Farming in Agricultural District #2 and the Wallkill Valley: Prime Soils, Economic Activity, and Postglacial Landscapes

The eastern and western boundaries of Agricultural District #2 converge at its northernmost location. This is in Rosendale, in the Hamlet of Tillson, with a small portion on the other side of the New York State Thruway in Esopus. Heading south, New Paltz and Plattekill west of the Thruway are in the District. This District widens to encompass all of Gardiner and Shawangunk. The boundary of Plattekill and Shawangunk with Orange County is the District's southernmost extent. Agricultural District #2 is centered around the Wallkill River with a network of major roads that crisscross it (see Appendix 1). This area is the Wallkill Valley in Ulster County and includes higher elevations in the west of Shawangunk. Looking at a map, the area is shaped like a wedge. Technically, Agricultural District #2 is all the tax parcels included in the New York State Certified Agricultural District Program located within this area.

Farming in the Wallkill Valley

When focusing on crops other than hay and pasture, the amount of farmland increased from 2015 to 2020 according to USDA CropScape data. Figure 1 shows that much of the farmland

USDA CropScape Land-Use Categories	2015 Acreage	2020 Acreage
Including Alfalfa, Grassland/Pasture, Other Hay/Non-Alfalfa	21,092.51	19,657.85
Not Including Grassland/Pasture	12,542.58	11,986.59
Not Including Alfalfa, Grassland/Pasture, Other Hay/Non-Alfalfa	4,283.98	4,672.28

Figure 1: Estimated Farmland Acreages for 2015 and 2020 in the Area containing Agricultural District #2

in Agricultural District #2 is used for haying and pasture. This acreage decreased a little but stayed roughly the same. [1] When excluding land for haying and pasture, the amount of farmland increased for cash crops, particularly fruits and vegetables. Grains like soybeans and specialty crops like Christmas trees and sod also saw increases in their acreage. Altogether, the acreage for these crops increased by about 388 acres.

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[1] According to USDA CropScape data, the amount of farmland went from 21,092.51 acres to 21,912.04 acres from 2015 to 2021 when including hay and pasture. Issues about the accuracy of 2021 CropScape data for Ulster County are discussed in this report.

CropScape data show a greater variety of crops being grown. Since 2015, crops ideal for direct sales like sunflowers, onions, squash, pumpkins, and sweet corn, among others, saw increases in acreage planted. General categories in this data called "Other Crops" and "Misc. Fruits and Vegetables" started appearing recently. Some crops in these categories are Brussels sprouts, broccoli rabe, kohlrabi, and rhubarb. Agritourism's presence in the area also increased visibly.

Much farming in the Wallkill Valley takes place outside Agricultural District #2 and on tax parcels with property class codes for rural residential, vacant, or other types of non-agricultural tax parcels. This means there are farms with land outside a state certified agricultural district and on tax rolls as something other than agriculture. This sometimes characterizes an entire farm, but usually only a portion of a property. While these properties form a presence in the Wallkill Valley and western Shawangunk, they are a minority of farming operations. What is common are fields hayed outside the District and on properties often classified as vacant or rural residential. CropScape data and aerial photographs show these fields throughout Agricultural District #2.

Acreage devoted to apple growing increased from 2015 to 2020 in Agricultural District #2. USDA CropScape data show an increase from 1,673 to 1,774 acres. Data from 2021 is an outlier, though. It shows a decrease in acreage used for apple production. A USDA news release[2] from May 5, 2022 reported that apple production was down 4% in New York from 2020 to 2021. It said "heavy rains in September hindered fresh harvest" of this crop.[3]

But the USDA news release also said apple-bearing acreage remained unchanged in the state. Satellite imaging and field observations confirm this.[4] Orchards in the District are still there and were operating normally ahead of the 2021 storms. This past year (2022) has been better without the weather disruptions[5]. (See Appendix 2 for a map showing typical crop locations.)

Even before these recent, powerful storms, climate had a profound impact on the District.

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[2] United States Department of Agriculture, National Agricultural Statistics Service, New York Field Office. (2022, May 5). *New York apple harvest hindered by September rains.* [News Release].

[3] Along with the weather, a lack of farm workers complicated farming in 2021. This would have played a role in crops left unharvested and actively farmed fields becoming uncut grasslands.

[4] CropScape for 2021 includes remotely sensed data for New York State from the last few days of September. Data collection from different sources often ended around the same time: Resourcesat-2 (9/25/2021), Landsat-8 (9/11/2021), Sentinel-2A (9/29/2021), Sentinel-2B (9/27/2021). These last few satellite flyovers would have normally captured areas with apple production but saw areas with idle farmland. Agricultural District #1, the area with the most orchards, also saw a decrease in acreage for apple production in 2021. https://www.nass.usda.gov/Research_and_Science/Cropland/metadata/metadata_ny21.htm

[5] At least one orchard in Shawangunk and another in Plattekill are for sale and weren't in production in 2022.

Valleys and Soils

Glaciers in New York carved valleys out of its landscape. The last glacier left the Mid-Hudson Region around 10,000 years ago, retreating northward as the Earth was warming and leaving an ice age behind. Glaciers formed and left lakes, rivers, and hills in their wake. Wind, rain, and biology did their part to weather material and shape this landscape, too. But rivers played an especially important role in making these valleys fertile. Rivers meandered across valley floors, wearing down rock material left by glaciers. In time, alluvial soils were created, and they are excellent for farming. The Wallkill Valley is one of the places where this happened.

Soils and Capability Classes

Prime soils cover much of Agricultural District #2 and the Wallkill Valley. Within the area containing Agricultural District #2 and its tax parcels, prime soils cover an estimated 56.46%. This is about 52,971 acres. New York State classifies these soils into Mineral Soils Groups 1 through 10, also referred to as capability classes. These are the soils that contribute to lowering farm operations' property tax assessments. In other words, they contribute to a tax reduction. Much of this area is covered by soils in capability classes 1 through 4, which are soils identified as more productive for crop production than those in 5 through 10. For that reason, soils in classes 1 through 4 contribute more to lowering an agricultural tax assessment. Of the 52,971 acres of prime soil coverage, these very productive soils have a surface area estimated at 46,184 acres (see Appendix 3). Most of the prime soils in Agricultural District #2 and the Wallkill Valley are the best prime soils.

Inside agricultural district parcels, prime soils cover much of the ground. Prime soils cover 74.24% of the acreage in agricultural district tax parcels, about 38,256 acres. More specifically, prime soils in Mineral Soils Groups 1 through 4 cover 67.82% of the acreage or approximately 34,947 acres. Soils in capability classes 1 through 4 compose most of the prime soil coverage found in Agricultural District #2's tax parcels (see Appendix 4). Farms located on properties with the best soils, and the subsequent formation of the District reflects this.

Farming Activity and Tax Parcels

One can find a variety of agriculture across Agricultural District #2. There's a mix of crop and livestock production that takes up a lot of space across the District. But the level of farming activity isn't only reflected by what's grown or raised.

Tax assessment rolls reflect farming activity. There were 19 tax parcels, or 440.02 acres, designated as agriculture by local tax assessors in 2015, but stopped being designated as such by 2022. Yet, from 2015 to 2022, another 67 tax parcels became designated as agriculture. This is an area of 4,293.26 acres or a net gain of 3,853.24 new acres receiving an agricultural tax assessment (see Appendix 5). The number of parcels qualifying for this assessment surged in the

last six or seven years.[6] This means more land is being used to meet gross sales requirements needed to qualify for the tax reduction. Direct sales through farm stands and agritourism aided the level of economic activity seen in Agricultural District #2. Tax assessment rolls reflect an increased level of farming activity.

Even before 2015, many parcels newly designated as agriculture were already in Agricultural District #2. Of the 67 tax parcels, there were 54 that had been included in the District even before 2015. This is land deemed viable because it was part of a commercial farm operation that received an agricultural tax assessment a few decades prior. But later these tax parcels saw diminished farming activity or none. Now, these parcels host a level of commercial production that allows tax assessors to give them property class codes signifying agriculture. New farms established themselves on these parcels. Also, existing farms further maximized the use of these parcels in their agricultural production. Prime soils on these properties helped lower agricultural tax assessments even more.

Field Crops and Orchards
Field crops occupy a lot of farmland in Agricultural District #2. Of all the tax parcels designated as agriculture by local assessors, the largest number have property class code 120, which is for field crops. Field crops do well in a wide, flat area like much of the Wallkill Valley. The amount of space available lends itself to extensive agriculture like field crop production that requires relatively lower levels of input per unit of agricultural land area. As such, field crops grow throughout much of Agricultural District #2.

In the eastern part of the District, it gets hillier. Fewer tax parcels are used for field crops. Rather, tax parcels with property class codes for orchard crops (150) and stone fruit (151) form concentrations of fruit production in New Paltz, Gardiner, and Plattekill. Both categories include apples, and there are many apple orchards in this area. The hilly terrain is formed by glacial deposits and creates changes in elevation over short distances, which suits fruit production and orchards.

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[6] There were 261 tax parcels that received an agricultural tax assessment in 2015. Over the next several years, 19 of these stop qualifying for this assessment. Over this same period, though, 67 other parcels qualified, bringing the total to 309 parcels with an agricultural tax assessment at the time of writing this analysis for New York State.
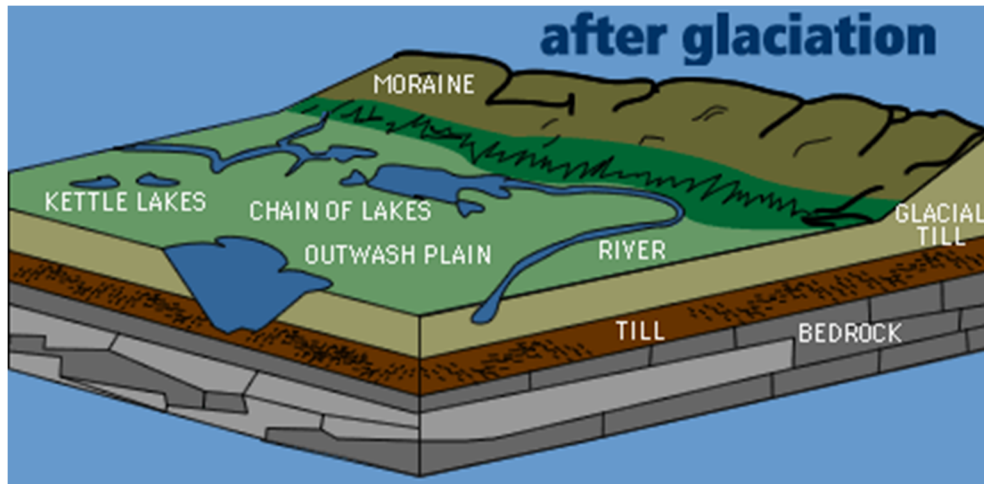
Figure 2: Postglacial Landscape

Excellent soils have long made Agricultural District #2 ideal for farming. Its topography, formed by glaciers, helped determine where different kinds of farming currently take place. The specific conditions conducive to farming in the District began taking shape long ago.

List of Figures and Appendices

Figure 1: *Estimated Farmland Acreages for 2015 and 2020 in the Area containing Agricultural District #2.* USDA National Agricultural Statistics Service, CropScape – Cropland Data Layer. https://nassgeodata.gmu.edu/CropScape/

Figure 2: *Postglacial Landscape.* Image taken from the Minnesota Shoreland Management Resource Guide. https://www.shorelandmanagement.org/quick/ei.html

Appendix 1: Selected Geographic Features in Agricultural District #2 – 2022

Appendix 2: USDA CropScape Land-Uses from 2020 (Typical Crop Locations in Agricultural District #2)

Appendix 3: Prime Soils in the Area Encompassing Agricultural District #2 with a Focus on Mineral Soils Groups 1 through 4

Appendix 4: Prime Soils Coverage within Agricultural District #2

Appendix 5: Tax Parcels Designated as Agriculture by Local Assessors
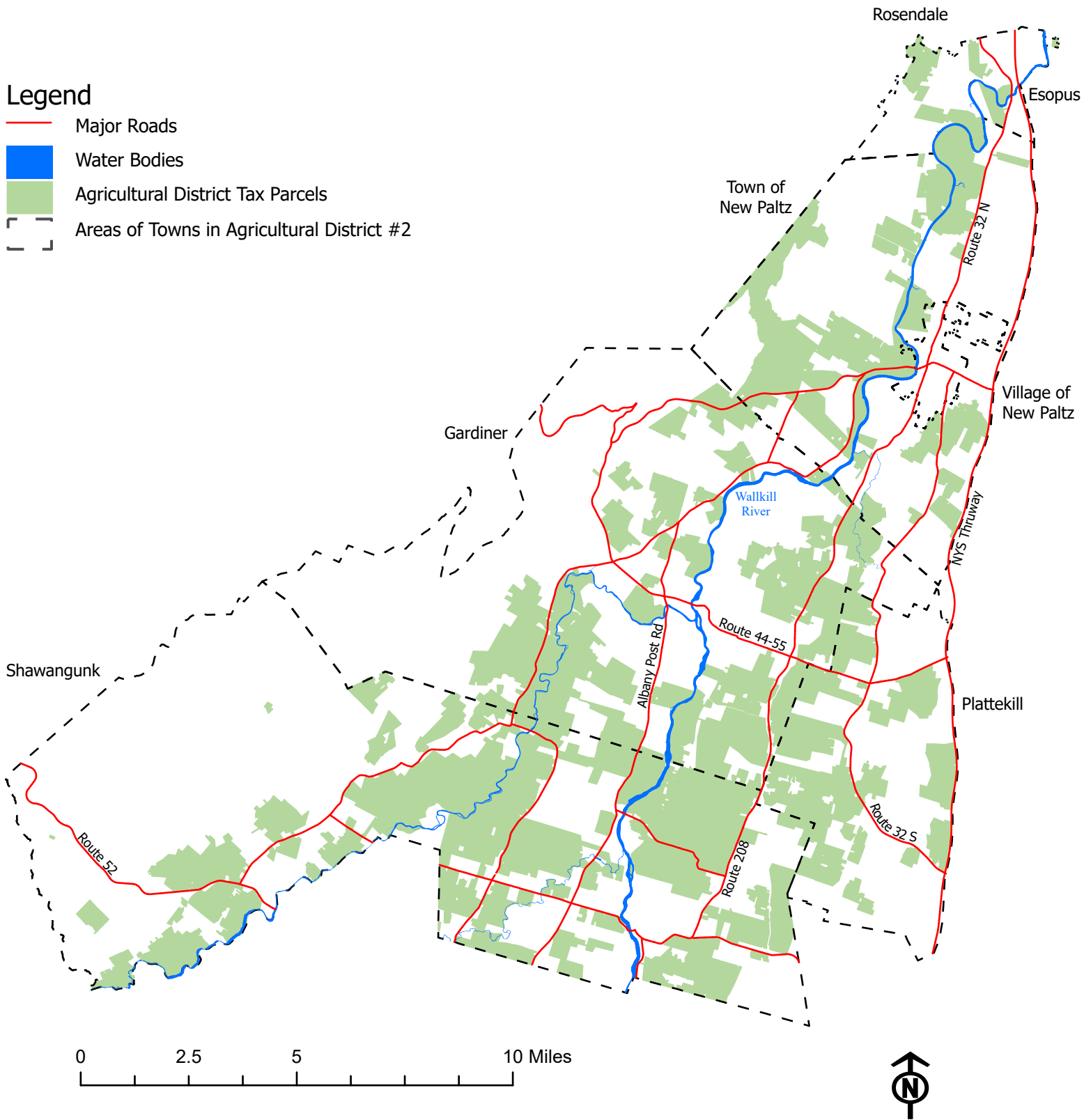
Note:
This analysis was taken from a report dated 3/1/2023. It was prepared for the review required by the New York State Department of Agriculture and Markets completed August 2023.

Burt Samuelson, August 15, 2023

Appendix 1:
Selected Geographic Features in Agricultural District #2 - 2022

Rosendale

Esopus

Legend
— Major Roads
▬ Water Bodies
▨ Agricultural District Tax Parcels
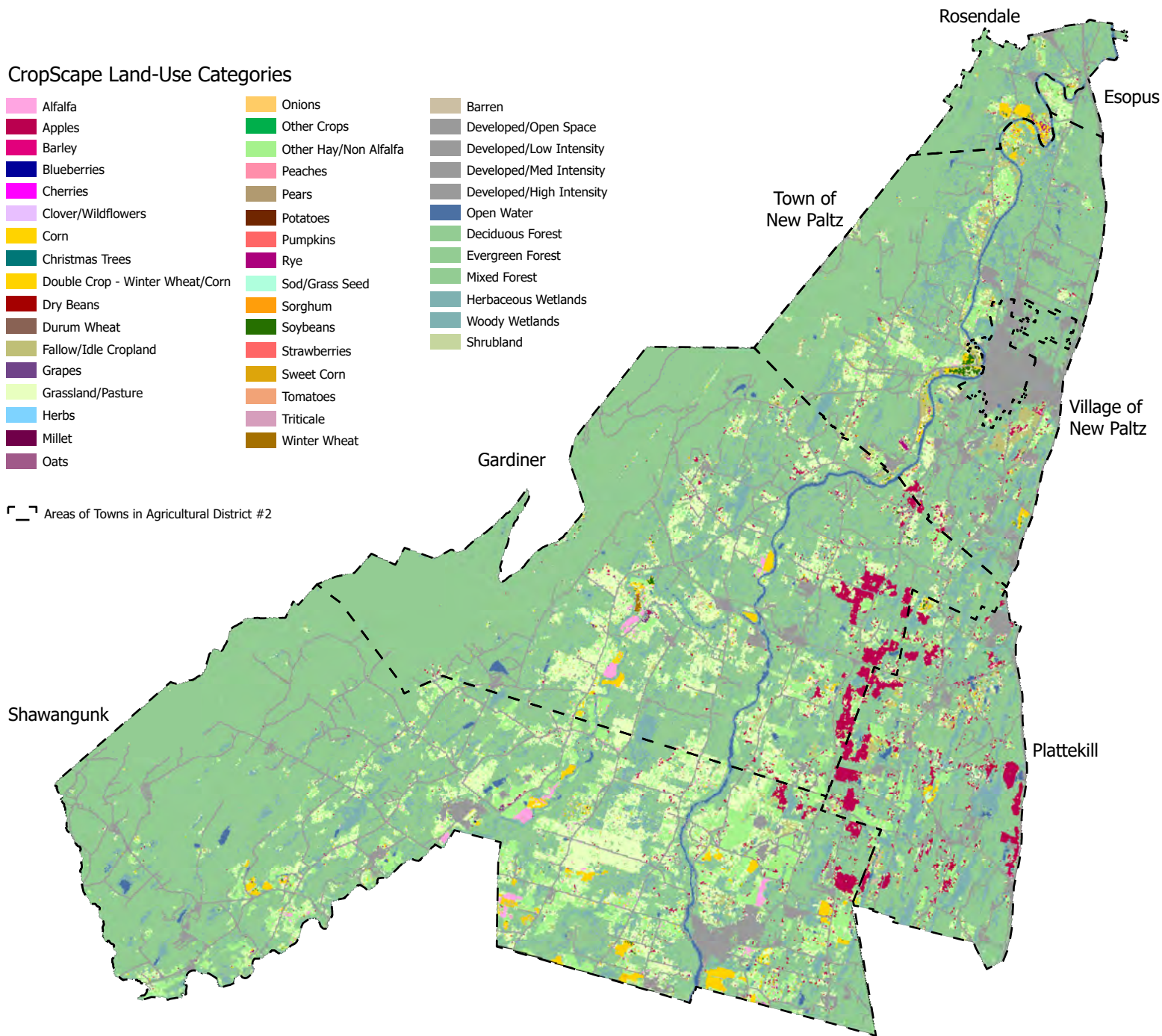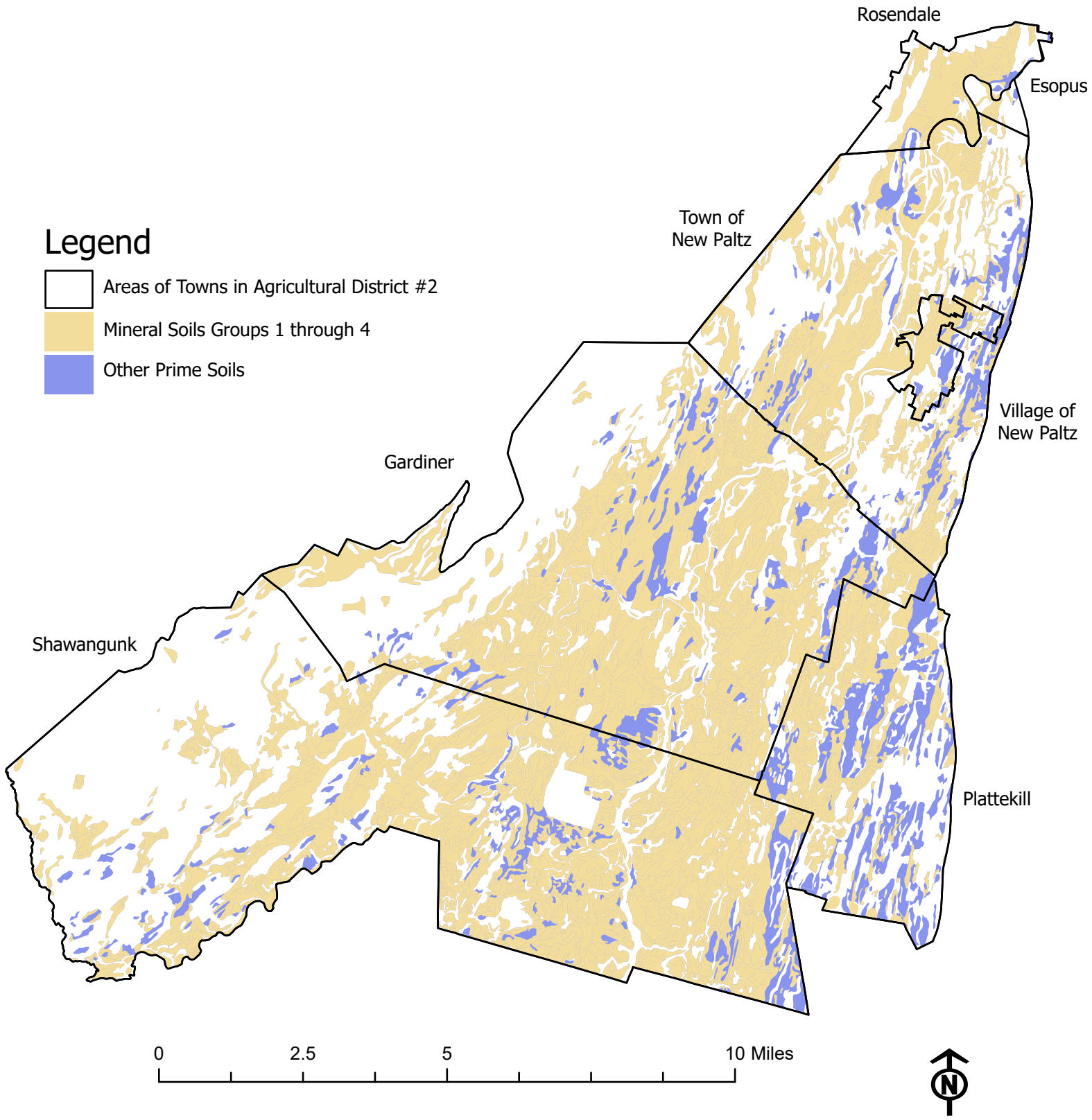▢ Areas of Towns in Agricultural District #2

Town of
New Paltz

Route 32 N

Village of
New Paltz

Gardiner

Wallkill
River

NYS Thruway

Route 44-55

Albany Post Rd

Shawangunk

Plattekill

Route 208

Route 32 S

Route 52

0   2.5   5   10 Miles

N

Appendix 2:
USDA CropScape Land-Uses from 2020
(Typical Crop Locations in Agricultural District #2)

CropScape Land-Use Categories

- Alfalfa
- Apples
- Barley
- Blueberries
- Cherries
- Clover/Wildflowers
- Corn
- Christmas Trees
- Double Crop - Winter Wheat/Corn
- Dry Beans
- Durum Wheat
- Fallow/Idle Cropland
- Grapes
- Grassland/Pasture
- Herbs
- Millet
- Oats

- Onions
- Other Crops
- Other Hay/Non Alfalfa
- Peaches
- Pears
- Potatoes
- Pumpkins
- Rye
- Sod/Grass Seed
- Sorghum
- Soybeans
- Strawberries
- Sweet Corn
- Tomatoes
- Triticale
- Winter Wheat

- Barren
- Developed/Open Space
- Developed/Low Intensity
- Developed/Med Intensity
- Developed/High Intensity
- Open Water
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Herbaceous Wetlands
- Woody Wetlands
- Shrubland

Areas of Towns in Agricultural District #2

Rosendale

Esopus

Town of New Paltz

Village of New Paltz

Gardiner

Shawangunk

Plattekill

0   2.5   5   10 Miles

N

Map created at the Ulster County Planning Department
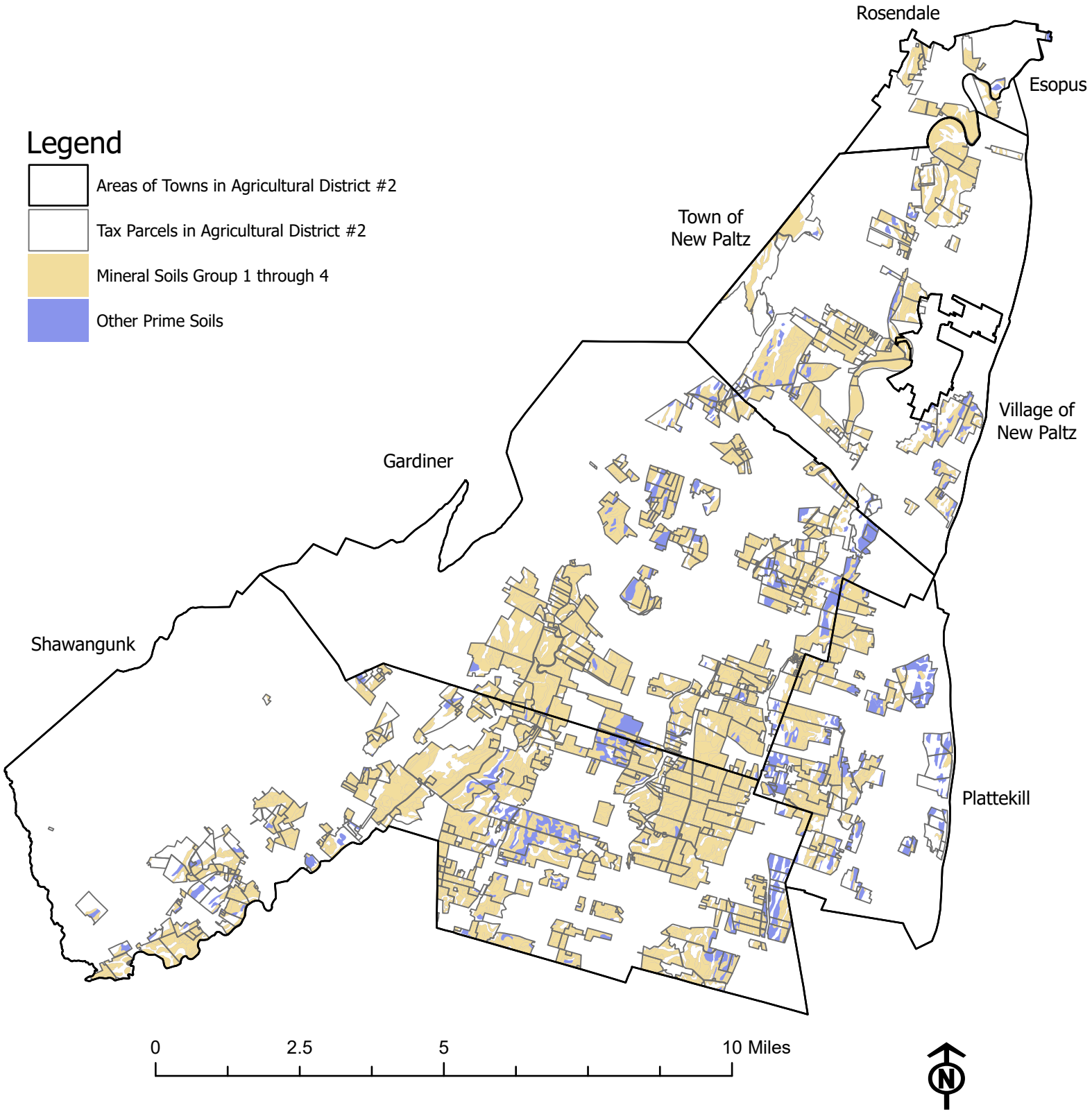by Burt Samuelson on October 6, 2023.

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Appendix 3:
Prime Soils in the Area Encompassing Agricultural District #2
with a Focus on Mineral Soils Groups 1 through 4

Rosendale

Esopus

Town of
New Paltz

Legend

☐	Areas of Towns in Agricultural District #2
▨	Mineral Soils Groups 1 through 4
▨	Other Prime Soils

Village of
New Paltz

Gardiner

Shawangunk

Plattekill

0   2.5   5   10 Miles

N

Map created at the Ulster County Planning Department
by Burt Samuelson on December 6, 2022.

Appendix 4:
# Prime Soils Coverage within Agricultural District #2 Tax Parcels

Legend

- Areas of Towns in Agricultural District #2
- Tax Parcels in Agricultural District #2
- Mineral Soils Group 1 through 4
- Other Prime Soils

Rosendale

Esopus

Town of New Paltz

Village of New Paltz

Gardiner

Shawangunk

Plattekill

0   2.5   5   10 Miles

N

Appendix 5:
Tax Parcels Designated as Agriculture by Local Assessors

Rosendale

Esopus

Town of New Paltz

Legend

- - - Municipal Boundaries

Designated Agricultural After October 2015

Designated Agricultural Before October 2015

Changed to Non-Agricultural After October 2015

Area Containing Agricultural District #2

Village of New Paltz

Gardiner

Shawangunk

Plattekill

| 0 | 2.5 | 5 | 10 Miles |

N
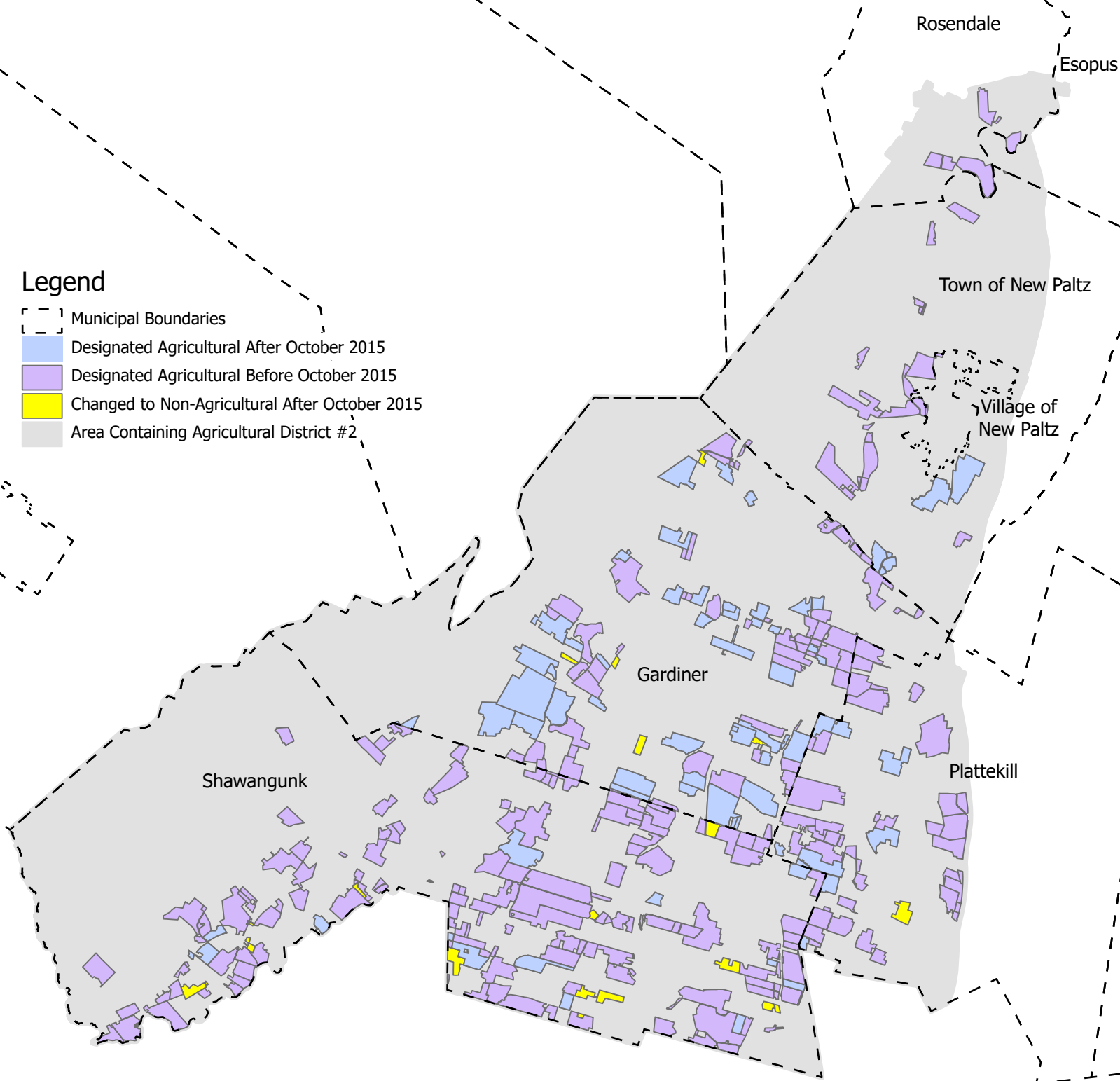
Map created at the Ulster County Planning Department
by Burt Samuelson on November 17, 2022.