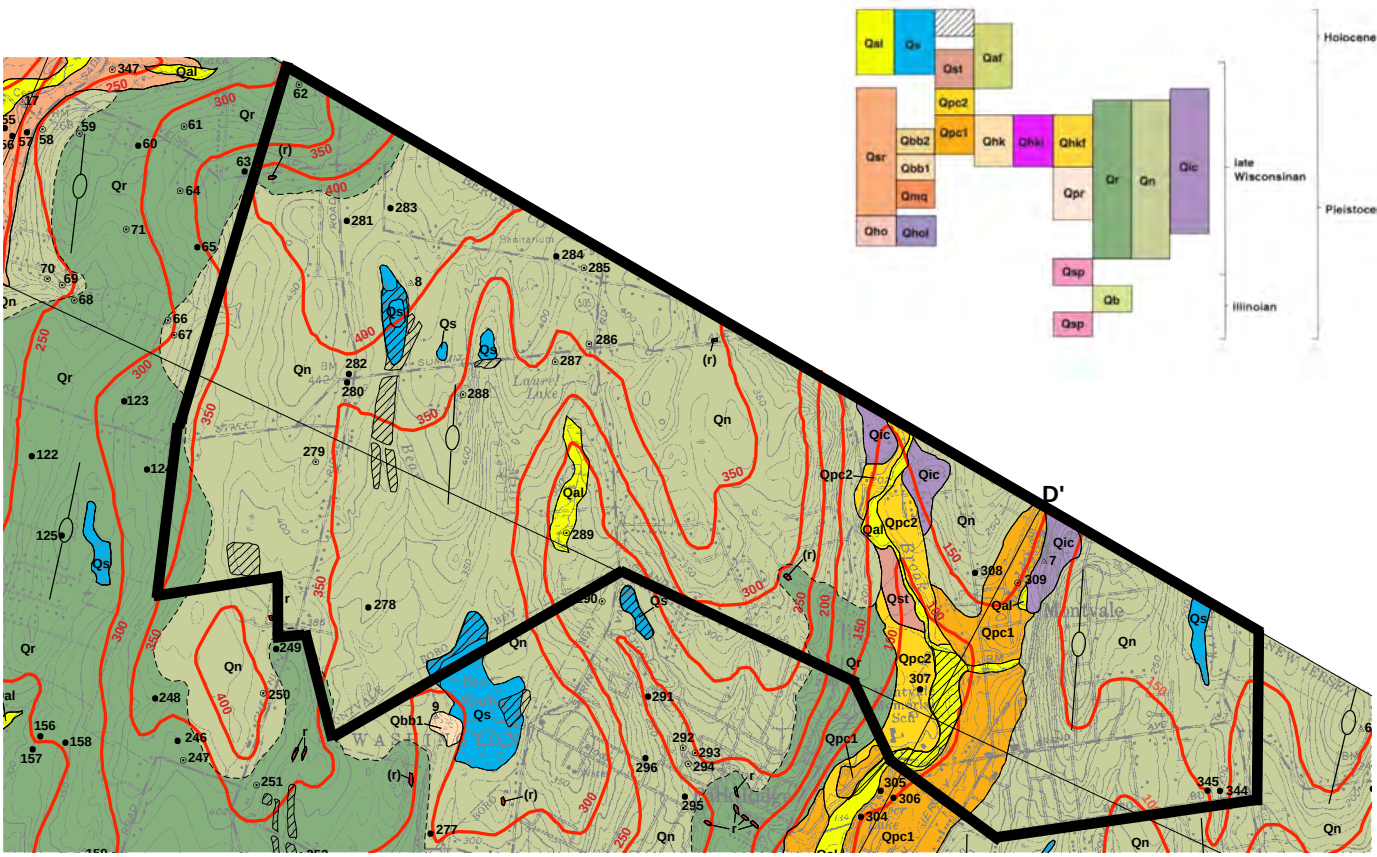
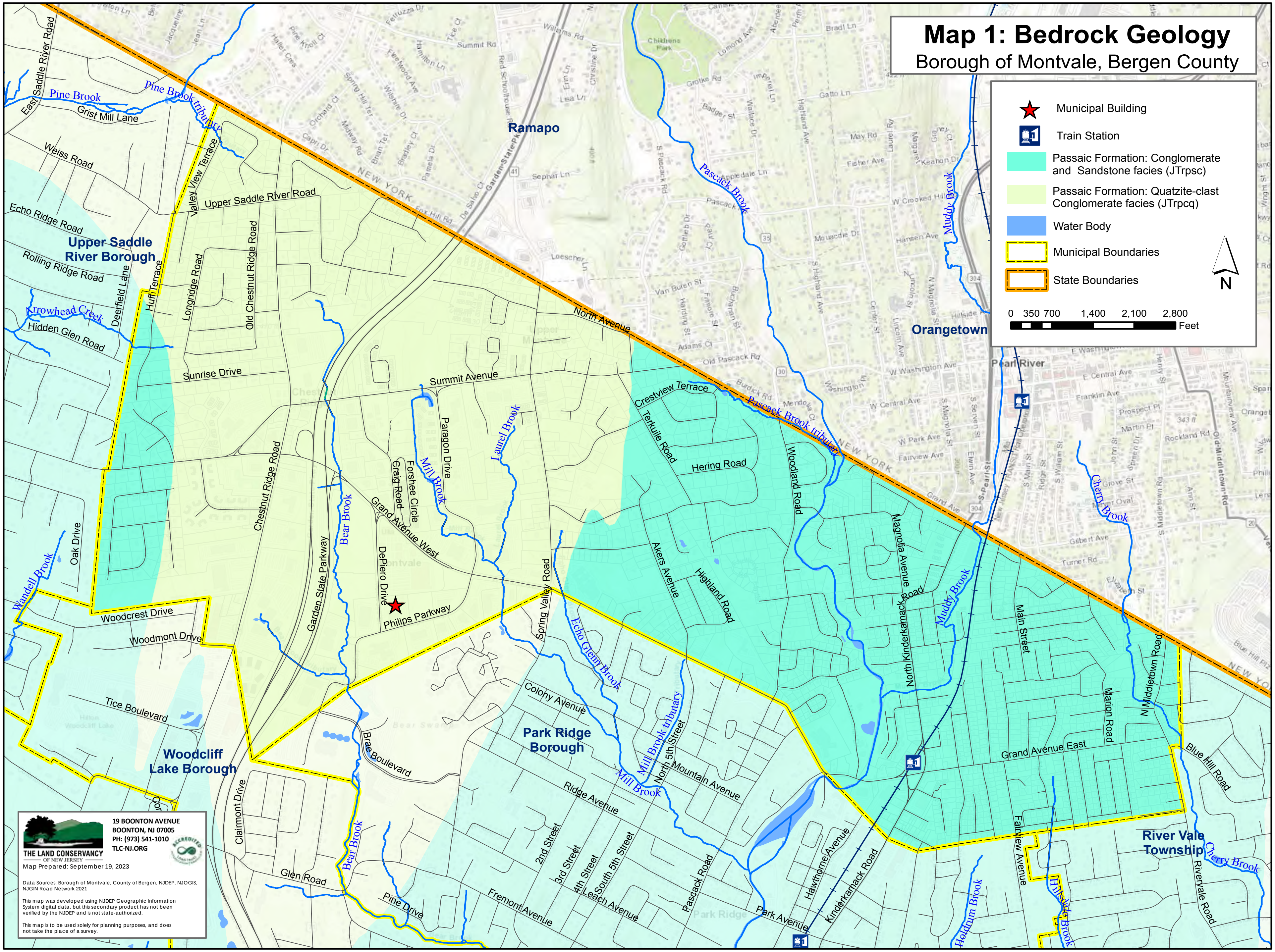


Figure 2. Surficial Geology of the Park Ridge Quadrangle, Bergen County. NJDEP, NJGS NJ Geological Survey.


Map 1: Bedrock Geology
Borough of Montvale, Bergen County
Municipal Building
Train Station
Passaic Formation: Conglomerate and Sandstone facies (JTrpsc)
Passaic Formation: Quatzite-clast Conglomerate facies (JTrpcq)
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Ramapo
Orangetown
Upper Saddle River Borough
Woodcliff Lake Borough
Park Ridge Borough
River Vale Township
Pearl River
Pine Brook
Pine Brook tributary
Arrowhead Creek
Wandell Brook
Bear Brook
Mill Brook
Laurel Brook
Echo Glenn Brook
Mill Brook tributary
Pascack Brook tributary
Muddy Brook
Cherry Brook
Holdrum Brook
Hillside Brook
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THE LAND CONSERVANCY OF NEW JERSEY
Map Prepared: September 19, 2023
Data Sources: Borough of Montvale, County of Bergen, NJDEP, NJOGIS, NJGIN Road Network 2021
This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.
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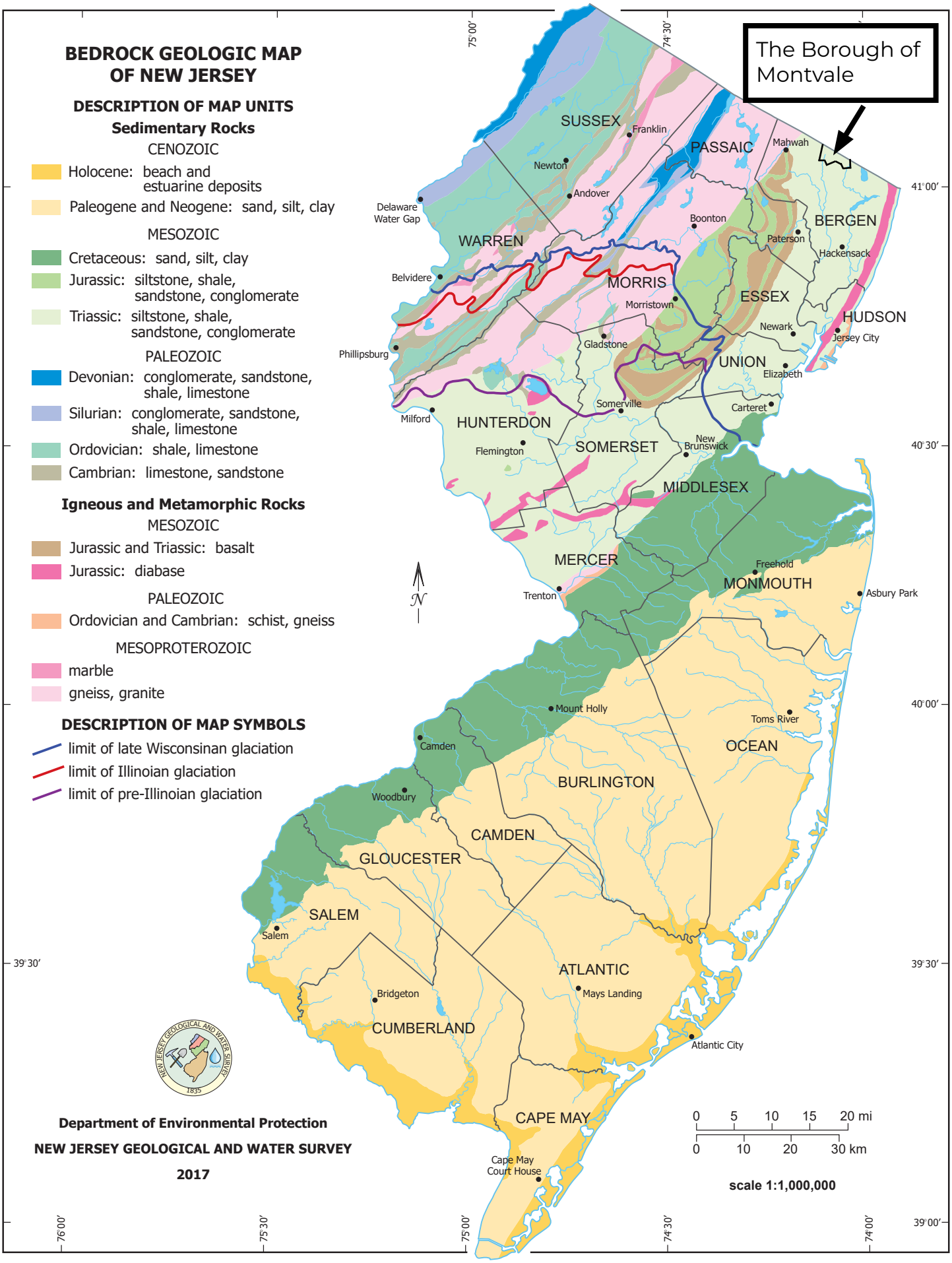


Figure 3. Bedrock Geology in New Jersey, NJDEP. https://www.nj.gov/dep/njgs/NJMaps

Glacial deposits, the debris left behind, was a mixture of sand, silt, clay, and boulders that created a hummocky topography with stony low-relief ridges.

Glacial deposition also affected surface water bodies and drainage patterns, leading to the creation of glacial lakes such as the Paramus, Hackensack, as well as smaller formations in the Hohokus, Bear Brook, and Pascack Valleys. This also created two stretches of Alluvium deposits cutting through Bergen County. In Montvale, this corridor of Alluvium is engulfed by Pascack Valley Deposits and Hohokus Deposits as much as 50 feet thick with gravel, sand, and silt (**Figure 3**). In modern day, this sedimentation helps retain the Borough's various rivers, ponds, and low-lying wetlands.

Surficial deposits are sediments deposited by rivers, glaciers, ocean currents, wind, and movement of soil and rocks on hillslopes (**Map 2**). **Table 1** contains the different types of surficial deposits found in the Borough. Netcong Till is the predominant surficial geology in Montvale (87%).

Within the surficial geology are many rocks that are fossiliferous. Some have been found at several locations in the Borough, including west of Woodland Road, south of Upper Saddle River Road, along Pascack Brook, south of West Grand Avenue, and east of the Garden State Parkway.

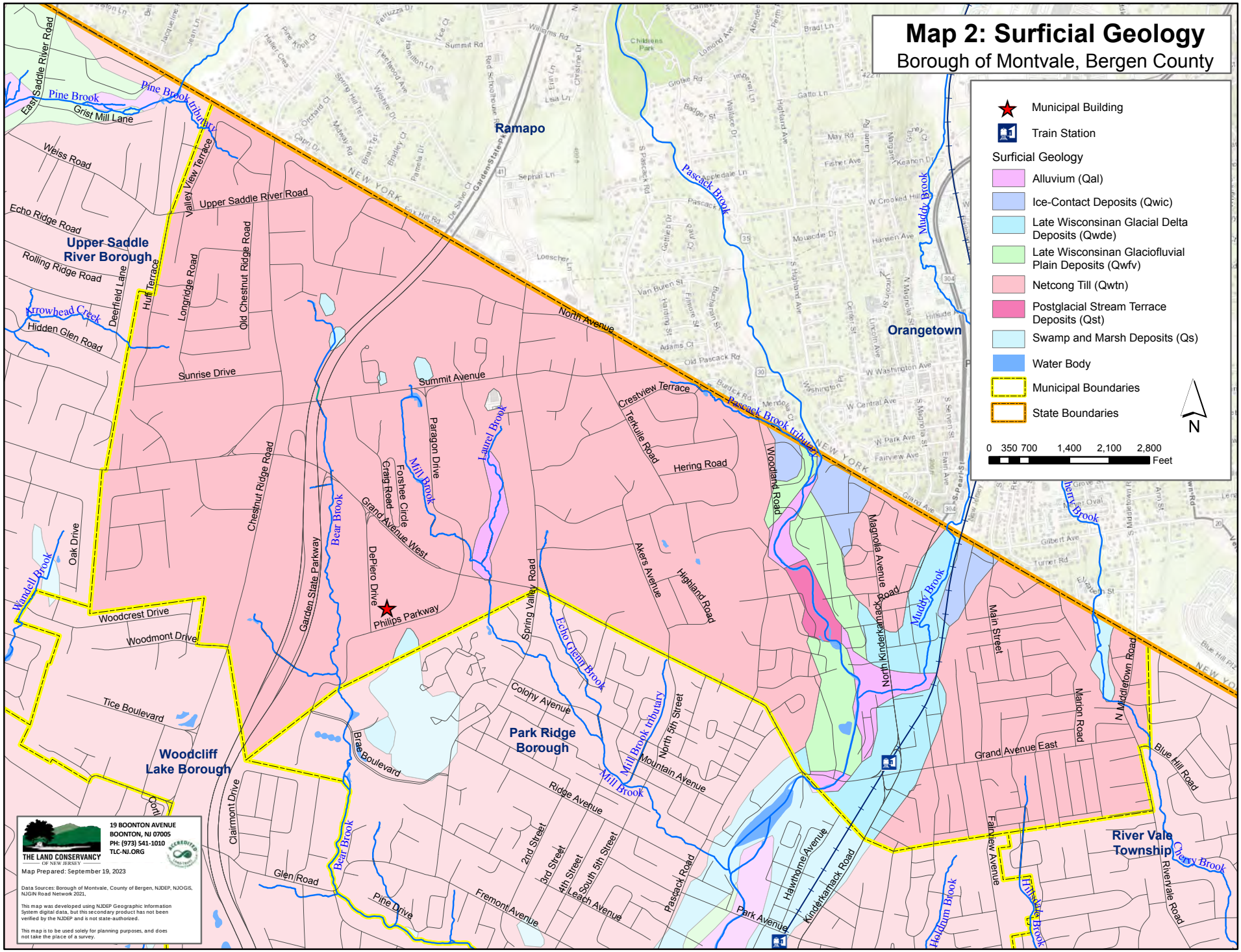
Topography

The Borough of Montvale contains rolling hills which vary from almost 500 feet MSL (mean sea level) to the west near Fox Hill Road to below 150 feet MSL near the firehouse on Memorial Drive. The elevation changes by over 200 feet at multiple points when traveling east or west along Grand Avenue. Low lying freshwater wetlands resting below 200 feet MSL can be found throughout Montvale (**Map 3**).

Steep Slopes

The Borough has several areas with 15% or greater slope. These steep slopes can hinder building construction and development, as well as contribute to erosion, runoff, and environmental degradation. The Borough has two code references that address steep slopes:

- General Legislation / Zoning: Section 400-47 Slope Limitation: *Except for the permanent placement of utilities, no construction of any nature shall be permitted on any portion of any property which exhibits a predisturbance topographic slope of 15% or greater.*[7]
- General Legislation / Article I Major Developments: Section 344-2 Definitions: *An area or feature which is of significant environmental value, including but not limited to stream corridors, natural heritage priority sites, habitats of endangered or threatened species, large areas of contiguous open space or upland forest, steep slopes, and wellhead protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.*[8]


Map 2: Surficial Geology
Borough of Montvale, Bergen County
Municipal Building
Train Station
Surficial Geology
Alluvium (Qal)
Ice-Contact Deposits (Qwic)
Late Wisconsinan Glacial Delta Deposits (Qwde)
Late Wisconsinan Glaciofluvial Plain Deposits (Qwfv)
Netcong Till (Qwtn)
Postglacial Stream Terrace Deposits (Qst)
Swamp and Marsh Deposits (Qs)
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Ramapo
Upper Saddle River Borough
Orangetown
Park Ridge Borough
Woodcliff Lake Borough
River Vale Township
Pine Brook
Pine Brook tributary
East Saddle River Road
Grist Mill Lane
Weiss Road
Valley View Terrace
Upper Saddle River Road
Echo Ridge Road
Rolling Ridge Road
Deerfield Lane
Huff Terrace
Longridge Road
Old Chestnut Ridge Road
Arrowhead Creek
Hidden Glen Road
Sunrise Drive
Chestnut Ridge Road
Oak Drive
Wandell Brook
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Garden State Parkway
Bear Brook
Grand Avenue West
Craig Road
Forshee Circle
DePiero Drive
Philips Parkway
Paragon Drive
Mill Brook
Summit Avenue
Laurel Brook
North Avenue
Crestview Terrace
Tertulle Road
Hering Road
Woodland Road
Pascack Brook tributary
Pascack Brook
Muddy Brook
Spring Valley Road
Akers Avenue
Highland Road
Magnolia Avenue
Kinderkamack Road
North Kinderkamack Road
Cherry Brook
Main Street
Marion Road
N Middletown Road
Grand Avenue East
Blue Hill Road
Riverside Road
Colony Avenue
Echo Glenn Brook
Mill Brook tributary
North 5th Street
Mountain Avenue
Ridge Avenue
Brae Boulevard
Clairmont Drive
Glen Road
Pine Drive
Fremont Avenue
2nd Street
3rd Street
4th Street
South 5th Street
Leach Avenue
Pascack Road
Park Avenue
Hawthorne Avenue
Holdrum Brook
Fairview Avenue
Hillside Brook
Riverside Road
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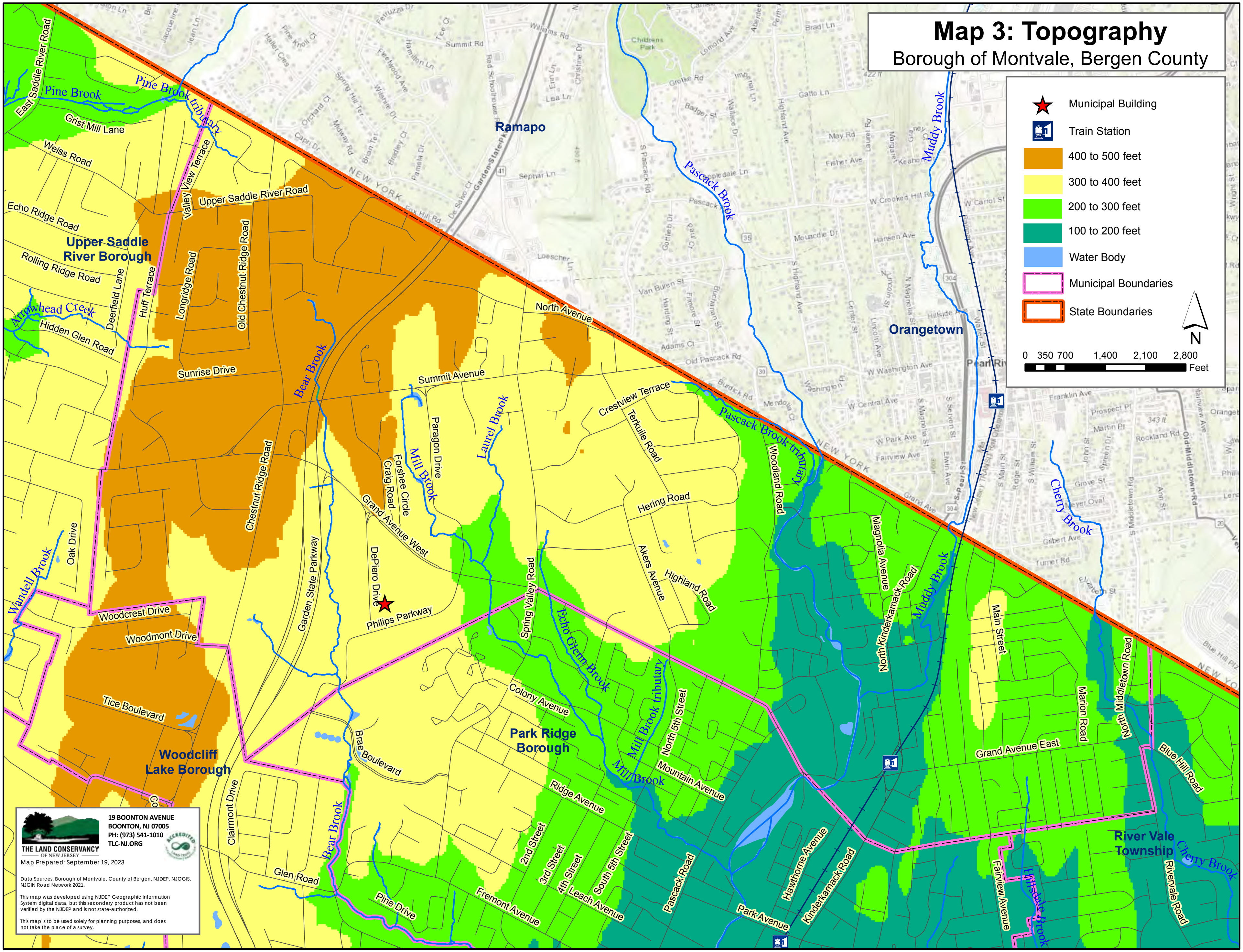
Map 3: Topography
Borough of Montvale, Bergen County
Municipal Building
Train Station
400 to 500 feet
300 to 400 feet
200 to 300 feet
100 to 200 feet
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Upper Saddle River Borough
Woodcliff Lake Borough
Park Ridge Borough
River Vale Township
Ramapo
Orangetown
Pine Brook
Pine Brook tributary
Arrowhead Creek
Bear Brook
Mill Brook
Laurel Brook
Echo Glenn Brook
Mill Brook tributary
Pascack Brook
Pascack Brook tributary
Muddy Brook
Cherry Brook
Hillsdale Brook
Wandell Brook
East Saddle River Road
Grist Mill Lane
Weiss Road
Echo Ridge Road
Rolling Ridge Road
Hidden Glen Road
Deerfield Lane
Huff Terrace
Valley View Terrace
Upper Saddle River Road
Longridge Road
Old Chestnut Ridge Road
Sunrise Drive
Chestnut Ridge Road
Oak Drive
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Garden State Parkway
Summit Avenue
North Avenue
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
DePiero Drive
Philips Parkway
Crestview Terrace
Terkuile Road
Hering Road
Akers Avenue
Highland Road
Spring Valley Road
Woodland Road
Magnolia Avenue
North Kinderkamack Road
Main Street
Marion Road
North Middletown Road
Grand Avenue East
Blue Hill Road
Colony Avenue
North 5th Street
Mountain Avenue
Ridge Avenue
Brae Boulevard
Claremont Drive
Glen Road
Pine Drive
Fremont Avenue
2nd Street
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Table 1. Surficial Geology				
Name	**Description**	**Geologic Age**	**Acres**	**Percent of Borough**
Alluvium (Qal)	Sand, silt, pebble-to-cobble gravel, minor clay; dark brown, brown, reddish-brown, gray; moderately to well sorted, stratified to massive. Contains variable amounts of organic matter. As much as 10 feet thick.	Holocene and late Pleistocene	56.5	2.19%
Swamp & Marsh Deposits (Qs)	Freshwater peat and organic silt, sand, and clay; dark brown to black. As much as 10 feet thick.	Holocene and late Pleistocene	18	0.71%
Postglacial Stream Terrace Deposits (Qst)	Stratified well- to moderately-sorted, massive to aminated, and minor cross-bedded fine sand and silt in terraces flanking present and late postglacial stream courses. As much as 20 feet (6m) thick. Overlies glacial and postglacial fluvial, planar to cross-bedded pebbly sand and gravel; as much as 10 feet (3m) thick.	Holocene and late Pleistocene	16	0.61%
Late Wisconsinan Glacial Delta Deposits (Qwde)	Stratified, sand, gravel, and silt deposited by meltwater streams in proglacial lakes at and beyond the glacier margin. Includes well sorted sand and boulder cobble to pebble gravel in glaciofluvial topset beds that are as much as 25 feet (8 m) thick.	Late Pleistocene and late Wisconsinan	111	4.32%
Late Wisconsinan Glaciofluvial Plain Deposits (Qwfv)	Stratified, well- to moderately sorted sand, boulder-cobble to pebble gravel, and minor silt deposited by meltwater streams in Delaware Valley from ice recessional positions at and extending well beyond (more than five miles (8 km)) the stagnant glacier margin. As much as 100 feet (30 m) thick.	Late Pleistocene and late Wisconsinan	80	3.11%
Ice-Contact Deposits (Qwic)	Sand, pebble-to-cobble gravel, few to some boulders, minor silt yellowish brown to reddish brown. As much as 150 feet thick.	Late Pleistocene and late Wisconsinan	48	1.86%
Netcong Till (Qwtn)	Yellow, very pale brown (oxidized) to grayish-brown and brown (unoxidized) silty sand to sandy silt with many (10-40% by volume) subrounded to subangular pebbles and cobbles, and few (less than 5%) to some (5-10%) boulders. Till matrix is generally compact, nonplastic, nonsticky, nonjointed, and may have sub-horizontal fissility. As much as 80 feet thick.	Late Pleistocene and late Wisconsinan	2,248	87.19%
		Total	**2,588**	**100%**

Source: County of Bergen, NJDEP, NJOGIS, NJGIN Road Network 2021

DePiero's Country Farm

Chapter 2.

Soil

Soils Overview

Soil plays a critical role in the environment.[9] Soils support an area's vegetation, absorb rainwater, and provide habitat. The physical and chemical properties of soils reflect a large number of variables, including the parent material (bedrock), climate, vegetative cover, animal activities, slopes and drainage patterns, and time. New Jersey's complex bedrock geology, history of glaciations, abundant precipitation, and patterns of human use have led to complex patterns of soil distribution.

Soil can shape a landscape through the plants it supports and the water it absorbs. Vegetation, supported by a variety of soils, can provide shelter for animals and food for people. In this way, everything from our food supply to the stable foundations of our homes depend upon soil. Soil health is the ability of soil to sustain plants, animals, and people, shaping its surrounding ecosystem. Within soil are living organisms, including fungi, bacteria, and microbes. Their health, and thus, the health of the soil, is determined by nutrients, rainwater, and human influenced pollutants.

Soil Classifications

The official Soil Survey for Bergen County was updated in March 1995 by the Natural Resource Conservation Service (NRCS), an agency of the United States Department of Agriculture (USDA).[10] The soils maps and tables in the ERI are based on the data from that official survey.[11]

The NRCS Soil Survey plots soils by map units.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils.

Source: Natural Resources Conservation Service

The Soil Survey names each map unit based on the characteristics of the dominant soils within that unit. The map unit names identify the soils by their soil series classification(s). Each map unit name has an associated abbreviation that offers a shorthand version of the naming/classification system. This abbreviation system identifies the soil types by steepness, stoniness, and frequency of flooding as follows:

- Capital letters at the end of the abbreviation indicate the slope "A" being less steep and "E" being steeper. An example is the Wethersfield-Urban Land series, which includes WeuB, WeuC, WeuD.

Table 2. Montvale Soil Series

Soil Series	Acres	% Borough	
Major Series			
Wethersfield-Urban Land Complex (WeuB, WeuC, WeuD)	971.60	38%	2,231 acres 86%
Wethersfield Gravelly Loam (WemB, WemC, WemD, WemE)	822.30	32%	
Urban Land (UR)	274.15	11%	
Haledon Gravelly Loam (HamB)	163.29	6%	
Minor Series			
Dunellen-Urban land complex (DuuA, DuuB, DuuC, DuuD)	88.13	4%	326 acres 13%
Udorthents, wet substratum (UdwB, UdwuB)	83.85	3%	
Haledon-Urban land complex (HasB)	71.22	3%	
Fluvaquents, loamy (FmhAt)	35.28	1%	
Udorthents, loamy (UdkttB)	24.53	1%	
Riverhead sandy loam (RkrB)	22.77	1%	
Other Series (10 acres of less)			
Hasbrouck loam, Dunellen loam, Otisville gravelly loamy sand, Timakwa muck (HcsAb, DuoB, OtsD, AdrAt)	24.32	1%	24 acres
Total	2,580.13	100%	

Source: County of Bergen, NJDEP, NRCS Soil Survey 2019, NJGIN Road Network 2021

- Small letters following these capital letters indicate stoniness. “a” “b” or “c” indicate the degree of stoniness: stony, very stony, and extremely stony. An example of this is the Haledon silt loam series, HanBc indicates extremely stony, not present in the Borough.
- Small letter “t” at the end of an abbreviation indicates “frequently flooded.” An example of this is the AdrAt, Timakwa muck, 0 to 3% slopes, frequently flooded.

The Soil Survey also categorizes each map unit as one of four map unit types: consociations, complexes, associations, and undifferentiated groups. Montvale soils fall into two groups: consociation and complexes.

- Consociations (Cn) are named for the dominant soil. In a consociation, delineated areas use a single name from the dominant component in the map unit. Dissimilar components are minor in extent. Consociations represent 54% (1,397 acres) of the Borough’s total area. An example of this soil type in the Borough is the Riverhead sandy loam.
- Complexes (Cx) consist of two or more dissimilar components that occur in a regularly repeating pattern. The total amount of other dissimilar components is minor in extent. Complexes represent 46% (1,175 acres) of the Borough’s total area. An example of this soil type in the Borough is the Dunellen-Urban land complex.

Major Soil Series

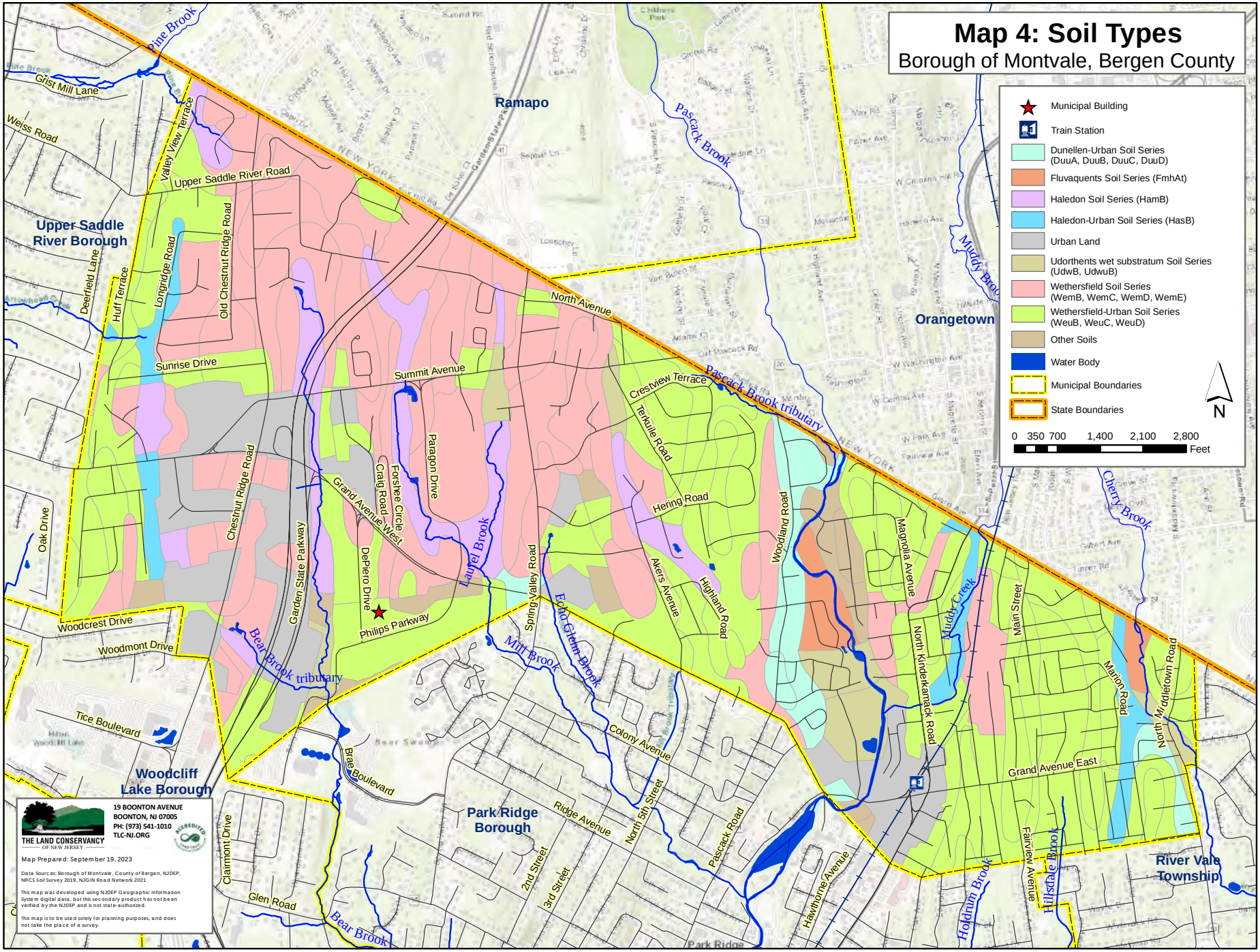
Soils with similar profiles are a soil series. The most prevalent soil series in Montvale are:[12]

- Wethersfield-Urban Land Complex,
- Wethersfield Gravelly Loam,
- Urban Land, and
- Haledon Gravelly Loam series.

Table 3. Major Soil Units

Abbreviation	Map Unit Name	Agricultural	Acres	% Series	% Borough
Wethersfield-Urban Land Complex					
WeuB, WeuC, WeuD	Wethersfield-Urban land complex	Not Prime Farmland	972	44%	38%
Wethersfield Gravelly Loam					
WemB, WemC, WemD, WemE	Wethersfield gravelly loam	Not Prime Farmland	822	37%	32%
Urban Land					
UR	Urban Land	Not Prime Farmland	274	12%	11%
Haledon Gravelly Loam					
HamB	Haledon gravelly loam	Prime Farmland	163	7%	6%
		Total	2,231	100%	46%

Source: County of Bergen, NJDEP, NRCS Soil Survey 2019, NJGIN Road Network 2021


Map 4: Soil Types
Borough of Montvale, Bergen County
Municipal Building
Train Station
Dunellen-Urban Soil Series (DuuA, DuuB, DuuC, DuuD)
Fluvaquents Soil Series (FmhAt)
Haledon Soil Series (HamB)
Haledon-Urban Soil Series (HasB)
Urban Land
Udorthents wet substratum Soil Series (UdwB, UdwuB)
Wethersfield Soil Series (WemB, WemC, WemD, WemE)
Wethersfield-Urban Soil Series (WeuB, WeuC, WeuD)
Other Soils
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Ramapo
Upper Saddle River Borough
Orangetown
Woodcliff Lake Borough
Park Ridge Borough
River Vale Township
Pine Brook
Pascack Brook
Pascack Brook tributary
Muddy Brook
Cherry Brook
Laurel Brook
Mill Brook
Echo Glenn Brook
Muddy Creek
Bear Brook tributary
Bear Brook
Holdrum Brook
Hillsdale Brook
Grist Mill Lane
Weiss Road
Valley View Terrace
Upper Saddle River Road
Deerfield Lane
Huff Terrace
Longridge Road
Old Chestnut Ridge Road
Sunrise Drive
North Avenue
Summit Avenue
Crestview Terrace
Terkuile Road
Hering Road
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
Chestnut Ridge Road
Garden State Parkway
DePiero Drive
Philips Parkway
Spring Valley Road
Akers Avenue
Highland Road
Woodland Road
Magnolia Avenue
North Kinderkamack Road
Main Street
Marion Road
North Middletown Road
Grand Avenue East
Oak Drive
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Brae Boulevard
Colony Avenue
Ridge Avenue
North 5th Street
Pascack Road
Hawthorne Avenue
Fairview Avenue
Claimont Drive
Glen Road
2nd Street
3rd Street
Park Ridge
THE LAND CONSERVANCY OF NEW JERSEY
19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973) 541-1010
TLC-NJ.ORG
Map Prepared: September 19, 2023
Data Sources: Borough of Montvale, County of Bergen, NJDEP, NRCS Soil Survey 2019, NJGIN Road Network 2021
This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.
This map is to be used solely for planning purposes, and does not take the place of a survey.

Together, they account for 86% (2,231 acres) of the total land area. The acreage of each series is shown in **Table 2**, and the series are shown in **Map 4**.

Water is not considered a soil series and is excluded. Urban Land is also typically excluded, but some Urban Land in the Borough of Montvale is intermixed with other soil series, so all Urban Land has been included.

Soil Descriptions

The four major soil series (**Table 3**) in the Borough of Montvale provide a representative sample of the Borough. They consist of Wethersfield-Urban Land Complex, Wethersfield Gravelly Loam, Urban Land, and the Haledon Gravelly Loam series. Because the primary soil units in each of these series (**Table 4**) make up the majority (86%) of the Borough and generally represent the Borough's geography, they are examined in more depth throughout this Chapter to provide an overview of the Borough's soil characteristics. The following information comes from the U.S. Geological Survey's Soil Survey.

Major Soil Series
(86% of the Borough)

Wethersfield

The Wethersfield series consists of very deep, well drained loamy soils formed in dense glacial till on uplands.[13] The soil is moderately deep to dense basal till. They are nearly level to steep soils on till plains, low ridges, and drumlins. The Wethersfield series includes the soils from the Wethersfield-Urban series (WeuB, WeuC, WeuD) and the Wethersfield Gravelly Loam series (WemB, WemC, WemD, WemE). The Wethersfield-Urban series represents 38% (972 acres) of the Borough, and the Wethersfield Gravelly Loam series represents 32% (822 acres). The Wethersfield series is found throughout the Borough, with small corridors of other soils series located along Garden State Parkway and immediately west of Kinderkamack Road. Characteristics include:

- Drainage and Saturated Hydraulic Conductivity: Wethersfield soils are well drained, and surface runoff is negligible to high. Saturated hydraulic conductivity is moderately low to high in the solum and low to moderately high in the substratum.
- Use and Vegetation: Some areas of Wethersfield soils are used for vegetables, orchards, and nursery stock, but most Wethersfield land in the Borough is devoted to purposes related to growth and infrastructure development. Some areas are wooded. Common

Within the Major Soils Series, Urban land (UR) accounts for 11% (247 acres) of the Borough (**Table 3**). Urban land in Montvale is concentrated in the western uplands along Chestnut Ridge Road, with additional fragments scattered throughout the south and the east.

Urban land consists of areas altered by structures and soil is not viable for vegetation without extensive reclamation. This soil's parent material is a surface covered by pavement, concrete, or buildings, which are underlain with disturbed and natural soil.

trees are red, white, and black oak, hickory, ash, sugar maple, red maple, beech, gray birch, white pine, and hemlock.

Haledon Gravelly Loam

The Haledon series consists of very deep, somewhat poorly drained soils in low positions on undulating uplands, often identified as prime farmland.[14] Haledon soils were formed in glacial till, with slopes ranging from 0 to 15%. The Haledon Gravelly Loam series represents 6% (163 acres) of Montvale and is found within the gaps surrounding the Wethersfield Series along the Garden State Parkway and Kinderkamack Road. The largest mass of the Haledon Gravelly Loam series extends from Grand Avenue to the New York border, between Garden State Parkway and Spring Valley Road. The Haldeon Gravelly Loam series includes the soils HamB with 3 to 8% slopes. Characteristics include:

- Drainage and Saturated Hydraulic Conductivity: Haledon soils are somewhat poorly drained, as surface runoff is medium to very high. A perched high water table is within 30 cm of the surface in the late winter and early spring of most years, and following periods of extended rainfall.

- Use and Vegetation: Much of this soil is used for housing or urban development in the Borough. Vegetation is largely forest dominated by oak and maple with some birch and ash.

Part of the Minor Soil Series, the Udorthents series (UdwB, UdwbuB, UdkttB) are areas of disturbed soils where the upper soil material has been removed, filled, or graded. They are moderately well drained, gravelly, and sandy soil areas located within areas of glacial fluvial deposits. Roughly 3% (83 acres) of the Borough consists of the Udorthents, wet substratum and 1% (24 acres) are Udorthents, loamy.

Minor Soil Series
(13% of the Borough)

Dunellen-Urban Land Complex

The Dunellen-Urban Land Complex series (DuuA, DuuB, DuuC, DuuD) is commonly found in upper Bergen County. It makes up about 4% (88 acres) of the Borough. The Dunellen-Urban Land Complex series is found solely on the eastern and southern edges of Montvale, bridging into Park Ridge. The Dunellen series consists of very deep, well-drained soils formed in stratified materials.[15] Dunellen soils are on outwash plains and stream terraces, with slopes ranging from 0 to 35%. Characteristics include:

- Drainage and Saturated Hydraulic Conductivity: Dunellen soils are well drained, and saturated hydraulic conductivity ranges from moderately high or high in the solum and high or very high in the substratum. Runoff is negligible to high.

- Use and Vegetation: Dunellen soils are principally used for used for purposes related to growth and

infrastructure development. Most remaining areas are idle on the urban fringe and some areas are used for pasture, hay or general crops. Trees in Dunellen wooded areas include red, white and black oak, hickory, red maple, and ash.

Haledon-Urban Land Complex

Haledon series soils consist of very deep, somewhat poorly drained soils in low positions on undulating uplands, as originally formed in glacial till. In Montvale, roughly 3% (71 acres) are comprised of Haledon-Urban land complex (HasB) soils. The Haledon-Urban Land Complex Series can predominately be found in southern Bergen County, although Montvale has small concentrations of the soil running through the center of the Borough, from the western border and tapering to the eastern border. Characteristics include:

- Drainage and Saturated Hydraulic Conductivity: Haledon soils are somewhat poorly drained, as surface runoff is medium to very high. Saturated hydraulic conductivity is moderately high or high above the fragipan and very slow or slow in the fragipan and densic materials. A perched high water table is within 30 centimeters (cm) of the surface in the late winter and early spring of most years, and following periods of extended rainfall. Lateral seepage is common, particularly at slope breaks.

- Use and Vegetation: Most areas are wooded or in idle fields. Much of this soil is used for housing or urban development. Vegetation is largely forest dominated by oak and maple with some birch and ash.

Riverhead (RkrB)

The Riverhead series consists of very deep, well drained soils formed in glacial outwash deposits derived primarily from granitic materials.[16] They are often found on outwash plains, valley trains, beaches, and water-sorted moraines, with slopes ranging from 0 to 50%. The Borough's Riverhead sandy-loam (RkrB) series are located in very low concentrations, comprising only 1% (23 acres) of soils.

- Drainage and Saturated Hydraulic Conductivity: Riverhead soils are well drained, due to high sand content. The potential for surface runoff is low to medium. Saturated hydraulic conductivity is high in the solum and very high in the substratum.

- Use and Vegetation: Most of these soils have been cleared for residential development. Native vegetation is black, white, and red

Fluvaquents, within the Minor Soils Series, are deep, nearly level soils, ranging from well drained to very poorly drained areas of unconsolidated alluvium. These soils are generally stratified and vary widely in texture and drainage over short distances. Due to their locations along water courses, this soil is considered hydric, or composed primarily of water and loam. The Borough has roughly 1% (35 acres) of Fluvaquent soils. (FmhAt) scattered near wetlands and waterways.

oaks, American beech, and sugar maple.

Other Soil Series
(24% of the Borough)

Hasbrouck Loam

The Hasbrouck series consists of very deep, poorly drained soils in depressions on uplands.[17] They typically formed from eroded and redeposited glacial materials overlying till, with slopes ranging from 0 to 8%. The Hasbrouck loam series (HcsAb) is located south of Grand Avenue and east of the Garden State Parkway, with small traces of the soil found on the northernmost Borough border near the tributary of the Pascack Brook, totaling 10 acres.

- Drainage and Saturated Hydraulic Conductivity: Hasbrouck loam soils are poorly drained, and runoff is negligible to high. Saturated hydraulic conductivity is moderately low to high in the solum and substratum and very low to moderately low in the fragipan.

- Use and Vegetation: Most of Hasbrouck soil areas are wooded, with a few of the gently sloping areas often used for recreation. Native vegetation is dominated by red maple, pin oak, and swamp white oak.

Dunellen Loam

The Dunellen series consists of very deep, well drained soils formed in stratified materials. Dunellen soils are on outwash plains and stream terraces, with slopes ranging from 0 to 35%. Found throughout Bergen County, there are 9 acres of Dunellen loam (DuoB) in the Borough located along Grand Avenue and Woodland Road.

- Drainage and Saturated Hydraulic Conductivity: Dunellen soils are well drained, and saturated hydraulic conductivity ranges from moderately high or high in the solum and high or very high in the substratum. Runoff is negligible to high.

- Use and Vegetation: Dunellen soils are principally used for community development. Most remaining areas are idle on the urban fringe and some areas are used for pasture, hay or general crops. Trees in Dunellen wooded areas include red, white and black oak, hickory, red maple, and ash.

Otisville Gravelly Loamy Sand

The Otisville series consists of very deep, excessively drained soils formed in outwash.[18] Slopes can range from 0 to 60%. Three acres in the Borough consist of Ostiville gravelly loam sand (OtsD), found between Grand Avenue and Kinderkamack Road.

- Drainage and Saturated Hydraulic Conductivity: Otisville soils are excessively drained, and the potential for surface runoff ranges from negligible to low.

- Use and Vegetation: In the Borough's Otisville soils, woodlots are dominated by oak-hickory associations at the southern limit of the series while sugar maple and American beech.

Timakwa Muck (AdrAt)

The Timakwa series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials over sandy deposits in depressions on lake plains, outwash plains, till plains, moraines, and flood plains.[19] Slope are at a minimum, ranging from 0 to 2%. The Borough has only 1 acre of Timakwa Muck soils (AdrAt) located on the Borough's southwestern border beneath Phillips Parkway.

- Drainage and Saturated Hydraulic Conductivity: Timakwa soils are very poorly drained, and surface runoff is negligible to very low. Saturated hydraulic conductivity is moderately high or high in the organic layers and high or very high in the sandy material. Some areas are subject to rare, very brief flooding from November to May.
- Use and Vegetation: Most areas of Timakwa soils are used for wildlife, or are in woodland or clear-cut woodland. Common vegetation is red maple, skunk cabbage, and sphagnum moss.

Soil Characteristics

Hydric Soils

According to the NRCS, a hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.[20]

Hydric soils are an important element of wetland areas and naturally support wetland vegetation. If a soil is classified as hydric, federal/state wetlands regulations may restrict land use.

Within Montvale, 14 soils have a hydric rating, making up 635 acres or 25% of the Borough. They are generally concentrated along the edges of the Borough's waterways and wetlands. The 14 soils with a hydric rating are:

- Dunellen Loam, 3 to 8% slopes
- Dunellen-Urban Land Complex, 0 to 3% slopes
- Dunellen-Urban Land Complex, 3 to 8% slopes
- Dunellen-Urban Land Complex, 8 to 15% slopes
- Dunellen-Urban Land Complex, 15 to 25% slopes
- Fluvaquents, loamy, 0 to 3% slopes, frequently flooded
- Haledon Gravelly Loam, 3 to 8% slopes
- Hasbrouck Loam, 0 to 3% slopes, very stony
- Timakwa Muck, 0 to 2% slopes, frequently flooded
- Udorthents, Loamy, 0 to 8% slopes, frequently flooded
- Udorthents, Wet Substratum-Urban Land Complex
- Wethersfield Gravelly Loam, 15 to 25% slopes
- Wethersfield Gravelly Loam, 25 to 25% slopes

Erodibility

Soils can be categorized by their susceptibility to erosion, the natural process by which wind, moving

water, ice, and gravitational forces cause soil and particulate materials to be displaced. While erosion of exposed bedrock occurs over an extended time scale, soil erosion can occur more acutely with more immediate consequences. The consistency of the soil is one factor determining its erodibility potential, with dense, compact, clayey soils being less susceptible and looser loamy soils, with varying levels of clay and sand, being more susceptible. A measure of this susceptibility is the K-factor. The K-factor looks at the soil texture and composition as well as the permeability to determine a number between 0.02 (less susceptible) and 0.69 (more susceptible) that demonstrates the erosion potential of a soil.

According to the NRCS, Erosion Hazard for Road/Trail Soils measures the soil loss from unsurfaced roads and trails.[21] The soils in the Borough of Montvale (outside of water and urban land) are rated as low in this category. Using K-factor, slope, and content of rock fragments, the rating of the erosion hazard is described as slight, moderate, or severe:

- Erosion factor Kw (whole soil): Erodibility of the whole soil. The estimates are modified by the presence of rock fragments. Values range from 0.02 (least erodible) to 0.69 (most).

- Erosion factor Kf (rock free): Erodibility of the fine-earth fraction, or the material less than 2 millimeters in size. Values range from 0.02 (least erodible) to 0.69 (most).

- Erosion factor T (soil loss tolerance): Estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year. T Factors are important in the evaluation and development of conservation practices that reduce soil erosion. An assigned T Factor is not used in any erosion prediction equations but is the target value used to determine whether a management system is or is not sustainable.

For the Borough's four main soil units described in this section, K values are at or beneath 0.32, representing a low risk of erosion.

Topographic Protection (Wind)

According to the NRCS, the soils of the Borough are subject to erosion by wind.[22] Wind erosion most often affects soil on bare lands, where sheer force of wind detaches particles protruding from the soil surface. A conservation measure that can minimize damage due to wind erosion is maintaining a surface cover. Wind erosion is measured by group and index. Wind erodibility groups consist of soils that have similar properties that affect their susceptibility to wind erosion. Soils in Group 1 are most susceptible to wind erosion, while soils in Group 8 are less susceptible to wind erosion. Wind erodibility index is a numerical value that measures the susceptibility of soil to wind erosion. This value is measured in tons per acre per year that is expected to be lost to wind erosion. The Wethersfield-Urban Land Complex, Wethersfield Gravelly Loam, and Haledon Gravelly Loam have low vulnerable to erosion in Group 6 (**Table 4**).

Limitations for Use

Other characteristics of soil that determine suitability for development, including its capacity to support foundations without corrosion, limits for septic systems, and hydrological characteristics such as tendency towards ponding and flooding, a shallow water table or potential for frost heave, can contraindicate development, as shown in **Table 5**. According to the NRCS Soil Survey, differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high-water table makes soil poorly suited to basements or underground installations.

Limitations for use include the following characteristics:

Depth to restrictive layer is the vertical distance from the soil surface to the upper boundary of the restrictive layer. The restrictive layer is a nearly continuous layer that significantly impedes the movement of water and air through the soil or otherwise provides an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. Depth to restrictive layer may vary throughout a unit, so a representative value is given, indicating the expected value at any site within the unit. Shallow soils can limit plant growth. In the Borough of Montvale, the major soil series have a depth to restrictive layer greater than 200 cm with the exception of Wethersfield soils, with a depth ranging from 51 to 66 cm.

Drainage of Urban Land soils is a separately engineered system not assessed by the NRCS, but Wethersfield soils are generally well drained. The Haledon series is rated as somewhat poorly drained. This is consistent with the Borough's sufficient water management and lack of flooding from the predominantly Wethersfield series.

Table 4. Soil and Wind Erodibility Classifications of Major Soil Units in Montvale

Major Soil Units in Montvale	Soil Loss Tolerance	Wind Erodibility	
		Group (8 = least erodible)	Index (tons of soil lost per acre per year)
Wethersfield-Urban Land Complex	3	6	48
Wethersfield Gravelly Loam	3	6	48
Urban Land	N/A	N/A	N/A
Haledon Gravelly Loam	4	6	48

**Ranges based on nearby Urban Land and Rockaway units. Source: NRCS Soil Survey*

Drainage is the relative wetness of the soil under natural conditions as it pertains to wetness due to a water table. Drainage classes refer to the frequency and duration of wet periods under conditions similar to those under which the soil developed. The classes range from excessively drained (water is removed very rapidly and the soils are commonly coarse-textured or shallow) to very poorly drained (water is removed from the soil so slowly that free water remains at or very near the ground surface during much of the growing season and unless artificially drained, most crops cannot be grown).

Depth to water table is the range of expected depth to a saturated zone in the soil, known as a "water table," that occurs during several months in most years. A saturated zone that lasts for less than a month is not considered a water table. The rating of the soil series in the Borough varies from 31 in the Haldon series to greater than 200 cm in the Wethersfield series and Urban Land.

Available water capacity is the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in centimeters of water per centimeter of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. The known soils in the Borough of Montvale narrowly range from 0.11 to 0.12 cm, with no data available for Urban Land.

Flooding is the temporary inundation of an area caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent.

- None means that flooding is not probable. The chance of flooding is nearly 0% in any year. Flooding occurs less than once in 500 years.

- Very rare means that flooding is very unlikely but possible under extremely unusual weather conditions. The chance of flooding is less than 1% in any year.

- Rare means that flooding is unlikely but possible under unusual weather conditions. The chance of flooding is 1-5% in any year.

- Occasional means that flooding occurs infrequently under normal weather conditions. The chance of flooding is 5-50% in any year.

- Frequent means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50% in any year but is less than 50% in all months in any year.

- Very frequent means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50% in all months of any year.

The Wethersfield and Haledon soil series are rated as moderate for frost action. This follows the expected trend based on each soil unit's depth to the water table.

Given the well-drained loamy and gravelly soils throughout the Borough, none of the major soil series are prone to flooding.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high-water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Frequency is expressed as none, rare, occasional, and frequent.

- "None" means that ponding is not probable.
- "Rare" that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 to 5% in any year).
- "Occasional" that it occurs, on the average, once or less in two years (the chance of ponding is 5-50% in any year).
- "Frequent" that it occurs, on the average, more than once in two years (the chance of ponding is more than 50% in any year).

Ponding in the Borough of Montvale was ranked as "none" for both the Wethersfield and Haledon series, with no data available for Urban Land.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil.

The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. The corrosion of concrete in the Borough's soils is rated as moderate for both the Wethersfield and Haledon series. However, the corrosion of steel is rated as high for the Haledon series. No data is provided for the Urban Land series.

Septic limitations refer to effectiveness of a soil type to manage a septic tank absorption field. Septic tank absorption fields

are areas in which effluent from a septic tank is distributed into the soil through subsurface tile or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. The most important soil properties that determine septic limitations are saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding. Stones and boulders, ice, and bedrock or cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Within the Borough of Montvale, the Wethersfield and Haledon series are classified by the NRCS as "very limited" for septic systems, which indicates that the soil has at least one feature that is unfavorable for such use, with the expectation of poor performance and high maintenance.

Soil Limitations for Building Site Development

The Borough of Montvale has certain soils that are rated by the NRCS Web Soil Survey as having no limits on their ability to support dwellings with or without basements and small commercial buildings. For the purpose of these ratings, dwellings are defined as single-family houses of three stories or less and small commercial buildings are structures that are fewer than three stories high and do not have basements.

The ratings for dwellings are based on the soil properties that affect excavation and construction costs.

- For dwellings without basements and small commercial buildings, the foundation is assumed to consist of spread footing of reinforced concrete built on undisturbed soil at a depth of 2 feet or at a depth of maximum frost penetration, whichever is deeper.

- For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built in undisturbed soil at a depth of about 7 feet.

The properties that affect the load-supporting capacity include depth to a water table, ponding and flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Properties that affect excavation and construction costs are depth to a water table, ponding and flooding, slope, depth to bedrock or cemented pan, hardness of bedrock or cemented pan, and the amount and size of rock fragments. The ratings are as follows:

- Not Limited: indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected.

- Somewhat Limited: indicates that the soil has features that are moderately favorable for specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected.

- Very Limited: the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Of the four major soil units in Montvale, Haledon soils are the most limited for dwellings with basements, dwellings without basements, and small commercial buildings, all categorized as "very limited." The Wethersfield series, found in the entirety of the Borough, range from 'somewhat limited' to 'very limited,' with more limitations for small commercial buildings rather than residences (**Table 5**).

Table 5. Soil Limitations

Limitation	Major Soil Series in the Borough of Montvale			
	Wethersfield- Urban Land Complex	Wethersfield Gravelly Loam	Urban Land	Haledon Gravelly Loam
Depth to Restrictive Feature (cm)	61-66	51-66	>200	>200
Drainage	Well Drained	Well Drained	N/A	Somewhat Poorly Drained
Depth to Water Table (cm)	>200	>200	>200	31
Available Water Capacity (cm)	0.11-0.12	0.11-0.12	N/A	0.12
Flooding	None	None	None	None
Frost Action Potential	Moderate	Moderate	N/A	Moderate
Ponding	None	None	None	None
Risk of Corrosion Steel	Moderate	Moderate	N/A	High
Risk of Corrosion Concrete	Moderate	Moderate	N/A	Moderate
Septic Limitations	Very Limited	Very Limited	N/A	Very Limited

Source: NRCS Soil Survey

Table 6. Soil Limitations for Recreational Use

Major Soil Units in Montvale	Camp Area	Picnic Area	Playground
Wethersfield Urban Land Complex	Somewhat to Very Limited	Somewhat to Very Limited	Very Limited
Wethersfield Gravelly Loam	Somewhat to Very Limited	Somewhat to Very Limited	Very Limited
Urban Land	Not Rated	Not Rated	Not Rated
Haledon Gravelly Loam	Very Limited	Somewhat Limited	Very Limited

Source: NRCS Soil Survey

Limitations - Recreational Use

Picnic areas incur heavy foot traffic, and limited motor traffic, as there are parking spots outside park areas. Playgrounds need level soil that is free of stones and that can stand heavy foot traffic. **Table 6** identifies the major soil units and their limitations for recreational land. For all uses, the major soil units are either very limited or not rated.

North Park

Octagon House

Chapter 3.

Land Use Land Cover

The NJDEP maps land use and land cover using digital orthophotography (known as Land Use/Land Cover or LU/LC, data).[23] Areas are delineated using color infrared images.

According to the NJDEP's Land Use/ Land Cover Impervious Surface Mapping Project, nearly all of the Borough is designated as urban, and is defined by this project as:

characterized by intensive land use where the landscape has been altered by human activities... Urban categories can include residential; commercial and service; industrial; transportation, communication and commercial complexes; mixed urban or built-up; other urban or build-up and recreational.[24]

The 2023 tax assessor data provides a picture of how land is used based on their tax classification.[25] In broad terms the property classes includes:

- **Class 1** - Undeveloped Land
- **Class 2** - Residential Property
- **Class 3** - Farm Assessed Land
- **Class 4** - Apartments, Commercial, & Industrial Property
- **Class 15** - Public Land

Per the tax assessor database, as provided by the Property Tax List (MOD-IV) of NJ 92% of the Borough is developed (Class 2, 4, 15), and 8% is undeveloped (Class 1, 3).

Table 7 presents a breakdown of the different land use types found within the Borough and includes a comparison of the land use/land cover in 1995 to what the NJDEP measured in 2015. It also includes current land use per the tax assessor database for 2023. The land use per the tax data is shown in **Figure 4.**

The NJDEP breaks down the different land use based upon an interpretation of the aerial photography, while the tax assessor data is based on current land use. Using tax assessor data, 60% of the Borough is residential or apartments (Class 2, 4), 25% of the Borough is commercial, industrial, or part of the Garden State Parkway (Class 4), and 7% are schools or tax exempt (Class 15), thereby composing roughly 92% of urban land in the Borough. The remaining 8% of the Borough is divided between vacant land (Class 1), parks (Class 15), and agriculture (Class 3). It is important to note that there are forests and wetlands on the developed (urban) land, but this is not measured by the tax data.

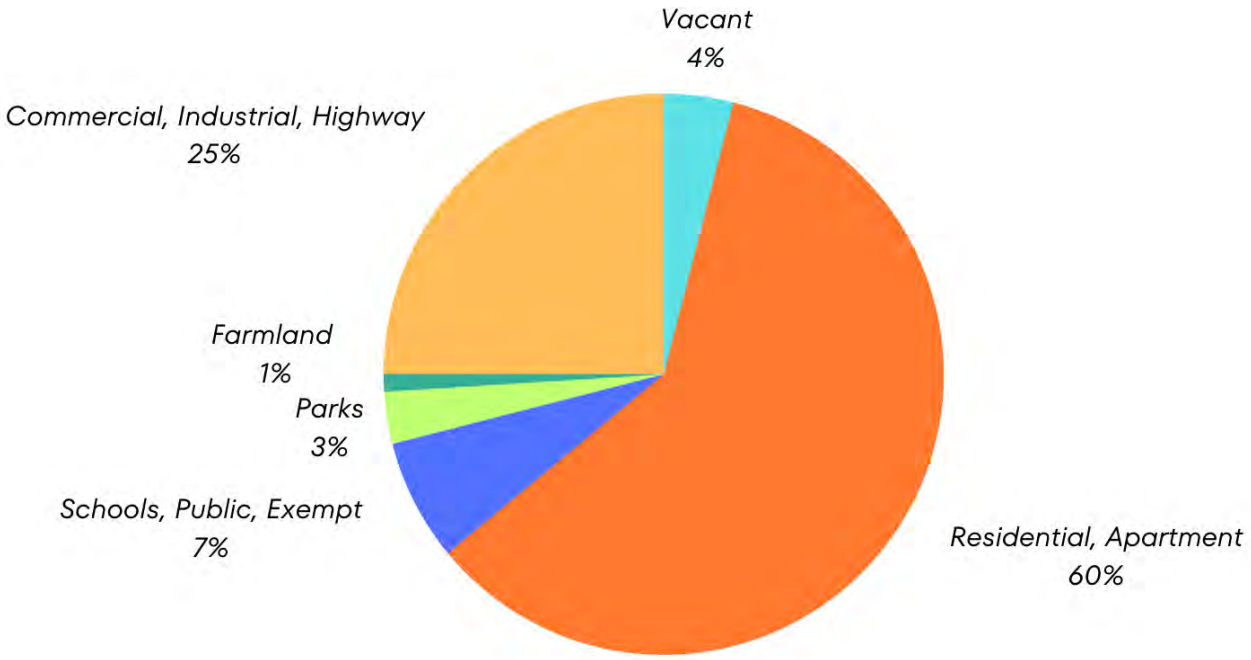


Figure 4. Tax Data, 2023.NJDEP & Tax Assessor.

Table 7. Land Use/Land Cover Percent of Borough, 1995 - 2023			
Type	**NJDEP Land Cover**		**Tax Data**
	1995	**2015**	**2023**
Agriculture	2%	1%	1%
Forest	15%	13%	7%
Wetland	5%	4%	
Urban	78%	82%	92%*
Total	100%	100%	100%
Source: Land Use Land Cover 1995-2015, NJDEP & NJ Tax Assessor Data			
** a portion of the developed (urban) land per the tax data may include wetlands and forest*			

Memorial Trail, Borough of Montvale Environmental Commission

Chapter 4.
Vegetation

Forest Types

Forested areas represent 13% of the Borough's land cover (330 acres). These wooded areas are commonly found near municipal parks, riparian corridors, residential backyards, and undeveloped parcels. According to the LU/LC data, 94% of the forest cover in the Borough is deciduous forest (310 acres). Of this, 266 acres have >50% crown closure, and 44

Table 8. Forested Land Classifications		
Classification	**Acres**	**% of Forested Area**
Deciduous Forest (>50% Crown Closure)	265.97	81%
Deciduous Forest (10-50% Crown Closure)	44.03	13%
Deciduous Brush/Shrubland	4.24	1%
Mixed Deciduous/Coniferous Brush/Shrubland	4.20	1%
Old Field (< 25% Brush Covered)	7.24	2%
Mixed Forest (>50% Deciduous With 10-50% Crown Closure)	2.94	1%
Coniferous Forest (>50% Crown Closure)	1.28	< 1%
Total:	329.90	100%
Source: Land Use Land Cover 1995-2015, NJDEP		

The New Jersey Department of Environmental Protection website maintains a list of native trees and vegetation.

Source:https://www.nj.gov/dep/parksandforests/forest/education/treebooks.html

acres have 10-50% crown closure.[26] Only 1.3% of the total forest cover is mixed brush/shrubland (4 acres) and less than 0.9% is mixed forest (3 acres)(**Table 8**).

Crown closure is the percentage of a forest area occupied by the vertical projections of tree crowns. Crown closure percentages provide a reasonable estimate of stand density

Source: https://www.nj.gov/dep/gis/digidownload/metadata/lulc12/anderson2012.html

Forested lands in the Borough of Montvale include the following classifications:

Deciduous – This category includes forested lands that contain deciduous tree species, which lose their leaves at the end of the growing season. These trees remain leafless throughout the winter and sprout new leaves the following spring. The average height of the stand is at least 20 feet. A forest stand must have at least 75% canopy coverage from deciduous trees species to be placed in this category. In the Borough of Montvale, there are 310 acres of deciduous forest.

Deciduous Forest, >50% Crown Closure: This category contains deciduous stands with crown closure greater than 50%. Crown closure is the percentage of forest area occupied by the vertical projections of tree crowns. Crown closure percentages provide a reasonable estimate of stand density. Most of the deciduous forests in New Jersey are in this category. The Borough has 266 acres of forest in this category.

Deciduous Forest, 10-50% Crown Closure: This category contains deciduous forest stands that have crown closure greater than 10% but less than 50%, which includes 44 acres in the Borough.

Mixed Forest - When neither coniferous nor deciduous trees represent 75% or more of the forested area, it is classified as Mixed Forest. This category is further broken down according to which type is 50% or greater in prevalence and the extent of crown closure. There are no acres of mixed forest with greater than >50% of coniferous trees.

Mixed Forest (>50% Deciduous with 10-50% Crown Closure): Mixed forests of all types represent a low percentage of the Borough's land area, covering only 0.01% of the Borough's total land cover and making up 0.89% (3 acres) of the forested land category.

Brush/Shrubland – When vegetation is less than 20 feet high, the area is categorized as brush/shrubland. There are 16 acres of mixed brush/shrubland in the Borough of Montvale.

Old Field: This category includes open areas that have less than

25% brush cover. The predominant cover types are grasses, herbaceous species, tree seedlings, and/or saplings. Old Fields are distinguished from inactive farmland by the amount of brush cover. If a field contains few woody stems (<5%), it should be placed in the inactive farmland category. An area should be placed in the Old Field category if the amount of brush cover requires extensive brush removal before plowing. In some cases, it may not be established that the previous use was agriculture. There are 7 acres of Old Field within the Borough.

Deciduous Brush/Shrubland: This category contains natural forested areas with deciduous species less than 20 feet in height. An area must have greater than 25% brush cover to be placed in this category. This category can also contain inactive agricultural areas that have grown over with brush. There are 4 acres of Deciduous Brush/Shrubland within the Borough.

Mixed Deciduous/Coniferous Brush/ Shrubland: Natural forested areas less than 20 feet high with a mixture of coniferous and deciduous trees. The Borough of Montvale contains 4 acres of Mixed Deciduous/Coniferous Brush/Shrubland.

Tree Protection Ordinances

The Borough's code General Legislation, Chapter 369: Trees and Plants dedicates section 369-1 to 369-14 to tree removal and planting.[27] This chapter was adopted by the Mayor and Council on April 24, 2018 by Ordinance No. 2018-1445. This section serves to regulate the removal of Borough trees and protect local infrastructure.

Article I prohibits the removal of trees in the Borough's 'tree preservation zone' located between property lines as detailed without a formal permit. For applications not subject to board review, the Environmental Commission will issue their recommendations to the Construction Official. Exemptions will be granted for various residential, planned urban developments, and roadways conditions.

Article II discusses the effects of building and structural demolition on the local environment. Similar to Article I, Article II specifies that a developer or contractor cannot remove any trees without an associated permit approving the 'limits of disturbance'. Exemptions are permitted outside the 'limits of disturbance' for any tree with a caliper below six inches measured 4.5 feet above the highest side of existing grade.

Article III sets to limit invasive species, specifically bamboo, from being planted or cultivated in the Borough. The Borough is authorized to respond and act on complaints regarding encroachment or planting of bamboo, and the responsible party is to correct the violation. Exemptions are granted for existing bamboo plants (as of 2018) and bamboo plants that are entirely contained in an above-ground-level planter.

Lastly, the Borough's trees have been affected by two invasive insects, the Emerald Ash Borer and the Spotted Lanternfly. The Emerald Ash Borer afflicts Ash trees, burrowing beneath the bark, disrupting its absorption of water, and eventually causing its death. The Spotted Lanternfly nymphs and adults suck sap from the stems and leaves of trees,

weakening the tree and killing it. The NJ Department of Agriculture (NJDA) promotes an integrated pest management approach, however aerial spray treatments on residential and recreational areas using the selective, non-chemical insecticide *Bacillus thuringiensis* is recommended where natural controls struggle to keep the pest population in check.

Carbon Storage

Forests remove, or sequester, substantial amounts of carbon from the atmosphere and store carbon long-term. Forests in the United States are currently estimated to offset about 15% of the annual U.S. carbon emissions.[28] This is in addition to any local climate benefits they may provide, as discussed in **Chapter 9**. However, the impact of forest carbon sequestration is dependent on the fate of a forest.

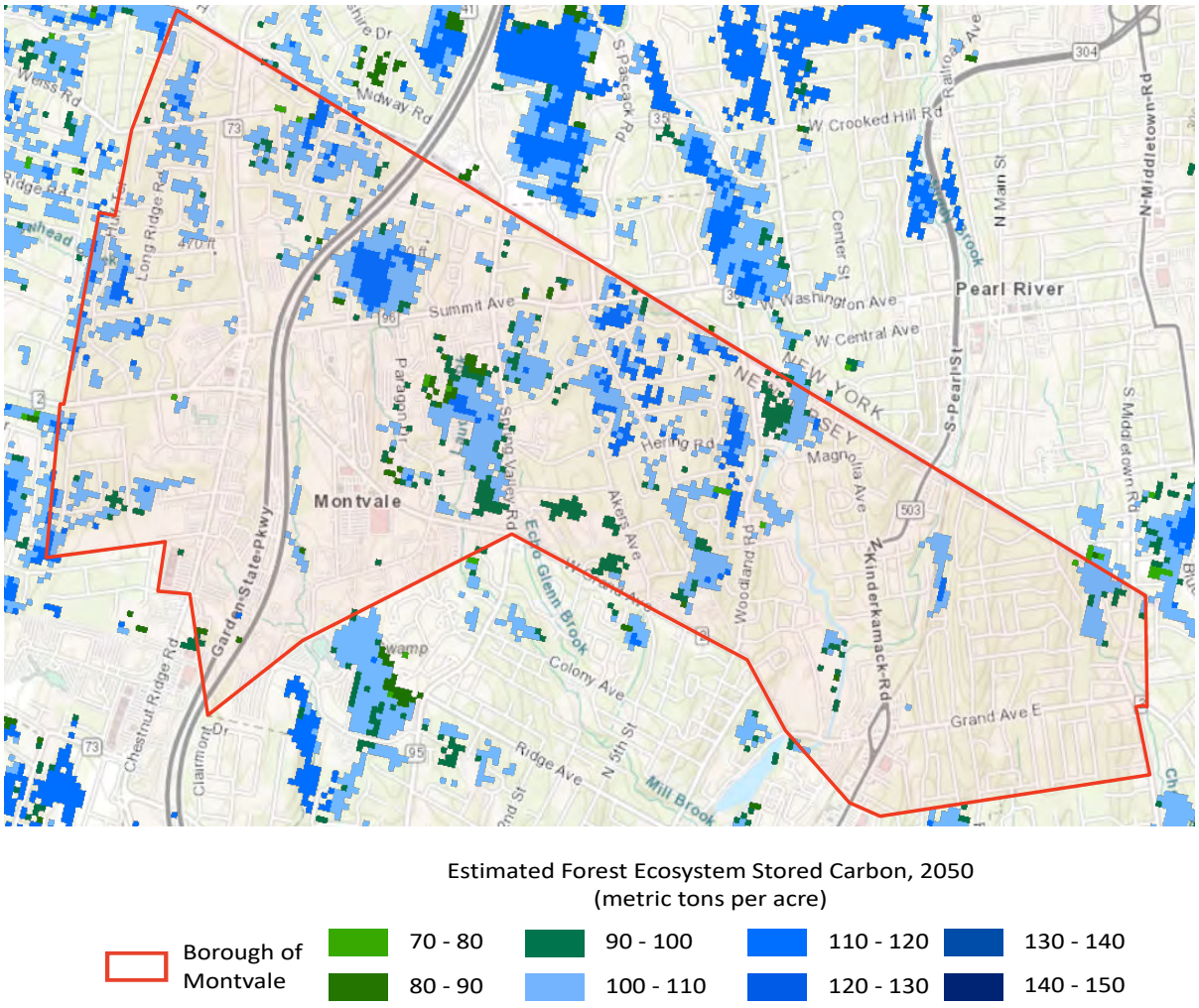


Figure 5. Estimated Forest Ecosystem Stored Carbon, Montvale 2050. Resilient Land Mapping Tool- The Nature Conservancy.

For example, when wood is harvested and/or removed, any stored carbon is returned to the atmosphere.

Montvale has acknowledged the importance of trees through the Tree City designation, which is awarded yearly.[29] The Borough was awarded this designation for 2021 and 2022, and plans to continue meeting requirements for designation in 2023 and beyond. The Nature Conservancy has developed detailed estimates of the amount of carbon stored in forests as of 2010 and projected sequestration between 2010 and 2050 under a no-disturbance scenario.[30] Actual carbon sequestered may be higher or lower depending on management practices or forest preservation. Montvale's forests are estimated to hold 34,541 metric tons (mt) of carbon as of 2010, and are projected to sequester an additional 3,587 mt of carbon between 2010 and 2050 (**Figure 5)**.

Wetlands near Paragon Drive

Pascack Brook Egret, Borough of Montvale Environmental Commission

Chapter 5.

Wildlife

Threatened & Endangered Species and Critical Habitat

The NJDEP Landscape Project 3.3 ranks patches of habitat using a numeric system (0 through 5) for the purpose of identifying habitat which may be suitable for threatened and endangered species.[31] Habitat identified as Rank 3 through 5 are considered environmentally significant by the NJDEP:

- Rank 5: Species-specific patches containing one or more occurrences of wildlife listed as endangered and threatened pursuant to the Federal Endangered Species Act of 1973.
- Rank 4: Species-specific patches with one or more occurrences of state endangered species.
- Rank 3: Species-specific patches containing one or more occurrences of state threatened species.
- Rank 2: Species-specific patches containing one or more occurrences of species considered to be species of special concern.
- Rank 1: Species-specific patches that meet habitat-specific suitability requirements such as minimum size criteria for endangered, threatened, or priority wildlife species, but that do not intersect with any confirmed occurrences of such species.
- Rank 0: Species-specific patches that do not contain any species occurrences and do not meet any habitat-specific suitability requirements.

In the Borough of Montvale, land surrounding waterways and water bodies, particularly the Category One (C1) waterways, provides suitable habitat for endangered, threatened, and priority wildlife. More broadly, the areas between Bear Brook and Laurel Brook, wetlands north of Summit Avenue, and residential pockets west of Kinderkamack Road (**Map 5**).[32]

The majority of land patches in the Borough do not contain endangered species or their habitat and are ranked as either 0 or 1. These areas are located primarily along riparian corridors.

Rank 2, or special concern species habitat, is concentrated along the Borough's northern track of the NJ Transit Pascack Valley Line, expanding to the Muddy Brook waterway.

Rank 3, or state threatened species, is primarily spread between the Garden State Parkway and Spring Valley Road. These are in patches, composing over 285 acres, and largely beside riparian corridors and wetlands throughout the Borough. There are other pockets of habitat west of Woodland Road and east of Akers Avenue.

Rank 4, or state endangered species habitat, can be found along the southern Borough border near Phillips Parkway and Grand Avenue West, between the Bear Brook and Mill Brook waterways. State Endangered species habitats are also found along the Pascack Brook.

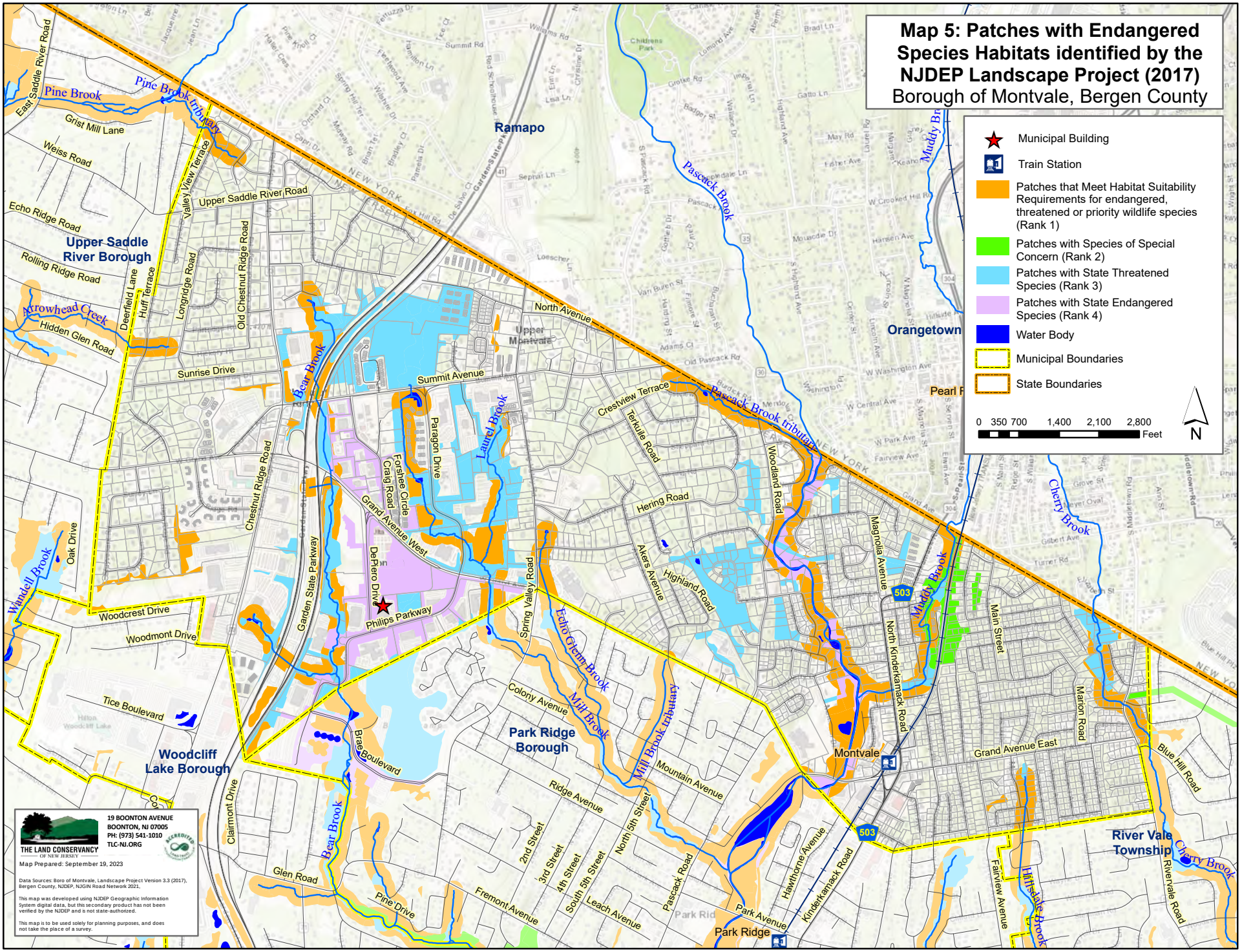
Rank 5, or federally listed endangered species habitat, is not present in Montvale.

The NJDEP notes that several rare species and their habitat have been found within the Borough of Montvale (**Table 9**). Rare wildlife habitat has been identified as supporting foraging, breeding sightings, and individual sightings. The majority (78%) of these species and their habitat fall under Rank 3 with species-specific patches

Table 9. Rare Species in Montvale

Species Rank	Common Name	Scientific Name	Acres
Rank 4 (State Endangered)	Bald Eagle	Haliaeetus leucocephalus	10.07
Rank 3 (State Threatened)	Black-crowned Night heron	Nycticorax nycticorax	65.81
	Savannah Sparrow	Passerculus sandwichensis	80.18
	Wood Turtle	Glyptemys insculpta	139.26
Rank 2 (Species of Special Concern)	Black-throated Blue Warbler	Dendroica caerulescens	21.75
	Eastern Box Turtle	Terrapene carolina	46.72
	Wood Thrush	Hylocichla mustelina	0.85
		Total	**364.63**

Source: NJDEP


Map 5: Patches with Endangered Species Habitats identified by the NJDEP Landscape Project (2017)
Borough of Montvale, Bergen County
Municipal Building
Train Station
Patches that Meet Habitat Suitability Requirements for endangered, threatened or priority wildlife species (Rank 1)
Patches with Species of Special Concern (Rank 2)
Patches with State Threatened Species (Rank 3)
Patches with State Endangered Species (Rank 4)
Water Body
Municipal Boundaries
State Boundaries
0 350 700 1,400 2,100 2,800
Feet
N
Upper Saddle River Borough
Ramapo
Orangetown
Pearl R
Upper Montvale
Montvale
Park Ridge Borough
Park Ridge
Woodcliff Lake Borough
River Vale Township
Pine Brook
Pine Brook tributary
East Saddle River Road
Grist Mill Lane
Weiss Road
Echo Ridge Road
Rolling Ridge Road
Arrowhead Creek
Hidden Glen Road
Deerfield Lane
Huff Terrace
Valley View Terrace
Upper Saddle River Road
Longridge Road
Old Chestnut Ridge Road
Sunrise Drive
Chestnut Ridge Road
Oak Drive
Wandell Brook
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Clairmont Drive
Glen Road
Pine Drive
Fremont Avenue
Bear Brook
North Avenue
Summit Avenue
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
DePiero Drive
Philips Parkway
Garden State Parkway
Laurel Brook
Crestview Terrace
Terkuile Road
Hering Road
Woodland Road
Pascack Brook tributary
Pascack Brook
Muddy Brook
Cherry Brook
Magnolia Avenue
Akers Avenue
Highland Road
Spring Valley Road
Echo Glenn Brook
Mill Brook
Mill Brook tributary
Colony Avenue
Brae Boulevard
Ridge Avenue
Mountain Avenue
North 5th Street
2nd Street
3rd Street
4th Street
South 5th Street
Leach Avenue
Pascack Road
Park Avenue
Hawthorne Avenue
Kinderkamack Road
North Kinderkamack Road
Main Street
Marion Road
Grand Avenue East
Blue Hill Road
Fairview Avenue
Hillsdale Brook
Rivervale Road
503
THE LAND CONSERVANCY OF NEW JERSEY
19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973) 541-1010
TLC-NJ.ORG
Map Prepared: September 19, 2023
Data Sources: Boro of Montvale, Landscape Project Version 3.3 (2017), Bergen County, NJDEP, NJGIN Road Network 2021,
This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.
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containing one or more occurrences of state threatened species. Rank 3 species include the black-crowned night heron, savanna sparrow, and Wood Turtle. Rank 2 species make up about 19% of species-specific patches with one or more occurrences of special concern species, including the black-throated blue warbler, eastern box turtle, and wood thrush. Of the remaining habitat, 3% is Rank 4 with species-specific patches containing one or more occurrences of state threatened species being only the bald eagle. None of the Borough maintains Rank 5 with species-specific patches containing one or more occurrences of federally listed threatened or endangered species.

Vernal Habitat

Vernal habitats, also known as vernal pools, are natural wetland depressions that fill with water during the rainy season in the fall and remain ponded until the warmer weather in early summer causes them to dry out.[33] Vernal pools provide habitat for a wide variety of amphibians, reptiles, invertebrates, and many species of wetland vegetation, but cannot support a fish population because of their brief dry period. Certain wildlife species, referred to as "obligate" vernal pool breeders, have evolved with reliance upon these fish-free breeding sites and cannot successfully produce elsewhere. Other wildlife species, referred to as "facultative" vernal pool species, also take advantage of vernal habitats for breeding and/or feeding purposes, but are not limited to performing these functions solely in vernal pools.

The NJDEP defines a vernal habitat in the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1.4) as a wetland that meets all of the following criteria:

The wetland must consist of or contain a confined basin or depression without a permanently flowing outlet.

The pool must feature evidence of breeding by at least one obligate or two facultative vernal habitat species. (These species are identified in N.J.A.C. 7:7A)

The area must maintain ponded water for at least two continuous months between March and September of a normal rainfall year.

The area must remain free of fish populations throughout the year, or it must dry up at some time during a normal rainfall year.

Wetland areas featuring a confined basin depression exhibiting the hydrologic and biological criteria established above are said to meet certification requirements and may be referred to as certified vernal habitats. The NJDEP's Landscape Project divides its mapping of vernal habitats into two categories:

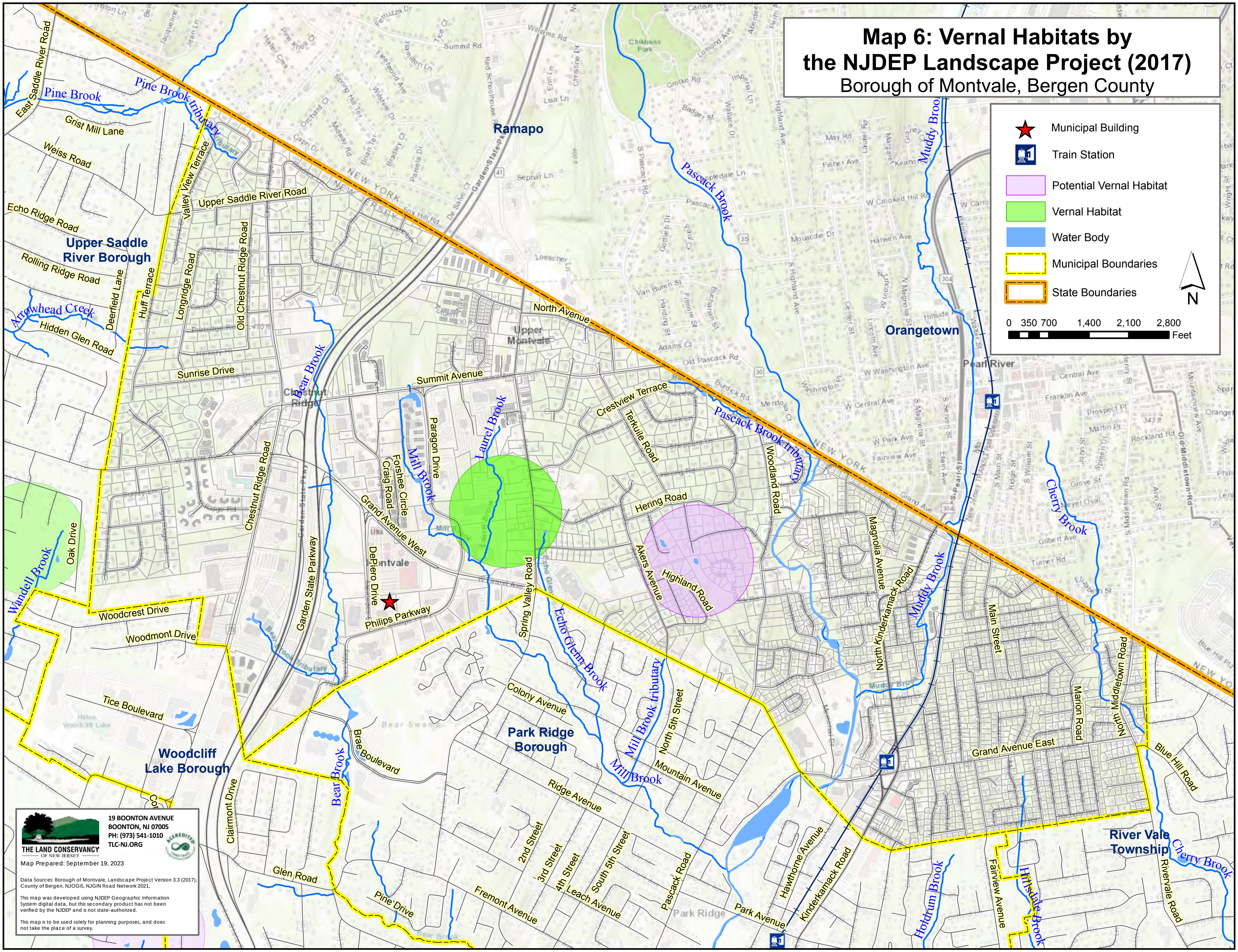
Potential vernal habitat areas are areas identified as possibly containing a vernal pool that meets the criteria of a "vernal habitat" pursuant to N.J.A.C. 7:7A-1.4. These sites include sites that have been field inspected and have been found to meet the physical characteristics of a vernal habitat, but for which biological criteria have not yet been

measured, as well as sites that have not been checked by NJDEP staff.

Vernal habitat areas are areas that contain pools that have been field-verified by the NJDEP and have been determined to meet both physical and biological characteristics of a vernal habitat in accordance with N.J.A.C. 7:7A-1.4. The Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A) protects vernal habitats as wetland areas requiring a 50-foot buffer, or a 150-foot buffer if the pool supports a State Threatened or Endangered Species.

The NJDEP maps both certified vernal habitat areas and potential vernal habitat areas. **Map 6** shows 300-meter radius circles around the estimated centers of Montvale's one certified and one potential vernal habitat. The 300-meter buffer is used to account for the varying sizes of individual pools, the likely presence of adjacent wetland areas and – significantly – the adjacent dispersal habitats typically utilized by many resident amphibian species.

Top left: Wood Turtle (NJDEP), Bottom left: Savannah Sparrow (National Audubon Society), Right: Black Crowned Night Heron (Smithsonian's National Zoo & Conservation Biology Institute)


Map 6: Vernal Habitats by
the NJDEP Landscape Project (2017)
Borough of Montvale, Bergen County
Municipal Building
Train Station
Potential Vernal Habitat
Vernal Habitat
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Ramapo
Orangetown
Pearl River
Upper Saddle River Borough
Upper Montvale
Chestnut Ridge
Montvale
Park Ridge Borough
Woodcliff Lake Borough
River Vale Township
Park Ridge
NEW YORK
NEW JERSEY
Pine Brook
Pine Brook tributary
Arrowhead Creek
Bear Brook
Mill Brook
Laurel Brook
Echo Glenn Brook
Mill Brook tributary
Pascack Brook
Pascack Brook tributary
Muddy Brook
Cherry Brook
Wandell Brook
Holdrum Brook
Hillsdale Brook
Bear Brook tributary
East Saddle River Road
Grist Mill Lane
Weiss Road
Echo Ridge Road
Rolling Ridge Road
Hidden Glen Road
Deerfield Lane
Huff Terrace
Longridge Road
Old Chestnut Ridge Road
Valley View Terrace
Upper Saddle River Road
Sunrise Drive
Chestnut Ridge Road
Garden State Parkway
Summit Avenue
North Avenue
Crestview Terrace
Terkuile Road
Woodland Road
Hering Road
Akers Avenue
Highland Road
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
DePiero Drive
Philips Parkway
Spring Valley Road
Oak Drive
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Colony Avenue
Brae Boulevard
Clairmont Drive
Glen Road
Pine Drive
Fremont Avenue
2nd Street
3rd Street
4th Street
South 5th Street
North 5th Street
Leach Avenue
Pascack Road
Ridge Avenue
Mountain Avenue
Park Avenue
Hawthorne Avenue
Kinderkamack Road
North Kinderkamack Road
Magnolia Avenue
Main Street
Marion Road
North Middletown Road
Grand Avenue East
Blue Hill Road
Fairview Avenue
Rivervale Road
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PH: (973) 541-1010
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THE LAND CONSERVANCY OF NEW JERSEY
Map Prepared: September 19, 2023
Data Sources: Borough of Montvale, Landscape Project Version 3.3 (2017), County of Bergen, NJOGIS, NJGIN Road Network 2021.
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Pascack Brook / Muddy Brook, Borough of Montvale, Environmental Commission

Chapter 6.

Hydrology

Watersheds

A watershed is a topographic area within which surface water runoff drains into a specific point on a stream or to a water body such as a lake. A watershed-based approach to natural resource management is considered by state and national agencies to be the most appropriate unit for managing complex environmental problems.

The NJDEP has divided the state into Watershed Management Areas (WMAs) composed of multiple watersheds and sub-watersheds.[34] The United States Geological Survey (USGS) has mapped and identified watersheds using a hierarchical numbering system. This system identifies watersheds by a hydrological unit code (HUC) that includes up to 14 digits for the smallest watersheds. The HUC14 watersheds for the Borough of Montvale are identified on **Map 7** and listed in **Table 10**.

Category 1 Waterways

The rivers and streams of the Borough of Montvale are among the most pristine in the state and have been classified by the NJDEP as Category One (C1) waterways.[35] These high quality waterways are protected from measurable changes in water quality characteristics as determined by their clarity, color, scenic setting, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s). The C1 classification signifies the highest level of protection for a stream in New Jersey.

Table 10. HUC14 Watersheds					
WMA	**WMA Name**	**Watershed Name**	**Sub-Watersheds Name**	**Acres**	**Percent**
04	Lower Passaic and Saddle	Saddle River	Saddle River (above Ridgewood gage)	307	12%
05	Hackensack, Hudson, and Pascack	Hackensack River (above Hirshfeld Brook)	Hackensack River (above Old Tappan gage)	288	11%
05	Hackensack, Hudson, and Pascack	Hackensack River (above Hirshfeld Brook)	Pascack Brook (above Westwood gage)	1,985	77%
			Total	**2,580**	**100%**
Source: NJDEP HUC14 Watershed Tabular Data					

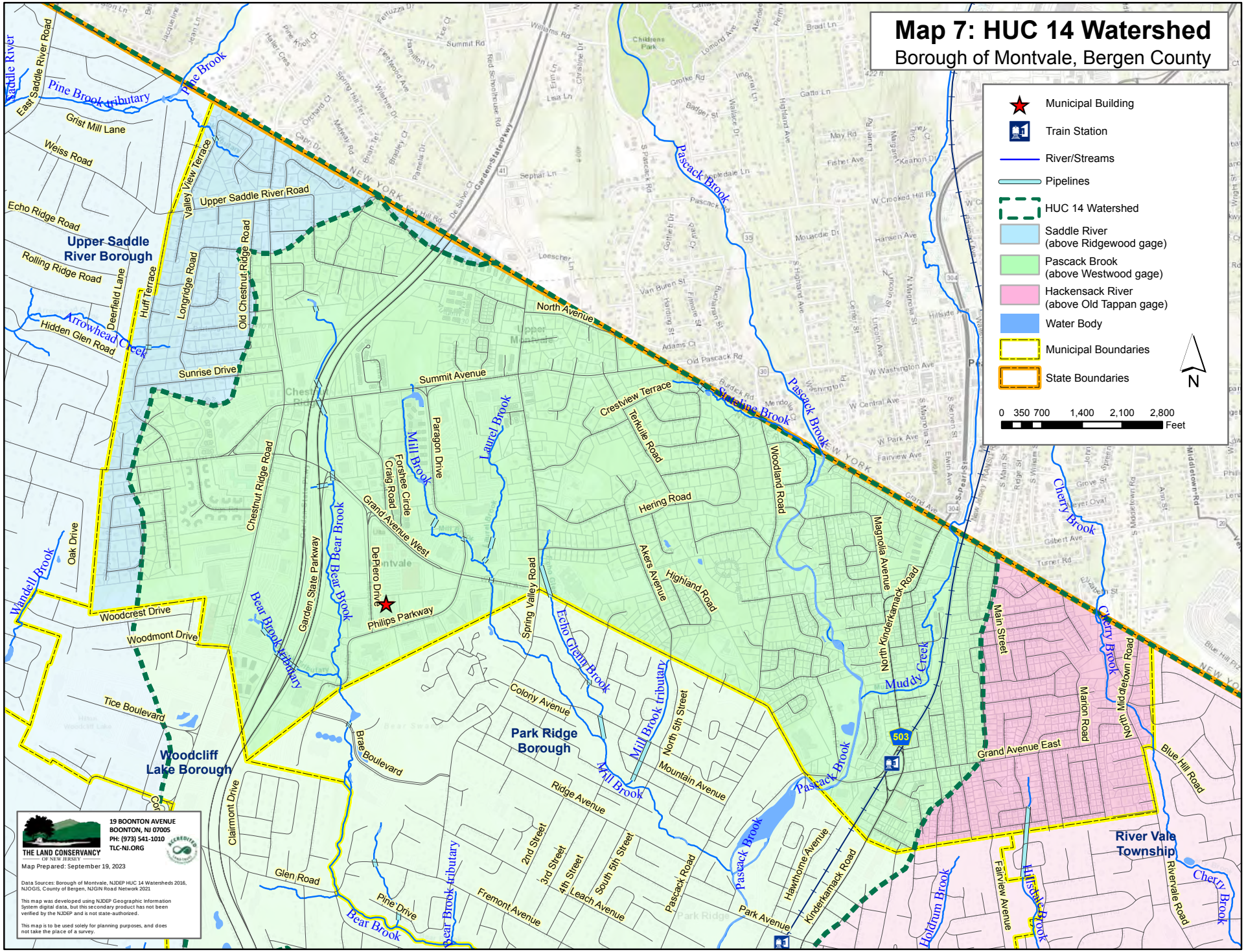
Table 11. Category One Streams		
Stream	**Miles**	**Percent**
Bear Brook & UNT	1.94	25%
Pascack Brook	1.40	18%
Mill Brook & UNT	1.05	14%
Muddy Creek	0.84	11%
Cherry Brook	0.60	8%
Stateline Brook	0.54	7%
Laurel Brook	0.52	7%
Echo Glenn Brook	0.22	3%
Holdrum Brook	0.18	2%
Pine Brook UNT	0.18	2%
Arrowhead Creek	0.14	2%
Total:	**7.61**	**100%**
Source: NJDEP Surface Water Quality Data		

Montvale is home to 11 C1 waterways (**Map 8**). Recognizing the importance and uniqueness of being home to C1 waters, the Borough's Environmental Commission prepared a fact sheet to share with homeowners and residents explaining what a C1 water is and the types of regulations which are in place. This is included in the **Appendix**.

With only a few exceptions, no new development can occur within 300 feet of C1 waterways.

Surface Water

Surface water is water that collects on the ground or in a stream, river, lake, wetland, or ocean. The surface water bodies in the Borough are listed in **Table 11** and shown in **Map 8**.


Map 7: HUC 14 Watershed
Borough of Montvale, Bergen County
Municipal Building
Train Station
River/Streams
Pipelines
HUC 14 Watershed
Saddle River (above Ridgewood gage)
Pascack Brook (above Westwood gage)
Hackensack River (above Old Tappan gage)
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Upper Saddle River Borough
Park Ridge Borough
Woodcliff Lake Borough
River Vale Township
Saddle River
East Saddle River Road
Pine Brook tributary
Pine Brook
Grist Mill Lane
Weiss Road
Echo Ridge Road
Rolling Ridge Road
Deerfield Lane
Huff Terrace
Longridge Road
Valley View Terrace
Upper Saddle River Road
Old Chestnut Ridge Road
Hidden Glen Road
Arrowhead Creek
Sunrise Drive
North Avenue
Summit Avenue
Crestview Terrace
Terkuile Road
Woodland Road
Hering Road
Akers Avenue
Highland Road
Magnolia Avenue
North Kinderkamack Road
Main Street
Marion Road
Grand Avenue East
Blue Hill Road
Middletown Road
Riverdale Road
Cherry Brook
Pascack Brook
Streeline Brook
Laurel Brook
Mill Brook
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
DePiero Drive
Philips Parkway
Chestnut Ridge Road
Garden State Parkway
Bear Brook
Bear Brook tributary
Wandell Brook
Oak Drive
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Clairmont Drive
Glen Road
Pine Drive
Fremont Avenue
Brae Boulevard
Colony Avenue
Ridge Avenue
Mountain Avenue
North 5th Street
2nd Street
3rd Street
4th Street
South 5th Street
Leach Avenue
Pascack Road
Park Avenue
Hawthorne Avenue
Kinderkamack Road
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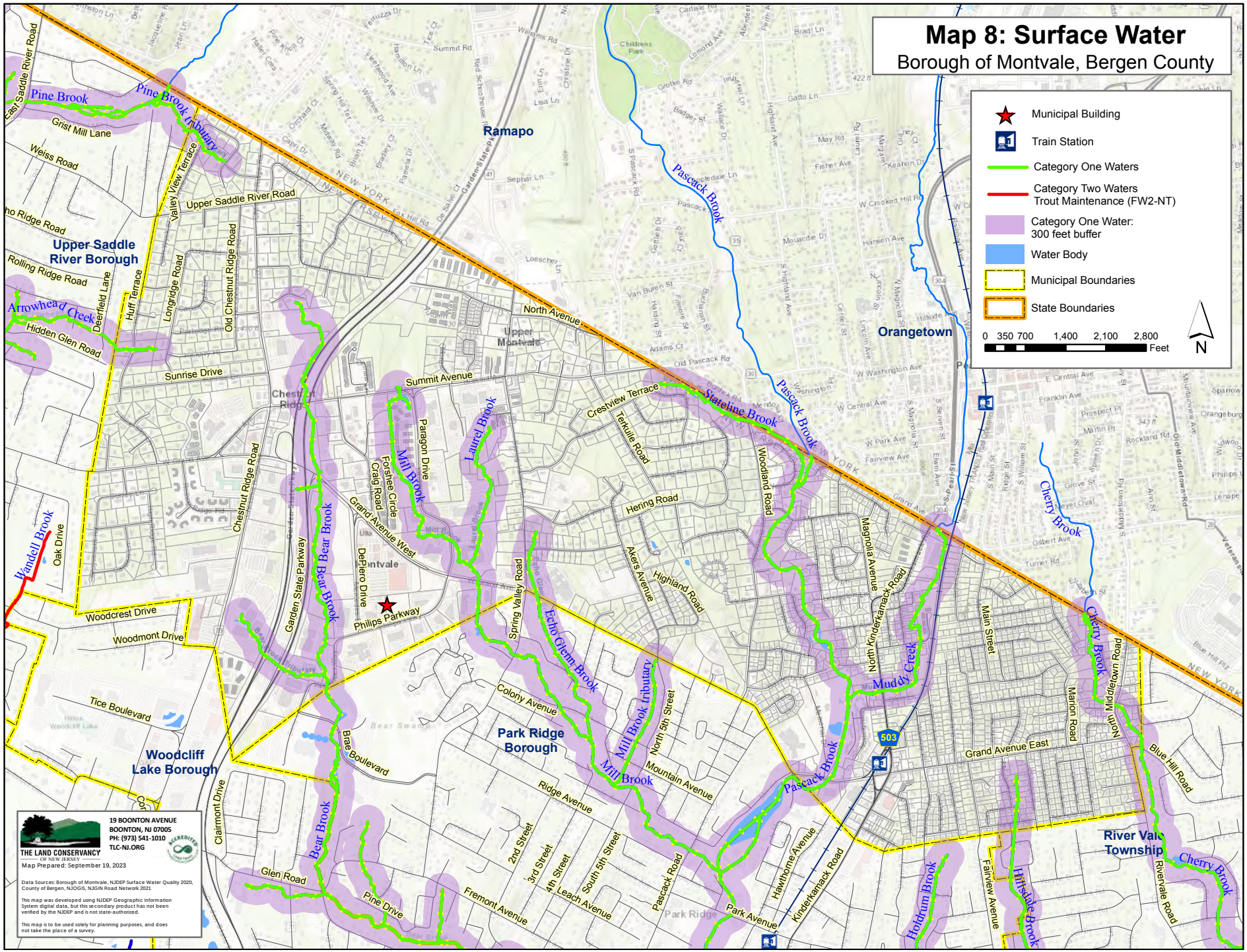
Map 8: Surface Water
Borough of Montvale, Bergen County
Municipal Building
Train Station
Category One Waters
Category Two Waters
Trout Maintenance (FW2-NT)
Category One Water:
300 feet buffer
Water Body
Municipal Boundaries
State Boundaries
0 350 700 1,400 2,100 2,800
Feet
N
Ramapo
Upper Saddle River Borough
Woodcliff Lake Borough
Park Ridge Borough
Orangetown
Pine Brook
Pine Brook Tributary
Pascack Brook
Stateline Brook
Laurel Brook
Mill Brook
Mill Brook Tributary
Bear Brook
Arrowhead Creek
Vandell Brook
Echo Glenn Brook
Muddy Creek
Cherry Brook
Holdrum Brook
Hittsdale Brook
Upper Saddle River Road
North Avenue
Summit Avenue
Crestview Terrace
Hering Road
Woodland Road
Highland Road
Akers Avenue
Magnolia Avenue
North Kinderkamack Road
Main Street
Grand Avenue East
Grand Avenue West
Philips Parkway
Spring Valley Road
Colony Avenue
Ridge Avenue
Mountain Avenue
Park Avenue
Kinderkamack Road
Hawthorne Avenue
Pascack Road
Fremont Avenue
Glen Road
Pine Drive
Claimont Drive
Brae Boulevard
Tice Boulevard
Woodmont Drive
Woodcrest Drive
Oak Drive
Hidden Glen Road
Rolling Ridge Road
Deerfield Lane
Huff Terrace
Longridge Road
Old Chestnut Ridge Road
Chestnut Ridge Road
Valley View Terrace
Weiss Road
Grist Mill Lane
East Saddle River Road
Sunrise Drive
Paragon Drive
Forshee Circle
Craig Road
DePiero Drive
Garden State Parkway
Tenkille Road
Fairview Avenue
Rivervale Road
Blue Hill Road
Middletown Road
Marion Road
North 5th Street
South 5th Street
2nd Street
3rd Street
4th Street
Leach Avenue
503
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PH: (973) 541-1010
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THE LAND CONSERVANCY
OF NEW JERSEY
Map Prepared: September 19, 2023
Data Sources: Borough of Montvale, NJDEP Surface Water Quality 2020, County of Bergen, NJOGIS, NJGIN Road Network 2021
This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.
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New Jersey's Surface Quality Standards (SWQS) (N.J.A.C. 7:9) classify Fresh Water 1 (FW1) as the highest level of classification,which is defined by this legislation as:

..those fresh waters, as designated in N.J.A.C. 7:9B-1.15(j), that are to be maintained in their natural state of quality (set aside for posterity) and not subjected to any man-made wastewater discharges or increases in runoff from anthropogenic activities. These waters are set aside for posterity because of their clarity, color, scenic setting, other characteristic of aesthetic value, unique ecological significance, exceptional recreational significance, exceptional water supply significance or exceptional fisheries resource(s).[36, 37]

The general classification for other freshwater in the State is Fresh Water 2 (FW2). The presence of trout in a stream means that the waters are relatively free of chemicals or biological contaminants and is used to further define designated uses. A stream can be classified as Trout Production (TP), Trout Maintenance (TM), or Non-Trout (NT).

- Trout Production waters are designated "for use by trout spawning or nursery purposes during their first summer."
- Trout Maintenance waters support trout throughout the year.
- Waters classified as Non-Trout do not support trout, either because of their physical nature or due to biological or chemical characteristics (SWQS, N.J.A.C.7:9B).

The surface waters of the Borough are classified as either FW2 and Trout-Production (FW2-TP) or as FW2 and Non-Trout (FW2-NT).

Surface water quality is affected by point sources and non-point sources of pollution as well as erosion and sedimentation.[38] Point source means any discernible, confined, and discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft from which pollutants are or may be discharged. This includes discharges from sewage treatment plants and factories, stormwater runoff, illegal dumping, and malfunctioning underground storage tanks and septic tanks. This term does not include agricultural storm water discharges and return flows from irrigated agriculture.

In contrast to point source pollution, non-point source pollution comes from many different sources. As rainfall or snowmelt moves over and through the ground, it picks up and carries natural and human-made pollutants (such as fertilizers, herbicides, and motor oil) and deposits them into surface and groundwater. The effects of pollutants on specific waterways can vary but eventually all are manifested into negative outcomes for drinking water supplies, recreation, fisheries, and wildlife.

One of these effects is eutrophication, which, in freshwater systems, is the addition of substances, either man-made or natural, to a water body affecting the primary productivity of that body of water. Nitrates and phosphates promote excessive algae growth. These "blooms" can have negative effects on the ecosystem. This can

include clouding of the water which limits sunlight penetration and stops the growth of plants deeper in the water. Additionally, the excess nutrient availability (eutrophication) from the decomposition of dead phytoplankton can cause depleted levels of dissolved oxygen (anoxia).

Water quality can also be negatively impacted by sedimentation, which is the transportation and deposition of eroded materials. A primary cause of sedimentation is development near streams and on steep slopes that reduce vegetative cover and results in exposed soil. The vegetative cover can typically absorb the impact of raindrops, but when it is removed, the exposed soil easily becomes eroded. The eroded soil can then be transported to surface waters where it could contaminate and increase the turbidity of the water, effectively blocking sunlight to plant species and negatively affecting the health of the aquatic ecosystem.

Aquifer Recharge

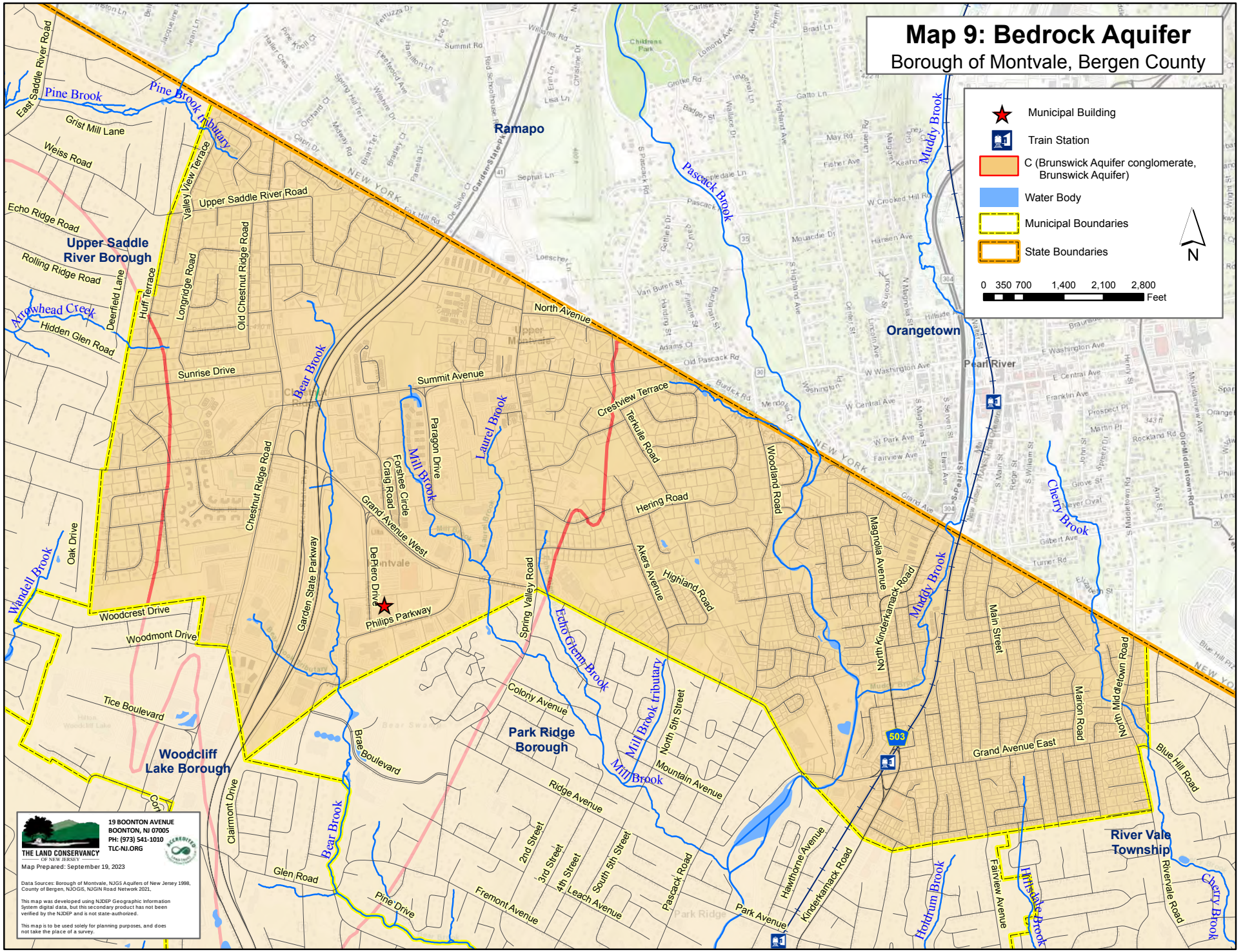
An aquifer is an underground formation of permeable rock or unconsolidated materials that can yield significant quantities of water to wells or springs.[39] The rate of recharge is not the same for all aquifers, and that must be considered when pumping water from a well. Pumping too much water too fast draws down the water in the aquifer and eventually causes a well to yield less water or run dry.

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 consist of rock formations while surficial aquifers are formed from unconsolidated materials such as sand or gravel or glacial sediment. Bedrock aquifers in the Piedmont contain water in fractures within the rock while surficial aquifers contain water primarily in the spaces between sand and gravel particles.

The Borough of Montvale is underlain by the Brunswick Aquifer (Rank C) and its smaller conglomerate facies, the Bruswick Aquifer Conglomerate. The Brunswick Aquifer is composed of sandstone siltstone and shale of the Passaic, Towaco, Teltville, and Boonton Formations. Ground water is stored and transmitted in fractures. Water is normally fresh, slightly alkaline, non-corrosive and hard, while calcium-bicarbonate type waters dominate (**Map 9**). The NJGS identifies the Brunswick Aquifer as a fractured-rock aquifer of the Newark Basin part of the Piedmont Physiographic Province, which yields between 100 and 250 gallons per minute.

Aquifers in New Jersey can be ranked on their ability to yield ground water to high-capacity wells. These wells include water-supply, irrigation, and industrial-supply wells sited and tested for maximum yield.[40] Many of the wells have boreholes exceeding the standing six-inch diameter for domestic wells. The five aquifer-ranks values are based on a statistical analysis of median yields for over 8,000 high-capacity wells.

Surficial aquifers in New Jersey are those water-bearing formations which are both greater than 50 feet thick (New Jersey law requires well casing of no less than 50 feet) and are significantly different, hydrogeologically, than the underlying aquifer. Surficial aquifers


Map 9: Bedrock Aquifer
Borough of Montvale, Bergen County
Municipal Building
Train Station
C (Brunswick Aquifer conglomerate, Brunswick Aquifer)
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Upper Saddle River Borough
Ramapo
Orangetown
Pearl River
Park Ridge Borough
Woodcliff Lake Borough
River Vale Township
Pine Brook
Pine Brook Tributary
East Saddle River Road
Grist Mill Lane
Weiss Road
Echo Ridge Road
Rolling Ridge Road
Deerfield Lane
Arrowhead Creek
Hidden Glen Road
Huff Terrace
Valley View Terrace
Longridge Road
Upper Saddle River Road
Old Chestnut Ridge Road
Sunrise Drive
Chestnut Ridge Road
Garden State Parkway
Bear Brook
North Avenue
Summit Avenue
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
DePiero Drive
Philips Parkway
Mill Brook
Laurel Brook
Crestview Terrace
Terkuile Road
Hering Road
Woodland Road
Akers Avenue
Highland Road
Spring Valley Road
Echo Glenn Brook
Mill Brook tributary
Colony Avenue
North 5th Street
Mountain Avenue
Ridge Avenue
Brae Boulevard
Claimont Drive
Glen Road
Pine Drive
Fremont Avenue
2nd Street
3rd Street
4th Street
South 5th Street
Leach Avenue
Pascack Road
Park Avenue
Hawthorne Avenue
Kinderkamack Road
Pascack Brook
Muddy Brook
Cherry Brook
Magnolia Avenue
North Kinderkamack Road
Main Street
Marion Road
Mid dletown Road
Grand Avenue East
Blue Hill Road
Rivervale Road
Fairview Avenue
Hohokus Brook
Wandell Brook
Oak Drive
Woodcrest Drive
Woodmont Drive
Tice Boulevard
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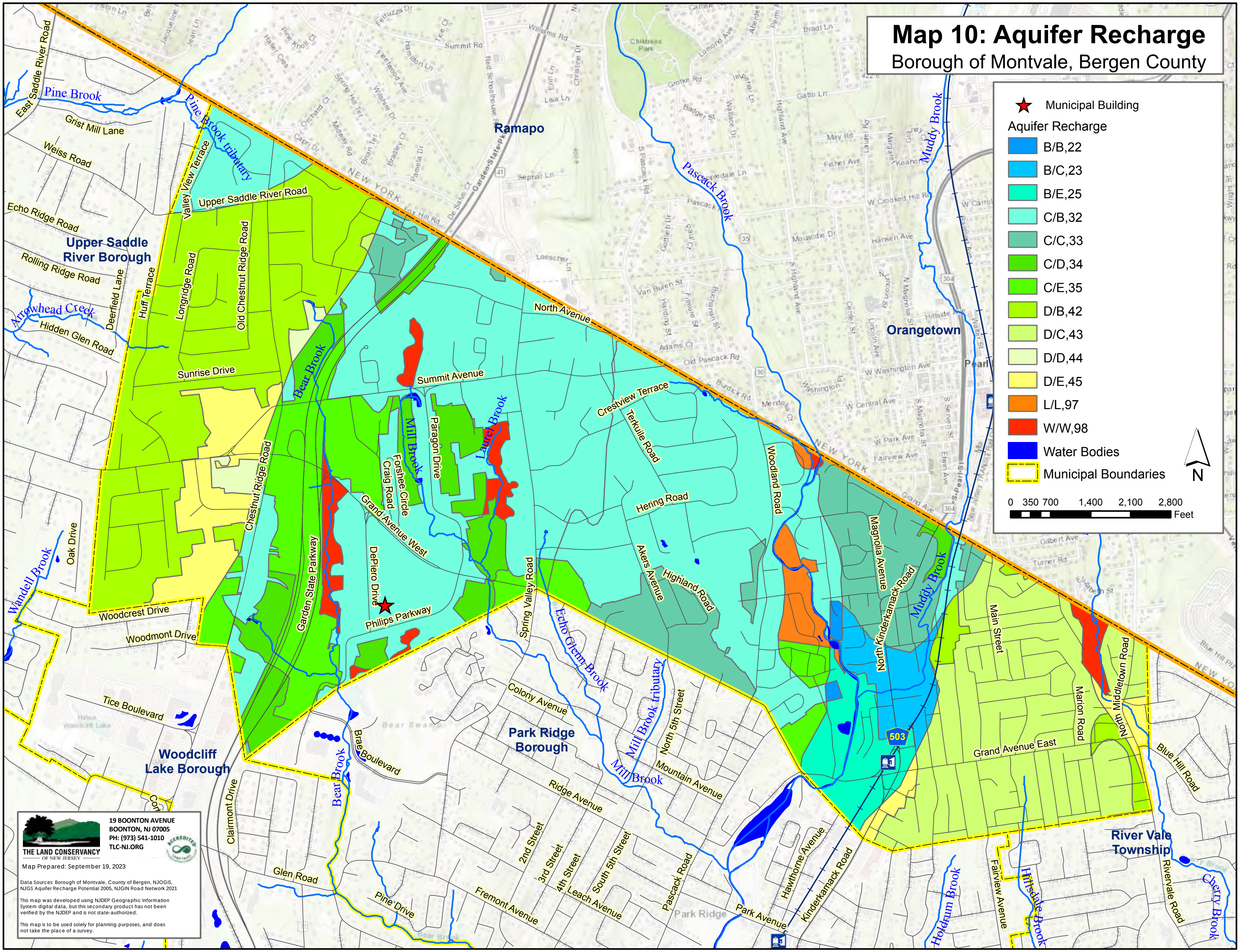
Map 10: Aquifer Recharge
Borough of Montvale, Bergen County
Municipal Building
Aquifer Recharge
B/B,22
B/C,23
B/E,25
C/B,32
C/C,33
C/D,34
C/E,35
D/B,42
D/C,43
D/D,44
D/E,45
L/L,97
W/W,98
Water Bodies
Municipal Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Ramapo
Orangetown
Upper Saddle River Borough
Woodcliff Lake Borough
Park Ridge Borough
River Vale Township
NEW YORK
Pine Brook
Pine Brook tributary
Pascack Brook
Muddy Brook
Arrowhead Creek
Bear Brook
Mill Brook
Laurel Brook
Echo Glenn Brook
Mill Brook tributary
Wandell Brook
Holdrum Brook
Hillsdale Brook
Cherry Brook
East Saddle River Road
Grist Mill Lane
Weiss Road
Echo Ridge Road
Rolling Ridge Road
Hidden Glen Road
Valley View Terrace
Upper Saddle River Road
Longridge Road
Old Chestnut Ridge Road
Huff Terrace
Deerfield Lane
Sunrise Drive
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Oak Drive
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Garden State Parkway
Summit Avenue
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
DePiero Drive
Philips Parkway
North Avenue
Crestview Terrace
Terkuile Road
Hering Road
Spring Valley Road
Akers Avenue
Highland Road
Woodland Road
Magnolia Avenue
North Kinderkamack Road
Main Street
Marion Road
North Middletown Road
Grand Avenue East
Blue Hill Road
Colony Avenue
North 5th Street
Mountain Avenue
Ridge Avenue
Brae Boulevard
Clairmont Drive
Glen Road
Pine Drive
Fremont Avenue
2nd Street
3rd Street
4th Street
South 5th Street
Leach Avenue
Pascack Road
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Table 12. Statewide Well Yield Rankings and Bergen County Groundwater Rankings			
Aquifer Rank	**Median Well Yield (Gallons/Minute)**	**Groundwater Rank**	**Average Annual Infiltration (In/Yr)**
A	>500	A	18 to 21
B	>250 to 500	B	12 to 17
C	>100 to 250	C	8 to 11
D	25 to 100	D	1 to 7
E	<25	E	0
There are also hydric soils (L/L), wetlands and open water (W/W) and instances where no recharge is calculated (X/X).			
Source: NJDEP NJGS. Aquifer-Recharge Potential for Bergen County, New Jersey			
Https://www.nj.gov/dep/njgs/geodata/dgs07-1.htm			

Table 13. Aquifer Potential Recharge Rankings			
Alpha Rank	**Numeric Rank**	**Acres**	**Percent**
B/B	22	5	0%
B/C	23	49	2%
B/E	25	73	3%
C/B	32	968	38%
C/C	33	193	7%
C/D	34	134	5%
C/E	35	215	8%
D/B	42	417	16%
D/C	43	323	13%
D/D	44	16	1%
D/E	45	106	4%
L/L	97	29	1%
W/W	98	51	2%
Source: NJDEP NJGS			
The three Alpha Ranks highlighted in gray comprise 67% of Montvale.			

are most prevalent in northern New Jersey where bedrock consists of consolidated fractured bedrock overlain by thick sequences of unconsolidated glacial sediments.

Map 10 shows the distribution of rankings for the Borough. **Table 12** summarizes Aquifer Recharge Rankings for the New Jersey and Groundwater Rankings for Bergen County.

67% of Montvale is ranked as either C/B, C/C or C/E (**Table 13**). These ranks have a well yield potential ranging 25-250 gpm and a groundwater infiltration rate between 8-17 in/yr.

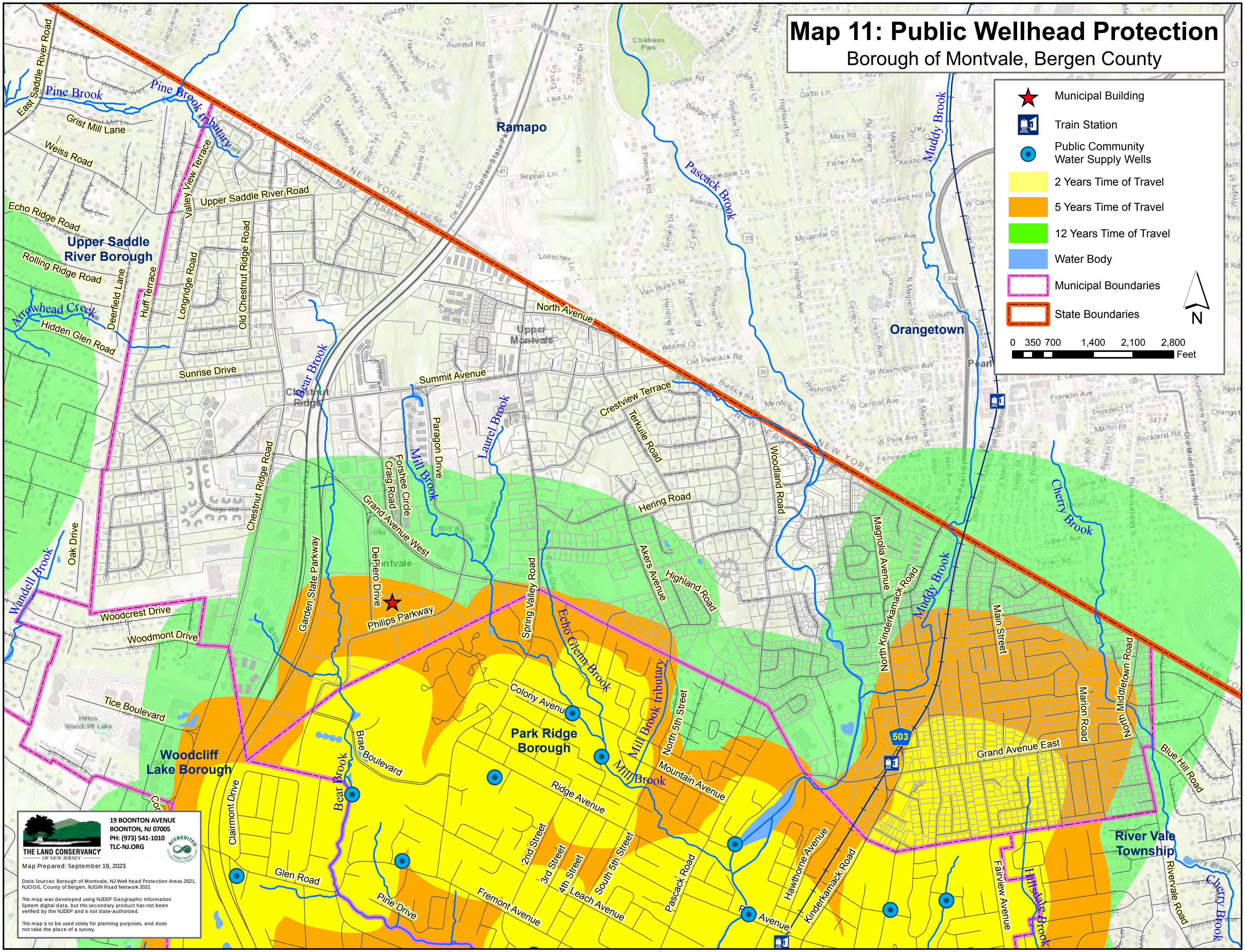
Public Water Supply and Wellhead Protection

Wellhead Protection Areas (WPAs) are delineated for both public community and non-community wells.[41] The delineations for these wells are two, five, and 12-year tiers. Each tier represents the horizontal extent of groundwater captured by a well pumping at a specific rate over those periods of time.

The 1986 Federal Safe Drinking Water Act Amendments (Section 1428, P/L. 93-523, 42 USC 300 et. seq) directed all states to develop a Well Head Protection Program (WHPP) Plan for both public community (CWS) and public non-community (NCWS) water supply wells. A component of the WHPP is the delineating of Well Head Protection Areas. This delineation is the first step in defining the sources of water to a public water supply to prevent and clean up groundwater contamination.

There are no public water supply wells located within Montvale (NJDEP).[42] There are public wellheads in neighboring Park Ridge with the time of travel to these wells extending northwards into the Borough, with greatest sensitivity (2 years time of travel) towards Grand Avenue East (**Map 11**). Some residents in Montvale may have private wells.

Veolia Water New Jersey, Inc. (previously Suez Water; acquired by merger in 2022) is the Borough's water utility provider. According to the 2021 Annual Drinking Water Quality Report, “Customers in Pressure District 95 in Montvale receive their water from our New York Operations. About 70% of the water supply is from various wells located throughout Rockland County, New York, and the remaining 30% is surface water supply from the Lake DeForest and Letchworth reservoirs.”[43] In 2004, the New York State Department of Health (NYSDOH) completed a source water assessment which developed susceptibility ratings for potential contamination. This assessment found that the 60 wells from which Montvale’s water is derived, “have a high susceptibility to microbials, nitrates, and industrial solvents and a high susceptibility to other industrial contaminants. These ratings are due primarily to the close proximity of permitted discharge facilities (industrial/commercial facilities that discharge wastewater into the environment and are regulated by the state and/or federal government) to the wells and the associated industrial activity in the assessment area. In addition, some of the wells draw from fractured bedrock and the overlying soils do not provide adequate protection from potential contamination.”[44]


Map 11: Public Wellhead Protection
Borough of Montvale, Bergen County
Municipal Building
Train Station
Public Community Water Supply Wells
2 Years Time of Travel
5 Years Time of Travel
12 Years Time of Travel
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Ramapo
Upper Saddle River Borough
Orangetown
Upper Montvale
Chestnut Ridge
Montvale
Park Ridge Borough
Woodcliff Lake Borough
River Vale Township
Pine Brook
Pine Brook tributary
Pascack Brook
Muddy Brook
Arrowhead Creek
Bear Brook
Mill Brook
Laurel Brook
Cherry Brook
Wandell Brook
Echo Glenn Brook
Mill Brook tributary
Hillsdale Brook
East Saddle River Road
Grist Mill Lane
Weiss Road
Valley View Terrace
Upper Saddle River Road
Echo Ridge Road
Rolling Ridge Road
Deerfield Lane
Huff Terrace
Longridge Road
Old Chestnut Ridge Road
Hidden Glen Road
Sunrise Drive
Summit Avenue
North Avenue
Crestview Terrace
Terkuile Road
Woodland Road
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
Hering Road
Akers Avenue
Highland Road
Chestnut Ridge Road
Garden State Parkway
DePiero Drive
Philips Parkway
Spring Valley Road
Oak Drive
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Magnolia Avenue
North Kinderkamack Road
Main Street
Marion Road
North Middletown Road
Grand Avenue East
Blue Hill Road
Colony Avenue
Brae Boulevard
North 5th Street
Mountain Avenue
Ridge Avenue
Clairmont Drive
Glen Road
Pine Drive
Fremont Avenue
2nd Street
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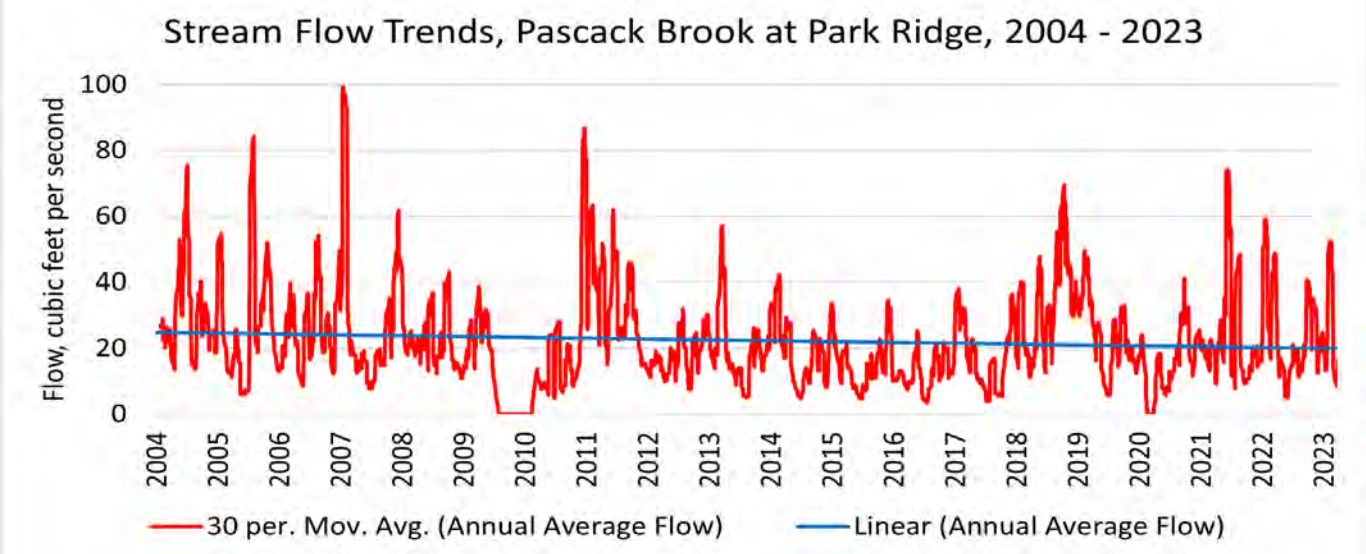


Figure 6. Figure 6. Stream Flow of the Pascack Brook, 2004 - 2023, USGS

Despite the high susceptibility ratings for these drinking water wells, the laboratory water quality testing results for 2021 did not reveal contaminant exceedances above the regulatory limits for Primary Standards (which include inorganic contaminants, disinfectants, and radionuclides).

Stream Flow

One of the major streams in Montvale, the Pascack Brook, has had a gauge measuring its flow since 2004.[45] **Figure 6** shows a 1-month moving average (red line) of stream flow at this station, with regular seasonal variation and recent major periods of high flow in 2007, 2011, 2018, and 2021. The overall trend for the entire period (blue line) is a slight decrease in flow. The station is located a few hundred feet downstream of Montvale in Park Ridge (**Figure 7**).

Peak flows measure the volumetric flow rate of water passing through a given point. The USGS provides detailed information on current and historic trends, daily data, annual statistics, and peak streamflow.[46]

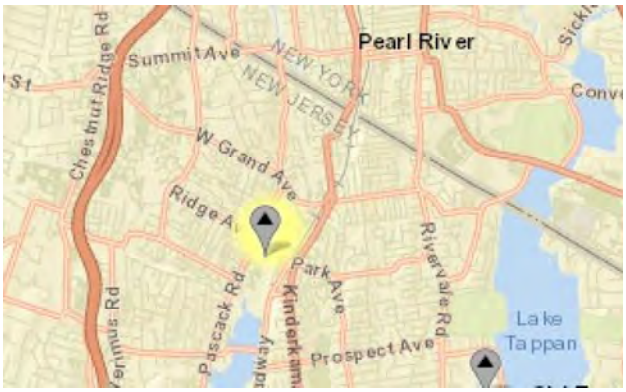


Figure 7. Pascack Brook Stream Gage

For this station, peak flow has been measured from 1945 through 2018, with high rates of discharge noted in 1999 for Hurricane Floyd (which was affected by a dam failure) and in 2011 (Hurricane Irene).

Granular hour-by-hour data for stream flow from the Pascack Brook at Park Ridge station can be downloaded from the USGS here.

Source: https://maps.waterdata.usgs.gov/mapper/index.html

Huff Park Pond, Borough of Montvale Environmental Commission

Chapter 7.

Wetlands

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

The NJDEP defines a freshwater wetland as an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

In designating a wetland, three-parameters are used: hydrology, soils, and vegetation (enumerated in the 1989 Federal Manual, N.J.A.C. 7:7A).[47]

NJDEP has adopted this manual as the technical basis for identifying and delineating wetlands.

The NJDEP regulates virtually all activities in a wetland, including removing vegetation, filling, and placing obstructions. Depending on the environmental attributes of a wetland, there may be a transition area, or buffer, around the wetland that will require a waiver issued by the NJDEP for any activity within that zone. A wetland containing endangered species habitat would require a 150-foot wide transition area, whereas a small wetland in a ditch might not require any transition area at all. Most freshwater wetlands require a 50-foot buffer.

Wetlands in New Jersey are classified as exceptional resource value, ordinary resource value, or intermediate resource value.

Exceptional Resource Value Wetland

- Dischargers into FW-1 water and FW-2 trout producing waters and their tributaries;
- Is a present habitat for threatened or endangered species; or
- Is a documented habitat for threatened or endangered species, and remains suitable for breeding, resting, or feeding by the species during the normal period these species would use the habitat.

Ordinary Resource Value Wetland

A freshwater wetland which does not exhibit any of the characteristics of an Exceptional Resource Value Wetland, and which is one of the following:

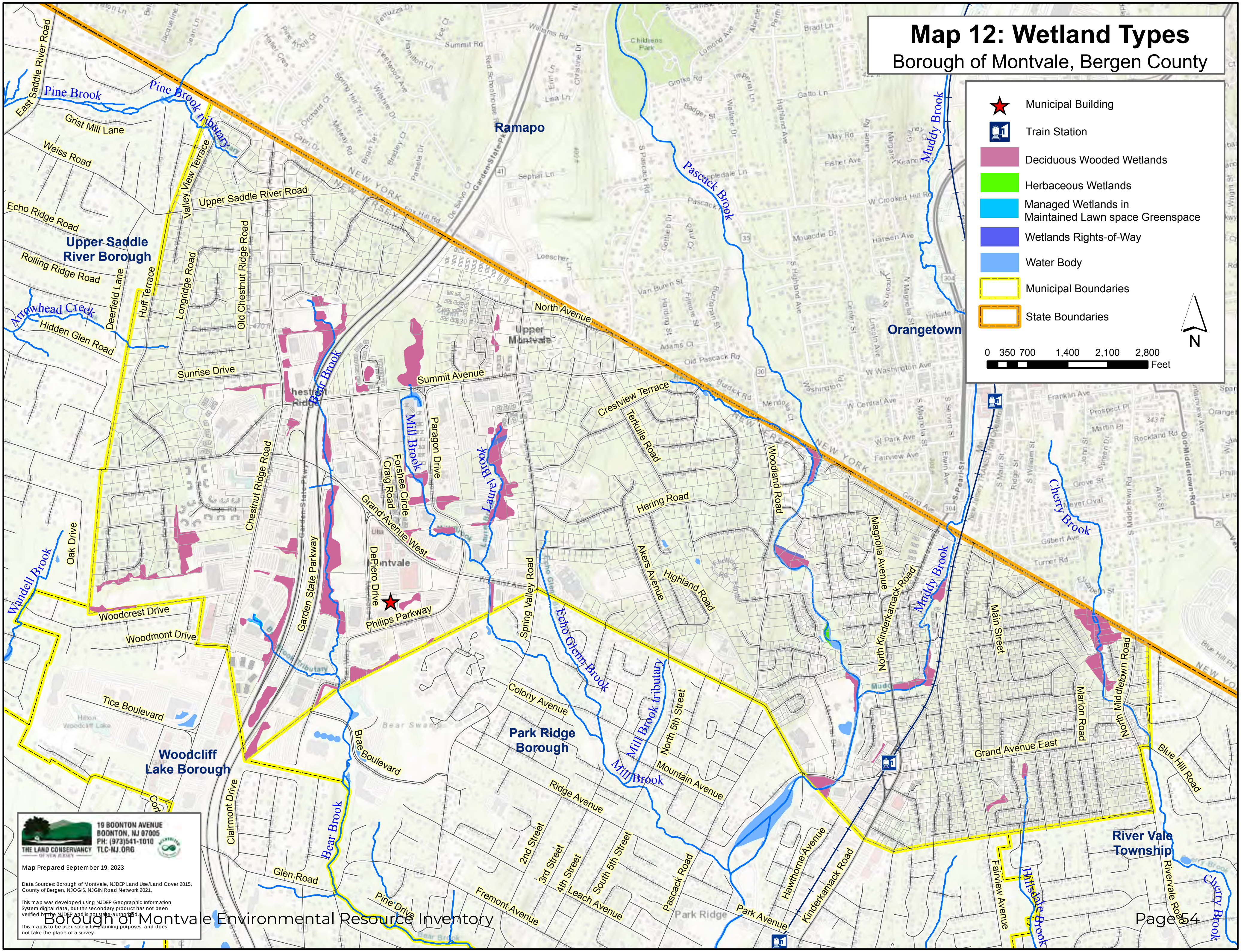
- An isolated wetland (as defined at N.J.A.C. 7:7A-1.4) smaller than 5,000 square feet, with the following uses covering more than 50% of the area within 50 feet of the wetland boundary: lawns, maintained landscaping, impervious surfaces, active railroad right-of-way, and graveled or stoned parking/storage area and roads. In calculating the area covered by a use, NJDEP will only consider a use that was legally existing in that location prior to July 1, 1988, or was permitted under this chapter since that date.
- A drainage ditch.
- A swale.
- A detention facility that was uplands at the time it was created regardless of the wetland resource classification of the wetlands under these rules, or classification of the body of water, as FW-1 or FW-2 trout production, to which it discharges.

Intermediate Resource Value Wetland

- A freshwater wetland of intermediate resource value is any wetland not defined as exceptional or ordinary.

According to the NJDEP Land Use/ Land Cover data, the Borough contains 99 acres of wetlands, 97 acres of which are classified as deciduous wooded wetlands (**Map 12**). These areas are largely concentrated in the Borough's western half, along the Bear Brook adjacent to the Parkway and along the Mill Brook and Laurel Brook east of the Parkway. There are some small areas along the Pascack Brook, Muddy Brook, and Cherry Brook. One of the larger contiguous patches of wetland is located on the Mill Brook north of Summit Avenue, on property held by the Borough as of 2023.

Wetland mapping from NJDEP is approximate, and unmapped wetlands may exist within the Borough and would still be subject to NJDEP regulations. Wetlands require a professional delineation before a regulated activity can occur in or around them.


Map 12: Wetland Types
Borough of Montvale, Bergen County
Municipal Building
Train Station
Deciduous Wooded Wetlands
Herbaceous Wetlands
Managed Wetlands in Maintained Lawn space Greenspace
Wetlands Rights-of-Way
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
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Ramapo
Orangetown
Upper Saddle River Borough
Woodcliff Lake Borough
Park Ridge Borough
River Vale Township
Upper Montvale
Montvale
Pine Brook
Pine Brook tributary
Arrowhead Creek
Wandell Brook
Bear Brook
Mill Brook
Laurel Brook
Echo Glenn Brook
Mill Brook tributary
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Muddy Brook
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Weiss Road
Echo Ridge Road
Rolling Ridge Road
Hidden Glen Road
Deerfield Lane
Huff Terrace
Valley View Terrace
Upper Saddle River Road
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Old Chestnut Ridge Road
Sunrise Drive
Chestnut Ridge Road
Oak Drive
Woodcrest Drive
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North Avenue
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3rd Street
4th Street
Leach Avenue
South 5th Street
Pascack Road
Park Avenue
Hawthorne Avenue
Kinderkamack Road
Fairview Avenue
Rivervale Road

Memorial Trail, Borough of Montvale Environmental Commission

Chapter 8.

Riparian Areas & Flood Zones

The lands immediately along waterways serve especially critical roles in the mitigation of downstream flooding and maintenance of healthy stream ecology. Development within these lands can cause environmental damage and expose people to flood risk. Because of their importance, these lands are subject to regulation from multiple different authorities. Riparian zones and flood zones are overlapping regulated areas by the NJDEP and other agencies.

Riparian Zones

A riparian zone comprises the land and vegetation within and adjacent to surface waters regulated by NJDEP.[48] As a baseline, riparian zones include all such lands within 50 feet of any NJDEP regulated waters. Riparian zones are expanded to 150 feet around the following waters:

- Any trout production water and all upstream waters
- Any trout maintenance water and all upstream waters within one mile of a trout maintenance water
- Waters which flow through an area of habitat for threatened or endangered species, and waters within one mile of such habitat

The widest riparian zone buffer, 300 feet, is applied to Category One waters and all upstream waters within the same watershed. All these definitions also include tributaries, and buffers are measured from the top of the waterway's banks.

In April 2020, NJDEP's Division of Water Monitoring and Standards adopted a new rule that expands C1 waters designation to 600 miles of rivers and waterways in the state. This rule accordingly widened the riparian zone around those waterways newly listed as C1 waters. While this rule may not directly impact Montvale, increased protections of waterways will benefit water quality across the State.

Flood Zones

Federal, state, and municipal governments oversee areas prone to flooding through various acts, laws, and ordinances. The intent is to minimize property damage and negative ecological effects by limiting development and protecting positive environmental influences in areas subject to frequent flooding.

At the federal level, the USGS maps flood prone areas and the Federal Emergency Management Agency (FEMA) evaluates and maps Special Flood Hazard Areas (SFHAs) that can be used in participating communities to determine flood insurance rates.[49] On the state level, the NJDEP delineates Flood Hazard Areas along streams and regulates activities within these areas. In recent years, FEMA and the state have coordinated to integrate NJDEP flood hazard area parameters into FEMA updates. Municipal code may set standards that are stricter than either the state or FEMA.

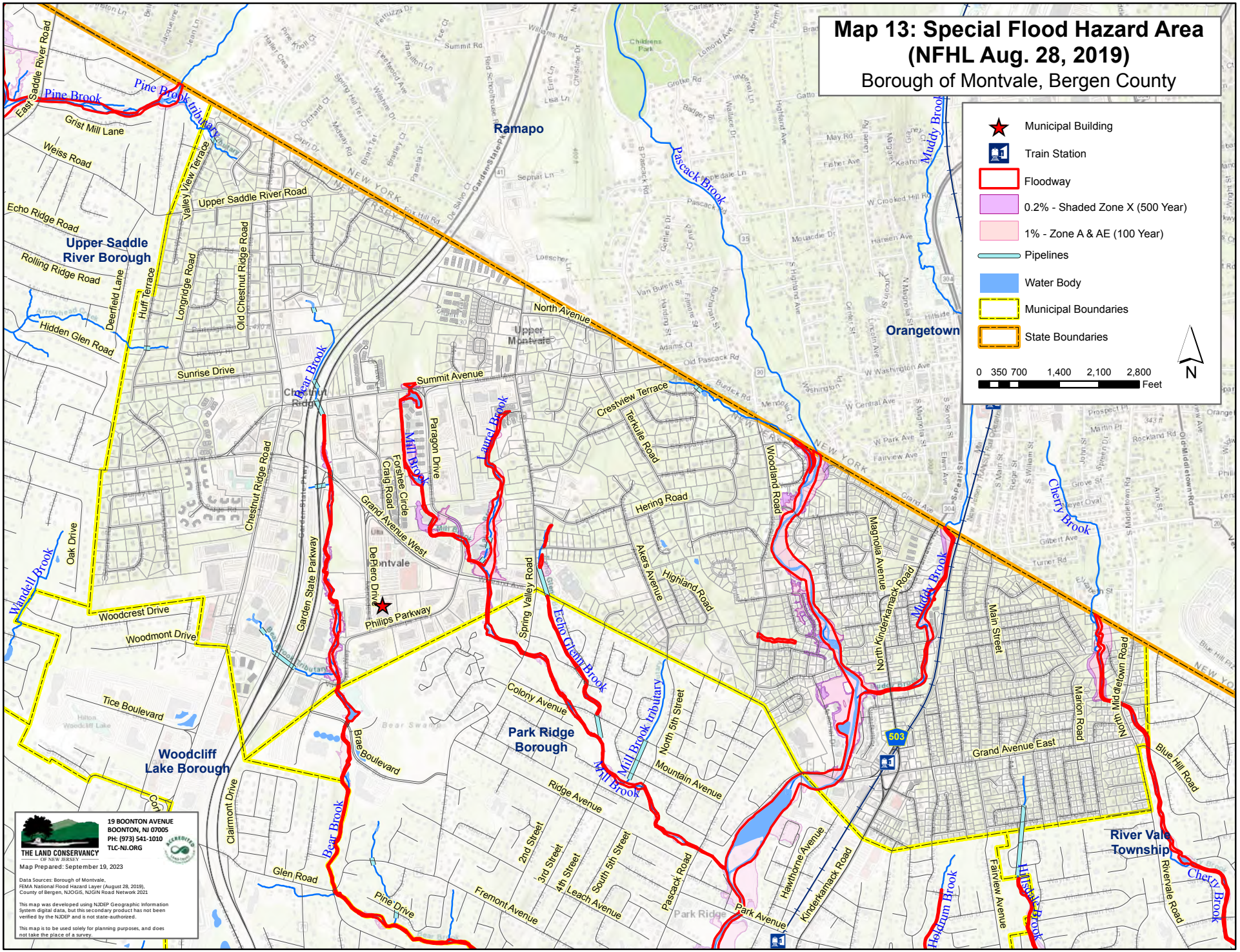
There are different methods of delineating SFHAs and Flood Hazard Areas, but the two terms are intended to mean the same thing. These areas include all lands which would be underwater in a 100-year flood, meaning a flood level which is expected to only occur every 100 years. These areas have a 1% chance each year of being completely flooded. Estimates for 100-year floods do include a small margin of safety to factor in potential increased flow due to upstream development. SFHAs are delineated and regulated for waterways with a drainage area of 50 acres are greater.

FEMA Mapping and Flood Insurance Program

SFHAs are used by FEMA, along with other flood zones, to create Flood Insurance Rate Mapping (FIRM) for participating communities, such as Montvale, to determine flood insurance rates.[50] Communities can choose to participate in the National Flood Insurance Program (NFIP), which requires mandatory flood insurance in areas mapped as SFHAs.[51] In addition to the SFHAs, NFIP mapping also delineates 500-year flood zones and various sublevels within the 100-year zone. As shown on **Map 13**, the Borough of Montvale contains 14 acres of land including 100 homes within the 500-year flood zone (0.2% chance of an annual flood, also known as the Shaded Zone X) and 89 acres within the 100-year flood zone (1% chance of an annual flood, Zones A and AE).

NJDEP Regulations

NJDEP regulates floodprone areas through the Flood Hazard Area Control Act, N.J.A.C. 7:13, last amended on October 5, 2021.[52] The act recognizes the importance of not only avoiding building in unsafe places, but also preserving vegetation that is considered essential for maintaining bank


Map 13: Special Flood Hazard Area
(NFHL Aug. 28, 2019)
Borough of Montvale, Bergen County
Municipal Building
Train Station
Floodway
0.2% - Shaded Zone X (500 Year)
1% - Zone A & AE (100 Year)
Pipelines
Water Body
Municipal Boundaries
State Boundaries
0 350 700 1,400 2,100 2,800
Feet
N
Upper Saddle River Borough
Ramapo
Orangetown
Park Ridge Borough
Woodcliff Lake Borough
River Vale Township
Pine Brook
Pine Brook tributary
East Saddle River Road
Grist Mill Lane
Weiss Road
Echo Ridge Road
Rolling Ridge Road
Deerfield Lane
Huff Terrace
Valley View Terrace
Longridge Road
Upper Saddle River Road
Old Chestnut Ridge Road
Hidden Glen Road
Sunrise Drive
Chestnut Ridge Road
Oak Drive
Wandell Brook
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Clairmont Drive
Glen Road
Pine Drive
Fremont Avenue
Bear Brook
Bear Brook tributary
Garden State Parkway
North Avenue
Upper Montvale
Summit Avenue
Crestview Terrace
Terkuile Road
Hering Road
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
Mill Brook
Laurel Brook
DePiero Drive
Philips Parkway
Spring Valley Road
Echo Glenn Brook
Colony Avenue
Brae Boulevard
Ridge Avenue
Mill Brook tributary
North 5th Street
Mountain Avenue
2nd Street
3rd Street
4th Street
South 5th Street
Leach Avenue
Pascack Road
Park Avenue
Hawthorne Avenue
Kinderkamack Road
Heldrum Brook
Fairview Avenue
Hillsdale Brook
Riverdale Road
Cherry Brook
Pascack Brook
Muddy Brook
Woodland Road
Akers Avenue
Highland Road
Magnolia Avenue
North Kinderkamack Road
Main Street
Marion Road
Middletown Road
Grand Avenue East
Blue Hill Road
503
19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973) 541-1010
TLC-NJ.ORG
THE LAND CONSERVANCY OF NEW JERSEY
Map Prepared: September 19, 2023
Data Sources: Borough of Montvale, FEMA National Flood Hazard Layer (August 28, 2019), County of Bergen, NJOGIS, NJGIN Road Network 2021
This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.
This map is to be used solely for planning purposes, and does not take the place of a survey.

The full rules governing delineation and regulation of flood hazard areas are included in Title 7, Chapter 13 of the New Jersey Administrative Code, available on NJDEP's website.

Source: https://dep.nj.gov/wp-content/uploads/wlm/downloads/fha/njac7_13.pdf

stability and water quality. The rules set standards for development in flood hazard areas and land adjacent to surface water to mitigate the adverse impacts of flooding caused by this type of activity. NJDEP regulated activities in a flood hazard or riparian are include: (per N.J.A.C. 7:13-2.4)

1. The alteration of topography through excavation, grading, and/or placement of fill.

2. The clearing, cutting, and/or removal of vegetation in a riparian zone.

3. The creation of impervious surface.

4. The storage of unsecured material.

5. The construction, reconstruction and/or enlargement of a structure.

6. The conversion of a building into a private residence on a public building.

The appropriate permit must be obtained in order to engage in any of these activities in a regulated area. There are several different categories of permits: permits by rule, general permits and individual permits. There are also area specific standards, depending on whether or not the area includes a channel, floodway, flood fringe, fishery resource, threatened and endangered species, or acid producing soils. Construction is not necessarily prohibited in a regulated area, but the permit is required. More specific regulations depend on what portion of the flood hazard area a piece of land falls in, and whether it is a riparian zone.

Inland Flood Protection Rule

On July 17, 2023, a new rule from the NJDEP known as the Inland Flood Protection Rule took effect.[53] This rule updates the methods of delineating Flood Hazard Areas (FHA) to account for changes to stormwater flow due to climate change and the impact of upstream development. By expanding the FHAs, these standards increase the amount of land where NJDEP has the authority to regulate development. Specifically, the rules expand the FHA to include all lands up to two feet higher than current 100-year flood areas in NJDEP maps, and three feet higher than current 100-year flood areas in FEMA maps. The new rule also requires that all new major developments address stormwater runoff using an updated NJDEP data set for peak flow rates of streams and rivers. This new data accounts for recent changes in the region's precipitation patterns since the data was last updated in 1999. In connection with this rule, the NJDEP has created an online Flood Indicator Tool which provides information about potential flood risk on or near a property of interest. It does not show precise DEP standards, calculate actual risk, or demarcate a zone where DEP regulations apply. It is intended only as a reference.

Flood Disclosure

On July 3, 2023, Bill S3110/A4783, also known as the Flood Disclosure Bill, became law.[54] This new legislation, which took effect in the Fall of 2023, adds a new tool for home buyers and renters across the state. The law requires that landlords and home sellers disclose flood risk to prospective tenants or buyers. This includes the property's history of flooding and its location in a FEMA-designated (100-year or 500-year) Flood Hazard Area. Additionally, the law requires landlords to notify tenants of the availability of insurance for renters through the National Flood Insurance Program.

Montvale Municipal Planning

To address flooding concerns, the Borough established a Tree Removal Ordinance in 2018 (Ord. No. 2018-1445) and the Stormwater Management Ordinance in 2020 (Ord. No. 2020-1490).[55, 56] Concurrent with this goal, Montvale has also incorporated environmentally constrained land into its open space inventory in order to preserve the environment and increase open space. Since 2008, the Borough has acquired, by both donation and purchase, 28 acres of contiguous property with such features located off of Summit Avenue. As of 2023, the 28 acres remain undeveloped.

2020 Municipal Stormwater Management Plan: Addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development (defined as projects that disturb one or more acre of land).[57] The plan included a series of proposed amendments to Montvale's municipal land code to address nonstructural stormwater management strategies, including various changes to the Stormwater Management Ordinance; standards within the T-6 Townhouse Zoning District (400-21); the definition of buffer areas (400-8(B)); and the planting of shade trees (352-52).

2020 Stormwater Management Ordinance No. 2020-1490: Outlines a series of design and performance standards for green infrastructure best management practices and nonstructural stormwater management strategies to achieve flood control, groundwater recharge, and pollutant reduction. The Stormwater Management Ordinance is based on NJDEP's Model Municipal Stormwater Control Ordinance, published in March 2020 and NJDEP's Stormwater Management Regulations (N.J.A.C. 7:8) most recently updated in March 2021.[58]

2019 Floodplain Damage Prevention Ordinance No. 2019-1472: In order to reduce flood hazards in Montvale, this chapter requires new construction and substantial improvements to be anchored and employ methods during the subdivision and construction process that minimize/avoid flood damage to buildings and utilities.[59]

1979 Subdivision of Land Ordinance No. 79-695: Applicants of the land subdivision process are required to illustrate the 100-year flood hazard area boundary on the preliminary plat for a minor or major subdivision. Applicants must also prepare an Environmental Impact Statement which includes a description of potential flood conditions or damages.

Montvale Train Station Foliage

Chapter 9.

Climate

Prevailing Air Currents in New Jersey and Climate Zone

Atmospheric circulation over North America is dominated by prevailing westerly winds which move air from west to east in a broad, undulating flow. New Jersey's weather is substantially influenced by the north-south movement of these westerly currents, and the variation in their strength throughout the year.[60] This variation results in the state being influenced by wet, dry, hot, and cold airstreams changing from day to day.

The Office of the New Jersey State Climatologist (ONJSC) divides New Jersey into five distinct climate zones, each of which experiences distinct variations in the daily weather due to differences in geology, distance from the Atlantic Ocean, and prevailing atmospheric flow patterns. The Borough of Montvale falls in the Central climate zone, which stretches along the Hudson River and southwest across the state to Trenton.

With major traffic arteries and urban development, much of this region's climate is marked by the prevalence of buildings and paved surfaces, which retain heat. The northern edge of the central zone, where Montvale lies, is often the boundary between snow and rain during wintertime, and comfortable or uncomfortable nighttime temperatures.

Temperature and Precipitation

The National Oceanic and Atmospheric Administration (NOAA) divides New Jersey into three climate divisions.[61] Montvale falls in the Division 1 (Northern) of New Jersey, which encompasses the counties of Bergen, Morris, Somerset, Essex, Hudson, Passaic, Sussex, Union, Warren, and Hunterdon.

The ONJSC gathers temperature and precipitation data from monitoring stations throughout the state, with some sites records dating back to the 1890s and many sites with more than 50 years of continuous data. This data is used to calculate averages at the division and county level. Statistics are also available for individual monitoring stations, with the stations closest to Montvale in Woodcliff Lake and New Milford.

ONJSC monitoring stations track a variety of climate factors, namely temperature, precipitation, snowfall, and heating and cooling degree days. Not all stations track all factors.

Heating and cooling degree days measure the extent to which outside temperatures required energy use to maintain a comfortable indoor temperature of 65°F in a given year. For example, a 20° day in January has 45 heating degrees. The heating degrees for each day of a year are added up to calculate the number of heating degree days for that year.

Data for Division 1 show an upward trend in temperature over the last 20 years (**Figure 8**), with a decrease in heating degree days (**Figure 9**) and an increase in cooling degree days (**Figure 10**).

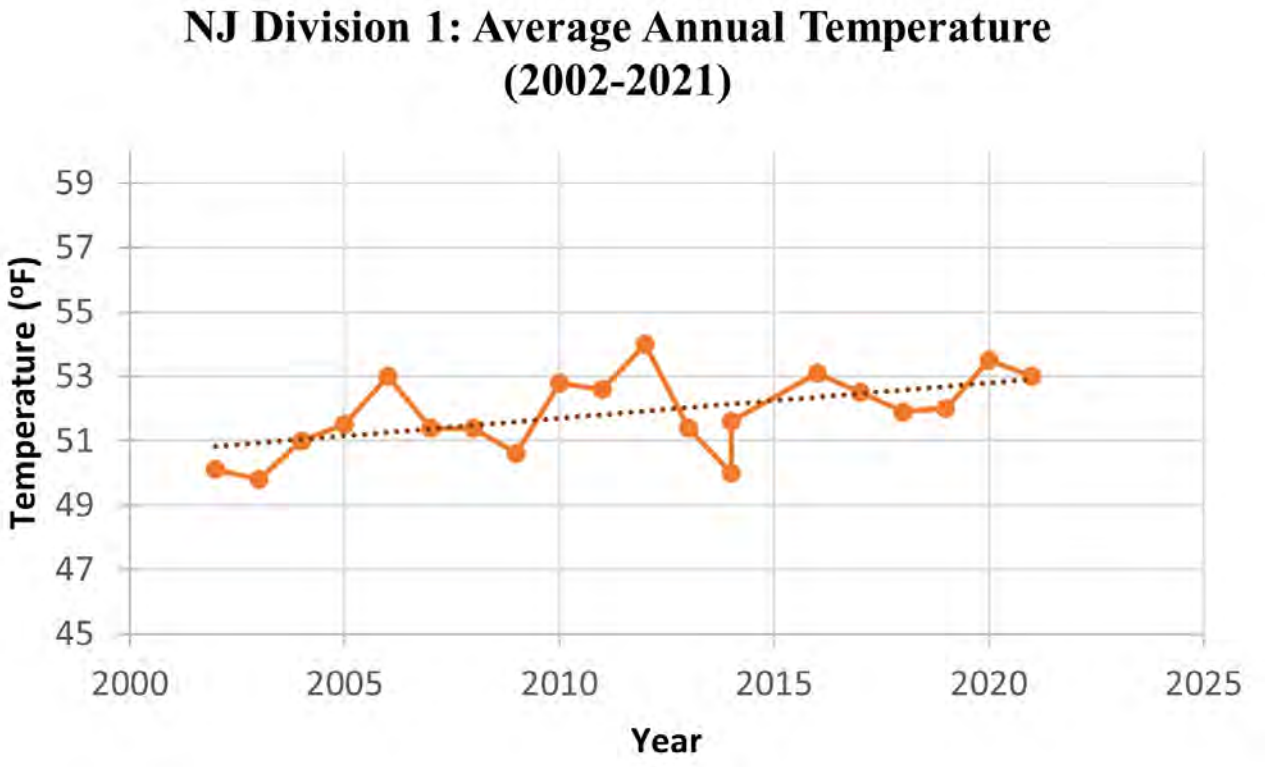


Figure 8. New Jersey Division 1, Average Annual Temperature 2002 - 2021, Rutgers

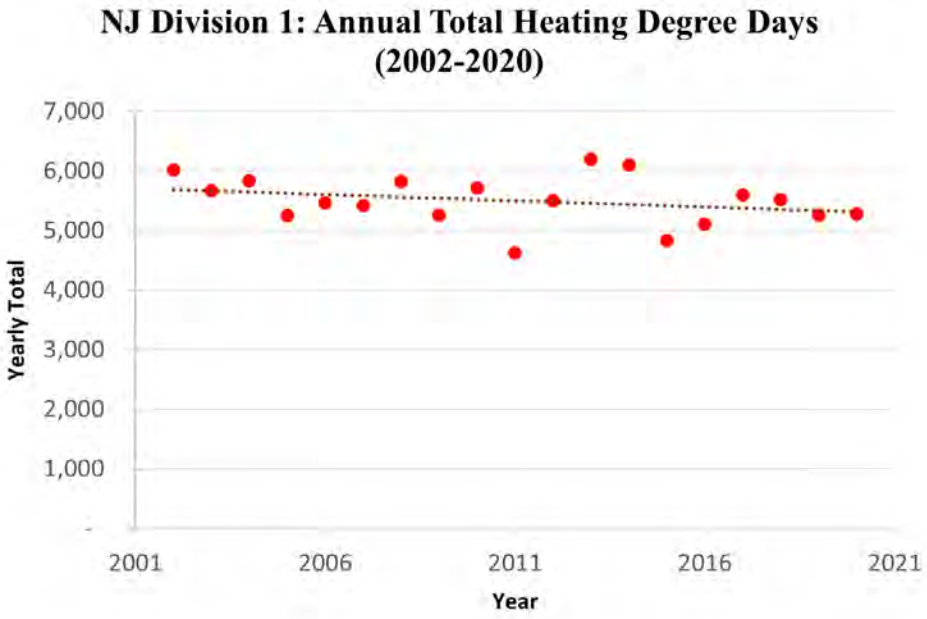


Figure 9. New Jersey Division 1, Annual Heating Degree Days 2002 - 2021., Rutgers

Figure 11 shows a slight downward trend in precipitation over the last 20 years in Division 1, although precipitation during these years remains higher than the average from the previous century.

In Bergen County between 1895 and 2023, the average annual temperature has risen from 41°F to 45°F (**Figure 12**). Annual precipitation in Bergen County has also risen gradually over the same time period, from 46 inches to 50 (**Figure 13**). Precipitation has also shown more extremes in recent years. In 2011, for example, Hurricane Irene contributed to an all-time record of 73 inches of precipitation in one year.

The stations with a substantial snowfall dataset closest to the Borough are Newark Airport, Raymond Dam station in Wanaque, and the Canoe Brook station in Short Hills. Newark Airport, however, may be subject to more of an urban heat island effect than Montvale, and Raymond Dam is at higher elevation in a different ONJSC climate zone. Canoe Brook is over 30 miles from Montvale, but it may be considered similar because it is in the same ONJSC climate zone, lies at similarly low elevation, and is in a similar medium-density suburban area. Its records, spanning 1954 to the present, show a minimum annual snowfall of 7.8 inches in 1972 and a maximum of 74.8 inches in 1960 (**Figure 14**).

The closest weather station to Montvale which records temperature and precipitation is at Teterboro

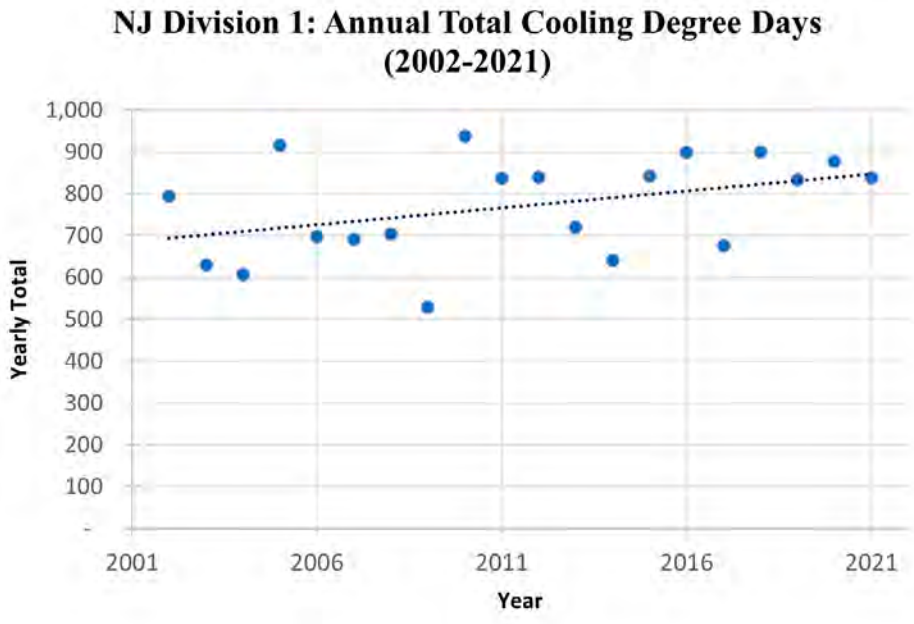


Figure 10. New Jersey Division 1, Annual Cooling Degree Days 2002 - 2021, Rutgers

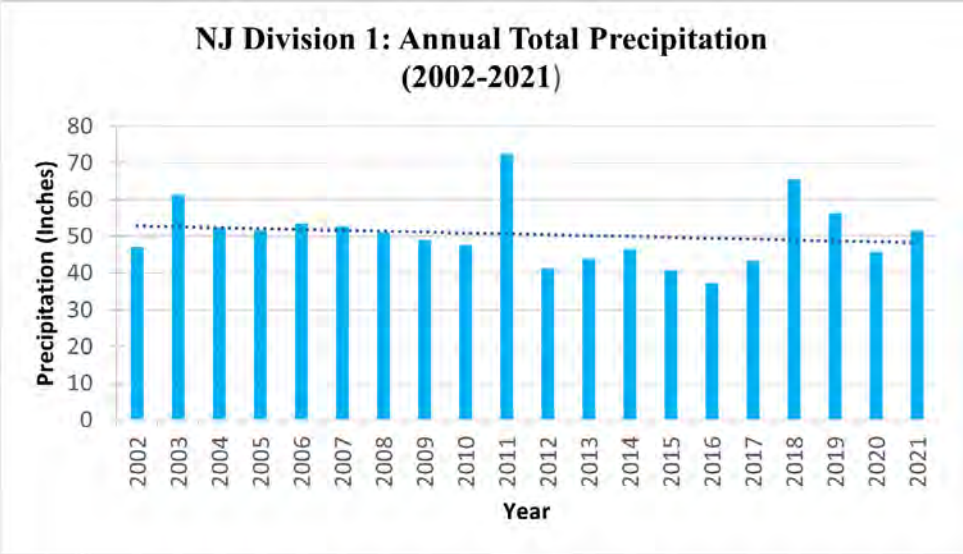


Figure 11. New Jersey Division 1, Annual Precipitation 2002 - 2021., Rutgers

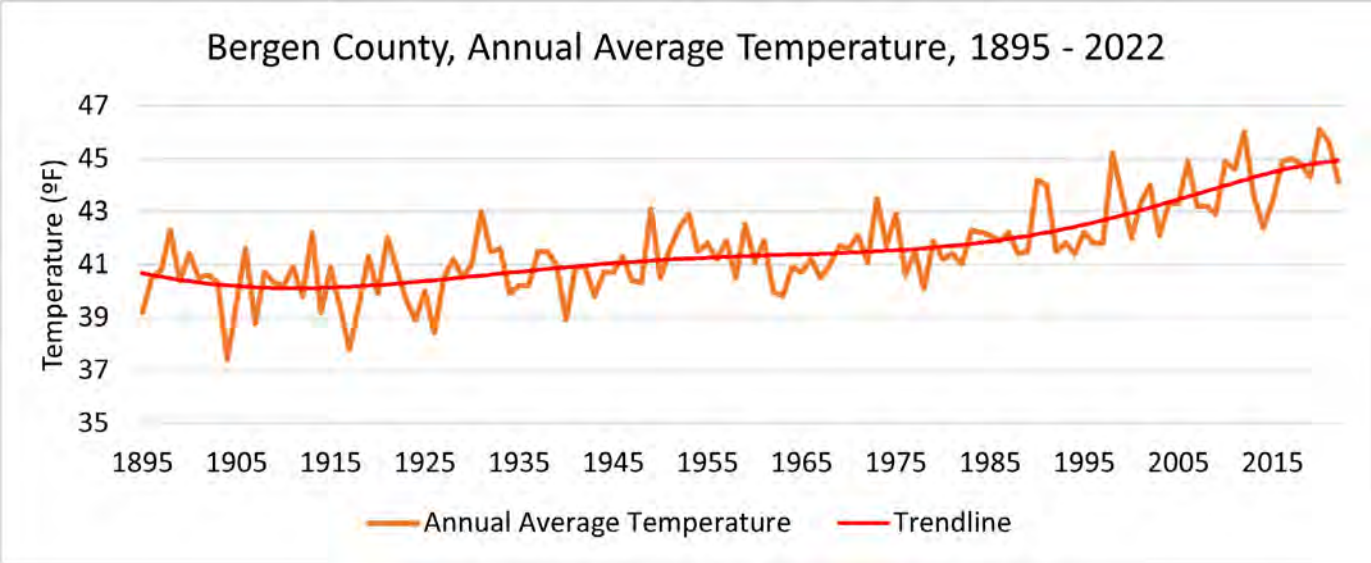


Figure 12. Bergen County, Annual Average Temperature 1895 - 2022, Rutgers

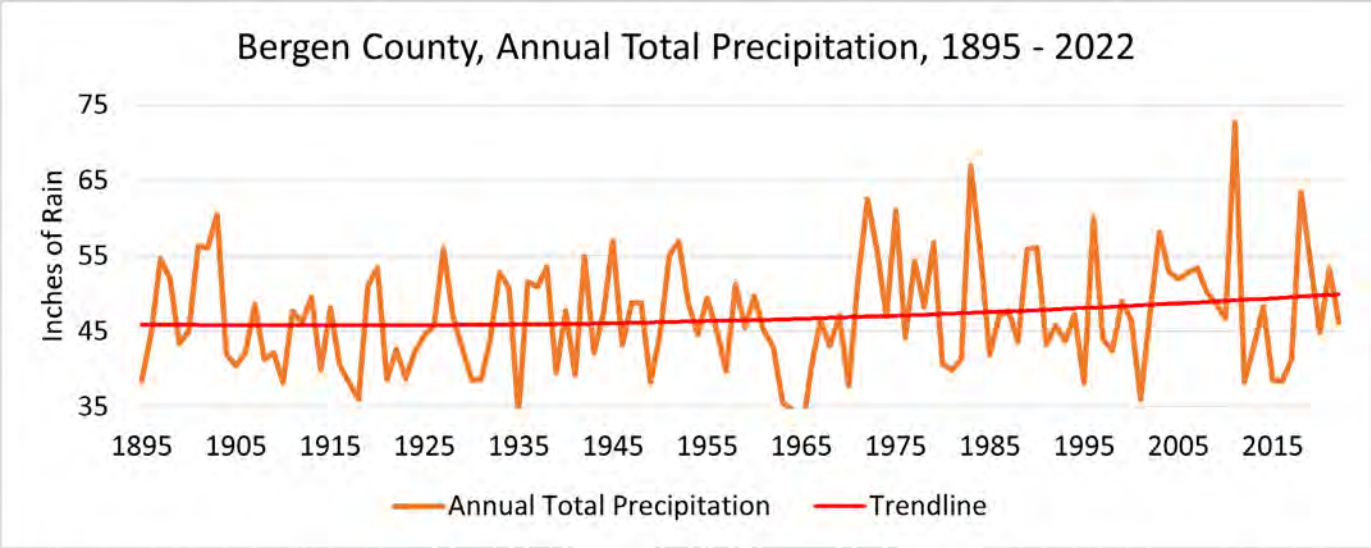


Figure 13. Bergen County, Annual Total Precipitation 1895 - 2022, Rutgers

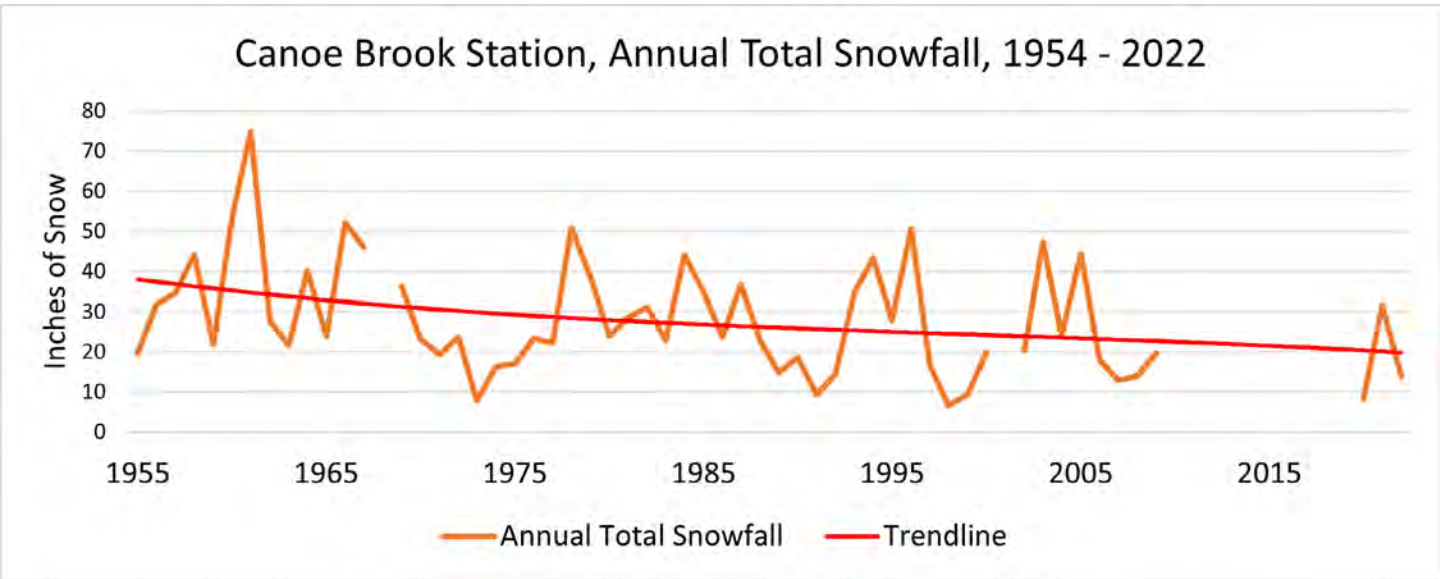


Figure 14. Canoe Brook Station, Total Annual Snowfall 1954 - 2022, Rutgers

Airport. For that station, all-time records for temperature and precipitation extremes are shown in **Table 14**. Data is available from 1970 to 2023 for temperature and from 1974 to 2023 for precipitation. Monthly records indicate the year in which the highest measurement for a given month was taken. The daily high temperatures in May 2015 were, for example, higher than the daily highs for any other May since record-keeping began in 1970. Years since 2010 are highlighted to show that record-breaking years are not evenly distributed across the whole period of record. The data show that out of 12 months in the year, since 2010:

- 7 months have experienced their hottest average daily highs.

Table 14. Year in Which All-Time Monthly Records Were Recorded, Teterboro Airport

Month	Temperature (1970 - 2023)			Highest Total Rainfall (1974 - 2023)
	Highest Average Daily High	Highest Average Daily Low	Highest Monthly Average	
January	2023	2023	2023	1999
February	2017	1998	2017	2008
March	2012	2012	2012	1983
April	2010	2017	2010	2007
May	2015	2012	2015	1984
June	2008	1973	2005	2009
July	1999	2013	2011	2004
August	2016	2018	2005	2011
September	2005	2018	2015	1999
October	2017	2017	2017	2005
November	2001	2006	2015	1977
December	2015	2015	2015	1996

Source: Office of the New Jersey State Climatologist

Note: Highlighting indicates years since 2010. Monthly data accessed as of April 2023.

- 9 months have experienced their hottest average daily lows.
- 9 months have experienced their hottest average temperature.
- No months have experienced their highest amount of precipitation.
- More records have been set in recent years for average daily lows than average daily highs, meaning that nights are warming faster than days.

This data shows that the region is getting hotter and more extreme, with higher annual temperatures, more precipitation, greater precipitation fluctuations, record-high monthly average temperatures and lows, and decreasing snowfall.

Drought

Montvale is a generally water-rich environment with frequent and substantial precipitation, and annual rainfall in the region is increasing. While annual precipitation totals have increased, however, the distribution of precipitation has changed. Large storms, such as Hurricane Irene, are occurring more frequently and dropping more rainfall when they come.

At the same time, droughts are occurring more frequently. **Table 15** shows the historical droughts recorded in Bergen County's Hazard Mitigation Plan, along with their peak severity according to the US Drought Monitor.[62] Severity of droughts is classified as 1 (Moderate Drought), 2 (Severe Drought), 3 (Extreme Drought), or 4 (Exceptional Drought). Some droughts, such as those having to do with longer-term issues like low reservoir levels, are identified by Bergen County's Hazard Mitigation Plan, but not noted as occurring in Bergen County by the US Drought Monitor. The US Drought Monitor also recorded drought conditions in Bergen County in 2022 and 2023.

Table 15. Historical Droughts Impacting Bergen County, 1895 - 2020

Date of Drought	Severity (1 to 4)
May 1929 to October 1932	3
February 1949 to October 1950	3
May 1953 to July 1955	3
June 1961 to August 1966	4
June 1980 to April 1981	4
June 1984 to August 1985	4
November 2001	N/A - low reservoir levels
January - February 2002	4
August - September 2002	1
October 2002	N/A - low reservoir levels
May to July 2006	N/A
August to October 2010	N/A
September 2015 to March 2016	2
October 2016 to April 2017	2

Source: US Drought Monitor, Bergen County Hazard Mitigation Plan

Figure 15. Tropical Storm Isaias, Damage in Bergen County

Extreme Phenomena

Tropical Cyclones

NOAA defines tropical cyclones as rotating, organized systems of clouds and thunderstorms that originate over tropical or subtropical waters.[63] Tropical cyclones tend to bypass New Jersey due to its protective location slightly inland of coastal outcrops to the north and south. When they do affect New Jersey, they affect coastal areas, although a few have traveled inland.

Notable recent tropical cyclones are Hurricane Floyd in September 1999, Hurricane Irene in August 2011, Hurricane Sandy in October 2012, Tropical Storm Isaias in 2020, and Tropical Storm Ida in 2021. Hurricane Irene's heavy rains caused damage to roads and bridges as rivers overflowed their banks, while Hurricane Sandy's high winds resulted in many downed trees across the region. In recent years, Tropical Storm Isaias and Hurricane Ida caused substantial power outages and damage in Montvale.

Landslides

No landslides have occurred in the Borough of Montvale.

Earthquakes

The NJDEP records all observed earthquakes in New Jersey, with 216 as of April 2023.[64] They occur more frequently along the fault lines in north-central New Jersey than in other parts of the state. New Jersey earthquakes are typically minor in nature, causing no damage.[65] The NJDEP has recorded 16 earthquakes in Bergen County, of which 13 are considered microquakes with magnitudes of 2.0 or less. The closest to Montvale that an earthquake has occurred is a 2014 earthquake of magnitude 1.3 in Woodcliff Lake Borough. The strongest earthquake recorded within 15 miles of the Borough occurred in Yonkers, NY in 1985 with a magnitude of 3.6.

Urban Heat Island Effect

A heat island is a localized area which experiences higher temperatures than surrounding areas due to development.[66] Though often referred to as the urban heat island effect, this phenomenon also effects suburban areas such as Montvale. Across urban areas, daytime temperatures are generally 1-7°F warmer than the region's baseline, and nighttime temperatures are 2-5°F warmer.

Heat islands are caused by modifications to the natural environment, such as buildings, roads, and other infrastructure. These features generally absorb more heat from the sun than natural ground cover would, in part due to their darker color. In addition, areas without trees do not benefit from the cooling effect of plants through a process known as evapotranspiration. Buildings and

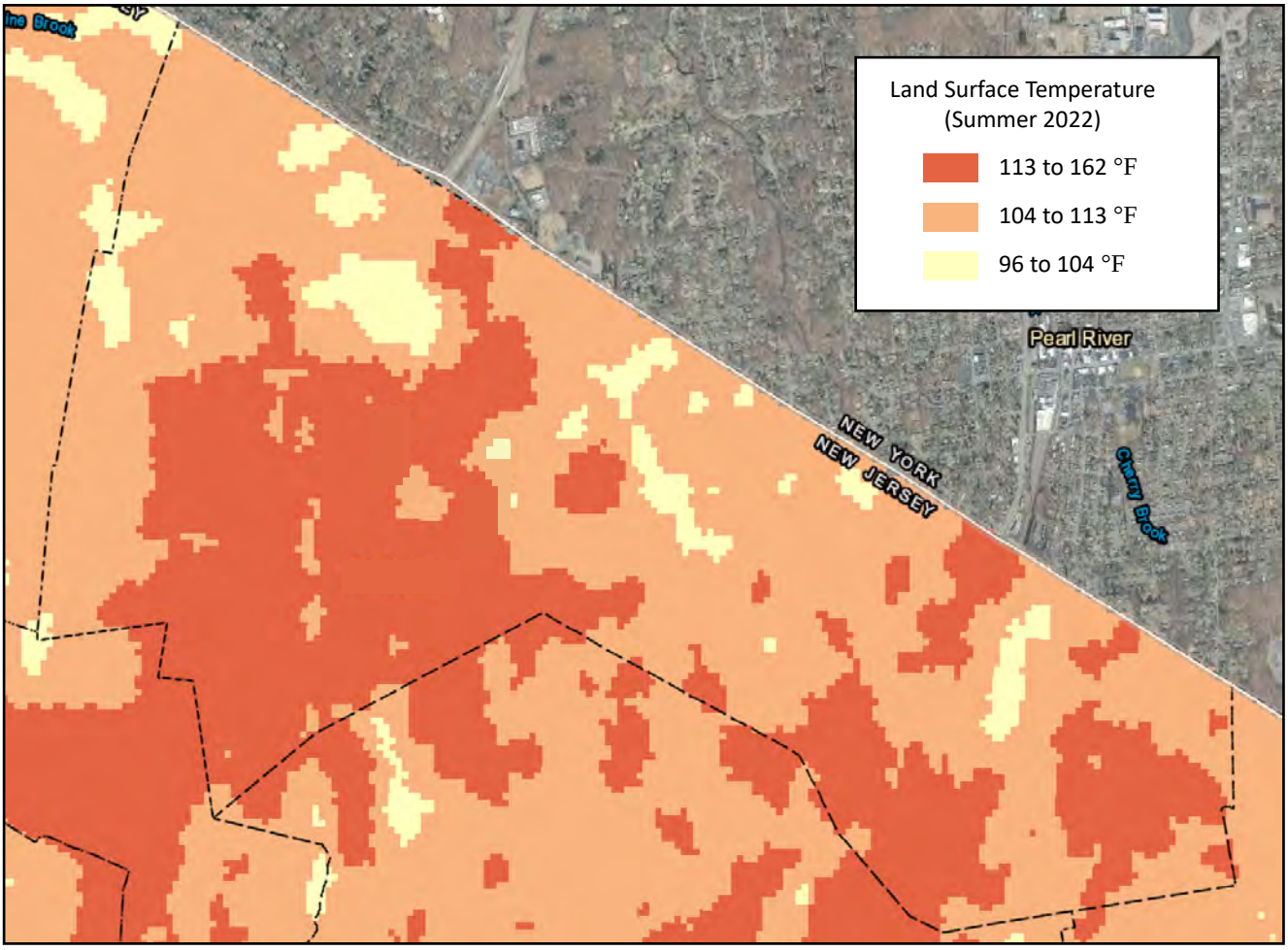


Figure 16. NJDEP - Urban Heat Island Effect Map

other structures may also block wind which would otherwise circulate cooler air. Waste heat from cars, air-conditioners, buildings, and industry is also concentrated in developed areas.

The effect can be reduced through strategies such as lighter-color roofs, reduced paved surface, and increased tree cover. NJDEP has released data on the heat island effect throughout New Jersey (**Figure 16**). The darkest orange shades indicate a strong effect, while the light yellow indicates a less strong effect.

The largest urban heat island cluster is along the eastern commercial corridor, spanning from Grand Avenue, to Summit Avenue, to the Garden State Parkway. This area is defined by dense commercial and corporate development, with some dense residential development. Dark roofs on commercial buildings, such as Wegmans, register with an especially strong effect. Similar dense developments in the Borough can be found west of the New Jersey Transit tracks, showing a moderate to strong heat island effect throughout.

Climate Change

Climate Change refers to the impacts humans have on earth's climate as a result of activities which emit greenhouse gases. Greenhouse gasses (GHGs) are defined by the NJDEP as atmospheric gasses that slow the rate at which heat

radiates into space.[67] In a stable climate, sunshine heats the earth and that heat is then radiated back into space. Because GHGs do not block the sunshine, but prevent its heat from going back into space, they have a warming effect on the atmosphere much like the glass roof of a greenhouse. Most GHGs occur naturally in earth's atmosphere, but human activity has caused a substantial increase in the concentration of GHGs in the atmosphere, thereby holding more of the sun's heat in and warming the planet. This has a complex effect on the earth's climate, which can already be observed.

New Jersey is already experiencing the effects of climate change. According to the NJDEP's 2020 Scientific Report on Climate Change, the state's annual average temperature has already increased by 3.5°F since 1895.[68] According to the same report, summers are growing longer and hotter with increasingly frequent extreme weather events, while winters are getting shorter, warmer, and less snowy. According to Rutgers University's New Jersey Climate Change Resource Centeraverage annual precipitation has also increased by more than 3 inches since 1900, with greater volatility from year to year.[69] As noted by the same research center in its 2021 New Jersey State of the Climate Report, this increased and more intense precipitation along with sea level rise have increased the frequency and length of coastal floods.[70] The recent storms, increasing temperatures, and particular impact on nighttime temperatures identified earlier in this section show how climate change has already impacted Montvale.

Climate Change can have impacts on the health of humans. According to the United States Center for Disease Control's (CDC) Climate Effects on Healthresources, the predicted effects of climate warming on human health include heat stress and increased air pollution in summer, along with increased spread of disease due to increased temperatures in winter.[71] These effects will vary based on location, for example, residents of more urbanized areas are at more risk for heat stress. As noted in the CDC's 2020 Preparing for the Regional Health Impacts of Climate Change in the United States report, climate-related disruptions to the water cycle will likely result in more intense rain events and more frequent periods of drought, causing disruptions to the food supply.[72] The CDC also notes that the northeastern United States, with a high concentration of polluted sites along historically industrial waterways, is particularly vulnerable to chemical contamination when there is flooding. With a high concentration of ongoing industrial activity and other sources of pollution in the Northeast, hot days can result in dangerous air quality due to the formation of Ozone and the accumulation of pollutants.

Climate change will also have an impact on ecosystem health in the region. According to NJDEP's 2020 Environmental Trends - Climate Change report, predicted ecosystem repercussions of increased temperatures include loss of critical habitat; further stress on already threatened and endangered species; impacts on the water supply, agriculture, and fisheries; and an increase in fires, pests, disease pathogens, and invasive weed species.[73] The USDA's Forest

Service has modeled the specific impact that climate change will have on forests and trees of the Mid-Atlantic region, which spans 60 million acres across New Jersey, Pennsylvania, Delaware, and most of New York and Maryland. The Forest Service's 2018 Mid-Atlantic Forest Ecosystem Vulnerability Assessment predicts increased temperatures and precipitation, along with drought risk.[74] Other predicted impacts include an increased risk of wildfire, changing conditions for tree regeneration and recruitment, increased suitability for southern species, decreased suitability for northern species, and increased damage from invasive plants, pests, and pathogens.

Climate Mitigation: Reducing Greenhouse Gas Emissions

The primary driver of climate change is the ongoing emission of GHGs into earth's atmosphere, primarily due to the extraction and combustion of fossil fuels. Reducing the continued emission of GHGs is the first and most direct step to mitigating climate change.

Acknowledging the need to reduce GHG emissions to avoid the most damaging impacts of climate change, the New Jersey Legislature enacted the Global Warming Response Act (GWRA) in 2007 and updated it in 2019. This law requires a reduction of GHG emissions by 80% below 2006 levels by 2050. An intermediate reduction requirement of 20% by 2020 was achieved. The 2019 updates to the GWRA require that the NJDEP collaborate with other state agencies and to share recommendations for reducing emissions, and the NJDEP's *2020 Global Warming Response Act 80 x 50 Report* (*80 x 50 Report*) describes progress to date and strategies for reaching the required emissions reductions.

New Jersey's met its carbon emissions reduction goal for 2020 due to market forces. The 2050 goal, to reduce carbon emissions by 80%, will require a "seismic shift." (NJDEP)

The 2050 goal is calculated as 24.1 million metric tons of CO_2 equivalent (MMT CO_2e) per year, and 2018 emissions were estimated as 97.0 MMT CO_2e in the 80 x 50 Report. The transportation sector continues to be the major contributor to GHG emissions (42% in 2018), and vehicle miles traveled continue to increase while fuel efficiencies have leveled off. As of 2018, the commercial and residential sectors are the second largest contributor at 26%, followed by electricity generation at 18%, industrial at 7%, and waste and agriculture at 5%. Short-Lived Climate Pollutants from Halogenated Gases and Natural Gas transmission make up 8%, and land clearing contributes 1 % while terrestrial carbon sequestration (forests absorbing carbon) provides an offset calculated at -8%.

A breakdown of emissions sources is not available on the municipal level. However, carbon emissions per capita are generally highest in areas with car-dependent infrastructure and large homes.

The *80 x 50 Report* attributes the state's success in meeting the 2020 emission reduction requirement to market and other forces which caused a transition from coal-fired power plants to power plants

powered by natural gas. The report recommends achieving the 2050 goal through transitioning the electric grid to 100% renewable energy, electrifying 100% of light-duty vehicles, and electrifying 90% of building and water heating. There are also other complementary strategies, such as increasing ridership on mass transit.

Legislation, agency reports, and executive orders relating to climate change continue to be produced. The *Energy Master Plan: Pathway to 2050* was released in 2019, outlining strategies to transition New Jersey's electrical grid to 100% renewables by 2050. In 2020, Governor Murphy signed Executive Order 100: Protecting Against Climate Threats (PACT), which authorizes the NJDEP to make regulatory reforms to pursue the state's climate goal.

Resilience: Living in a Changed Climate

There are currently no proven strategies to remove the excess GHGs which have built up in the atmosphere over the course of the industrial age, or to counter their effects on earth's climate. Unless currently experimental methods become feasible at a very large scale, earth's climate will continue to change even if all greenhouse gas emissions cease immediately. Along with action to reduce the scale of climate change, New Jersey is taking action to adapt to a changing climate.

Many of the actions already discussed also have climate resilience components. For example, PACT authorizes the NJDEP to not only pursue the state's climate goal, but also to incorporate climate predictions into the agency's permitting process for construction and new development.

There is an ongoing effort to plan for climate resilience at the statewide level. In 2019, Governor Murphy signed Executive Order 89, creating the Interagency Council on Climate Resilience (ICCR). The ICCR spans seventeen agencies working together to maintain New Jersey's economic, environmental, and natural resources. Executive Order 89 also created the New Jersey Climate and Flood Resilience Program (CFRP), responsible for releasing the state's first Climate Resilience Strategy report in 2021. CFRP defines climate resilience as the ability of social and ecological systems to absorb and adapt to shocks and stresses resulting from a changing climate, while becoming better positioned to respond in the future.

One component of the ICCR's work is the production of subject-specific Resilience Action Plans. The plan for extreme heat is scheduled for release in the Fall of 2023, and more information about the process and public engagement opportunities is available.[75]

The Resilience Action Plan and all other resilience work in the state is guided by the six main goals identified in the Climate Resilience Strategy, available.[76]

- Build resilient and healthy communities.
- Strengthen the resilience of New Jersey's ecosystems.
- Promote coordinated governance.
- Invest in information and increase public understanding.

- Promote climate informed investments and innovative financing.
- Coastal resilience.

Clean Energy Initiatives

Renters, homeowners, and businesses in New Jersey can take advantage of various state rebate programs on energy-saving measures through their local utility. In Montvale, the Rockland Electric Company offers resources for energy-saving practices, as well as a dedicated online marketplace for energy-saving items ranging from efficient water fixtures to smart home items and electric vehicle chargers. Rebates are automatically included in purchases from Rockland Electric.[77] PSE&G offers similar resources in Montvale.[78, 79]

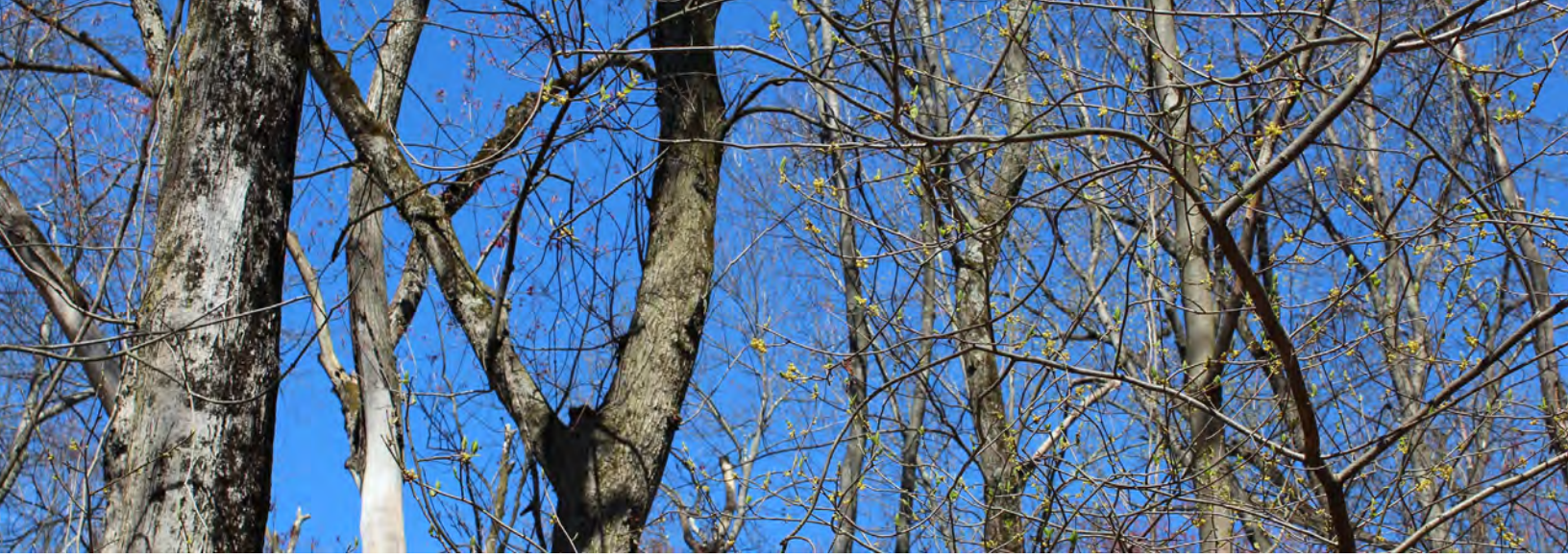
There are an increasing number of public electric vehicle charging stations in and around Montvale. There is a ChargePoint station at the Wegmans parking lot near the Montvale Environmental Learning Center trail. Some private businesses such as hotels also host charging stations in Montvale. A Tesla Supercharger is available in Park Ridge on Chestnut Ridge Road near the municipal border, and various kinds of chargers are available at the Pearl River, New York train station.

An increasing number of commercial properties in Montvale are choosing to include solar photovoltaic panels on new buildings, and to retrofit them on existing buildings. Some non-commercial buildings, such as Saint Joseph Regional High School, also have solar panels. As solar panels improve and continue to outcompete other sources of energy, this trend will likely continue.

Sustainable Jersey

Sustainable Jersey is a nonprofit organization that certifies actions taken by municipalities in New Jersey to reduce waste, cut greenhouse gas emissions, and improve environmental equity. The organization provides the tools, training, and incentives needed for municipalities to achieve sustainability actions. The certification program allows participating municipalities to score points based on their sustainability achievements and gain Bronze, Silver, or Gold status. Of the 564 Municipalities in New Jersey, 466 are registered with Sustainable Jersey.

The Borough of Montvale has registered for Sustainable Jersey, but is not yet a participating municipality. On March 31, 2009, the Montvale Council adopted a resolution authorizing registration with Sustainable Jersey and stating the Borough's intention to "pursue local initiatives and actions that will lead to Sustainable Jersey Municipal Certification." No further action has been recorded by Sustainable Jersey.



Ivy Lane

Chapter 10.

Air

Air quality in New Jersey is carefully monitored by the NJDEP's Division of Air Quality (DAQ) through 30 air monitoring stations across the state, to ensure that air quality levels meet the national standards set by the federal Clean Air Act as well as various state laws and regulations. The local air monitoring stations help the NJDEP assess the population's exposure, determine the impact of major pollution sources, measure background levels, determine the extent of regional pollutant transport, and measure secondary impacts in rural areas. The levels recorded for many pollutants vary greatly from season to season and even from day to day depending on weather conditions and traffic patterns.

National Clean Air Standards

In 1970, the federal government passed the Clean Air Act, which set air quality standards to be met throughout the country. The Act was amended in 1990, with focus on four areas of pollution: acid rain, urban air pollution, toxic air emissions, and stratospheric ozone depletion.[80] The amendment also introduced a permit program and strengthened enforcement. Under the Act, it is the responsibility of the US EPA to set National Ambient Air Quality Standards (NAAQS) for six common pollutants (ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, fine particulates, and lead) and the responsibility of each state to develop State Implementation Plans (SIPs) to attain and maintain these standards. In New Jersey, that role is assigned to the DAQ.

2021 Northern New Jersey
Air Monitoring Sites

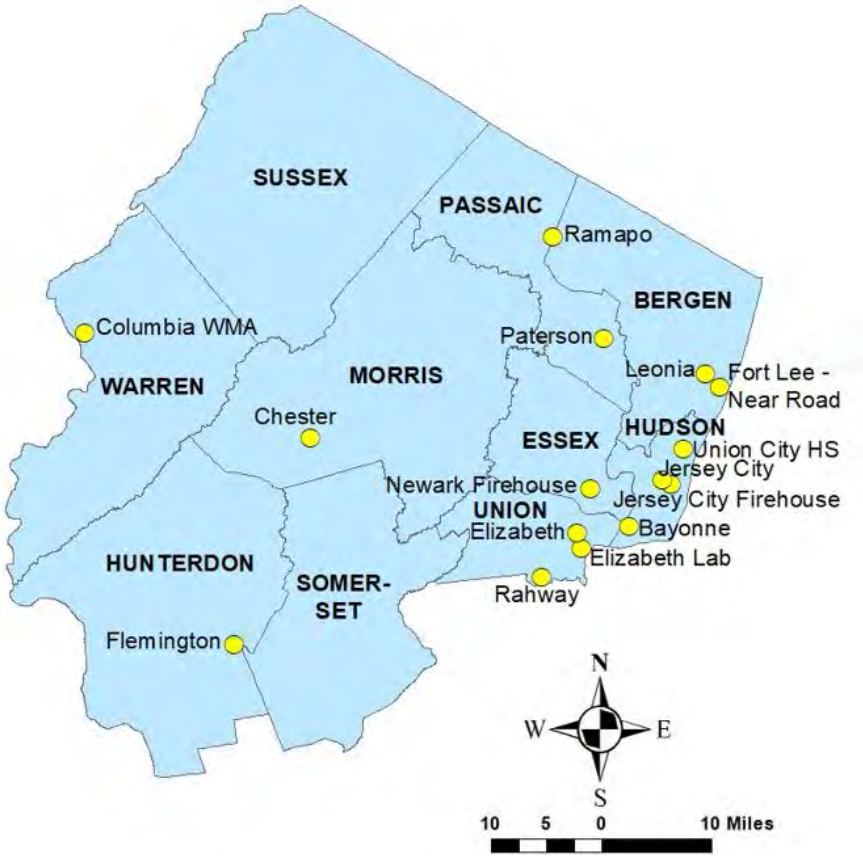


Figure 17. NJDEP Northern New Jersey Air Monitoring Sites

Regional/Local Statistics

The State uses the air quality data from its air monitoring network to determine which areas comply with NAAQS as well as overall trends in air pollution levels. The NJDEP produces yearly reports known as the New Jersey Air Quality Reports and provides real-time reporting through its Air Quality Index website.[81] Each monitoring site measures a limited set of pollutants; no one site tracks them all. **Figure 17** illustrates the location of the air monitoring stations in northern New Jersey.

The Air Quality Index (AQI) rates air quality based on the NAAQS, on a scale from 0 to 500 (**Figure 18**). AQI pollutants include ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide.[82] A score of 50 to 100 is considered a moderate level of concern, with an AQI of 100 indexed to the NAAQS for each pollutant. In 2021, New Jersey exceeded an AQI of 100 on 15 days.[83] 14 of these days were considered "Unhealthy for Sensitive Groups" and 1 was considered "Unhealthy." Of these 15 exceedance days, 13 were caused by ozone pollution and 2 by fine particulate matter.

The number of days with AQI values over 100 in recent years has been: 19 in 2018, 14 in 2019, and 6 in 2020. The number of exceedance days

Air Quality Index Levels and Associated Health Impacts

AQI Level of Health Concern	*Numerical Value*	*Meaning*	*Color Code*
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.	**Green**
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.	**Yellow**
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	**Orange**
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.	**Red**
Very Unhealthy	201 to 300	Health warnings of emergency conditions. The entire population is more likely to be affected.	**Purple**
Hazardous	301 to 500	Health alert: everyone may experience more serious health effects.	**Maroon**

Figure 18. NJDEP Air Quality Index Guide

in 2020 was the lowest in recent years, likely due to decreased traffic throughout the year in response to the Covid-19 Pandemic and related closures of businesses, offices, schools, and other destinations. At the New Jersey Clean Air Council's annual public hearing in April 2022, data was presented to show that COVID-19 measures most strongly affected ozone, nitrogen dioxide, and particulate matter.[84] In 2021, however, air pollutant levels returned to pre-pandemic levels.

Criteria Pollutants

The six pollutants for which standards have been set by the EPA - ozone, sulfur dioxide, carbon monoxide, nitrogen dioxide, particulate matter, and lead, are known as criteria pollutants and are the main pollutants regulated by air quality standards in the United States.[85]

Since 1997, annual concentrations of all criteria pollutants in New Jersey have decreased. Air quality has improved significantly over the last fifty years since the advent of environmental regulation in 1970. New Jersey has attained NAAQS levels of lead, carbon monoxide, sulfur dioxide, and nitrogen dioxide for many years. There are still periodic exceedances of the NAAQS for ozone and fine particulates.

Ozone, O_3

Ozone (O_3) is a gas consisting of three oxygen atoms. It occurs naturally in Earth's upper atmosphere, where it offers protection from harmful ultraviolet rays and has been the subject of successful environmental efforts to maintain its presence. However, when found at ground level, ozone can have serious adverse health effects. Ground-level ozone is formed through a chemical reaction involving nitrogen oxides (NO_x), volatile organic compounds (VOCs), and the presence of heat and sunlight. VOCs are a group of compounds, typically emitted in various industrial processes and

leached into air as gases from common household products such as paint and certain plastics. Nitrous oxides are a family of poisonous gases produced by the combustion of fuels and largely associated with on-road emissions from cars and trucks. VOCs and nitrogen oxides are emitted year-round, but ozone only forms in warmer and sunnier conditions, so "ozone season" is defined as the annual period between March and October.

Statewide, New Jersey is classified as a "marginal" ozone non-attainment area for NAAQS. A state is considered to be in non-attainment for ozone in a given year if at any monitoring stations, the three-year average of the fourth-highest daily maximum 8-hour average concentration exceeds 0.070 parts per million (ppm). The Leonia station, at 0.071 ppm, is the only New Jersey station to exceed this standard. The State of New Jersey's standard of 0.12 ppm 1-hour concentration has not been exceeded since 2018. However, the 8-hour average concentration exceeded the NAAQS of 0.070 ppm at some stations on 13 days in 2021, causing the AQI on those days to reach the "Unhealthy for Sensitive Groups" range. The US EPA also defines a primary contributor to the AQI for each day by county. In Bergen County in 2021, ozone was the primary contributor to AQI on 142 days of the year.

The ozone monitoring stations in New Jersey closest to Montvale are the Ramapo and Leonia stations. The Ramapo station is located in rural Wanaque Borough, while Leonia is located at the convergence of all major NJ thoroughfares to the George Washington Bridge. These stations reported 1-hour concentrations up to 0.103 ppm (Leonia) and 8-hour concentrations up to 0.084 ppm (Leonia) (**Table 16**). In 2021, the Leonia station exceeded the 8-hour NAAQS on 8 separate days. Ramapo did not exceed the NAAQS on any days. Leonia is the most frequent station to exceed the NAAQS and the only one in the state in overall non-attainment. It is likely that the air quality in Montvale falls between these two stations at most times, given its level of development and amount of through-traffic. Non-attainment of the NAAQS likely does not occur in Montvale.

The effort to lower ozone concentrations has focused on reducing emissions of VOCs, but further improvements will require reductions in both VOCs and NO_x.

Table 16. 2021 Ozone Concentrations (ppm)

Monitoring Site	1-Hour Average Concentration (NJ Standard: 0.12 ppm)	8-Hour Average Concentration (NAAQS Standard: 0.070 ppm		
	Maximum	Highest Daily Maximum	4th Highest Daily Maximum	4th Highest Daily Maximum: 2018-2021 Average
Leonia	0.103	0.084	0.076	0.071
Ramapo	0.084	0.064	0.062	0.062

Source: 2021 New Jersey Air Quality Report

New Jersey falls within the US EPA's Ozone Transport Region, where local ozone is particularly impacted by the regional transport of ozone-forming NO_x. Continued interstate cooperation may be required to achieve further reductions in New Jersey's ozone levels.

Sulfur Dioxide, SO_2

Sulfur Dioxide (SO_2) is a heavy, colorless gas with a suffocating odor that easily dissolves in water to form sulfuric acid, or acid rain. SO_2 gases can be formed when fuels containing sulfur are burned, or when gasoline is extracted from crude oil. Most of the sulfur dioxide released into the air comes from the combustion of fossil fuels in power plants and industrial processes, and it is particularly associated with the burning of coal. As the northeastern United States has phased out the use of coal, the regional average concentration of SO_2 has decreased by 90% since 2000 and been well in attainment of the NAAQS standard for over 10 years.

SO_2 can be harmful to people (primarily children, the elderly, and asthmatics) and the environment. It also reacts with other gases and particulates in the air to form sulfates, which have their own harmful effects. Sulfates are the primary cause of reduced visibility in the eastern United States. SO_2 can also react with other substances in the atmosphere to form acid rain, which damages forests, crops, aquatic environments, and buildings.

New Jersey has been in sulfur dioxide NAAQS attainment since 2015. A state is considered in attainment for sulfur dioxide in a given year if at any monitoring stations, the three-year average of the 99th-percentile one-hour daily maximum concentration exceeds 75 ppb. The State of New Jersey has more stringent requirements which have also been met in 2021.

Regulations requiring the use of low sulfur fuels in New Jersey have been effective in lowering SO_2 concentrations. No monitoring sites in New Jersey exceeded SO_2 standards in 2021. The last year an exceedance of the national SO_2 standards was recorded in the state was 2013-2014. The activities of a coal-fired power plant in Portland, Pennsylvania are believed to be the primary reason for this 2013-2014 exceedance, and New Jersey has not been near NAAQS exceedance any year since the power plant's closure in 2014.

Carbon Monoxide, CO

Carbon monoxide (CO) is a colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely. The primary sources of carbon monoxide emissions in New Jersey are on-road and off-road vehicles, with boilers, incinerators, and forest fires also contributing. 90% of New Jersey's CO comes from internal combustion engines. Outdoor CO levels can reach dangerous levels in cases of a weather inversion, where a layer of air becomes trapped at the earth's surface, allowing pollutants to build up without the usual circulation.

Carbon monoxide reduces the oxygen-carrying capacity of blood and therefore slows the flow of oxygen to critical parts of the body. CO does not occur in outdoor air at the lethal concentrations which can be recorded in indoor air. However,

even at the lower concentrations which occur in outdoor air, exposure to CO can result in headaches and nausea. CO can be more damaging for individuals with cardiovascular disease, reducing ability to exercise and causing chest pain.

The CO monitoring stations in New Jersey closest to Montvale are Fort Lee Near Road , Newark Firehouse, and Jersey City. At these stations, all concentrations were well below the national and state standards, though the highest values of any monitoring site in the state were recorded at Newark Firehouse.

Nitrogen Dioxide, NO_2

Nitrogen dioxide (NO_2) is a reddish-brown, highly reactive gas that is formed in the air through the oxidation of nitric oxide (NO). When it reacts with other chemicals, it can form ozone, particulate matter, and other pollutant compounds. NO_2 is generally used as an indicator for the group of gases known as nitrogen oxides (NO_x), which are emitted from the combustion of fossil fuels in vehicles, power plants, home heating and cooking, and industrial processes. NO_x is primarily released by motor vehicles, so concentrations in the air tend to peak during and immediately after the morning and evening rush hour.

NO_2 can aggravate or cause respiratory illness, and prolonged exposure can permanently damage the lungs. NO and NO_2 can irritate the eyes, nose, throat and lungs and cause nausea and tiredness. The environmental effects of NO_x can include acidification of freshwater bodies, eutrophication of coastal waters, increases in levels of toxins harmful to fish and other aquatic life. Nitrogen oxides also cause decreased visibility and react in the air to form both ozone and particulate matter.

New Jersey began routinely monitoring NO_2 in 1966. The last year in which annual average NO_2 concentration exceeded standards was 1974, and it has not exceeded the 1-hour NAAQS since their implementation in 2010. Since 1975, NO_2 concentrations in New Jersey have fallen steadily to around 40 ppb. Neither the statewide nor the individual station averages have exceeded the NAAQS of 53 ppb annual average and 100 ppb 1-hour average. The Fort Lee Near Road, Elizabeth Lab, and Bayonne stations had the highest 1-hour concentrations, but were never in excess of the 100 ppb NAAQS.

Of the ten stations statewide reporting NO_2 concentrations, none recorded NO_2 exceedances for 2021. NO_2 concentrations scored well within the NAAQS, but oxides of nitrogen continue to be of concern because of their role in the formation of other pollutants, particularly ozone and fine particles. Because NO_x generally originates in internal combustion vehicles, it may be of particular concern in parts of Montvale close to major thoroughfares such as the Garden State Parkway.

Particulate Matter

Particulate air pollution consists of any artificial or natural particles suspended in the air, such as dust, dirt, smoke, sea salt, and liquid droplets. At any size, these particles can affect the environment. The total of all particulates, of whatever size, is referred to as Total Suspended

Particulates (TSPs). Particulates less than 10 micrometers in diameter (PM_{10}) are called Inhalable Particulate Matter because they can be inhaled into and accumulate in the respiratory system. Particulates less than 2.5 micrometers ($PM_{2.5}$), called Fine Particulate Matter, are believed to pose the greatest health risk, penetrating deep into a person's lungs, heart, and even bloodstream to exacerbate heart and lung diseases and cause heart attacks. PM_{10} is considered less dangerous but can irritate the eyes, nose, and throat.

In 2021, all areas of New Jersey were in attainment of the national standard of 150 micrograms [one-millionth of a gram] per cubic meter air ($\mu g/m^3$) for Inhalable Particulates, PM_{10}. The closest of the three PM_{10} monitoring stations to Montvale is Jersey City Firehouse, where the highest 24-hour concentration recorded was 41 $\mu g/m^3$, well in attainment.

All sites in New Jersey also met the annual standard of 12 $\mu g/m^3$ for Fine Particulates, $PM_{2.5}$. However, the Fort Lee Near Road and Newark Firehouse monitoring stations both exceeded the 35 $\mu g/m^3$ 24-hour standard on July 20, 2021. This exceedance can be attributed to wildfire smoke from the West which winds brought over New Jersey.

Lead

Lead is a hazard to the health of humans and the environment, whether in the air, in paint, in our water, or in soils. Though action standards are still defined for lead exposure, there is consensus that no level of lead exposure can be considered safe. Lead has its main impact on the nervous system, particularly in children. Exposure to lead is linked with learning disabilities, mood issues, and lowered IQ. In adults, it can also impact the cardiovascular system and is considered a probable human carcinogen. Lead from the air or water may also accumulate in soils and sediments.

Before the 1970s, lead was a very common air pollutant due to its use as an additive in gasoline. However, the phase-out of leaded gasoline has led to a 99% decrease in the average lead air concentration nationwide since 1980. New Jersey no longer has any significant industrial sources of lead, but small airplanes continue to use leaded gasoline and are estimated to release over 4 tons of lead annually into New Jersey's skies as of 2017. In 2008, the NAAQS level was set at 0.15µg/m3 for a rolling 3-month average. As of 2022, there are 21 areas nationwide that are in non-attainment. The closest location is in Berks County, Pennsylvania.

Since 2012, there has been one lead monitoring station in New Jersey, at the Newark Firehouse. The measurements taken in 2021 ranged between 0.001 and 0.003 $\mu g/m^3$, well below the NAAQS level.

Air Toxics

Additional air pollutants that may cause adverse health effects but are not criteria pollutants are referred to as Hazardous Air Pollutants (HAPs) or air toxics. Almost 200 air toxics have been identified on the list of HAPs maintained by the EPA. The source of air toxics varies by pollutant, but in New Jersey, the majority of all

air toxics are produced by internal combustion engines, with non-point sources accounting for most of the rest and heavy industry accounting for only a small portion. Non-point sources include emissions from buildings, pesticide use, consumer products, and various small-scale industrial processes. In 2018, Bergen County released more air toxics than any other New Jersey county, with a substantially higher proportion coming from non-point sources in comparison to other counties.

The EPA and other agencies have developed health benchmarks for all HAPs, representing the concentration generally considered safe to breathe on a daily basis. NJDEP calculates a Risk Ratio by dividing annual average concentrations of each HAP by its health benchmark. Risk ratios greater than one indicate that a given pollutant may be of concern, substantially increasing the risk for cancer or other negative health effects.

NJDEP Air Monitoring Stations closest to Montvale are in Chester Borough and the City of Elizabeth. Chester's station is considered a baseline. Chester exceeded health benchmarks for 8 different air toxics, and Elizabeth for 9. These results can be seen in **Table 17**.

The NJDEP also monitors certain toxic metals and elements, most of which fall well below their health benchmark at all stations. However, the Elizabeth station recorded cadmium levels above the health benchmark, and both Elizabeth and Chester recorded chromium levels above the health benchmark.

The two chemicals with the highest risk ratios reported at the Elizabeth site are acrolein and formaldehyde. Acrolein is a colorless or yellowish liquid that is used to make tear gas, drugs, and plastics. It is extremely irritating to the eyes, skin, and lungs if inhaled. It is to be handled with extreme caution. Formaldehyde is a colorless gas with a strong odor that is sold commercially in a Methanol and water solution. It is used in making resins, textiles, and as an intermediate in the synthesis of other chemicals. It is also used as a disinfectant, fertilizer, fungicide, and embalming solution. It is a known carcinogen. Both chemicals are listed on the NJ Department of Health's Hazardous Substance List.

Radon

Radon is an invisible and odorless radioactive gas resulting from the breakdown of naturally-occurring uranium in soil and rock.[86] As opposed to all other air pollutants covered above, radon is primarily a concern for indoor air quality. It builds up in homes as it seeps out of bedrock and through any crack or opening in a home's foundation. Radon releases radioactive energy, causing lung damage and lung cancer. In the United States, radon is the second main cause of lung cancer and kills at least 15,000 people per year.[87]

NJDEP estimates of radon risk, based on real occurrences of radon contamination, place Montvale in a moderate risk category. This means that within the municipality, at least 25 homes were tested, with 5 to 24% having radon readings greater than or equal to 4.0 pCi/L (picocuries per liter). EPA recommends action in

More information about radon testing and mitigation is available through Montvale's website or the NJDEP's website. Radon test kits are also available at many home improvement stores.

Sources: https://montvale.org/government/news/837-radon-in-our-area ; https://nj.gov/dep/rpp/radon/

homes with a radon level of 4 pCi/L or more, but also notes that there are no safe levels of radon, and action may be appropriate above 2 pCi/L.

As a harmful pollutant which builds up in indoor air, the threat of radon exposure varies from home to home. As residents better insulate and seal their homes to reduce energy usage, they may cause elevated levels of radon to accumulate. Although testing for radon is only required at the time a home is sold, improving the structure's insulation or doing foundation work, may change the radon level in a home.

Noise and Odors

Noise

The Noise Control Act of 1971 authorizes NJDEP to regulate noise from stationary industrial commercial properties and railroads in New Jersey.[88] Other sources of excess noise are regulated as a public health nuisance enforced by a local public health agency, or as a disorderly persons offence enforced by police. Noises are defined as a public health nuisance when they are "unreasonably or unnecessarily loud".[89] State regulations are applicable to noises above 50 decibels from the hours of 10:00 pm to 7:00 am and 65 decibels during the day, though individual municipalities are permitted to adopt more stringent ordinances.

The Borough has a local Noise Control Act, which regulates sound originating from sources within the Borough. Its stated purpose is to "prevent excessive sound that may jeopardize the health, welfare, or safety of the citizens or degrade the quality of life," and it defines specific thresholds of permissible noise based on land use, frequency, and time of day or week.

A source of noise pollution which these acts do not regulate is airplane noise. Of particular concern in Montvale and the Pascack Valley is Teterboro Airport, a general aviation airport managed by the

Table 17. 2021 Air Toxics Above Their Health Benchmark

Pollutant	Health Benchmark (µg/m³)	Annual Mean Risk Ratios	
		Chester	Elizabeth
Acetaldehyde	0.45	3	5
Acrolein	0.02	36	45
Benzene	0.13	3	6
1,3-Butadiene	0.033	0.3	2
Carbon Tetrachloride	0.17	3	3
Chloroform	0.043	2	3
Chloromethane	0.56	2	1.8
1,2-Dichloroethane	0.038	1.4	1.3
Formaldehyde	0.08	30	47

Source: 2021 New Jersey Air Quality Report

Port Authority of New York and New Jersey.[90] The airport does not offer commercial flights and has a weight restriction for aircraft. The airport also has in place mandatory noise limits for departing aircraft and a voluntary restriction on traffic between 11 pm and 6 am. Flight paths over populated areas of New Jersey have caused controversy in recent years. The airport's most recent Noise Compatibility Program was approved in January 2023 by the Federal Aviation Administration and involves mandatory as well as voluntary measures for pilots and airport administration. The airport consults with a committee representing local municipalities, known as the Teterboro Aircraft Noise Abatement Advisory Committee (TANAAC). The TANAAC, however, excludes towns outside a five-mile radius of the Teterboro Airport, and rejected an application by the Pascack Valley Mayors Association in 2022. As of April 2023, there are efforts underway by Pascack Valley mayors to form a regional group titled "Taxpayers for Aircraft Noise Solutions" (TANS). Past efforts by mayors outside the TANAAC area have successfully established a suggested alternative flight path to Teterboro over Route 17.

Odors

The NJDEP classifies odor as air pollution when it is severe enough to unreasonably interfere with the enjoyment of life or property.[91] In many cases, odor pollution is an indicator of chemicals described above, which are regulated separately by the NJDEP. However, there is also a procedure for odor issues, based on complaints and inspection by an NJDEP official. Fines range from $150 to $1,400 for a first offense. The US Center for Disease Control notes that the best strategy for addressing odor issues is prevention zoning, time of day operating restrictions, filtering, and emission control.

Meteorology and Pollution

Pollution levels are affected by meteorological attributes like wind speed and direction, temperature, and solar radiation.[92] Meteorology is an important factor in the levels of ozone in particular, as it is largely a secondary pollutant created from the chemical reaction of other pollutants in the presence of heat and sunshine. Other pollutants, such as particulate matter and sulfur dioxide, can reach elevated levels across the state due to downwind sources such as coal-fired power plants in Midwestern states and wildfires in the West and Canada. Nitrogen dioxide, on the other hand, is a localized problem occurring where there is heavy traffic and other use of internal combustion.

Chapter 9 outlines climate patterns and statistics in the area around Montvale, which impact pollution levels. Of particular note is the effect of dominant westerly winds, which carry weather patterns and pollution from west of the state over and across New Jersey. In New Jersey, these westerly winds migrate substantially from north to south, bringing different levels of pollution from different areas outside the state from day to day and causing substantial variation within the state.

Montvale Train Station

Chapter 11.

Infrastructure

Transportation

Modal Split

The United States Census Bureau collects data on how workers commute. According to their estimates, there were 4,216 workers 16 years or age and older in Montvale as of 2021. Of those workers, 2,535 drove alone, 449 carpooled, 218 rode a bus, 115 used commuter rail, 5 walked, and 894 worked from home.[93]

Roadways

The United States Federal Highway Administration classifies roadways, based on the Highway Functional Classification system, as arterials, collectors, and local roads.[94] The Borough of Montvale's 2008 Master Plan Circulation Element further divides arterials into primary arterials and secondary arterials.[95] Primary arterials are defined as carrying major regional flows, while secondary arterials handle inter-municipal traffic and access to primary arterials, and collectors carry traffic from destinations on local streets to the arterial system.

Primary arterials in Montvale include the Garden State Parkway. Under the jurisdiction of the New Jersey Turnpike Authority, this limited-access highway from Cape May to the New York State border at Montvale carries major regional and statewide traffic.

Secondary arterials in Montvale generally carry traffic either north-south or east-west. North-south secondary arterials include Chestnut Ridge Road, Kinderkamack Road,

and Spring Valley Road. Grand Avenue and Summit Avenue are east-west secondary arterials. Grand Avenue provides access to the Parkway, while the other secondary arterials carry traffic to the Borough's boundaries.

Collectors in Montvale include Akers Avenue, Ellsworth Terrace Avenue, Hering Road (partial), Hillcrest Avenue, Jefferson Place (partial), Magnolia Avenue, Middleton Road, North Avenue, Phillips Parkway, Terkuile Road, Upper Saddle River Road, and Woodland Road.

All other roads are considered *local roads*.

Mass Transit

Rail. Montvale is served by New Jersey Transit's Pascack Valley Line, with direct service to Secaucus Junction, Hoboken, and other towns in New Jersey and New York's Rockland County.[96] There are over 15 weekday departures and 10 weekend departures in each direction. With one transfer, Manhattan is between 1 and 2 hours away from Montvale Station. Average weekday boardings at the Montvale station ranged from 143 to 182 in the years 2015-2019.[97] Likely in connection with the Covid-19 pandemic and remote work, average weekday boardings sunk to 29 in 2021 and recovered partly to 61 in 2022.

Air. There are no airports in Montvale. The nearest airport, Teterboro Airport in Hackensack, hosts only private services. There are 3 major public international airports within 40 miles: Newark Airport in Newark, John F. Kennedy Airport in Queens, and Laguardia Airport in Queens. All are accessible by transit via transfers at Secaucus or in New York City.

Commuter Bus. Rockland Coach, owned by Coach USA, operates multiple daily departures between Montvale's rail station and New York City's Port Authority Bus Terminal via Montvale's Park and Ride on the Garden State Parkway.[98] Scheduled time to Port Authority varies from 45 minutes on express buses to 1 hour 15 minutes on buses making stops along the route.

Saddle River Tours runs AmeriBus commuter route 11C, traveling between Montvale's rail station and the George Washington Bridge Bus Station in 1 hour.[99] This service offers 7 weekday departures each way and multiple weekend departures.

Bicycle & Pedestrian

As in many suburban towns, Montvale's historic thoroughfares were converted into streets designed only for higher-speed car traffic in the 20th century, and new streets have been mostly built for car travel, without space for bicycle or pedestrian mobility. Montvale's 2008 Master Plannotes that some of Montvale's major roads lack sidewalks, and that there are no designated bikeways. The 2015 Central Bergen Bicycle and Pedestrian Plans[100] provided broad suggestions for the improvement of bicycle and pedestrian infrastructure, but it did not identify specific plans in Montvale.

In 2013, Montvale adopted a Complete Streets Resolution, directing Borough staff to "accommodate all modes of travel… to the highest degree possible when redesigning the public right-of-way

or during the review of a land use application that affects the public right-of-way."[101]

Examples of Complete Streets improvements include:

- Sufficient sidewalk widths for comfortable pedestrian passage
- Dedicated bicycle lanes or multi-use paths
- Safe, visible, and ADA-compliant street crossings
- Median islands and curb extensions
- Street trees and benches
- Well-marked, safe public transit stops

Community Transportation Services

Certain residents of Montvale can take advantage of three community transportation services in place through Bergen County and the State of New Jersey.[102]

Bergen County Community Transportation: This is a free curb-to-curb transportation service for persons with disabilities, senior citizens, veterans, and welfare to work residents of Bergen County. It includes transportation for routine medical visits, senior activity centers, shopping, competitive and non-competitive employment, education, recreation, post-stroke programs, and meals on wheels.

Access Link (New Jersey Transit): This is a door-to-door ride service provided by New Jersey Transit for people with disabilities who are unable to use a local fixed route bus. All Access Link rides must begin and end within a ¾-mile radius of an eligible bus route or light rail station, excluding commuter buses. Fares are comparable to the local fixed-route bus fare for a given route.

Senior Ride. The Borough operates a free senior transportation service known as Senior Ride, for Montvale residents 55 years and older traveling to destinations within 15 miles of the Borough's municipal complex. The bus operates Wednesdays from 8 am to 4 pm, Thursdays from 8 am to 7 pm, and Fridays from 8 am to noon. Park Ridge residents are also welcome on the bus on Thursdays.

To register for Senior Ride and schedule a ride, Montvale residents 55 years and older can call the Borough receptionist at 201-391-5700 during the hours of 9 am to 4:30 pm.

Figure 19. Complete Streets Resources Sample

Montvale 2018 Clean Up Day, Borough of Montvale Environmental Commisssion

Chapter 12.

Known Contaminated Sites

Soil and groundwater contamination are tracked by the state and federal governments at varying degrees of contamination. This includes the following type of sites and locations:

- Brownfields – extensive or long-term remediation, point source facilities that require continuous monitoring
- Community Right to Know Programs – point source sites that require ongoing, continuous monitoring; and
- Known Contaminated Sites – Point source occurrences are specific and limited.

The NJDEP Site Remediation Program maintains a list of all known contaminated sites and their status.[103] As of March 2023, there are 15 known contaminated sites in the Borough, all of which are non-homeowner sites. Statewide, there are 14,461 sites as of 2021, with 11,205 of those sites listed as active cases managed by a New Jersey Licensed Site Remediation Professional (LSRP). Sites in the State that have been confirmed as contaminated and are undergoing remedial investigation, cleanup, or awaiting assignment of a LSRP include private residences, active/abandoned manufacturing/commercial properties, and gas stations. This list does not include sites that have been successfully remediated.

Brownfields

A brownfield is "any former or current commercial or industrial site, currently vacant or underutilized and on which there has been, or there is suspected to have been, a discharge of a contaminant."[104] The State of New Jersey encourages municipalities and counties to redevelop their brownfields as part of Smart Growth initiatives. According to NJDEP's NJ-GeoWeb website, no brownfield sites were identified within in the Borough.[105]

Community Right to Know

The Community Right to Know (CRTK) program is responsible for collecting and disseminating data on hazardous substances produced, stored, or used at companies in New Jersey.[106] Companies or organizations storing certain hazardous substances in levels above specific threshold amounts are required by state and federal law to file annual reports. The Release and Pollution Prevention Report (RPPR) is used to collect information for the NJDEP Community Right to Know and Pollution Prevention programs. The RPPR gathers data on toxic chemical from multi-media environmental releases, on-site waste management, and off-site transfers, collectively known as material accounting. The Emergency Planning Community Right-to-Know Act (EPCRA) is a federal regulation that "establishes requirements … regarding emergency planning and Community Right-to-Know reporting on hazardous toxic chemicals" to increase public knowledge and information about chemical uses.

More information about NJDEP's Site Remediation Program is available here, and an up-to-date list of Known Contaminated Sites is available here.

Sources: https://www.nj.gov/dep/srp/ ; https://www.state.nj.us/dep/srp/kcsnj/

There were 15 active sites in the Borough of Montvale for the year 2021 that met the threshold for the State CRTK (**Table 18**).

Known Contaminated Sites

The Known Contaminated Sites (KCS) List for New Jersey 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.[107] Known Contaminated Sites may include:

- *Active Sites* are those with confirmed contamination that have one or more active cases and any number of pending and/or closed cases;
- *Pending Sites* are those with one or more pending cases, no active cases, and any number of closed cases; and
- *Closed Sites* are those with only closed cases and no active or pending cases.

The KCS list was produced in response to the Brownfield and Contaminated Site Remediation Act (N.J.S.A. 58:10-23.16-17) which required the preparation a list of sites affected by hazardous substances. It also satisfied obligations under the New Jersey New Residential

Table 18. Community Right to Know Sites, the Borough of Montvale			
PI Number	**Facility Name**	**Physical Address**	**Status**
00000018611	Lukoil #57332	Spring Valley Road & Summit Avenue	CRTK/RPPR
00000053669	Coining Inc.	15 Mercedes Drive	CRTK/RPPR
00000067456	Affreen Petroleum Inc.	12 Railroad Avenue	CRTK/RPPR
00000072743	Memorial Sloan Kettering Bergen	225 Summit Avenue	EPCRA Only
00000072767	Orange & Rockland Utilities	110 Summit Avenue	CRTK/RPPR
00000075387	Classic Album LLC	313 Regina Avenue	Exempt
00000076966	TJB Landscaping Services LLC	3 Crest Drive	CRTK/RPPR
00306600021	Sunoco #80003932	Garden State Parkway MN 171	CRTK/RPPR
00931401007	Orange and Rockland Utilities Inc.	131 North Kinderkamack Road	CRTK/RPPR
21471600000	Atlantis Commission Marketing, LLC	12 Railroad Avenue	CRTK/RPPR
37019300000	KNC Fuel LLC	1 Park Street	CRTK/RPPR
56396000000	Middle Ridge Inc.	28 Chestnut Ridge Road	CRTK/RPPR
58815400000	Danny Petroleum LLC	98 Kinderkamack Road & Magnolia Avenue	CRTK/RPPR
72293300000	NJ Energy Corp	30 South Kinderkamack Road	CRTK/RPPR
76650700000	Martin J Gallagher Inc.	142 Chestnut Ridge Road	CRTK/RPPR
Source: NJDEP Data Miner			

Construction Off-Site Conditions Disclosure Act (N.J.S.A. 46:3C1 et seq.).[108] Sites included can undergo a wide variety of remedial activities, ranging from relatively simple "cut and scrape" cleanups to highly complex cleanups. The sites with complex contamination issues can have several sources of contamination, which can affect both soil and groundwater at the same time.

The Site Remediation Reform Act, N.J.S.A. 58:10C-1 et seq. (SRRA), enacted in 2009, has helped to speed up the remediation process, "thus helping to decrease the threat of contamination to public health and safety of the environment, and to quickly return underutilized properties to productive use." Active sites are rated with B, C1, C2, C3, or D depending on the type of severity of the contamination defined as follows:

- B: Remedial level associated with emergency response, simple removal activities of contaminants usually no impact to soil or groundwater.

- C1: Remedial levels are associated with simple sites one or two contaminates localized to soil and the immediate spill or discharge area.
- C2: Remedial levels are associated with more complicated contaminant discharges such as multiple site spills and discharges, or more than one contaminant, with both soil and groundwater impacted or threatened.
- C3: Remedial levels are associated with highly complex and threatening sites. These sites can have multiple contaminants, some at high concentrations with unknown sources continuing to impact soils, groundwater and possibly surface waters and potable water resources. These sites are dangerous for direct contact with contaminated soils.
- D: Same conditions as C3 except that D levels are also usually designated Federal "Superfund Sites."[109]

Sites with documented groundwater contamination may also contain a Classification Exception Area (CEA), defined by NJDEP as "an area within which one or more constituent standards and designated uses are suspended." A CEA is an institutional control prohibiting the use of groundwater for a defined period of time.

Table 19 describes the Known Contaminated Sites within the Borough, noting the status (active, pending or closed) and whether the site is a homeowner property. **Table 20** and **Map 14** list the 15 active sites with confirmed contamination (non-homeowner) located within the Borough, noting the CEA status and remedial level.

Table 19. Known Contaminated Sites, the Borough of Montvale

Category	Status			Total
	Active	Pending	Closed	
Homeowner	0	2	29	31
Non-Homeowner	15	2	45	62
Total	15	4	74	93

Source: NJDEP Data Miner

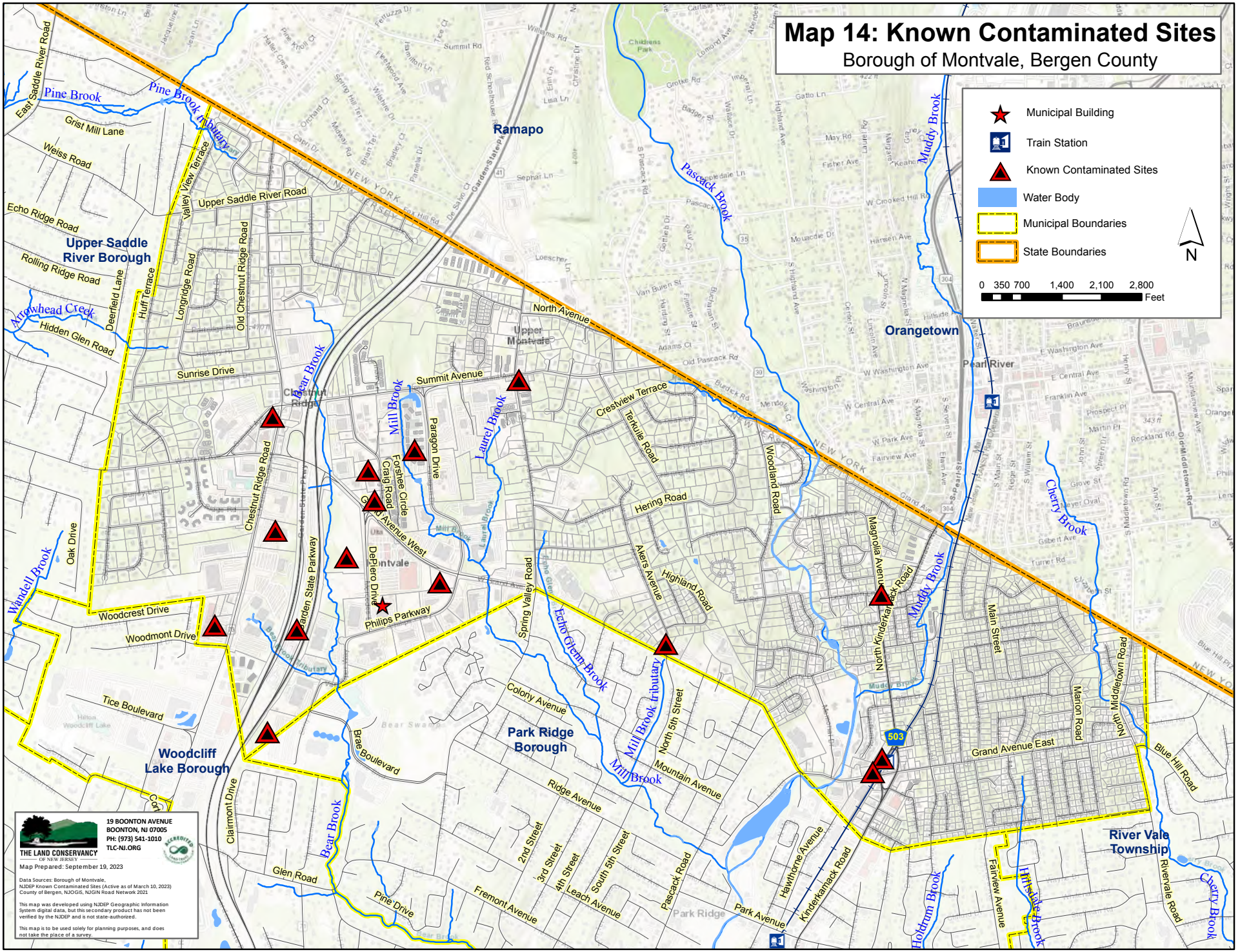

Map 14: Known Contaminated Sites
Borough of Montvale, Bergen County
Municipal Building
Train Station
Known Contaminated Sites
Water Body
Municipal Boundaries
State Boundaries
N
0 350 700 1,400 2,100 2,800
Feet
Upper Saddle River Borough
Ramapo
Orangetown
Pearl River
Upper Montvale
Chestnut Ridge
DePintvale
Park Ridge Borough
Woodcliff Lake Borough
River Vale Township
Park Ridge
Pine Brook
Pine Brook Tributary
East Saddle River Road
Grist Mill Lane
Weiss Road
Echo Ridge Road
Rolling Ridge Road
Deerfield Lane
Huff Terrace
Valley View Terrace
Upper Saddle River Road
Longridge Road
Old Chestnut Ridge Road
Arrowhead Creek
Hidden Glen Road
Sunrise Drive
Chestnut Ridge Road
Oak Drive
Wandell Brook
Woodcrest Drive
Woodmont Drive
Tice Boulevard
Garden State Parkway
Bear Brook
Bear Brook Tributary
Mill Brook
Summit Avenue
Paragon Drive
Forshee Circle
Craig Road
Grand Avenue West
DePiero Drive
Philips Parkway
Laurel Brook
North Avenue
Crestview Terrace
Terkuile Road
Hering Road
Woodland Road
Spring Valley Road
Echo Glenn Brook
Mill Brook tributary
Colony Avenue
Brae Boulevard
Ridge Avenue
Mountain Avenue
North 5th Street
Clairmont Drive
Glen Road
Pine Drive
Fremont Avenue
2nd Street
3rd Street
4th Street
South 5th Street
Leach Avenue
Pascack Road
Park Avenue
Hawthorne Avenue
Kinderkamack Road
Pascack Brook
Pascack Brook tributary
Muddy Brook
Akers Avenue
Highland Road
Magnolia Avenue
North Kinderkamack Road
Main Street
Grand Avenue East
Marion Road
North Middletown Road
Blue Hill Road
Riverdale Road
Cherry Brook
Holdrum Brook
Fairview Avenue
Hillsdale Brook
503
THE LAND CONSERVANCY OF NEW JERSEY
19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973) 541-1010
TLC-NJ.ORG
Map Prepared: September 19, 2023
Data Sources: Borough of Montvale, NJDEP Known Contaminated Sites (Active as of March 10, 2023) County of Bergen, NJOGIS, NJGIN Road Network 2021
This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.
This map is to be used solely for planning purposes, and does not take the place of a survey.

Table 20. Active Sites with Confirmed Contamination (Non-Homeowner), the Borough of Montvale					
Site ID	**PI Number**	**PI Name**	**Address**	**CEA Status**	**Remedial Level**
011638	001371	Montvale Shell	98 North Kinderkamack	Ongoing	C2
011643	014881	Sunoco #800003932-0225-5370	Garden State Parkway Mile Marker 171 - Montvale Service Plaza	Ongoing	D
011645	025326	Atlantis Commission Marketing LLC	12 Railroad Avenue		C2
011648	006233	Lukoil #57332	105 Spring Valley Road	Ongoing	C2
011654	764068	Lustre Cleaners, Inc.	2 Railroad Avenue		B
011657	026436	Global Montello Group #5720	128 Chestnut Ridge Road	Ongoing	C2
011659	G000003577	Handy & Harman Electronic Materials Corp	20 Craig Road	Ongoing	D
055231	025472	International Paper Co	75 Chestnut Ridge Road		B
054090	022926	Chestnut Ridge Plaza	20 Chestnut Ridge Road	Ongoing	D
031866	G000038603	Lettie Press Incorporated	295 Grand Avenue		
651787	843756	ORU Transformer	8 Akers Avenue		B
665047	943990	12 Van Riper Road	12 Van Riper Road		B
168092	918882	Village Springs at Montvale	2 Paragon Drive		C2
179157	015604	Tri Boro Square	100 900 Market Street	Ongoing	C1
661272	921025	West Grand Avenue and Phillips Parkway	West Grand Avenue and Philips Parkway		B
Source: NJGIN Open Data. KCSL (Non-Homeowner).					

Appendix

Category 1 Waterways and Land Protection in the Borough of Montvale prepared by the Borough of Montvale Environmental Commission (2022)

Category 1 Waterways and Land Protection in Montvale

For many years the New Jersey Department of Environmental Protection (NJDEP) has been adding layers of protection to waterways and wetlands throughout the state in order to improve degrading water quality and the overall environment

The NJDEP created designations and related regulations for waterways and specific natural resources, such as wetlands. These regulations limit development which would impair or destroy valuable natural resources and/or degrade water quality. Preserving the integrity of specific waterways and ecosystems is vital to maintaining the quality of our water and the environment that requires it.

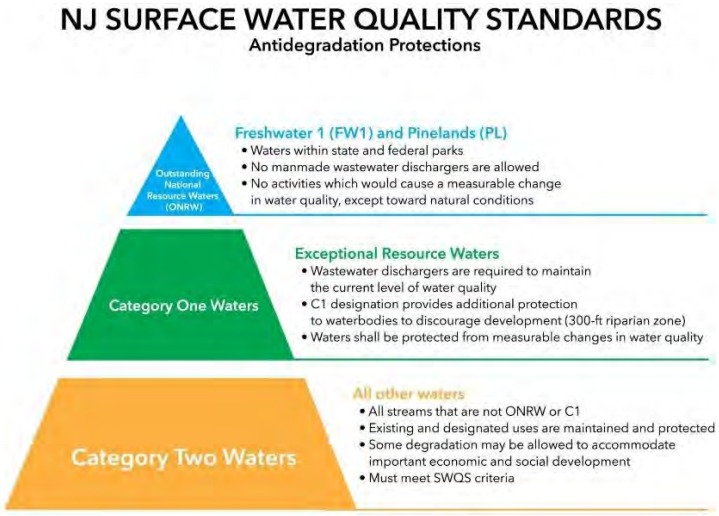


FIGURE 1 - NJDEP 3-Tier Protection System*

The NJDEP uses a three-tiered system to categorize waterway protection:

- **Outstanding Natural Resource Waters.** These waterways, many in the Pinelands National Reserve, are set aside in their natural state for posterity.
- **Category One (C1) waterways** are noted for their exceptional ecological, water supply, recreation, and/or fisheries values. Over 7,400 miles of waterways in New Jersey are now designated as Category One waterways, including **11 right here in Montvale**.

For some time, C1 waterways and surrounding land has been protected under the Flood Hazard Area Control Act https://www.nj.gov/dep/landuse/fha_main.html. More recently the NJDEP added rules to specifically improve water quality and protect against flood damage by protecting undeveloped areas surrounding C1 waterways.

- **Category 2 (C2) waterways** are those waterways that are not designated as Outstanding Natural Resource Waters or Category One.

What's the value of protecting Category One Waterways?

C1 water quality is important to residents for many reasons including:

- drinking water sources
- recreation
- fishing
- habitats for wildlife

Where are protected Category One (C1) Waterways in Montvale?

The Borough of Montvale is unique in that we currently have 11 Category 1 protected waterways. This protection includes all tributaries off of these waterways, and we have many including Huff Pond.

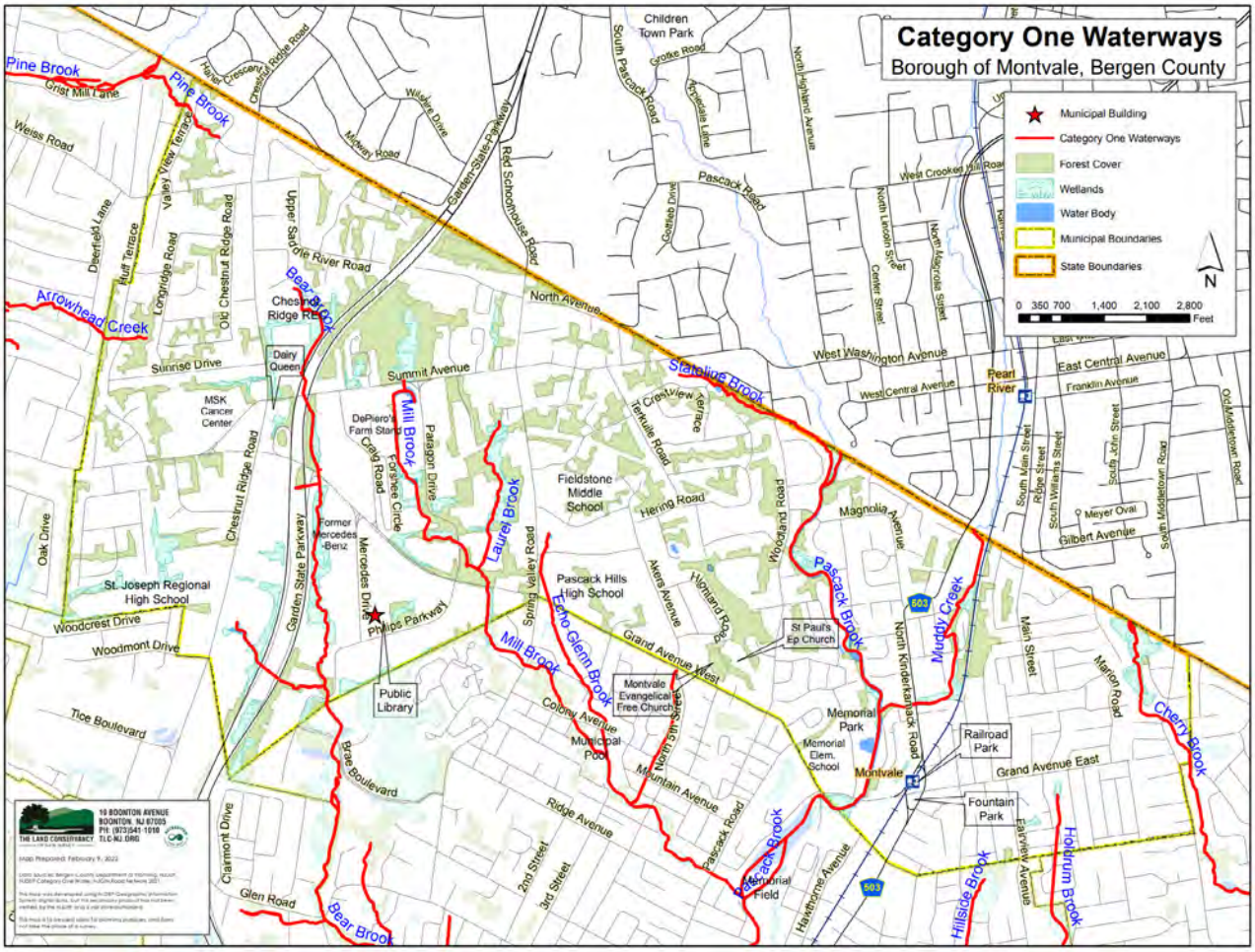


Figure 2 - Montvale Contains Eleven DEP Category 1 Waterways

As of 2023 the Category 1 waterways in Montvale include:

1) Arrowhead Creek 2) Pine Brook 3) Bear Brook 4) Mill Brook 5) Laurel Brook 6) Echo Glenn Brook 7) Stateline Brook 8) Pascack Brook 9) Muddy Creek 10) Holdrum Brook 11) Cherry Brook

What kinds of waterway regulations do we have here in Montvale?

There are two distinct and overlapping NJDEP areas of jurisdiction:

1. The flood hazard area rules
2. The riparian zone rules

Protected areas around large development areas are called Special Water Resource Protection Areas or SWRPA. Under the flood hazard rules a SWRPA is the 300-foot area on each side of a surface water body designated as a C1 water, or tributary to a C1 water that is a perennial stream, intermittent stream, lake, or pond. These areas are designated on the USGS quadrangle map or in the County Soil Surveys.

More recent rules intended to limit all C1 disturbance introduce a 300-foot buffer around along ALL C1 waterways called a "riparian zone". A SWRPA and a riparian zone often overlay each other so currently handled under different rules yet DEP proposals are progressing to merge them.

Riparian zone regulations are intended to limit disturbances to the vegetation adjacent to a watercourse. Vegetation that grows along the banks and in the riparian zone of a waterway is essential for maintaining bank stability and water quality. Disturbance of this vegetation can destabilize the banks of waterways, leading to increased erosion and sedimentation that increases the intensity and frequency of flooding.

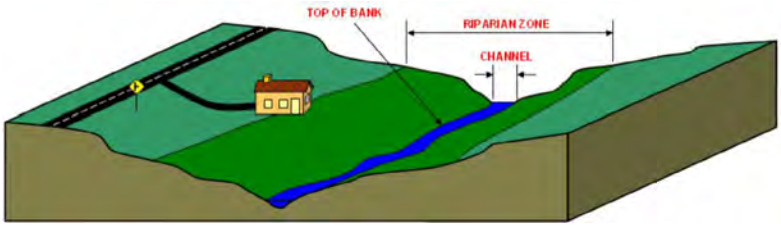


Figure 3 – DEP Regulated Riparian Zones*

Published DEP research has shown that vegetated riparian zones reduce adverse impacts to water quality so limited new construction is allowed in these areas.

What does this mean to Montvale?

Having 11 C1 waterways here in Montvale, spanning over 7 miles in length over 20% of the land in Montvale falls under DEP Category 1 regulations[1], not including Freshwater Wetlands which are also protected under separate NJDEP regulations discussed below. The NJDEP does accommodate for maintaining existing construction as well as minor necessary disturbances.

[1] Protected C1 Land = 7mi * 5280ft/mi length * 650ft width = 24M sq ft
(24M sq ft protected land)/(112M sq ft total Borough land)*100 = 21.4%

Freshwater Wetlands in Montvale

Freshwater wetlands are also found throughout Montvale and carry related but different NJDEP regulations. Wetlands were once considered worthless swampland but today are recognized for their vital contributions.

In 1987 wetlands and surrounding land became protected by the New Jersey Department of Environmental Protection (NJDEP) to "preserve the purity and integrity of freshwater wetlands from random, unnecessary or undesirable alteration or disturbance". This protection was put in place after loss of over 50% of wetlands in New Jersey. Wetlands including a dry land buffer up to 150ft around wetlands carry strict limits on what you can do on that land. These regulations expand well beyond construction and include tree cutting and dumping of leaves and debris.

For information specifically regarding NJ freshwater wetlands please see the information the Montvale Environmental Commission published HERE or at the NJDEP wetland page found HERE.

Do I have protected land and/or waterways on my property?

If your property is within 300 feet of a waterway in Montvale, or you have land nearby that remains wet for at least part of the year, you likely have regulated property. The best way to find out about the location of these regulated lands is to find your property on one of the NJDEP and/or Federal GIS mapping tools and observe local associated waterways and/or tributaries.

Here are a NJDEP GIS mapping tools you can use to observe your property and any nearby land C1 waterways and/or wetlands:

https://www.nj.gov/dep/gis/geowebsplash.htm

Here are a Federal mapping tools you can use to observe your property and nearby restrictions:

https://maps.waterdata.usgs.gov/mapper/index.html

What does this mean for me/my property?

If your property is within 300 feet of a waterway, or you have land nearby that remains wet for at least part of the year, you likely have regulated property which likely requires a permit before any construction, tree or vegetation removal, or any type of land disturbance. You should inform all contractors who might disturb that land outside of your house before they start any work, including architects, landscapers, and builders. If a violation of NJDEP regulations takes place, the property owner may receive violations which can carry significant fines and additional restrictions.

For more information about Category 1 waterway regulations visit the NJDEP page at https://www.nj.gov/dep/landuse/fha/fha_rz.html

For more information regarding NJ freshwater wetlands see the NJDEP page at https://www.nj.gov/dep/landuse/fww/fww_main.html and the Montvale Environmental Website at https://montvale.org/boards/environmental

How can we help to protect these waterways and surrounding land in Montvale?

The best way to help is to understand the rules and share them with others. The NJDEP asks us all to watch out for violations and inform them so they may take appropriate actions. If you see something that might result in a violation, let them know by calling them anonymously at 1-800WARNDEP (1-800-927-6337) 24/7.

Even though the NJDEP rules regarding Category 1 waterways have been in place for many years, many are still not aware of their responsibilities and in some cases liabilities when it comes to regulated activity. The rules are strict and penalties for violations can be significant.

It is everyone's responsibility as property owners to understand the rules and regulations that govern our properties.

Bottom line is that we have a lot of highly regulated land in Montvale so residents and contractors must be aware of the protected lands on and around our property to ensure we comply with State regulations. If you have any question about NJDEP land use rules that govern wetlands or category 1 waterways, resources are available to answer your questions.

For more information: https://www.nj.gov/dep/newsrel/2020/20_0013.htm

To contact the NJDEP with any questions or concerns please call them at 1-800-927-6337 or 1-800 WARNDEP

*Credit: New Jersey Department of Environmental Protection

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