# TOWN OF MURRAY

# AGRICULTURAL & FARMLAND PROTECTION PLAN


August 2023

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## APPENDICES

# INTRODUCTION

## Background and Purpose

During the process of preparing an updated Comprehensive Plan, the Town of Murray elected to seek funding from the NYS Department of Agriculture & Markets in 2022 to prepare a townwide Agricultural & Farmland Protection Plan. As most of the land in the Town of Murray is agricultural, the Town recognized that an Agricultural and Farmland Protection Plan would offer additional detail and guidance for Town policies and regulations as they relate to agriculture and farmland protection. The Plan includes reference maps, policies and recommendations. The Plan will be used by Town boards, officials and residents to gain a better understanding of the Town's agricultural resources and the significance of agriculture within the community and to guide future actions to support farmers and the agricultural industry.

# FARMER & PUBLIC PARTICIPATION

## Advisory Committee Meetings

The Town of Murray established an Advisory Committee to guide the preparation of the Murray Agricultural & Farmland Protection Plan. The following Town residents and County officials served on the Advisory Committee:

- Michael Mele (farmer, Town Board member)
- Amy Machamer (farmer, NYS Advisory Council on Agriculture)
- Alex Penna (farmer)
- James Bensley (Orleans County Planning Director)
- Robert Batt (Cornell Cooperative Extension of Orleans County)

The Advisory Committee met four times during the course of the planning program:

- August 29, 2022
- December 5, 2022
- January 9, 2022
- June 5, 2023

## Stakeholder and Landowner/Operator Interviews

The consultants conducted one-on-one interviews with several farmers and agency representatives to identify issues and opportunities from a variety of perspectives. Representatives from the following organizations and agencies were interviewed:

- Soil & Water Conservation District (SWCD)
- Orleans County Planning Director
- Cornell Cooperative Extension of Orleans County
- Orleans County Office of Tourism / Chamber of Commerce
- Genesee Valley Land Trust

## Public Meetings

The Town organized a Farmer Forum which was held on March 2, 2023 at the Murray Town Hall. The purpose of the meeting was to inform and encourage input from farmers, farmland owners and residents in the Town. All farmland owners in the Town received a notice in the mail inviting them to participate. Presentations by the Orleans County Soil & Water Conservation District, Cornell Cooperative Extension and LaBella Associates presented information about the Agricultural Environmental Management program, Orleans County Agricultural Districts, and farm business and other technical assistance and resources available to farmers and landowners.

At the March 2 Farmer Forum, the consulting team facilitated an exercise to identify Strengths, Weaknesses, Opportunities and Threats (SWOT) relating to agriculture and farmland in the Town. The following table summarizes the results of the discussion.

**SWOT Analysis Results – Town of Murray Farmer Forum, March 2, 2023**

| Strengths | Weaknesses |
|---|---|
| • Erie Canal<br>• Railroad<br>• Soils<br>• Transportation infrastructure (east-west roads)<br>• Nutrien – Ag supplies in Town (fertilizer, pesticides)<br>• Micro-climate for fruit<br>• Fresh produce<br>• Location – near markets<br>• Town Right to Farm Law<br>• History – legacy of farming<br>• Open views | • Hard to find local laws, Town codes<br>• Costs – labor, etc.<br>• Taxes<br>• Labor laws – esp. mandatory overtime<br>• Competition with other states<br>• Few buyers - commercial |
| **Threats** | **Opportunities** |
| • Solar energy development (large and small) | • Agri-tourism<br>• Connect to Canal – farm stand along Canal?<br>• Take advantage of tourist traffic at campgrounds and Canal<br>• RV parks – potential market for fresh produce<br>• Increase access to markets<br>• Better use of “prime if drained” soils by installing better tile drainage<br>• Railroad |

## Mailings

In advance of the Town Board public hearing, farmland owners received a notice in the mail of the public hearing and a copy of the Executive Summary.

## Orleans County Agricultural & Farmland Protection Board

The Orleans County Agricultural & Farmland Protection Board reviewed and discussed the draft Plan and recommended approval at its meeting on July 12, 2023.

## Town Board Public Hearing

Town Board conducted a Public Hearing on the draft Plan on August 2, 2023. Farmers and farmland owners in attendance suggested that the plan include additional support for adoption of organic farming practices as well as additional focus on drainage improvements. These suggestions were incorporated into the final plan.

# CURRENT CONDITIONS

## Community Profile

### *Location*

The Town of Murray is in the western part of Orleans County. It is bordered on the west by the Town of Albion, on the north by the Town of Kendall, on the south by the Town of Clarendon, and the east by the Town of Clarkson. (See Map 1: Regional Setting.)

### *Population and Development Trends*

In general, the population of the Town of Murray has remained stable over the past several decades. According to the most recent census data (2021 Five-Year Average), 4,776 people reside in the Town of Murray.

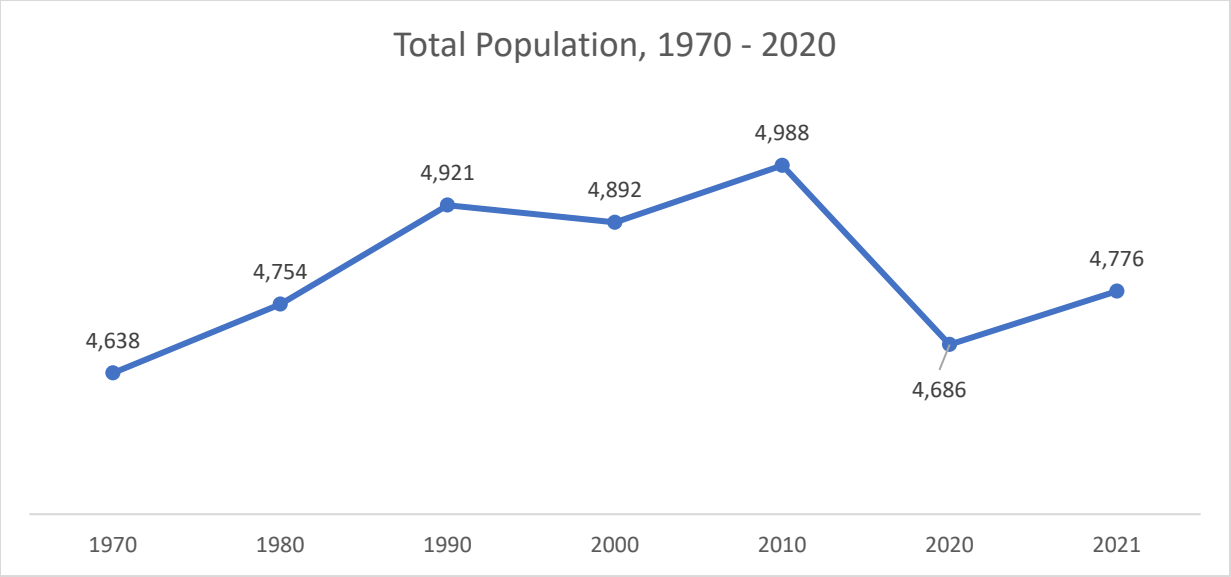



*Figure 1: Population Trends, 1970 - 2021*

Based on 2020 Census data, there are approximately 1,914 occupied housing units in the Town, of which approximately 1,418 are single-family structures, 225 are manufactured homes, and 271 are

housing units in structures with two or more units. A total of 1,474 are owner-occupied, and 440 are renter-occupied.

Over the past ten years, approximately 15 new homes were constructed in the Town. Demand for new residential development pressure is limited to single-family homes on sites scattered throughout the Town.

Residences are clustered around the historic hamlets, along roadways, and in rural areas of the Town. In addition, many businesses in the Town are located along Route 104 and in and around the historic hamlets. Over the past ten years, the Town has issued building permits for only 15 new homes. However, recent market trends such as increased interest in rural living and the ability to work remotely may lead to additional residential development in the Town.

Businesses are located along Route 104, in the hamlets, along the railroad, and at scattered locations throughout the Town. Businesses include a manufacturer of educational software, agricultural storage facilities, stone quarries, stables, and several privately-owned campgrounds and recreation-oriented businesses.

The Village of Holley serves as the town's neighborhood civic and business center. According to the 2021 Comprehensive Plan, the Fancher, Hulberton, and Brockville hamlets are the preferred locations for commercial, mixed-use, and residential development.

*Utilities/Public Services*

The Town of Murray is served by public water service except for Hindsburg Road between East Transit Church Road and Route 104, and portions of West Kendall Road, Center Road, Norway Road north of Route 104.

There is no public sewer service in the Town. Residents and businesses rely on on-site wastewater disposal systems.

Spectrum offers cable TV and high-speed internet service to approximately 80% of the Town. For residents and farms that do not have cable service, the only option for internet is satellite internet or cell phone providers.

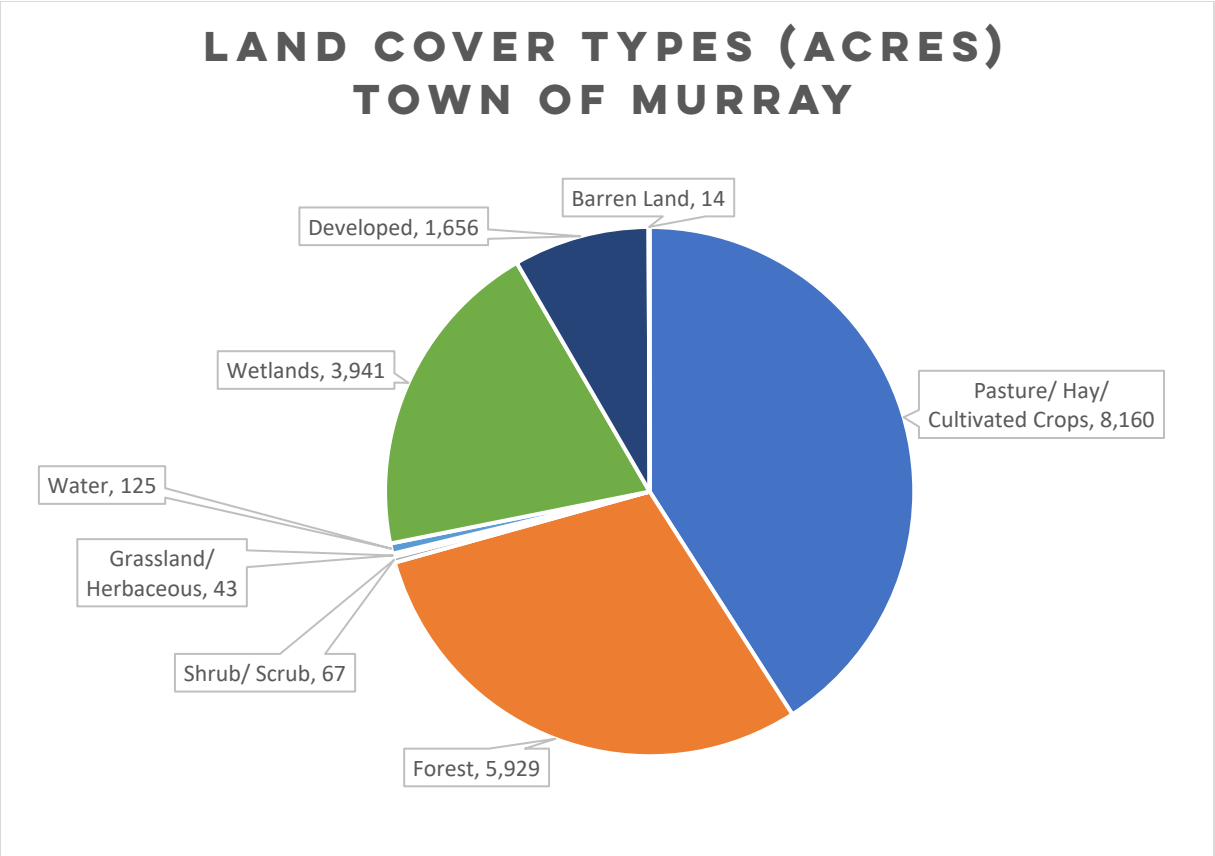
National Grid provides electric service throughout the Town. Electric distribution lines include both overhead and underground wires. Most feeder lines south of Route 104 are supplied through the Brockport substation. Lines along Route 104 and to the north are supplied through the West Hamlin substation. Small segments of Ridge Road and Transit Road in the northwest corner of the Town are supplied from the Albion substation.

No areas in the Town can support solar or other distributed generation facilities with a capacity of 1 MW or more without significant upgrades. In addition, many areas of the Town lack 3-phase power, which is needed to support certain types of electric equipment and machinery.

## Land Cover and Land Use

Agriculture is the predominant land use in the Town. Approximately 8,160 acres (41%) of the Town's land cover is in pasture, hay, or cultivated crops.

| Land Cover | # Acres |
|---|---|
| **Pasture/ Hay/ Cultivated Crops** | 8,160 |
| **Forest** | 5,929 |
| **Shrub/ Scrub** | 67 |
| **Grassland/ Herbaceous** | 43 |
| **Water** | 125 |
| **Wetlands** | 3,941 |
| **Developed** | 1,656 |
| **Barren Land** | 14 |
| **Total:** | **19,935** |




Approximately 3,941 acres of woodlands comprise 30% of the Town's land area. Large areas north of Route 104 are wooded. (See Map 2: Aerial Basemap and Map 3: Land Cover.)

*Woodlands*

Large areas north of Route 104 are wooded. In these areas, there are several old and significant trees. Some trees in the Town are reported to be up to 300 years old.

The woodlands north of Route 104 (the "Ridge") were previously farmed, as evidenced by remnants of stone walls among the trees and depicted in aerial photographs from 1931. Most of the soils north of Route 104 are classified as "Farmland of statewide importance," which are suitable for agricultural production but may require more management to be as productive as the "Prime farmland" soils found predominantly south of Route 104. (See figure.)

*Wetlands*

Wetlands are vital to many species of plants and wildlife and are essential in managing stormwater. State and Federal Wetlands depict locations of State-designated wetlands and areas identified through the National Wetlands Inventory that may contain wetlands subject to federal regulation. Delineation of wetlands in the field would be needed to determine whether the land is a wetland.

New York State and Federal regulations limit farmers' ability to utilize designated wetlands for agricultural production. In addition, state and Federal regulatory agencies are not likely to issue permits or provide financial incentives to drain wetlands to improve agricultural productivity.

There are seven state-mapped wetlands located in the Town. The largest wetlands areas are in the southwestern corner of the Town and the northwest part of the Town just south of Route 104. (See Map 7: Waterbodies & Watersheds.) Numerous wetlands mapped in the National Wetlands Inventory and potentially regulated as federal wetlands are scattered across the Town, with larger systems located in NYS Route 104. Most areas are classified as Freshwater Forested/ Shrub Wetlands. Several small areas in the Town are classified as Freshwater Emergent Wetlands. Many of the lakes are considered federal freshwater pond wetlands. Land immediately adjacent to Sandy Creek, the Erie Canal, and several unnamed streams is mapped as a Special Flood Hazard Area in the 100-year flood zone.

## Agricultural Parcels and Farm Operations

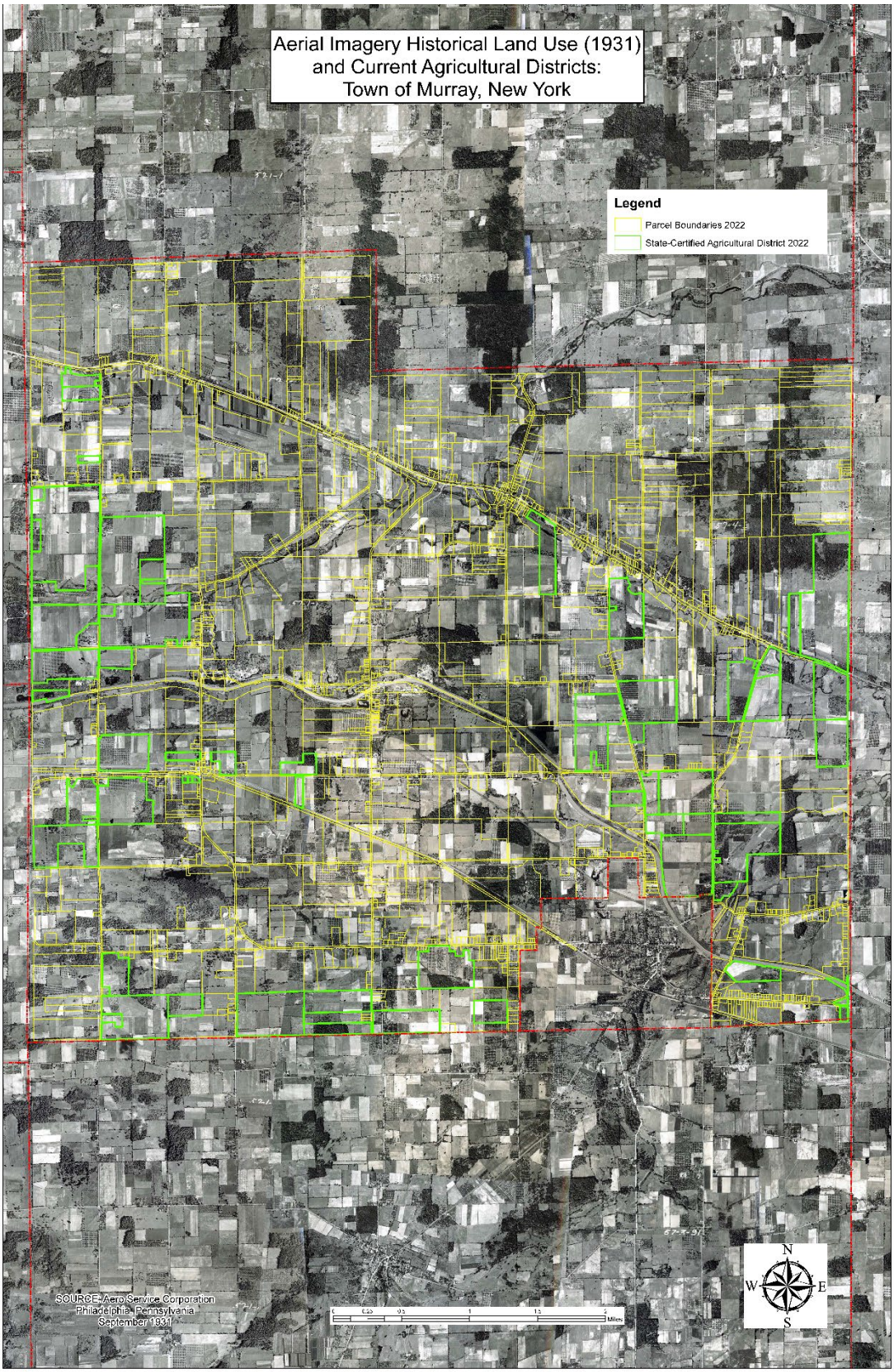
Approximately 250 parcels in the Town of Murray, comprising approximately 9,940 acres, are used for agricultural production.

Farm products produced in the Town of Murray include fruit, field crops, livestock, and vegetables. Farms include large farms that work hundreds of acres in multiple towns as well as small specialized farms.

In addition, many parcels used for agricultural production are leased to farmers by landowners.

Several farms directly sell farm products such as vegetables, fruit, herbs, flowers, and honey to the public. Some of these operations attract customers from more populated Counties and contribute to the regional tourism economy.

*Figure 2. 1931 Aerial and 2022 Parcels*



## Agricultural Soils

Nearly 85% of the Town's land area consists of high-quality agricultural soils (those classified as "Prime" or "Farmland of Statewide Importance" or "Prime if Drained" in the USDA Soil Survey.) (See Map 4: Agricultural Soils Suitability.) More than 8,000 acres, representing 40% of the Town's land area, consist of Prime soils. The area with the highest quality agricultural soils ("prime farmland") is south of Ridge Road (Route 104). These areas are interspersed with soils that would be prime if drained of the soils north of Ridge Road and are classified as "farmland of Statewide importance." These areas are suitable for agricultural production but may require drainage improvements to obtain the same yields as prime soils.

**Soil Definitions**

Prime farmland soils – Land with the best combination of physical and chemical characteristics for agricultural production with minimal input to produce the best yields of viable agriculture. It is characterized as having high lime concentrations, high nutrient supply capacity, well-drained, generally flat, and a large depth before reaching bedrock.

Soils of Statewide importance – Land deemed suitable for agricultural production with appropriately applied management practices. This includes lands that have nearly prime soils or produce economically high yields of crops.

Prime farmland, if drained – Land considered the best combination of physical and chemical characteristics for agricultural production; however, the land must be treated first to remove excess water.

## Water Resources

*Watersheds*

All the water that falls on the land or is expelled within the Town of Murray drains into Lake Ontario. Water within the Town of Murray drains into Lake Ontario through two primary (HUC-10) watersheds:

- Sandy Creek-Frontal Lake Ontario watershed; and
- Salmon Creek-Frontal Lake Ontario watershed.

The productivity of high-quality agricultural yields is partly dependent on high-quality water sources; however, when mismanaged, certain agricultural practices can have negative impacts on local water sources as pollutants and an overabundance of nutrients can enter the watershed system.

The Sandy Creek-Frontal Lake Ontario Watershed encompasses approximately 19,000 acres of land within the Town of Murray. Within Murray, five sub-watersheds (HUC-12) drain into this watershed: Bald Eagle Creek, East Branch Sandy Creek, West Branch Sandy Creek, Sandy Creek, and Yanty Creek. Land cover in this watershed within the town comprises 8,141 acres (41%) classified as agricultural, 5,877 acres (30%) classified as forested, and 1,642 acres (8%) classified as developed.

*Waterbodies*

The primary waterbodies in the Town of Murray include Sandy Creek, the east and west branches of Sandy Creek, and the Erie Canal. Sandy Creek first enters the Town of

Murray from the northeast border before splitting off into the east and west branches. The two branches of Sandy Creek flow toward the east and west, respectively; their smaller tributaries branch off before eventually intersecting with the Erie Canal.

The Erie Canal flows through the town from east to west. Several farmers rely on water from the Erie Canal for irrigation.

## Water Quality

Water quality is affected by runoff of contaminants from various sources. NYS Department of Environmental Conservation issues permits for "point source" discharges, such as the release of treated effluent into Sandy Creek from the Village of Holley wastewater treatment system. Runoff from "nonpoint" sources are not regularly monitored. These may include nutrients or chemicals applied to farm fields, on-site septic systems, and businesses.

The following table lists potential sources of pollutants to streams in the Town of Murray based on data provided by the NYS Department of Environmental Conservation. Per the DECInfo Locator, the assessments of impairment have not been confirmed and need verification. On-site sampling would be needed to identify and confirm the source of contaminants found in Murray's streams.

### Waterbody Segment Assessments

| Waterway | Water Quality Class | Best Uses/ Impairment Level | Pollutants | Sources of Impairment | Date of Assessment |
|---|---|---|---|---|---|
| Sandy Creek & tribs (0301-0006) | C | Fishing/ Impaired for Fishing | pH, Total Dissolved Solids, and Dissolved Oxygen | | 2021 |
| East Branch Sandy Creek (0301-0051) | C | Fishing/ Stressed for Aquatic Life | Excessive Phosphorus Loads, pH, and Dissolved Oxygen | | 2021 |
| West Branch Sandy Creek (0301-0052) | C | Fishing/ Stressed for Aquatic Life | Nutrients (suspected) and Dissolved Oxygen (possible) | Agriculture (suspected) | 2007 |
| Erie Canal | C | Fishing/ Stressed for Recreation, Aquatic Life, Fish Consumption | None confirmed | Hydro Alteration, Combined Sewer Overflow, and Urban/Storm Runoff | 2017 |
| Bald Eagle Creek (0301-0034) | C | Fishing/ Stressed for Recreation and Aesthetics | Algal/ Weed growth (known) Nutrients (suspected) Pathogens (possible) | Agriculture (suspected) Septic Systems (possible) | 2002 |
| West/ Moorman Creek (0301-0027) | C | Fishing/ Fully Supported | Dissolved Oxygen; pH | | 2021 |

SOURCE: NYS Department of Environmental Conservation, DEC Info Locator and Waterbody Segment Assessment Based on the 2021 CALM Fact Sheets

### *Wetlands and Floodplains*

A total of 14 NYS-regulated wetlands within Murray cover approximately 978 acres of land. Additionally, numerous federally mapped wetlands cover a further 5,134 acres of land within the town. The largest concentration of state-regulated and federally mapped wetlands is between NYS Route 104 and the town's northern boundary. There is an additional cluster of state and federal wetlands south of Holley Rd, near Murray Town Hall. Provide numerous ecosystem services that benefit farms, such as filtering and sequestering agricultural pollutant runoff, supporting pollinator populations, recharging well water sources, and protecting lands from flood damage.

Floodplains are low-lying land areas typically found adjacent to bodies of water that become inundated during times of high-water flow. For example, the town's floodplains are immediately adjacent to Sandy Creek, its east and west branches, and portions of the Erie Canal.

These floodplains offer ecosystem services that benefit the natural environment and Murray's agricultural industry. These ecosystem services include regulating flood risk/damage, recharging groundwater capacity, controlling sediment and nutrient levels, and maintaining wildlife habitats. For example, 222 parcels in the Town of Murray are in a floodplain, 40 listed as vacant. These parcels offer a potential opportunity for land conservation which would protect properties from flood damage and support farmland by restoring the function of the surrounding floodplain.

## Climate

Lake Ontario largely influences the climate in the Town of Murray. The lake provides cold air temperatures in the spring and summer and warm temperatures in the fall and winter. The moderating influence of Lake Ontario on air temperatures is largely beneficial to fruit farming.

### *Air Temperature*

The average yearly temperature for the Town of Murray is 48˚F, with an average summer high of 78.6˚F and an average winter low of 18.6˚F.

| Days over 90F | |
|---|---|
| Decade | # of Days |
| 2020's | 14-17 |
| 2050's | 22-34 |
| 2080's | 27-57 |

| Days under 32F | |
|---|---|
| Decade | # of Days |
| 2020's | 103-111 |
| 2050's | 84-96 |
| 2080's | 68-88 |

### *Precipitation*

On average, Murray receives 2.98 inches of monthly rainfall, equating to an average of 35.76 inches per year.

### *Impacts of Climate Change*

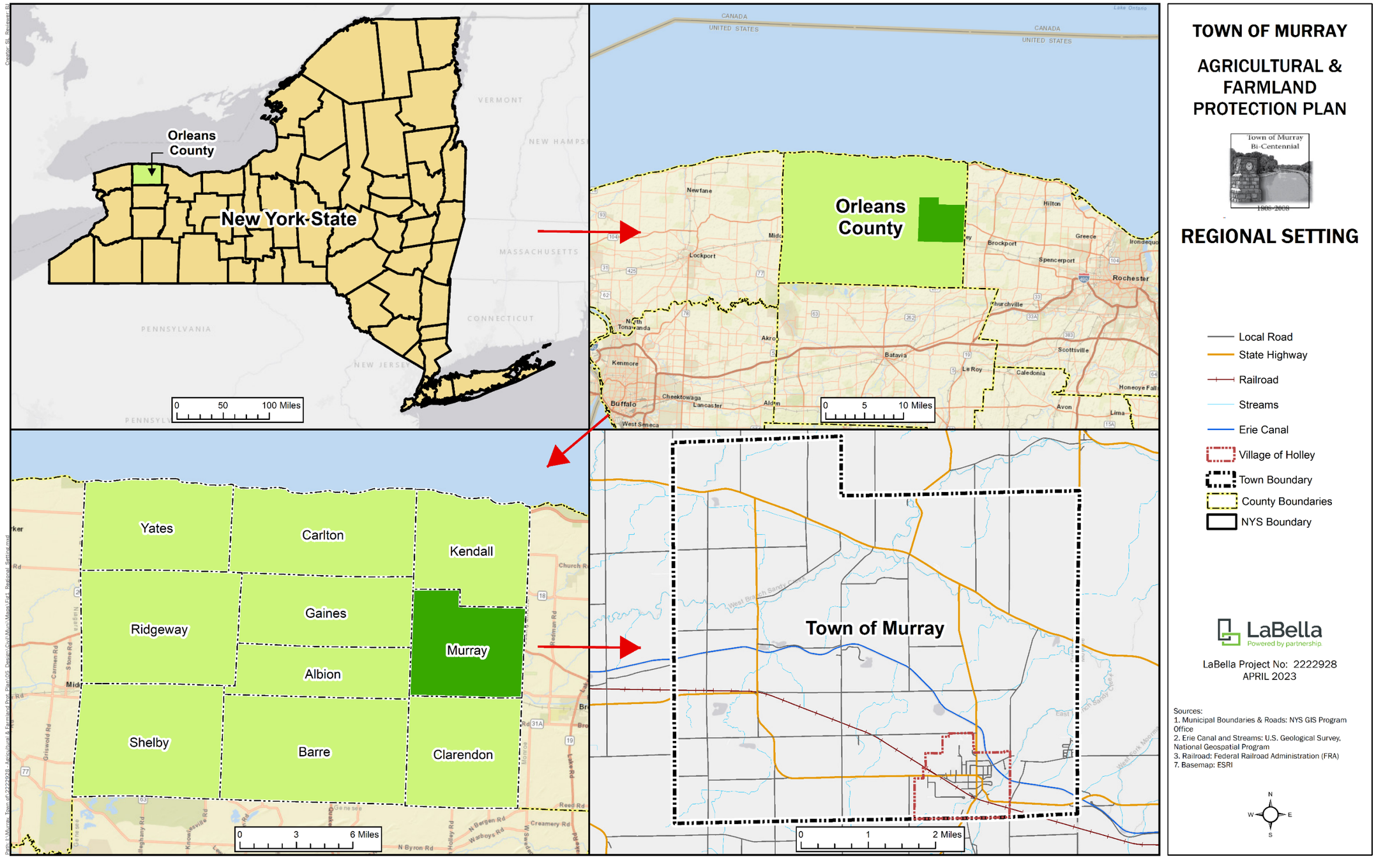
In 2014, the New York State Energy Research and Development Authority (NYSERDA) updated their *ClimAID, Responding to Climate Change in New York State, Technical Report* with new projections on the impact of climate change in New York State ClimAID report. Concerning the agricultural sector, the report noted that farmers will be on the front lines of coping with climate change; however, there

will also likely be new opportunities from climate change, such as longer growing seasons and new crop options.

According to the ClimAID report, Murray's average annual air temperature is projected to increase by 4.3-6.3˚F by the year 2050 and by as much as 11.7 ˚F by 2100. In addition, NYSERDA's report anticipates that each season will experience similar amounts of warming. For agriculture in Murray, this means that the growing season could lengthen by over a month. However, this also means summers will become more intense, and winters will be milder. While these changes may lead to new opportunities in longer growing seasons and new crop types, these drastic changes will also lead to strains on current agricultural industries. For instance, hotter summers may lead to heat stresses on dairy cows and other farm animals, the extension of breeding seasons for insect pests, and an increase in droughts which will damage the quality and yield of crops. Furthermore, rising air temperatures can be a human health concern as warmer temperatures can exacerbate asthma, allergies, and other respiratory issues.

According to the 2014 ClimAID Report, the average precipitation rate in Murray is predicted to increase by 4-10% by 2050 and by as much as 19% by 2100. The most serious impact of increased precipitation on agriculture in Murray could come from erosion and the loss of productive topsoil. Increased erosion from precipitation could lead to the loss of productive farmland and the increase of pollutants such as excessive nutrients entering the town's waterbodies. Furthermore, agricultural properties in Murray that reside along Sandy Creek and its tributaries may face increased risks of flooding during extreme precipitation events, which may damage crop yields and destroy important farming tools/infrastructure.

*Map 1. Regional Setting*




**TOWN OF MURRAY**

**AGRICULTURAL & FARMLAND PROTECTION PLAN**

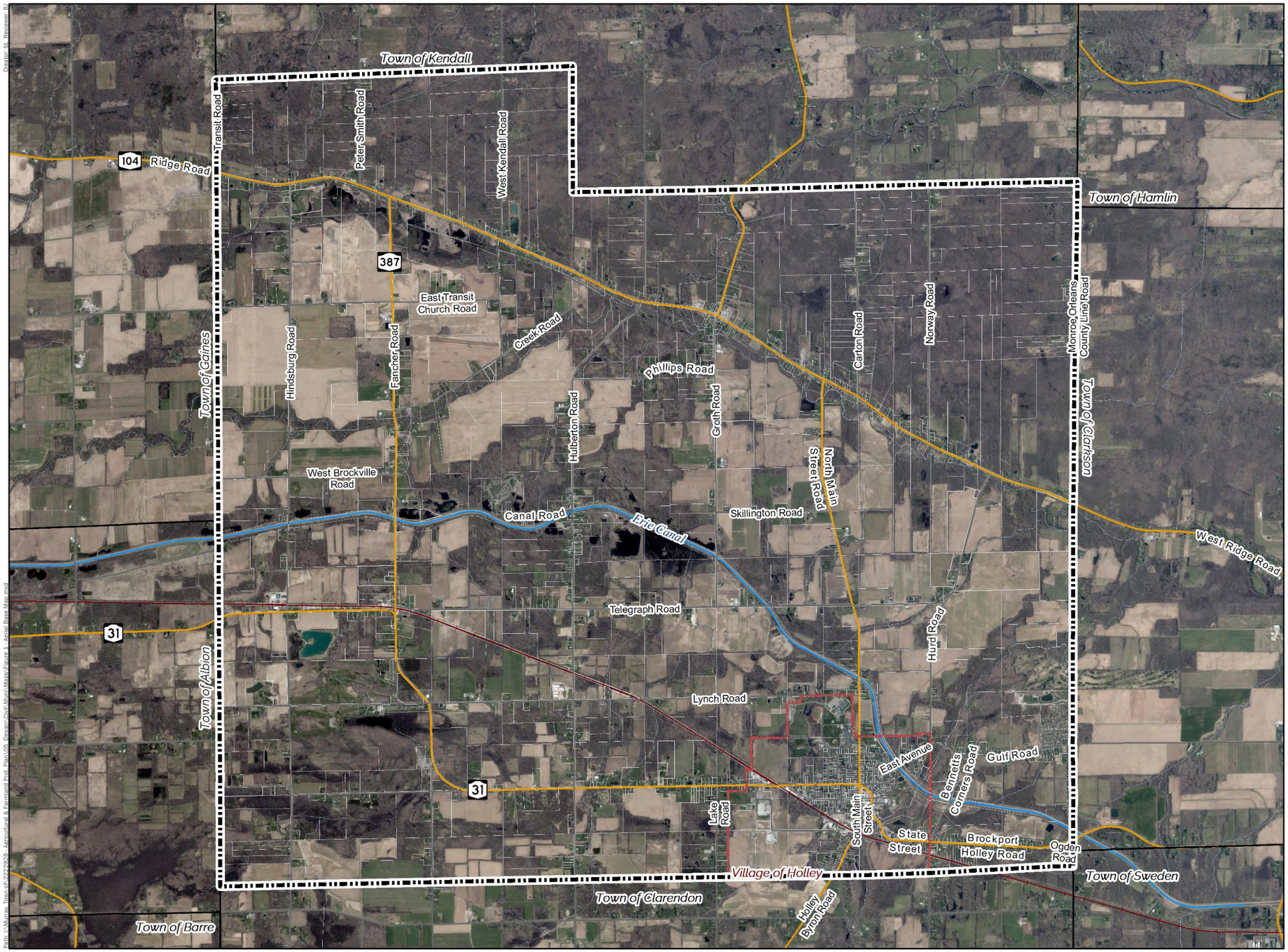
**REGIONAL SETTING**

- Local Road
- State Highway
- Railroad
- Streams
- Erie Canal
- Village of Holley
- Town Boundary
- County Boundaries
- NYS Boundary

LaBella Project No: 2222928
APRIL 2023

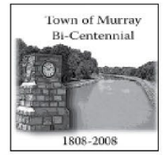
Sources:
1. Municipal Boundaries & Roads: NYS GIS Program Office
2. Erie Canal and Streams: U.S. Geological Survey, National Geospatial Program
3. Railroad: Federal Railroad Administration (FRA)
7. Basemap: ESRI

*Map 2: Aerial Basemap*




**TOWN OF MURRAY**

**AGRICULTURAL & FARMLAND PROTECTION PLAN**




## AERIAL BASEMAP

- Town Boundary
- Village of Holley
- Other Municipal Boundaries
- Parcels
- Railroad
- Local Road
- State Highway
- Erie Canal
- Streams

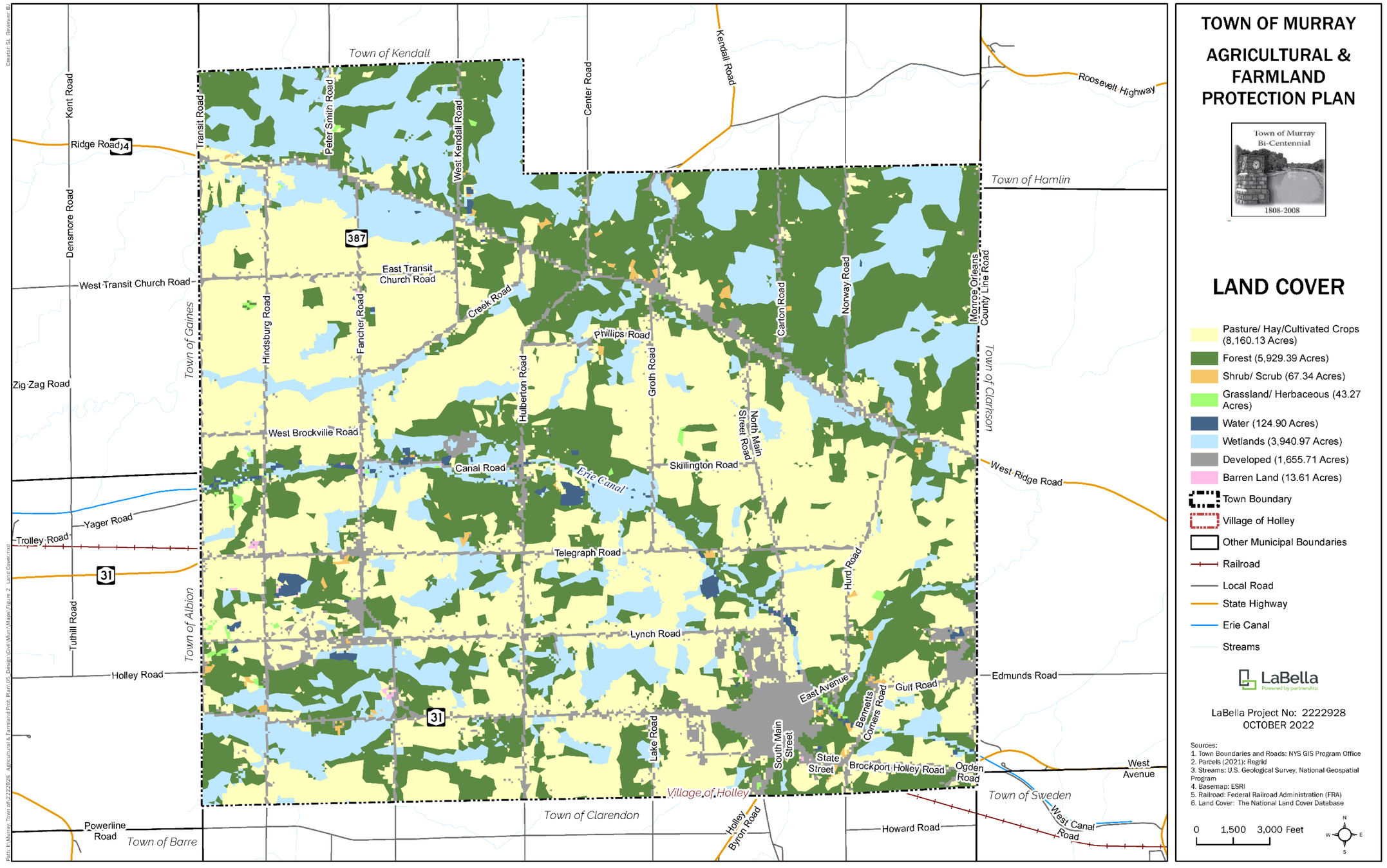
LaBella

LaBella Project No: 2222928
APRIL 2023

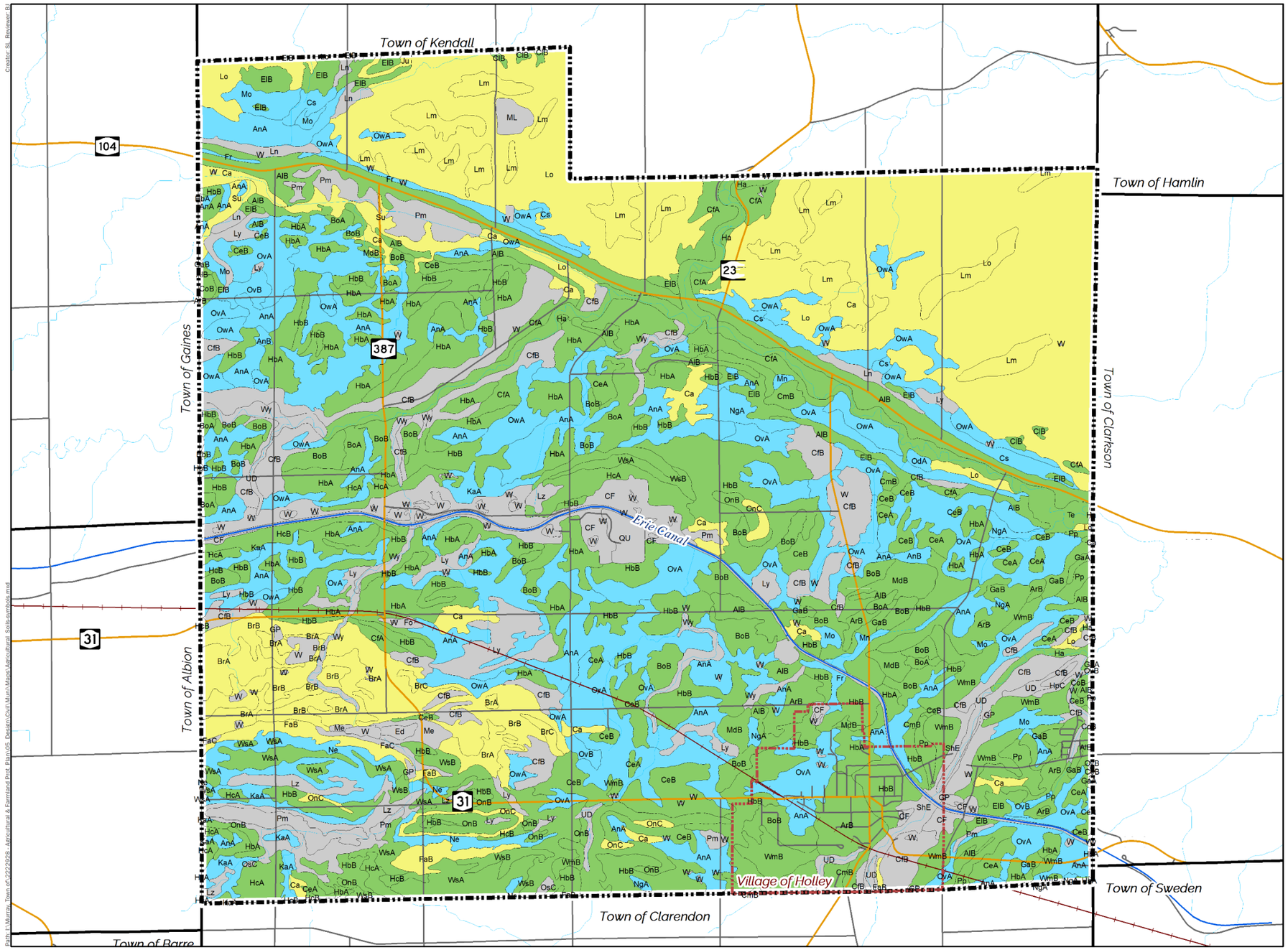
Sources:
1. Town Boundaries and Roads: NYS GIS Program Office
2. Parcels (2022): Regrid
3. Streams: U.S. Geological Survey, National Geospatial Program
4. Basemap: ESRI
5. Railroad: Federal Railroad Administration (FRA)

0 1,500 3,000 Feet

*Map 3: Land Cover*

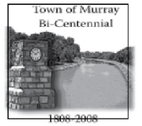


*Map 4: Agricultural Soil Suitability*




**TOWN OF MURRAY**

**AGRICULTURAL & FARMLAND PROTECTION PLAN**




**AGRICULTURAL SOIL SUITABILITY**

**Agricultural Soil Classification**

- All areas are prime farmland
- Farmland of statewide importance
- Prime farmland if drained
- Not prime farmland

- Local Road
- State Highway
- Railroad
- Streams
- Erie Canal
- Village of Holley
- Town Boundary
- Other Municipal Boundaries

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LaBella Project No: 2200457
APRIL 2023

Sources:
1. Municipal Boundaries and Roads: NYS GIS Program Office
2. Parcels (2019): Provided by Orleans County
3. Streams: U.S. Geological Survey, National Geospatial Program
4. Agricultural Soil Classification: USDA NRCS Soil Survey via SSURGO online database
5. Basemap: ESRI
6. Railroad: Federal Railroad Administration (FRA)

0 1,500 3,000 Feet

N W E S

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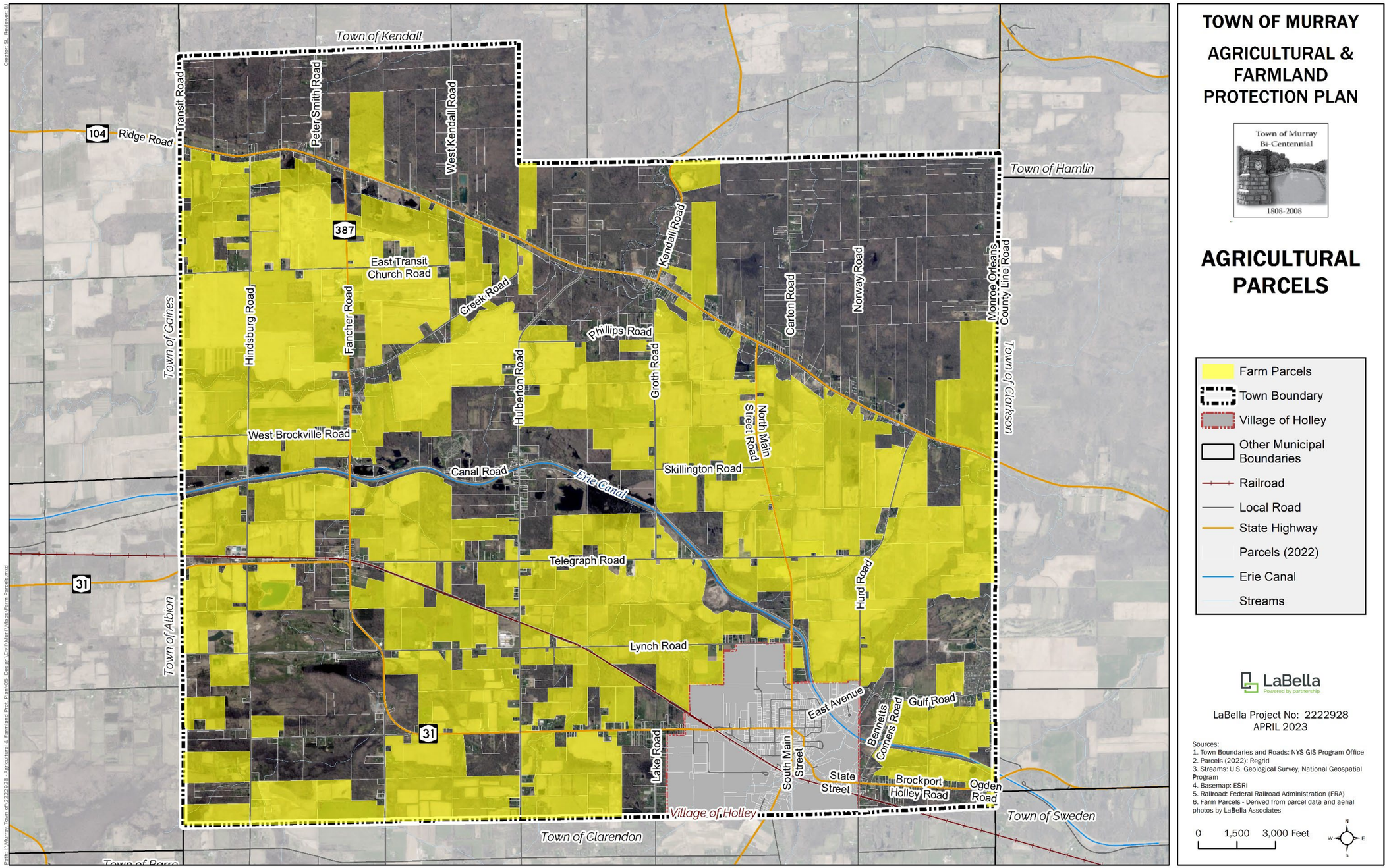
Creator: SIL Reviewer: BJ

*Map 5: Agricultural Parcels*




**TOWN OF MURRAY**

**AGRICULTURAL & FARMLAND PROTECTION PLAN**




**AGRICULTURAL PARCELS**

- Farm Parcels
- Town Boundary
- Village of Holley
- Other Municipal Boundaries
- Railroad
- Local Road
- State Highway
- Parcels (2022)
- Erie Canal
- Streams

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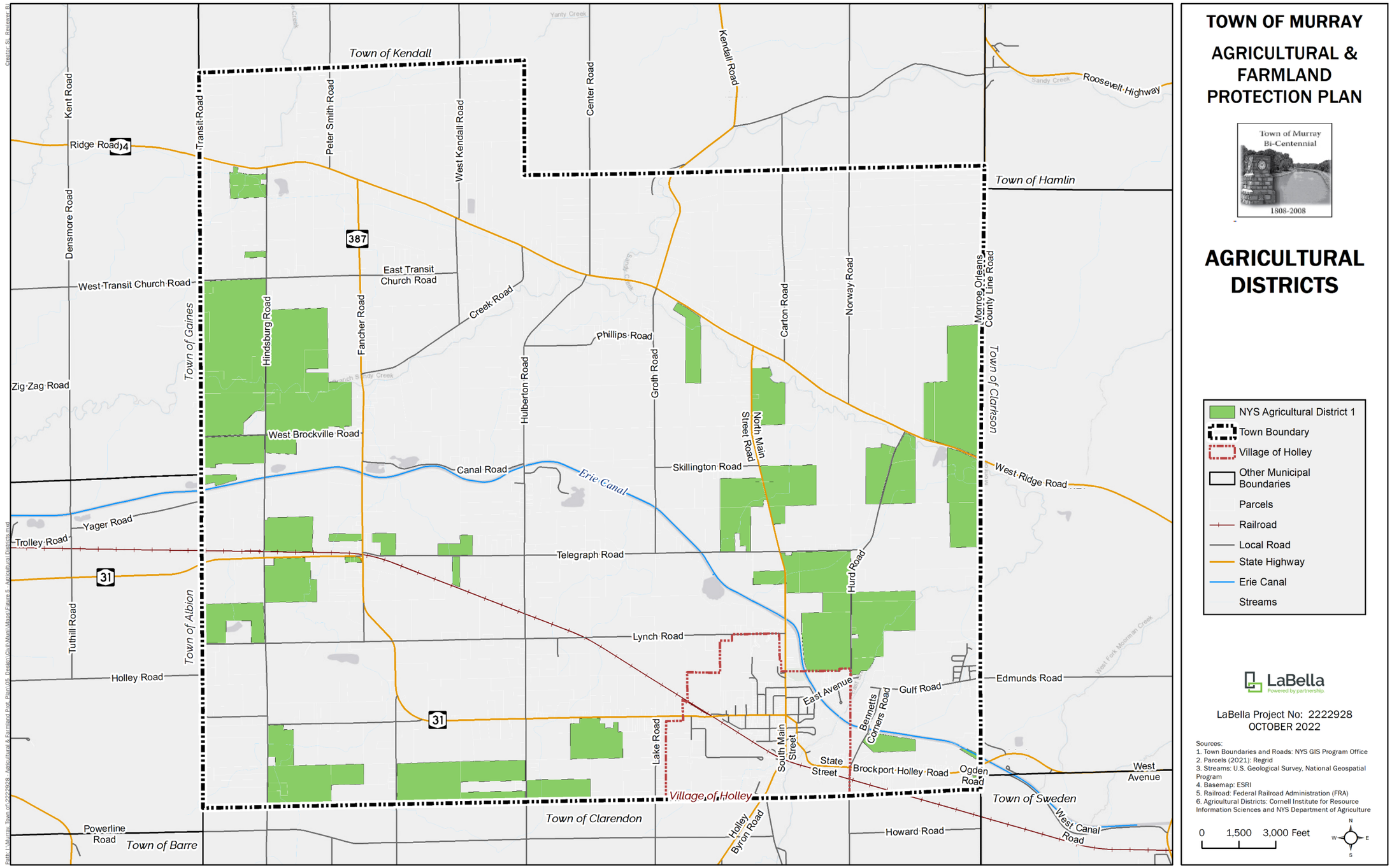
APRIL 2023

Sources:
1. Town Boundaries and Roads: NYS GIS Program Office
2. Parcels (2022): Regrid
3. Streams: U.S. Geological Survey, National Geospatial Program
4. Basemap: ESRI
5. Railroad: Federal Railroad Administration (FRA)
6. Farm Parcels - Derived from parcel data and aerial photos by LaBella Associates

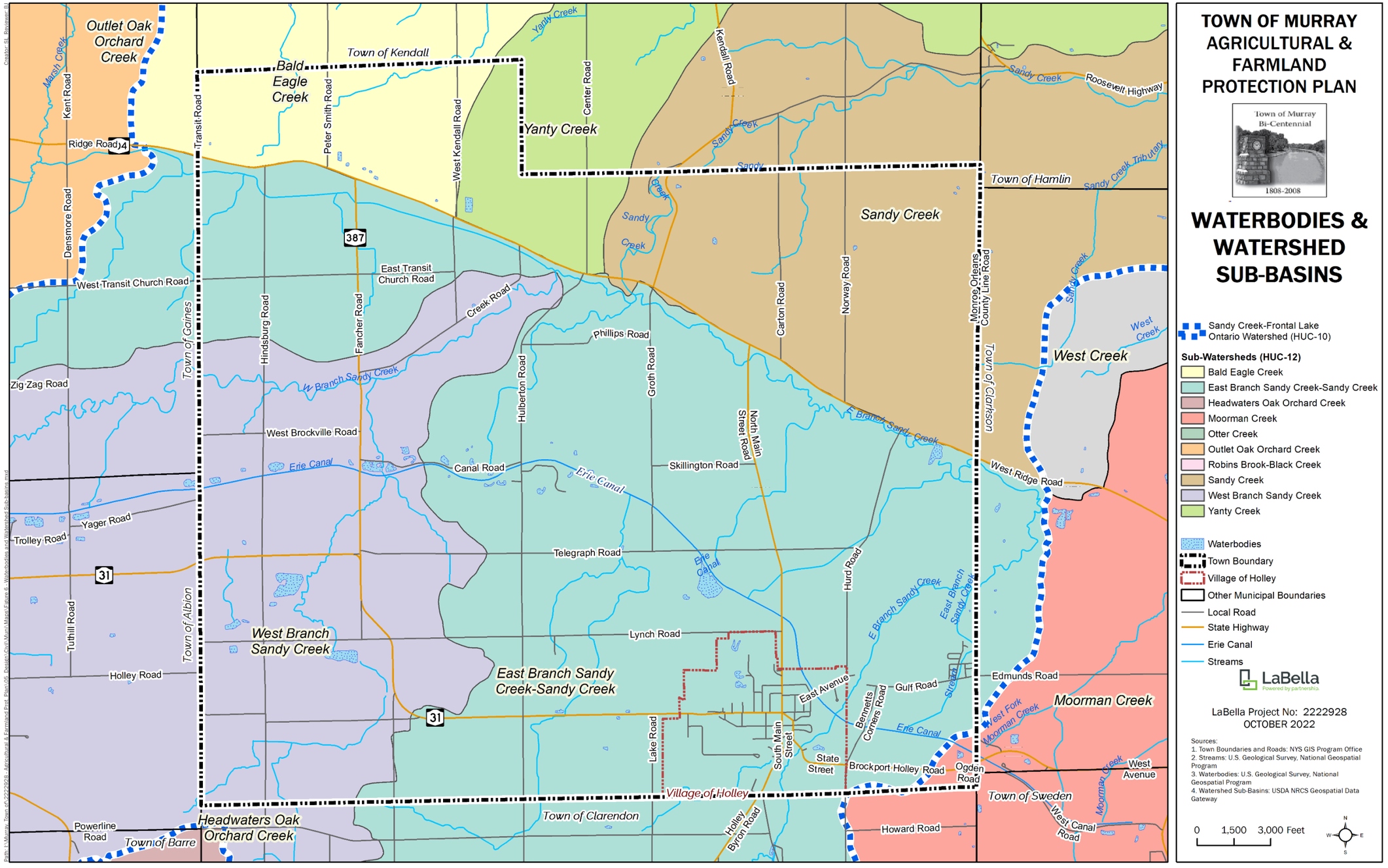
0 1,500 3,000 Feet

N W E S

*Map 6: Agricultural Districts*



*Map 7: Waterbodies & Watersheds*




## TOWN OF MURRAY AGRICULTURAL & FARMLAND PROTECTION PLAN




## WATERBODIES & WATERSHED SUB-BASINS

Sandy Creek-Frontal Lake Ontario Watershed (HUC-10)

**Sub-Watersheds (HUC-12)**

- Bald Eagle Creek
- East Branch Sandy Creek-Sandy Creek
- Headwaters Oak Orchard Creek
- Moorman Creek
- Otter Creek
- Outlet Oak Orchard Creek
- Robins Brook-Black Creek
- Sandy Creek
- West Branch Sandy Creek
- Yanty Creek

- Waterbodies
- Town Boundary
- Village of Holley
- Other Municipal Boundaries
- Local Road
- State Highway
- Erie Canal
- Streams

LaBella Powered by partnership.

LaBella Project No: 2222928
OCTOBER 2022

Sources:
1. Town Boundaries and Roads: NYS GIS Program Office
2. Streams: U.S. Geological Survey, National Geospatial Program
3. Waterbodies: U.S. Geological Survey, National Geospatial Program
4. Watershed Sub-Basins: USDA NRCS Geospatial Data Gateway

0 1,500 3,000 Feet

# LANDS SUITABLE FOR PROTECTION

The Town of Murray boasts a significant amount of actively farmed land with high-quality agricultural soil.These areas are the Town's high priority farmlands to continue in agricultural use. Agricultural lands in the Town of Murray are vital for the local community and the broader region. They provide food and fiber, contribute to the town's rural character, offer economic opportunities, and serve as an important environmental asset.

Despite their importance, these priority farmlands face several threats. The most significant of these is conversion to non-agricultural uses, including residential, commercial and solar energy development. As the Town of Murray continues to develop, pressure to convert agricultural lands to non-agriculturalis growing. This reduces the amount of land available for farming and can lead to fragmentation of agricultural land, making it difficult for farming operations to expand or even continue.

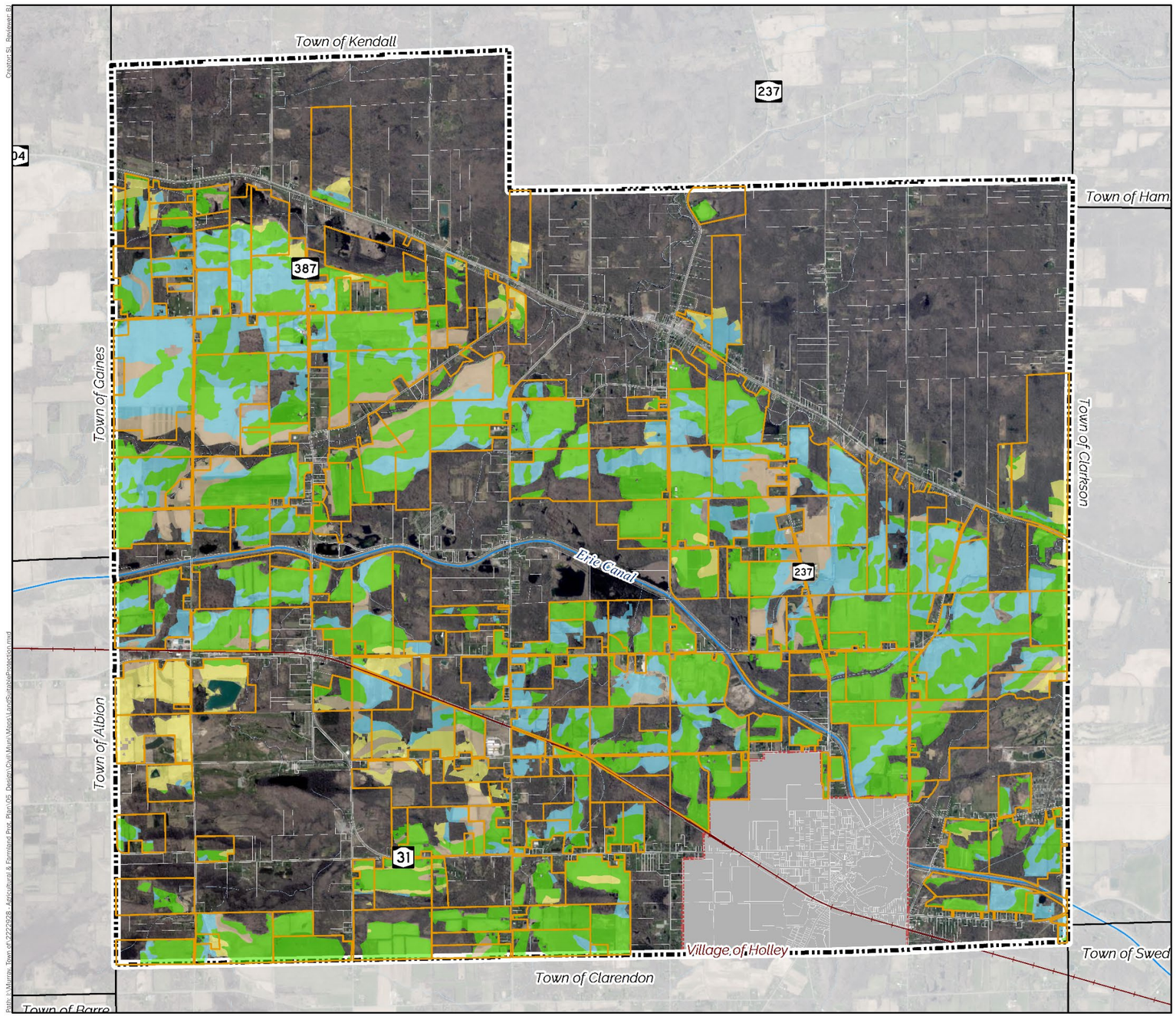
Additional threats include changes in market conditions that can make farming less profitable and increase the costs of farming inputs. These economic pressures can make it tempting for farmers to sell their land for development, particularly if they do not have a next generation interested in continuing to farm.

Additional areas in the Town have soils that are highly suitable for agricultural production but are currently wooded or otherwise not part of farm operations. Areas that are not currently farmed but have soils that are classified as "prime farmland" or "soils of Statewide importance" are important resources for agriculture as they could be used for agricultural production in the future.

## Priority Agricultural Land

All of the actively farmed land in the Town of Murray with high quality agricultural soils are important to retain for continued agricultural use. Map 8: Farmland Suitable for Protection depicts actively farmed land by USDA agricultural suitability classification (Prime farmland; Soils of Statewide Importance: Prime soils if drained.) This map is intended as a guide to direct future development away from these high quality agricultural lands.

*Map 8: Farmland Suitable for Protection*




**TOWN OF MURRAY**

Town of Murray Bi-Centennial 1808-2008

**AGRICULTURAL & FARMLAND PROTECTION PLAN**

## FARMLAND SUITABLE FOR PROTECTION

**Active Farmland Suitable for Protection by Ag Soils Classification**

- All areas are prime farmland
- Farmland of statewide
- Prime farmland if drained
- Not prime farmland
- Farm Parcels

- Other Parcels
- Town Boundary
- Village of Holley
- Railroad
- Erie Canal
- Streams

LaBella Project No: 2222928
MAY 2023

Sources:
1. Town Boundaries and Roads: NYS GIS Program Office
2. Parcels (2022): Regrid
3. Streams: U.S. Geological Survey, National Geospatial Program
4. Basemap: ESRI
5. Railroad: Federal Railroad Administration (FRA)
6. Farm Parcels - Derived from parcel data and aerial photos by laBella Associates

0 1,500 3,000 Feet

N W E S

LaBella Powered by partnership.

Path: I:\Murray, Town of\2222928 - Agricultural & Farmland Prot. Plan\05 Design\Civil\Mun\Maps\LandSuitableProtection.mxd

Creator: SL Reviewer: BJ

# ISSUES & OPPORTUNITIES

Agriculture in the Town of Murray has strong potential for continued viability and vitality. Identifying the components that weaken and threaten the industry is essential. The universal challenge for all farms is embracing the necessary changes to be competitive while maintaining financial stability. Across the industry, successful farming requires evolution and resiliency.

The Town's agricultural resources also contribute to the community's unique character. Appropriate development standards are needed to retain scenic beauty, agricultural soils, natural resources, and historic buildings and sites. Business development that leverages these resources can help make the Town of Murray a destination for tourists and new residents. Retaining farmland and agriculture will keep maintain rural landscape and economic benefits of agriculture to the regional economy.

## Support agritourism enterprises that help farmers diversify their income and market products to visitors.

Agritourism, the nexus of agriculture and tourism, has increasingly become an essential component in diversifying farm income and promoting local farm products. It is where local agriculture and tourism meet to produce an educational, fun, and unique experience. It can supply farmers with income through diverse enterprises while providing enjoyable experiences for their visitors.

Additionally, agritourism can increase public understanding of agriculture. By visiting farms, Murray residents and others can better understand where food comes from, how farmers interact with land and water resources, and the impact of agriculture on the regional economy.

An agritourism business can be defined as any person, farm, or corporation actively engaged in the operation, management, or promotion of an agriculturally related tourism business open to the public. People seek an authentic farm experience that might link them to their past or teach something new. Visitors also want relief from everyday stress to experience a seemingly more straightforward life.

**The variety of agritourism experiences that can be offered is huge - from farm lodgings or farm-based recreation such as hiking or hunting to pumpkin patches, u-pick farms, farm festivals, wine tasting, farm restaurants, agri-entertainment like corn mazes, and more.**

Agritourism activities are an essential component of several farm operations in Murray. While some agritourism businesses in Murray are well-established, there are opportunities for new and expanded enterprises. These activities can potentially increase farm revenues and maintain the industry's sustainability. As Murray is a tourism destination due to the Erie Canal and several seasonal campgrounds, additional farms could benefit from incorporating agritourism.

There are three agritourism enterprise types: a *supplementary enterprise* is a minor activity that supports other products on the farm; a *complementary enterprise*, where agritourism activities share equal footing with other enterprises in the farm's product mix; and *primary enterprise*, where agritourism as the dominant/primary activity on the farm. All three types exist in Murray, and ample market demand exists to expand these enterprises.

The rise of agritourism is not just a local phenomenon. The U.S. Census of Agriculture shows an increasing trend in agritourism, related recreational services, and direct sales of agricultural products. The Census of Agriculture first used the term "agri-tourism" in 2007 with a question about "agri-tourism and recreational services such as farm or winery tours, hayrides, hunting, fishing, etc." Using this limited definition, agritourism income grew by 67% over ten years (between 2007 and 2017) and more than doubled when including direct sales of agricultural products, which is viewed as an essential part of agritourism by many definitions. According to the 2017 Census of Agriculture, 28,575 farms offered agritourism and recreational services resulting in $949 million in sales. In addition, direct-to-consumer sales brought in $2.8 billion in sales for 130,056 farms.

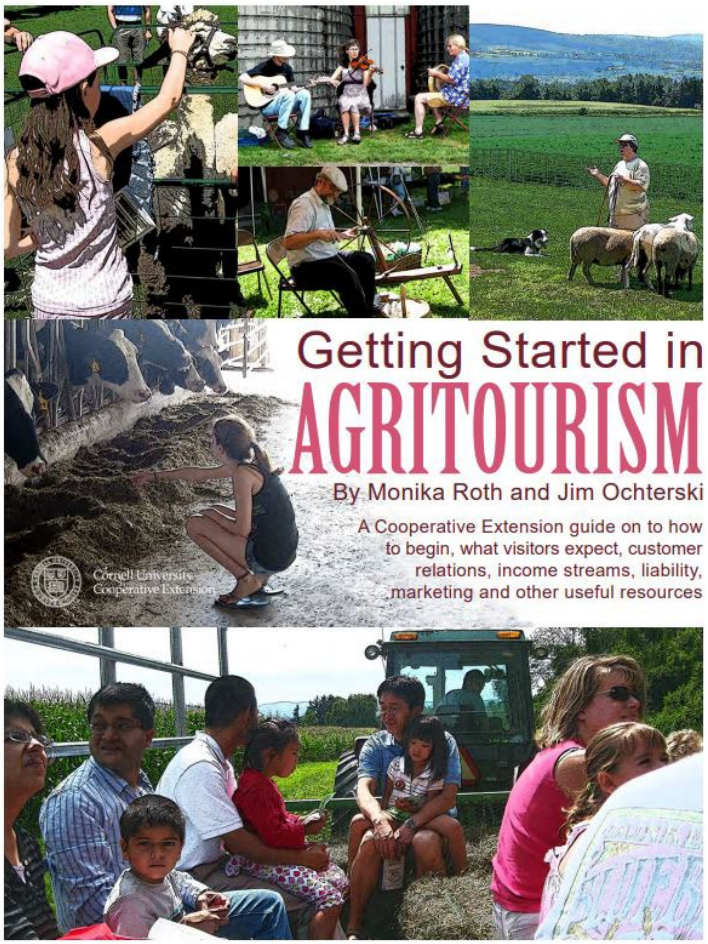



*Figure 3: Cover of a CCE Guide to Agritourism*

These statistics demonstrate the vast potential for farms to engage in agritourism activities. With the right approach and offerings, farms can offer unforgettable experiences, from berry picking and hayrides to farm animal encounters and educational workshops. The key is providing a worthwhile experience at a reasonable price that delivers value to the visitor. As the next Census of Agriculture in 2022 will hopefully illustrate, agritourism's growth trajectory is expected to continue, providing opportunities for more farms to diversify their income and engage directly with consumers.

There are many ways for farms to harness the power of agritourism. Farm visits offer a day in the country, where guests may pick berries, go for a hayride, sample homegrown or homemade products, see animals, and learn how farms operate. Visitors are willing to pay for these experiences if the price is reasonable and they find value in what is offered.

| AGRI-TOURISM EXAMPLES | |
|---|---|
| U-picks | U-pick farms give customers a hands-on farm experience by inviting them to come to pick products to purchase and take home. Standard products offered at u-pick farms include fruits, vegetables, pumpkins, flowers, and Christmas trees. |
| On-farm markets | On-farm markets allow customers to purchase products on the farm property. Common farm markets include farm stands (outdoor booths on the farm) and farm stores (enclosed stores on the farm). |
| Pumpkin Patches | Farms that grow and sell pumpkins. On-farm pumpkin patches often sell their pumpkins as a u-pick and through an on-farm market. |
| Corn mazes | A maze cut out in a cornfield that customers can navigate through. |
| Vineyards and wineries | Farms and businesses engaged in growing grapes for wine and winemaking. Many wineries provide on-farm entertainment, including, but not limited to, wine tastings, wine trails, music, and on-farm dinners. |
| Floriculture farms | A flower farm that invites visitors to see or experience the flower crop in the field. Floriculture farms may host events and workshops, provide a flower u-pick, and offer photo opportunities. |
| Demonstration farms | A working farm that invites visitors to their property to see or experience the farm. Examples of demonstration farms include but are not limited to dairies, conservation farms, and cattle ranches. |
| Christmas tree farms | A farm that invites customers to pick or buy Christmas trees on their farm. |
| Farm stays | Farm stays invite visitors to stay on a farm property. Harvest Hosts is an affordable membership that offers unlimited overnight RV/van/trailer parking at thousands of beautiful locations throughout the United States and beyond. It's like Airbnb for RV camping. Similarly, Hipcamp is an online marketplace that offers outdoor stays and camping experiences via a website and mobile app. |
| Farm tours | A farm that engages with visitors by giving them a tour of their farm. |
| Farm camps | An educational opportunity for kids to experience a farm and engage in agriculture practices. |
| Farm-to-table dining | The on-farm dining experience often including a specialty chef, fresh farm food, and entertainment. |
| Equine Agritourism | Opportunities for visitors to come to interact with horses on the farm. Types of equine agritourism include trail riding, horseback riding lessons, dude ranches, horse camps, boarding facilities, and equine therapy farms. |
| Fee and Lease Pond Fishing | Landowners open their ponds to visitors for fishing. |
| Hunting Leases | Landowners invite visitors to their land to hunt, usually for a fee. |

Murray farms can also utilize agritourism to improve marketing directly to consumers, restaurants, and institutions throughout western New York. In addition, Murray is accessible to large population centers, as it is within 500 miles of 50% of the North American population and 50% of the wealth in North America. This enables Murray's agriculture industry to address markets with relative ease.

## Educate the Public About Agriculture

Although Murray is predominantly rural and agricultural, new residents may occasionally complain about noise and odors from neighboring farms. In addition, some residents are concerned about the potential for farm stormwater to contaminate streams with nutrients or pesticides. The town can take several steps to further educate the public about agriculture and address concerns related to noise, odors, and potential environmental impacts. This can be achieved through a multifaceted approach that targets residents, potential farm neighbors, and younger generations.

Murray should collaborate with local real estate agents and property sellers to ensure potential farm neighbors receive information about agricultural practices and potential impacts before purchasing land. This approach can help establish realistic expectations for living in an agricultural community and minimize the chances of future complaints or conflicts. The NYS Agricultural District Law protects farm operations within certified NYS Agricultural Districts from nuisance suits. It requires purchasers of land within Agricultural Districts to be notified of potential noise and odors associated with agricultural practices. However, the notifications are provided once the sale is finalized; potential farm neighbors often need more understanding before they move in about the realities of living in an agricultural community.

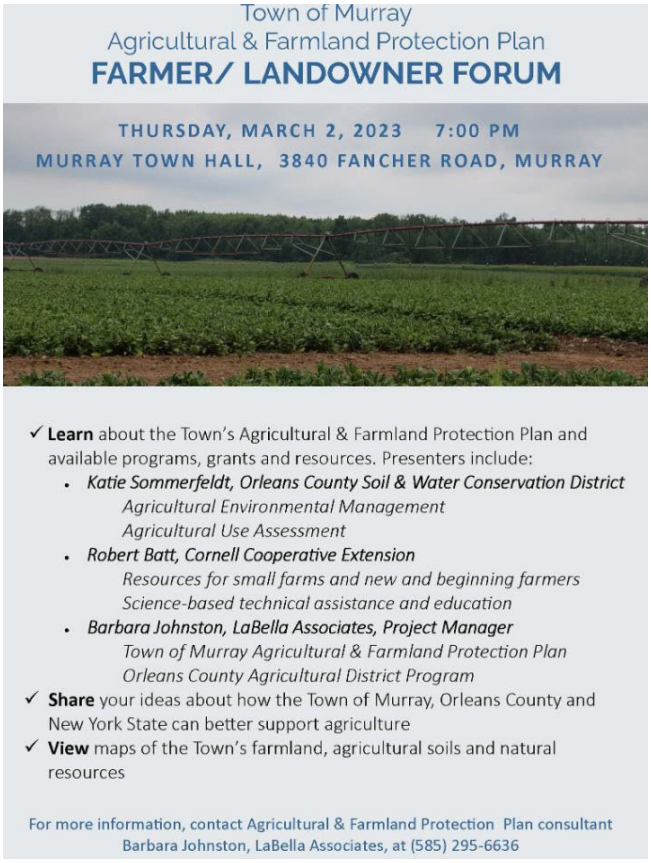



*Figure 4: Recent flyer for a public discussion on the future of agriculture in Murray*

Additional public education would help improve understanding among non-farming neighbors about standard farm practices and ongoing conservation practices on farms. Creating community outreach through elements like community events such as farm tours, open houses, and farmer's markets to foster relationships between farmers and the community. These events can help non-farming residents better understand farming practices, the importance of agriculture, and the efforts made by farmers to minimize any negative impacts.

Additionally, developing a public information campaign to educate residents about the realities of living in an agricultural community can assist in educating the public. This can include distributing informational pamphlets, creating a dedicated website, and hosting community workshops. The campaign should focus on explaining standard farm practices, the importance of conservation, and the measures farmers take to reduce noise and odors.

## Protect Agricultural Lands from Conversion

In the Town of Murray, preserving agricultural lands from conversion to non-agricultural uses is essential for a variety of reasons. Agricultural lands form the foundation of the town's rich history, cultural heritage, and rural character. Moreover, they play a crucial role in supporting the local economy and providing employment opportunities for residents. Additionally, these lands contribute to the town's food security, ensuring a sustainable supply of locally produced food for the community. Furthermore, protecting agricultural lands from conversion helps maintain valuable ecosystems and biodiversity and mitigate the effects of climate change through carbon sequestration. Given these factors, the Town of Murray must take necessary steps to safeguard its agricultural lands for future generations.

## Maintain "Farm Friendly" Zoning and Enforcement

The Town of Murray adopted a "Right to Farm" law in 2001, establishing a Town policy supporting agriculture and prohibiting interference with farming operations. In addition, the law establishes an "Agricultural Advisory Committee" to resolve agricultural practices or operations complaints.

The Town's zoning regulations accommodate agriculture and are not unreasonably restrictive to farm operations. The Town's Code Enforcement Officer administers enforcement of the zoning regulations.

NYS Agricultural District Law limits the local government's ability to enforce provisions that are found to be unreasonably restrictive to farm operations within certified NYS Agricultural Districts that meet certain thresholds in NYS Agricultural Districts Law.

Restrictions on agricultural operations in local laws are consistent with NYS Agricultural Districts Law if necessary to protect health and safety. For example, setbacks of waste disposal facilities from public wells and water bodies are considered reasonable; setbacks from property lines may not be appropriate. In addition, the Town may regulate those operations that are small or otherwise do not meet the threshold for protection in NYS law.

Agricultural operations protected by NYS Agricultural Districts Law include traditional crop and animal farming, riding stables, and horse boarding operations that meet specified thresholds in the law. Zoning restrictions should consist of an exception for those operations that meet the threshold for protection in NYS Agriculture & Markets Law.

## Maintain Climate & Drought Resiliency

Murray farms need to continue to be able to siphon water from the Erie Canal for irrigation.

Maintaining drought resiliency is crucial for the long-term success and sustainability of farms in Murray, particularly given the town's reliance on the Erie Canal for irrigation. As climate change continues to affect weather patterns and the availability of water resources, it becomes increasingly important for Murray farms to adapt and implement effective strategies to ensure their continued productivity.

Encouraging advanced irrigation technologies, such as drip irrigation or micro-sprinklers, can minimize water waste and ensure that crops receive the necessary water. These methods can help

farmers make the most of the water they siphon from the Erie Canal while reducing evaporation and runoff losses. Promoting soil conservation practices that improve water retention, such as cover cropping, no-till or reduced tillage farming, and organic amendments like compost or manure can lead to healthy soil that holds more water and improves overall drought resilience.


*Figure 5 Storage tanks in Murray*

Cultivating drought-tolerant crop varieties better adapted to withstand periods of water scarcity can help reduce the overall demand for irrigation water and ensure crop productivity during dry spells. Developing a comprehensive drought monitoring and forecasting system that allows farmers to make informed decisions about water use and irrigation practices may involve collaborating with local and regional authorities to access up-to-date climate data and develop tailored recommendations for the agricultural community in Murray.

Investing in water storage infrastructure, such as ponds, reservoirs, or rainwater harvesting systems, can capture and store water during periods of abundance, which can then be used for irrigation during drought. This helps alleviate pressure on the Erie Canal's water resources. In addition, providing education and training programs for farmers on best practices for maintaining drought resiliency, including workshops, webinars, and one-on-one consultations with agricultural experts, can advise on water-saving techniques and other strategies for coping with water scarcity.

**Assist new and beginning farmers with business planning, information, and skills.**

Farmers, particularly young and beginning farmers, need technical assistance with business planning, tax planning, and finding grant and loan funding sources.

Farm Service Agency and Cornell Cooperative Extension offer educational programs. Farm Credit East offers services to its financing customers.

## Expand Youth Education to encourage careers in farming

The Future Farmers of America (FFA) program would encourage more young people to consider farming a career and encourage public appreciation of farming.

Agriculture education, especially revitalizing programs at Holley Central School, is an opportunity. Working with local schools to incorporate agricultural education into the curriculum can include guest lectures by farmers or agricultural professionals, field trips to farms, and hands-on student learning experiences. By exposing students to agriculture from a young age, the town can help foster a better understanding of the industry and its importance to the community.

In addition, with careers in agriculture increasingly identified as requiring a strong technological focus, farming is becoming a career choice for an increasing number of high schoolers. Therefore, investment in agriculture programs in the school districts serving the Town, beyond the offerings at BOCES, is seen as an opportunity that should be pursued. Additionally, developing a mentorship program to connect interested high school students with local farmers or agricultural professionals for mentorship opportunities. This sort of mentorship program can provide students with valuable hands-on agricultural experience and help them develop the necessary skills to pursue a career in the field.

## Avoid and mitigate impacts from solar energy developments

The Town of Murray needs a clear policy regarding the siting of solar facilities to minimize their impact on the continued viability of agriculture. During 2023, the Town developed an updated Solar Local Law, which will include protections for farmland and agriculture.

Potential impacts on agriculture from solar energy developments include:

- Placement of solar panels on high-quality farmland, stopping agricultural production on the land. The loss of land for agricultural production can impact the regional agricultural economy and farmers who may have been renting the land to support their farm operations.
- Damage to tile drainage
- Impeding access to farm fields

As a local law is the strongest tool local government have to manage solar development and its impacts, it is important for the local law to include clear and effective protections to limit impacts on farmland.

### *NYS Department of Agriculture & Markets Guidance*

The NYS Department of Agriculture & Markets has issued guidance to solar developers to minimize the impacts on agricultural resources. These include:

During construction, solar developers must avoid or mitigate impacts on farmland. Construction practices should ensure that agricultural use of the land can resume after construction completion or upon decommissioning. Required practices during construction include:

- Maintain access to farm fields and existing drainage improvements
- Stockpile topsoil and replace it properly once construction is complete
- Bury cables 48" deep to avoid interference with plowing
- Locate overhead lines at the edges of fields
- Remove excess subsoil and rock from the site
- Install or maintain fencing to prevent livestock access to the solar panels

Once construction is complete, the solar developer must restore or remediate the area to ensure it can be used for agricultural production. Restoration should be completed between June and September. Restoration/ remediation practices include:

- Removing all construction debris must be removed from fields.
- Decompacting disturbed areas
- Regrading access roads
- Restoring drainage patterns and repairing drainage structures that may have been damaged during construction
- Importing topsoil as needed where trench areas have settled

The solar developer must retain an Agricultural Monitor to oversee construction and meet standards. The Agricultural Monitor typically conducts seven inspections during construction and three inspections post-construction for one year, including monitoring to be sure crops are growing correctly. If needed, the developer will be required to import topsoil where trench areas have settled.

Decommissioning plans for solar energy developments aim to ensure that the land can be reused for agricultural production if solar panels are abandoned at the end of their useful life. Decommissioning procedures include:

- Removal of structures
- Abandonment of underground electric lines in place
- Removal of all concrete within 48" below the surface
- Removal of access roads unless otherwise specified

### *NYS Office of Renewable Energy Siting (ORES) requirements*

When solar energy developments are larger than 25 MW, the NYS Office of Renewable Energy Siting (ORES) has jurisdiction over the review and approval under Section 94c of the NYS Public Utility Law. ORES requires applications for the development of large-scale solar energy projects to include the following documentation:

- Field-verification of any active agricultural uses
- Potential impacts from construction and methods to facilitate farming during construction
- Temporary and/or permanent impacts on agricultural production areas
- Agricultural production acreage proposed to remain in agricultural use
- Landowner-imposed development restrictions
- Locations of known or suspected sub-surface drainage systems, surface drainages, irrigation lines, or other unique agricultural facilities

- USDA soil mapping for the facility site
- NYS Agricultural Land Classification Mineral Soil Groups 1 through 10 for impacted agricultural areas

The solar developer is required to prepare an Agricultural Plan to avoid, minimize, and mitigate agricultural impacts to active agricultural lands that have been in active agriculture production in three (3) of the last five (5) years and have soils within NYS Agricultural Land Classified Mineral Soil Groups 1 through 4. In addition, the developer must prepare a remediation plan to address surface or sub-surface drainage damages that may occur during construction. The plan must: describe the likelihood of impacts to the surface of subsurface drainage and how the interruption of drainage may impact farmland within and outside of the facility site; and identify the repair methods for damaged drainage features.

The Agricultural Plan required by ORES may include plans for co-utilizing agriculture with solar energy development. If co-utilization is proposed, the plan must demonstrate that co-utilization will be feasible and specify details (grazing plan, planting pasture species, watering facilities, access for livestock trailers, panel spacing, additional fencing, access roads, gates, housing, etc.) A qualified or accredited third-party agricultural professional must prepare the co-utilization plan.

## Address shortage and cost of farm labor

Finding suitable labor to work on farms is a challenge for most farmers. As a result, many farms rely on migrant and other imported labor, often through the H2A program. Fruit farming requires a significant amount of manual labor during planting, pruning, and harvest seasons, which may exceed the availability of local labor. Fruit farming often requires specialized knowledge and skills that H2A workers possess due to their experience in similar industries. H2A workers are generally considered reliable, as they travel to the U.S. specifically for temporary agricultural work and are motivated to maintain employment throughout the contract period.

There are some issues associated with reliance on H2A workers. The H2A visa program involves a complex application process and stringent regulations. Farmers need to prove the unavailability of local workers, provide housing, and adhere to specific wage rates and labor conditions.

Additionally, employing H2A workers can be more expensive for farmers due to requirements for providing housing, transportation and paying higher wages compared to local labor. These costs can strain farm budgets, especially for smaller operations. Recent NYS changes to minimum wage requirements will likely seriously impact farmers once fully phased in.

**The H-2A program is a temporary agricultural worker visa program in the United States, allowing U.S. employers to bring in foreign workers to fill temporary agricultural jobs. This program is administered by the Department of Labor (DOL) and the U.S. Citizenship and Immigration Services (USCIS). It is designed to help address labor shortages in the agricultural sector by providing a legal and regulated means for foreign workers to enter the country and perform seasonal work.**

**To participate in the H-2A program, employers must demonstrate that not enough U.S. workers are available and willing to perform the work at the required wage rates and working conditions. They must also prove that hiring foreign workers will not negatively impact similarly employed U.S. workers' wages and working conditions. Employers must provide housing, transportation, and other benefits to H-2A workers and pay them the required wage.**

**The H-2A program is a vital component of the U.S. agricultural sector. It helps ensure that farmers have access to a sufficient workforce to maintain their operations, particularly during peak harvest seasons.**

The H2A visa approval process can be lengthy, and delays in approvals or changes to regulations can disrupt farmers' ability to secure the required workforce on time, impacting their operations.

## Increase Agricultural District Participation

In past years, some farmers have requested that their land be excluded from the Agricultural District program. As a result, the amount of land in Agricultural Districts does not reflect the amount of farmland in the Town.

Increasing participation in agricultural districts is crucial for the long-term sustainability of agriculture and rural communities. It helps protect farmland, supports the farming industry, and preserves the rural landscape. Here are some strategies to increase agricultural district participation:

Raise awareness by conducting public information campaigns to educate farmers, landowners, and the public about the benefits of agricultural districts. To disseminate information and raise awareness, utilize various communication channels, such as local newspapers, radio, television, social media, and community events.

Murray can engage local farmers by collaborating with local Orleans County Cornell Cooperative Extension, such as farm bureaus, cooperative extensions, and farmer associations, to promote agricultural district participation. These organizations can act as trusted sources of information and encourage their members to enroll in agricultural districts.

Offer technical assistance to help farmers and landowners navigate the application process and understand the benefits of participating in agricultural districts. This could include workshops, webinars, one-on-one consultations, or online resources.

Showcase success stories by highlighting successful agricultural district participants through case studies, testimonials, and media coverage. Sharing positive experiences can inspire others to consider participating in agricultural districts and demonstrate the benefits of doing so.

*Figure 6 Sunset over some of Murray's spring crops*

# STRATEGIES AND RECOMMENDED ACTIONS

Implementing the Town of Murray Agricultural & Farmland Protection Plan will require collaboration among local, County, State and private agencies and organizations. The Plan recommends that the Town Board appoint an Agricultural Advisory Committee to compile and provide information to farmers and to advise local and County decision-makers regarding issues of concern to local farmers.

**Abbreviations:**

**SWCD:** Orleans County Soil and Water Conservation District
**CCE:** Orleans County Cornell Cooperative Extension
**WNYLC:** Western New York Land Conservancy
**NYSDAM:** New York State Department of Agriculture and Markets

**Implementation Timeline**

**Ongoing:** Implementation through 10-year period
**Immediate:** 1-2 years
**Mid-range:** 3-5 years
**Long-term:** 6-10 years

| Strategies & Actions | | Responsible Agency(s) | Timeline |
|---|---|---|---|
| **Strategy #1: Support Agritourism Enterprises** | | | |
| a. | Encourage farms that sell directly to consumers to participate in Orleans County's agritourism promotion activities | Murray Ag Advisory Committee, Orleans County Tourism, Murray Ag Advisory Committee, CCE | Immediate/ Ongoing |
| b. | Connect farmers and resources for farmers interested in incorporating agritourism into their operations to educational resources and grant opportunities | Murray Ag Advisory Committee, CCE | Immediate/ Ongoing |
| c. | Utilize the Town of Murray website to promote roadside stands and other agritourism businesses in Murray | Murray Ag Advisory Committee, Orleans County Tourism | Mid-range/ Ongoing |
| d. | Encourage agritourism businesses and local accommodations, restaurants, and other attractions to coordinate marketing and create package deals for visitors | Murray Ag Advisory Committee, Orleans County Tourism, agritourism businesses, Chamber of Commerce | Mid-range |
| e. | Review and update local zoning regulations and permitting processes to support the growth and development of agritourism enterprises | Murray Ag Advisory Committee, Murray Town Board, Murray Planning Board, Zoning Enforcement Officer | Mid-range to long-term |
| f. | Monitor and publicize the impact of agritourism on the local economy and agricultural sector and advocate for adjustments to State and County policies and support programs | Murray Ag Advisory Committee, CCE, Orleans County Tourism | Long-term/ Ongoing |
| **Strategy #2: Educate the Public About Agriculture** | | | |
| a. | Encourage Holley and Kendall schools to revitalize and expand agriculture education programs in local schools, such as with an FFA chapter or using NYS Agriculture in the Classroom resources. (See also Strategy #7) | Murray Ag Advisory Committee, Holley and Kendall Central School Districts, BOCES | Immediate to mid-range/ Ongoing |
| b. | Work with local real estate agents and property sellers to ensure that buyers understand the potential impacts of agricultural practices in the community. | Murray Ag Advisory Committee, real estate agents, property sellers | Immediate |
| c. | Organize community events such as farm tours to foster relationships between farmers and the community | Murray Ag Advisory Committee, CCE, Orleans County Tourism, Farm Bureau | Immediate to mid-range |
| d. | Provide information to residents, such as brochures or web posts, about living in an agricultural community | Murray Ag Advisory Committee, CCE, community groups | Immediate to mid-range |
| e. | Provide information to residents about how farmers utilize best management practices to conserve land and water resources. | Murray Ag Advisory Committee, SWCD, CCE | Mid-range |
| f. | Monitor and evaluate the effectiveness of public education efforts and make necessary adjustments to improve understanding and support for agriculture | Murray Ag Advisory Committee, CCE, community groups | Long-term |

| Strategies & Actions | | Responsible Agency(s) | Timeline |
|---|---|---|---|
| **Strategy #3: Protect High Quality Farmland from Conversion to Non-Agricultural Uses** | | | |
| a. | Encourage farmers to consider participating in a NYS Purchase of Development Rights (PDR) program and/or work with local land trusts to place permanent conservation easements on high quality farmland. | Murray Ag Advisory Committee, WNYLC | Immediate to long-term |
| b. | Review and update zoning regulations to maintain protections for agricultural uses and limit conversion to non-agricultural uses. | Murray Ag Advisory Committee, Murray Town Board, Murray Planning Board | Ongoing |
| c. | Connect young and beginning farmers with resources, education, mentorship programs, and access to affordable farmland. | Murray Ag Advisory Committee, CCE, Local schools | Immediate to long-term |
| **Strategy #4: Maintain "Farm Friendly" Zoning and Enforcement** | | | |
| a. | Regularly review and update the town's zoning regulations to ensure they remain supportive of agricultural operations and compliant with NYS Agricultural Districts Law | Murray Town Board, Murray Planning Board, Murray Ag Advisory Committee | Ongoing |
| b. | Provide periodic training and resources for Town of Murray officials, zoning board members, and code enforcement officers to ensure consistent interpretation and enforcement of farm-friendly zoning regulations | Orleans County Planning Department, CCE | Immediate to mid-range |
| c. | Maintain the Town's Right to Farm Law and the role of the Agricultural Advisory Board to address complaints relating to how local laws and policies impact agricultural practices or operations | Murray Town Board, Murray Agricultural Advisory Board | Ongoing |
| d. | Communicate with farmers to identify and address any zoning or enforcement issues that may be unreasonably restrictive to farm operations and to ensure that zoning regulations and enforcement practices continue to support and protect agricultural operations | Murray Ag Advisory Committee, Murray Code Enforcement Officer, Murray Town Board | Ongoing |
| e. | Revise zoning as needed to accommodate secondary non-agricultural business enterprises on farms that help to supplement farm income, with appropriate safeguards to minimize impacts on neighbors and the community | Murray Town Board, Murray Planning Board, Murray Agricultural Advisory Committee | Medium-term |
| **Strategy #5: Maintain Climate and Drought Resiliency** | | | |
| a. | Work with NYS Canal Corporation to ensure continued access to Erie Canal water for irrigation. | Murray Ag Advisory Committee, Murray Town Board | Ongoing |
| b. | Connect farmers with technical assistance and other resources to promote advanced irrigation technologies and practices, to minimize water waste and improve efficiency, to cultivate drought-tolerant crop varieties, and install other best practices for maintaining drought resiliency, and to access drought monitoring and forecasting information | SWCD, CCE | Immediate to mid-range |
| c. | Encourage farmers to install soil conservation practices that improve water retention and overall drought resilience | SWCD and CCE | Immediate to mid-range |
| d. | Maintain public water supply infrastructure for use by farms. | Farmers, SWCD | Mid-range to long-term |
| **Strategy #6: Assist New and Beginning Farmers** | | | |
| a. | Connect farmers with information and technical assistance for business planning, tax planning, and financial management | FSA, CCE, Farm Credit East | Immediate to mid-range |
| b. | Connect farmers with information about grant and loan funding sources | FSA and CCE | Immediate to mid-range |
| c. | Connect farmers with organizations that provide mentorship programs to connect experienced farmers with new and beginning farmers for guidance and support and networking opportunities for new and beginning farmers to connect with peers and industry professionals | CCE, Farm Credit East | Immediate to mid-range |

| Strategies & Actions | Responsible Agency(s) | Timeline |
|---|---|---|
| **Strategy #7: Expand Youth Education to Encourage Careers in Farming** | | |
| a. Work with teachers and Kendall and Holley Schools to introduce an FFA program | Murray Ag Advisory Committee, Holley and Kendall Central Schools | Immediate to mid-range |
| b. Work with Kendall and Holley school officials and libraries to incorporate more Agriculture in the Classroom components into the school curriculum | Murray Ag Advisory Committee, Holley and Kendall Central Schools | Immediate to mid-range |
| c. Encourage schools to include guest lectures, field trips, and hands-on learning experiences for students | Murray Ag Advisory Committee, Holley Central School, CCE, local farmers | Immediate to mid-range |
| d. Encourage schools to promote technology-focused careers in agriculture to high school students | Holley and Kendall Central School Districts, BOCES | Immediate to mid-range |
| e. Develop a mentorship program connecting students with local farmers and agricultural professionals | Murray Ag Advisory Committee, CCE, Farm Bureau, farmers | Immediate to mid-range |
| **Strategy #8: Avoid and Mitigate Impacts from Solar Energy Developments** | | |
| a. Adopt and maintain a solar local law that requires solar energy facilities to avoid conversion of Farmland Suitable for Protection and land lands with high quality agricultural soils and that requires consultation with the Agricultural Advisory Committee before approving a solar energy facility. | Murray Town Board; Murray Ag Advisory Committee | Immediate |
| b. For solar energy facilities > 1 MW in size, maintain and enforce the following standards as part of the Town's solar local law.<br>• Avoid placing solar facilities on high-quality agricultural soils and actively farmed land<br>• Require solar developers to follow best practices during construction, post-construction, and decommissioning to minimize impacts on agricultural resources<br>• Require solar developers to prepare an Agricultural Plan to avoid, minimize, and mitigate agricultural impacts during construction and upon decommissioning<br>• Monitor construction and restoration activities through an Agricultural Monitor to ensure compliance with agricultural protection standards<br>• Encourage co-utilization of agriculture with solar energy development, if feasible | Town of Murray Town Board, Murray Planning Board, Murray Ag Advisory Committee, NYSDAM | Immediate and Ongoing |
| c. If large-scale (>25 MW) projects are proposed in the Town, work with the NYS Office of Renewable Energy Siting (ORES) to minimize impacts on farming and ensure compliance with NYS DAM guidance | Town of Murray Town Board, Murray Planning Board, NYSDAM, ORES | Immediate and Ongoing |
| **Strategy #9: Address Shortage and Cost of Farm Labor** | | |
| a. Encourage Federal agencies to streamline and simplify the H2A visa application process | Town Board, Farm Bureau, U.S. Department of Labor, U.S. Citizenship and Immigration Services | Mid-range |
| b. Connect farmers with resources to help them navigate the H2A program and other labor requirements | Murray Ag Advisory Committee, FSA, CCE | Immediate and ongoing |
| c. Encourage Orleans County to explore training and workforce development programs focused on agricultural skills | Orleans County Workforce Development, BOCES | Mid-range |
| d. Advocate for policies and initiatives that support affordable farm labor, such as wage subsidies or tax incentives for hiring local workers | Farm Bureau, CCE, and Town of Murray officials | Mid-range and long-term |
| e. Promote agricultural education and career opportunities to encourage more local individuals to enter the farming workforce | Holley Central School, BOCES | Immediate and ongoing |
| **Strategy #10: Encourage farms to implement environmental protection and climate resilience best practices as well as energy efficiency and renewable energy for on-farm use** | | |
| a. Encourage farmers to work with Orleans County SWCD to plan and implement best management practices to protect water quality, reduce soil erosion, and improve climate resiliency. | Murray Ag Advisory Committee, SWCD | Mid-range |
| b. Advocate for continued funding and staffing for Orleans County SWCD. | Murray Ag Advisory Committee, Murray Town Board | Ongoing |
| c. Connect farmers with information about grants and other financial incentives to increase energy efficiency and install renewable energy for on-farm use. | Murray Ag Advisory Committee, NYSERDA, USDA Rural Development | Mid-range |

| | | | |
|---|---|---|---|
| d. | Connect farmers with information and technical support to encourage organic farming practices and certifications. | Murray Ag Advisory Committee, CCE | Ongoing |
| **Strategies & Actions** | | **Responsible Agency(s)** | **Timeline** |
| **Strategy #11: Increase Agricultural District Participation** | | | |
| a. | Distribute information to farmers and landowners to encourage participation in the Agricultural District program. Clearly communicate the benefits as well as potential disadvantages of enrolling parcels in the Agricultural District. Increase efforts during Ag district 8-year review and annual open enrollment periods. | Murray Ag Advisory Committee, Murray Town Clerk, Orleans County Department of Planning, CCE, SWCD | Ongoing |
| b. | Provide support for farmers and landowners in navigating the Ag District enrollment process. | Murray Ag Advisory Committee, Orleans County Department of Planning, CCE, local media outlets | Ongoing |
| **Strategy #12: Manage Drainage and other Infrastructure to Increase Support and Minimize Impacts on Farming** | | | |
| a. | When improving or maintaining drainage on Town roads, consult with farmers that work adjoining land to ensure that work does not negatively affect farmland. | Murray Highway Department; Murray Town Board; Murray Ag Advisory Committee | Ongoing |
| b. | Encourage the Murray Highway Dept., Orleans County Highway Dept. and NYS Dept. of Transportation to improve and manage drainage infrastructure along roadways to minimize negative impacts on farmland. | Murray Town Board; Murray Highway Dept. | Ongoing |
| c. | Explore creating drainage districts and obtaining easements to allow for coordinated, ongoing maintenance of drainage improvements. | Murray Town Board; SWCD; Murray Highway Dept. | Mid-range |
| d. | Work with the Orleans County SWCD to plan for and implement regular cleaning out of drainage districts. | SWCD; Murray Highway Dept.; farmers | Short-term; Ongoing |

# APPENDICES

A. Farmer/ Landowner Survey Results
B. Relevant Plans, Studies, and Resources
C. Energy-Related Agricultural Best Practices

# APPENDIX A:
# FARMER/ LANDOWNER SURVEY RESULTS

# Town of Murray Agricultural & Farmland Protection Plan Survey Overview Report

During a two-month period from February to March 2023, the Town of Murray undertook a wide-reaching survey campaign to gain input from the Town's farmers and residents to help direct the focus for the Town's Agricultural & Farmland Protection Plan.

To maximize response rates from farmers in Murray, the Town mailed paper surveys to all landowners in Town whose land is classified in tax records as farmland or other open land, and land which appeared to contain farmland based on a review of aerial photos. In total, the Town mailed surveys to 151 different property owners. Additionally, the survey was made available for to take on-line using the SurveyMonkey service.

Altogether, this survey campaign yielded a total of 48 responses. A total of 16 survey responses came from respondents who identified themselves as being either full-time or part-time farmers with the remaining 32 responses coming from landowners who rent/lease their land to farmers, own open space that is not farmed, or none of the above.

This overview report briefly and concisely synthesizes the diverse range of perspectives on agriculture and farmland protection by both farmers and non-farmers in the Town of Murray.

# Town of Murray Agricultural & Farmland Protection Plan
# Farmer/ Landowner Survey Report

Survey Questions



LaBella
Powered by partnership.

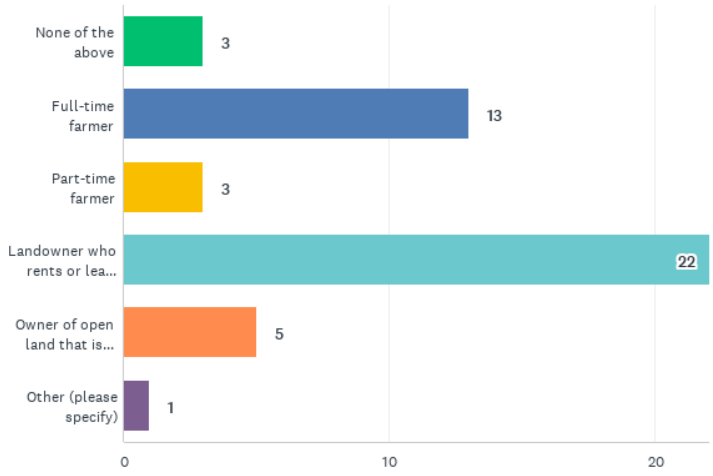
# Town of Murray Agricultural & Farmland Protection Plan
# Farmer/ Landowner Survey Report

## Survey Respondents

### Which of the following best describes you?

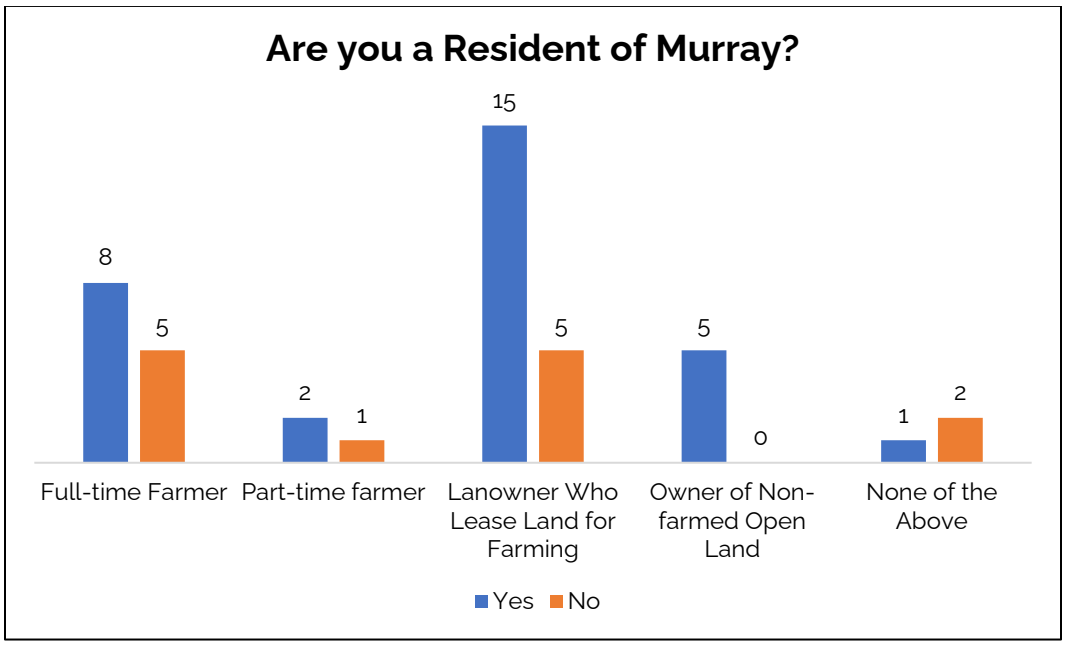
Of the 48 people who responded to this survey, 13 are full-time farmers, 3 are part-time farmers, 22 are landowners who rent/lease their land for farming, 5 are owners of open land that is not farmed, 1 is a retired farmer, and 4 chose none of the above or did not identify themselves.

Q4 Which of the following best describes you? (please select the one that best applies to you)




### Are you a resident of the Town of Murray?

Of the 48 people who responded to this survey, 44 indicated whether they live within the Town of Murray or not. Of the 44 respondents, 31 reported that they do live in the Town while 13 do not. Of the respondents who indicated that they are a full-time or part-time farmers, 10 live in the Town while 6 do not. Among non-farmer respondents, 21 live within the Town while 7 do not.

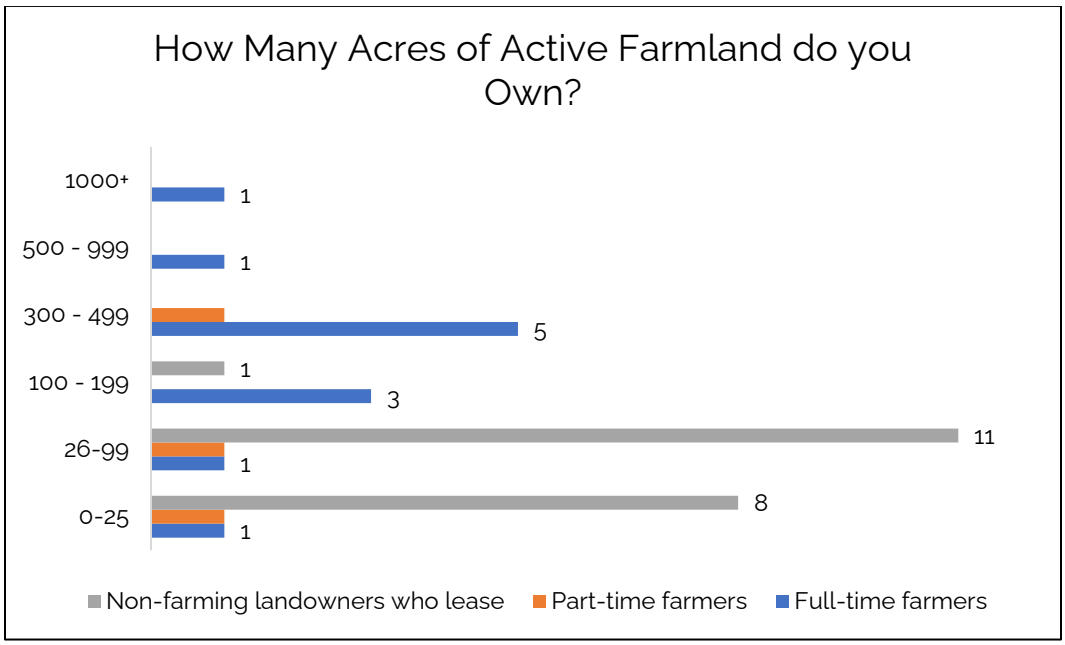



## How many acres of farmland do you own that has been used for agriculture in the past three years?

A total of 35 respondents indicated how much farmland they own that has been used for agriculture over the past three years. Of these, 11 respondents also identified how much active farmland they own outside of Murray as well.

The amount of active farmland owned in the Town of Murray by survey respondents ranged from 0 to 1,500 acres with a median answer of 35 acres. Outside of the Town, respondent answers ranged from 6 to 7,000 acres with a median answer of 200 acres.

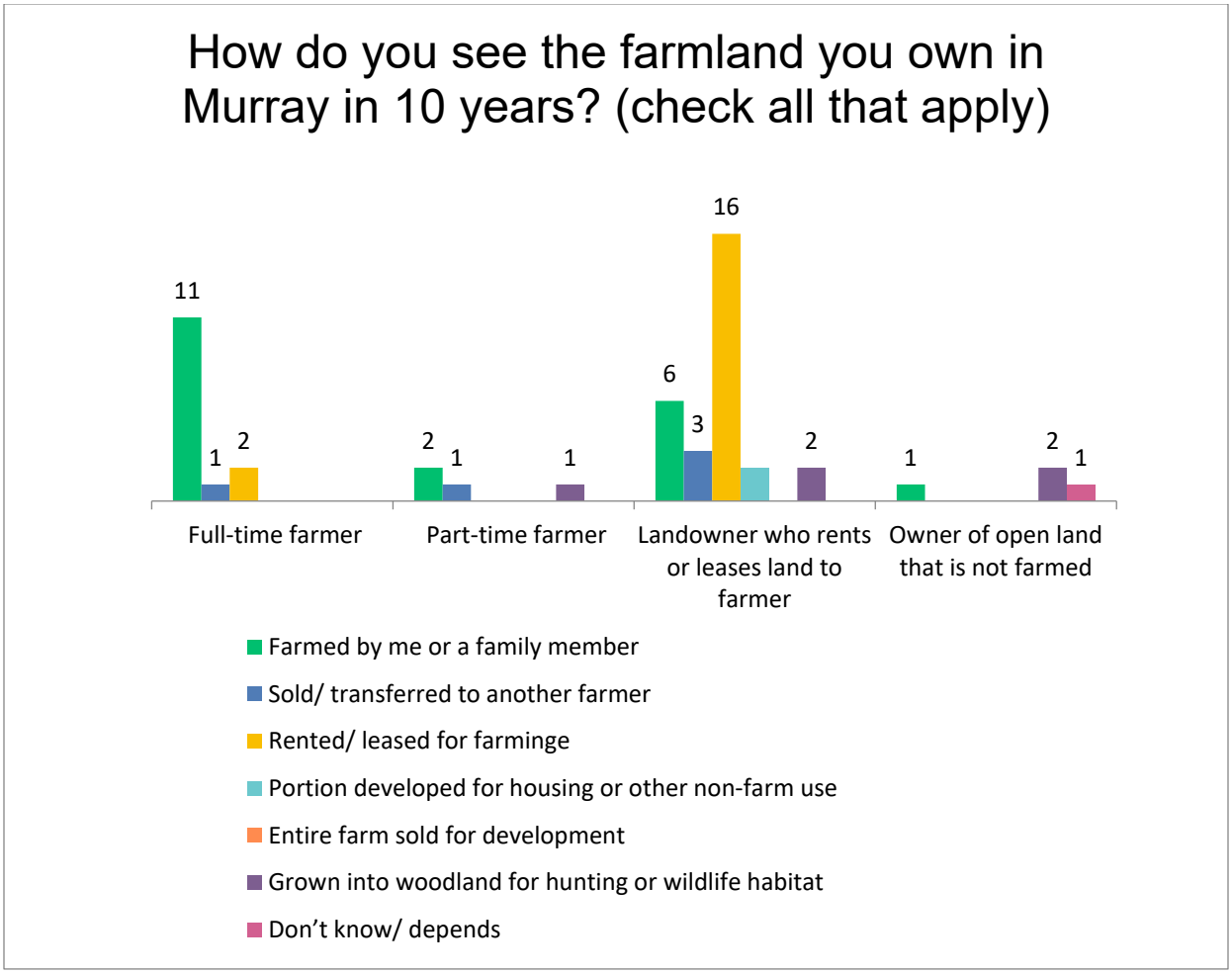
Among the 15 full- and part-time farmer respondents, the amount of active farmland they own ranged from 0 – 1,500 acres with a median value of 167.5 acres. Among landowners who lease their land for farming, their answers ranged from 6 to 184 acres with a median answer of 30 acres.




## How do you see farmland that you own in Murray in 10 years?

When asked to consider the future and how their farmland will be used 10 years from now, most respondents stated that they expect their land to continue to be used for farming. The two most common answers among all respondents indicated that their land would continue to be farmed by themselves or family (51.2%), or that they would rent/lease the land for farming by someone else (41.9%). Of the 15 full-time and part-time farmers who responded to this question, 13 said they expect their land to continue to be farmed by themselves or their family. 2 said they would rent/lease the land for someone else to farm, 2 others expect to sell/transfer the land to another farmer, and 1 anticipates growing the land into woodland for hunting and wildlife conservation.

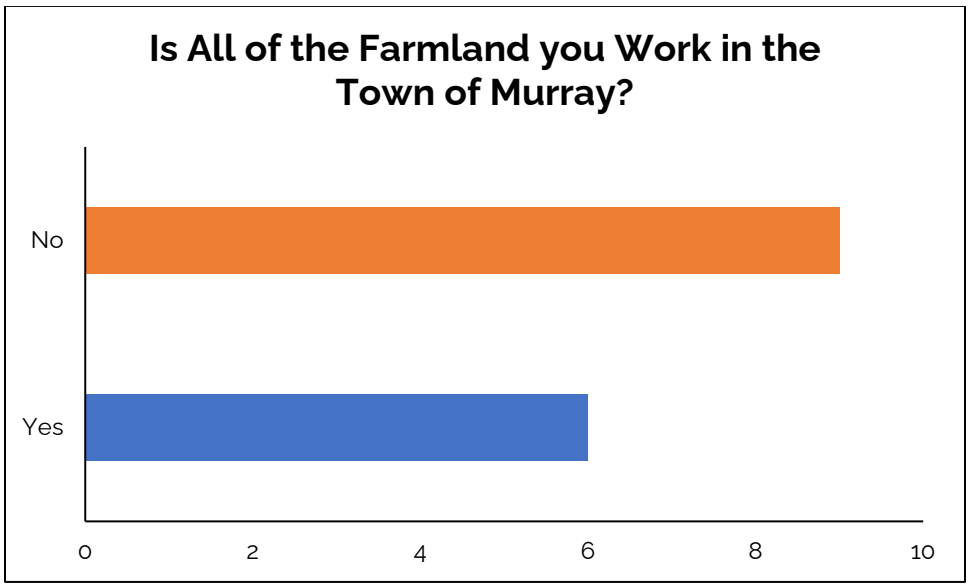
Of the 21 landowners who lease their land to farmers. 16 indicated that they expect to continue to lease their land 10 years from now. Other responses from these landowners showed their interest in farming the land themselves, selling the land to a farmer, growing the land into woodland, or developing a portion of the land into housing.




## Questions for Farmers

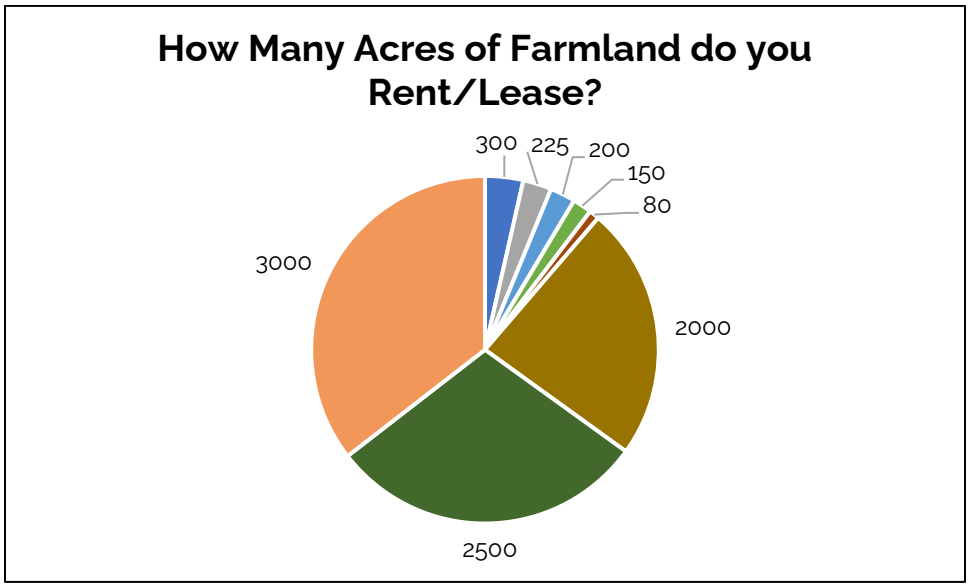
### Is all of the farmland you work in the Town of Murray?

For the majority of farmer respondents, all of the farmland that they work is not located entirely within the Town of Murray. Of the 15 respondents, 9 indicated that not all of their farmland is in the Town of Murray, conversely 6 farmers did indicate that all their farmland is located in the Town of Murray. Respondents provided comments identifying what other towns they operate their agricultural business in. Other towns include Alabama, Albion, Barre, Brockport, Carlton, Clarkson, Clarendon, Hilton, Holley, Kendall, Gaines, Ridgeway, and Shelby. On average, farmers in Murray own farmland in 2.4 other communities besides the Town of Murray.



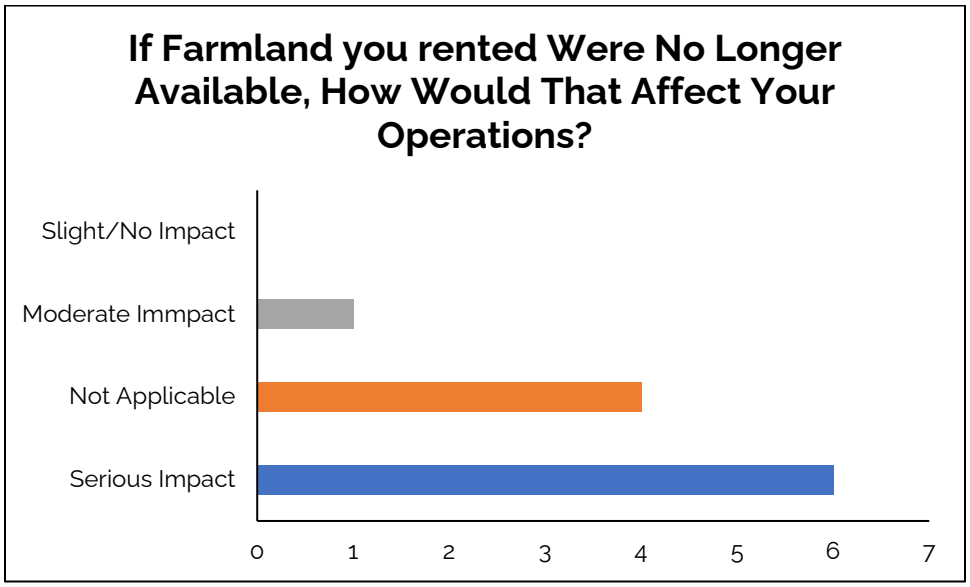

## In addition to the land you own, how many acres of farmland do you rent or lease for farming?

In addition to the farmland that they own for the agricultural production, 8 farmers also indicated that they rent or lease additional land for farming. In total, the additional land that these farmer rent/lease equals 8,455 acres of land with a median value of 262.5 acres. Several farmers indicated that they rent/lease over 2,000 acres of land while most rent/lease around 100-300 additional acres of land for farming.



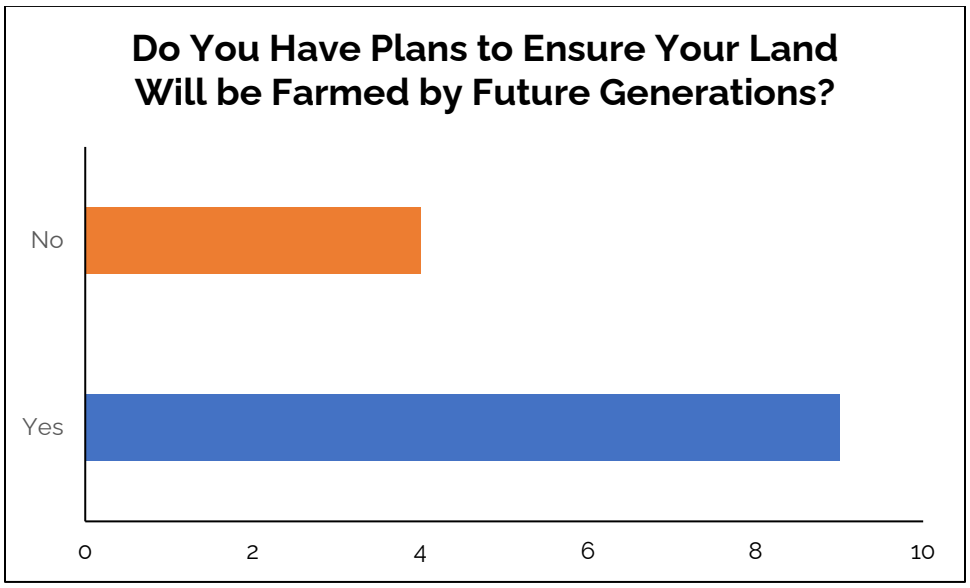
## If the land you rent for farming was no longer available, how would that affect your operations?

The availability of rentable land for Murray farmers was determined to be significant to their agricultural operations. A total of 6 farmers indicated that if the land they rent/lease were no longer available to them then that would have a serious impact on their operations and 1 stated that it would have a moderate impact; 4 other respondents indicated that the loss of land they rent for farming was not applicable to them. No part-time farmers indicated that the loss of land they rent/lease for farming would affect their operations.



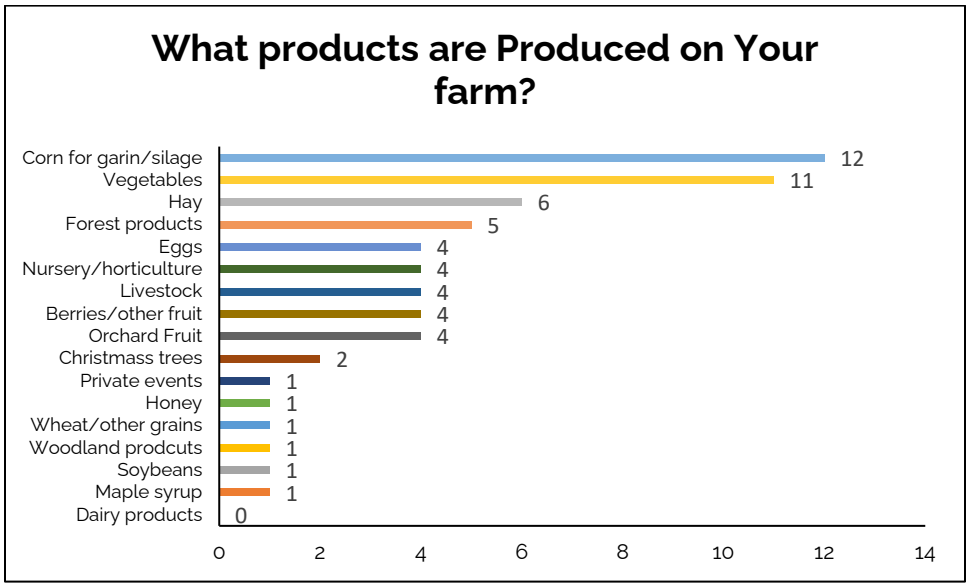

## Do you have a plan to ensure that your land will continue to be farmed by future generations?

Responses from this question indicates that most farmers in Murray are prepared to ensure their land will continue to be used for farming by future generations. In total, 9 farmers indicated that they are prepared while 4 farmers indicated that they are not. Of the 4 farmers that are not prepared, 2 of them are part-time farmers and 2 are full-time farmers.




## What products are produced on your farm?

Among full- and part-time farmers, there was a large amount of variability in what kinds of products they produce. Answers that received responses from 5+ farmers include corn for grain/silage, vegetables, hay, and forest products. Other common responses that received responses from 4 different farmers include orchard fruits, berries/other fruit, livestock, nursery/horticulture, and eggs. Less common products that received 1 to 2 responses include Christmas trees, maple syrup, soybeans, woodland products, wheat/other grains, and honey. Lastly, one written comment stated that they also use their farmland for private events such as weddings.

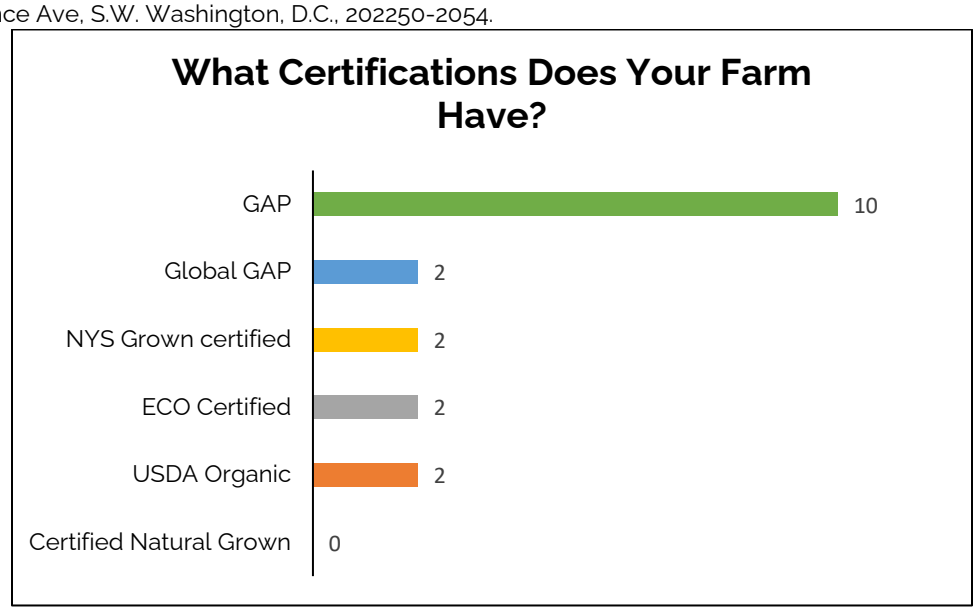



## What certifications do you have for your farm or farm products?

10 farmers indicated that they certified for Good Agricultural Practices (GAP), 2 stated that they are USD certified organic, and 0 indicated that they are certified naturally grown. With market trends indicating a growing desire from consumers for more organic products[1], assisting farmers in Murray with becoming certified organic may represent a key opportunity to expand the market demand for those products from Murray.

Other certifications that famers in Murray have that were shared in the written comments section of this question include ECO Certified, NYS Grown Certified, and Global Gap Certified.

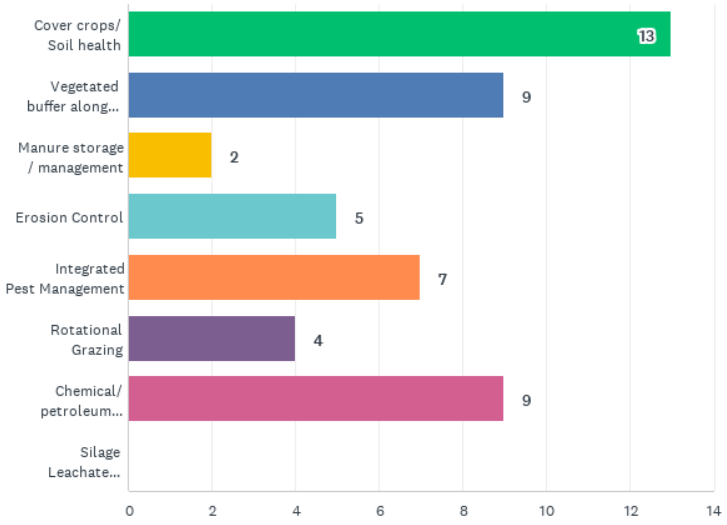
[1] USDA National Agricultural Statistics Service. 2022. Certified Organic Survey – 2021 Summary. 1400 Independence Ave, S.W. Washington, D.C., 202250-2054.




## What types of best management practices have you installed or use on your farm to protect water quality and the environment? (check all that apply)

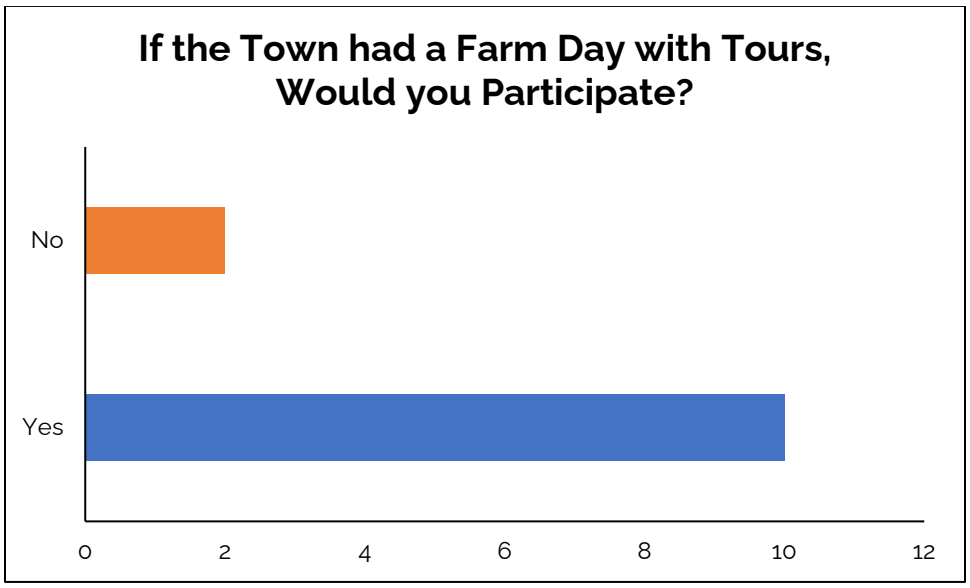
All 16 farmers that responded to this question indicated that they use at least one form of best management practices on their farm. The three most common forms of best management practices include cover cropping (81.25%), stream corridor vegetation buffers (56.25%), and integrated pest management (43.75%). The only type of best management practices that farmers in Murray did not indicate that they use was silage leachate control/treatment. This question illuminates the fact that farmers in the Town of Murray are cognizant of the impacts farming may have on the environment and their role in helping to mitigate those impacts.

Q11 What types of best management practices have you installed or use on your farm to protect water quality and the environment?



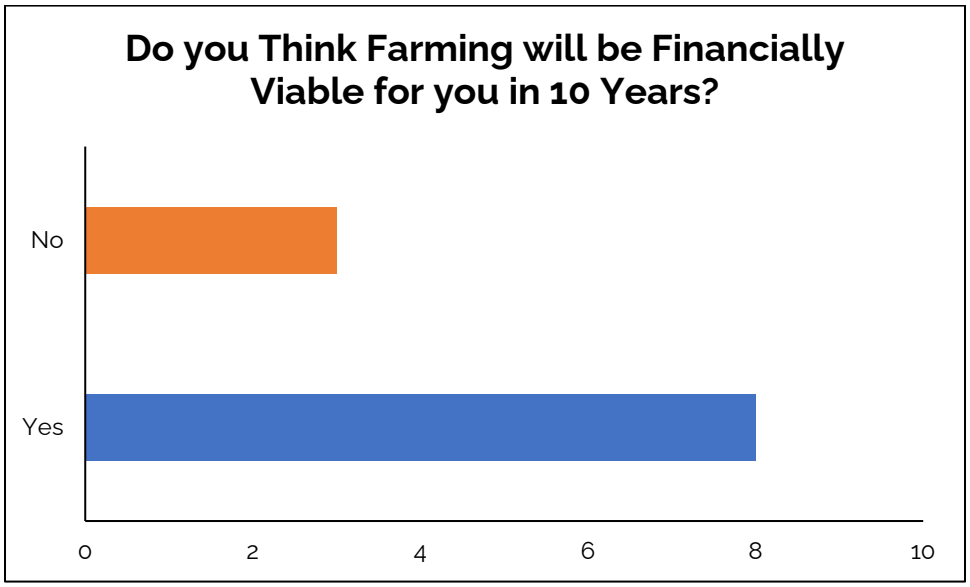

## If the Town had a Farm Day with tours, would you participate?

There was a strong consensus among farmer respondents that they would be interested in participating in a Farm Day event hosted by the Town that would include farm tours. Overall, 8 full- and 2 part-time farmers said they would be interested while only 2 full-time farmers said they would not be interested. The 2 farmers that said they would not be interested said they may be interested; however, it would be dependent on the time of the year the tours would take place.




## Do you think farming will continue to be financially viable for you and your family in 10 years?

When asked whether they think their business will continue to be financially viable 10 years from now, 8 farmers said yes while 3 said no. The 3 farmers that said no were all full-time farmers. Several farmers provided comments as to why they believe their farm will or will not be viable 10 years from now. Major concerns expressed by a number of farmers includes (1) changing state labor laws (overtime regulations), (2) changing demands for certain products, and (3) the rising cost for raw materials and production.



## How serious are the following challenges to your farm operation?

There are a number of challenges that farmers face on a day-to-day basis while maintaining their daily operations. The variety of challenges that farmers in Murray face was evident given the number of different issues respondents chose. For this question, respondents were given a list of 16 challenges they may face on a daily basis and were asked to rank these challenges as "Very Serious", "Somewhat Serious", or "Not an Issue/Not Applicable"[2]. The extent of agreement on these challenges amongst farmers in the Town of Murray follows as detailed below.

Challenges that received the highest amount of agreement (2.0-1.0):

1. Government regulations (1.4)
2. Availability of suitable farm labor (1.4)
3. Availability & cost of land (1.38)
4. Lack of public understanding of farming (1.19)
5. Conflicts with other vehicles on roadways (1.19)
6. Commodity prices & production costs (1.13)

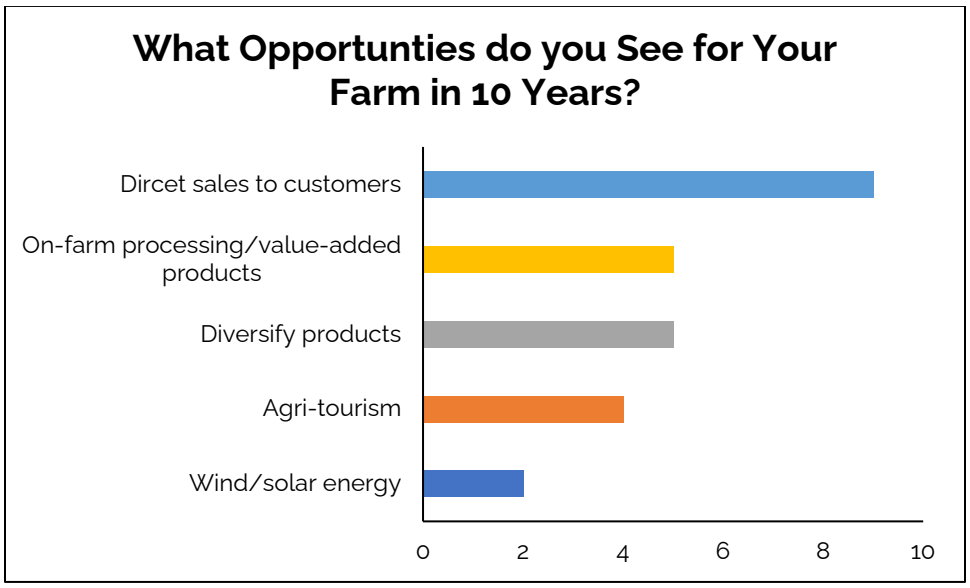
Challenges that received a moderate amount of agreement (0.99-0.0):

7. Suitable & affordable housing for farm labor (0.93)
8. Lack of succession planning to retain land for farming (0.88)
9. Access to support services and supplies (0.87)
10. Drainage maintenance and improvements (0.87)
11. Pressure to develop or sell land for development (0.81)
12. Access to markets, processors, and distributers (0.8)
13. Access to financing (0.67)
14. Pressure to sell or develop land for renewable energy (0.67)
15. conflicts with residential neighbors (0.56)
16. Inadequate infrastructure (0.38)

[2]Each response was assigned 2 points for "very serious," 1 point for "somewhat serious," 0 points for "not an issue" and "no opinion." The sum of the points assigned for each strategy was divided by the total number of responses.

## What are some opportunities you see for your farm over the next 10 years?

Given the acknowledged variability for the future of farming in this area, we wanted to elicit from farmers what opportunities they see for their farms 10 years from now. The opportunity that had the highest rate of approval for all farmers was to increase direct to consumer sales (69.23%). Other opportunities that had moderate levels of approval include diversifying products due to warmer climate (38.46%), on-farm processing/value-added products (38.46%) and agri-tourism (30.77%). Opportunities for the development of wind and solar energy facilities on their farmland was not a well-received opportunity with only 15.38% support. Other opportunities that farmers provided in the written comments section included hosting weddings and contract growing grains and vegetables.




## What do you see as the biggest challenges to your farm and other farms in the area over the next 10 years? (check all that apply)

In addition to day-to-day challenges, we also wanted to understand what respondents perceived to be the biggest challenges for their farms 10 years from now. Of the 11 challenges presented to farmers, only 1 received consensus amongst 90% or more of respondents while 4 received 89-50% consensus amongst respondents. The extent of agreement on these 12 challenges amongst farmers in the Town of Murray are as detailed below.

Challenges that received the highest amount of agreement (100-50%)

1. High cost of inputs (93.75%)
2. High cost and lack of suitable land (62.5%)
3. Loss of land due to large scale solar developments (62.5%)
4. Difficulty finding suitable workers (62.5%)
5. High taxes on buildings (50%)

Challenges that received a moderate amount of agreement (49-25%)

6. Global competition (37.5%)
7. Public attitude towards farming (31.25%)
8. Consolidation of farming operations (31.25%)
9. Competition with farmers from other states (25%)

Challenges that received the least amount of agreement (24-0%)

10. Increased likelihood of droughts or flooding (18.75%)
11. Complaints from neighbors (18.75%)
12. Lack of technical assistance for new/inexperienced farmers (12.5%)

Other challenges that farmers shared as written comments include invasive species, local government attitude towards farming, increasing government regulations, and climate change.

## Which of the following do you think would be the most effective in retaining high quality farmland and supporting agriculture in the Town of Murray?

For this question, respondents were given a list of 15 strategies targeted at improving the quality of farming in the Town of Murray. Respondents were asked to rank these strategies as "Very Important", "Somewhat Important", "Not Important", or "No Opinion"[2]. The extent of agreement on these challenges amongst farmers in the Town of Murray follows as detailed below.

Strategies that received the highest amount of support (2.0-1.5):

1. Town zoning that is more supportive of farming (1.79)
2. Inform landowners about available tax incentives (1.71)
3. More ag-oriented education in local schools (1.64)
4. Encourage farm stands, markets, and on-farm sales (1.54)

Strategies that received a moderate amount of support (1.49-0.9):

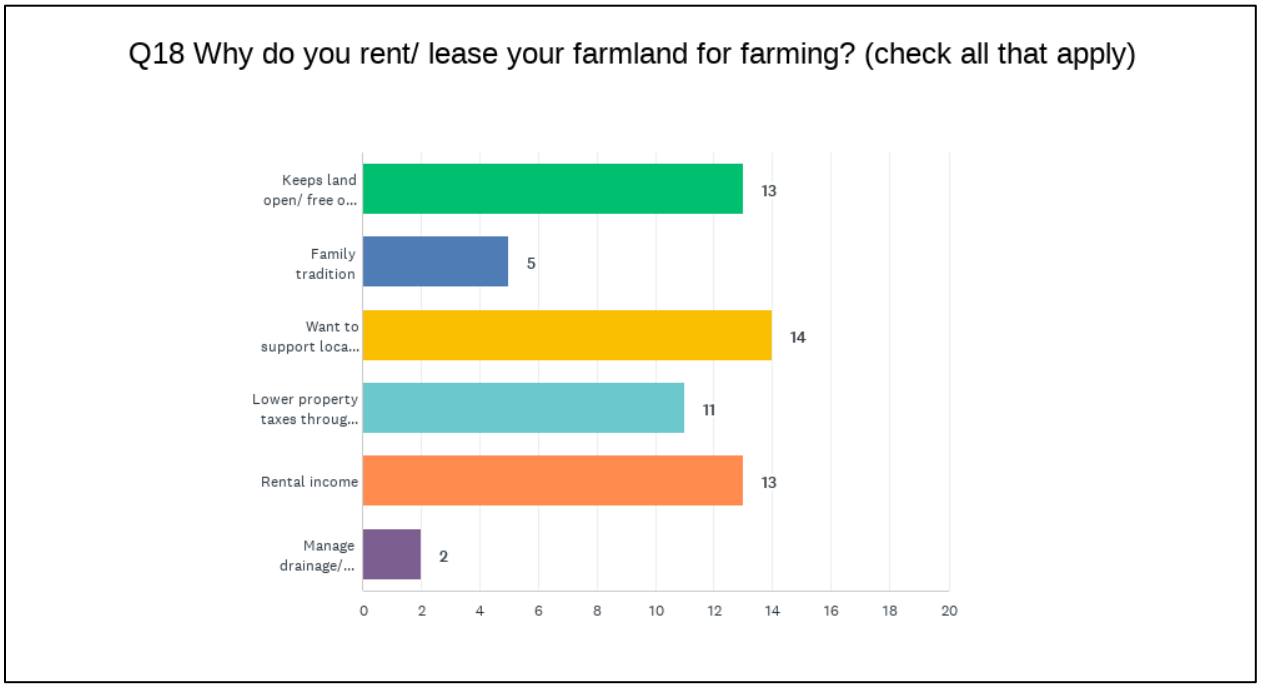
5. Highway, traffic, and drainage improvements (1.46)
6. Establish conversation easements or Purchase of Development Rights regulations (1.43)
7. Incentivize farmers to manage runoff and protect water quality (1.36)
8. Agricultural economic development initiatives (1.29)
9. Discourage residential development near farmland (1.25)
10. Allow for the operational of non-agricultural business on farm to supplement farm income (1.23)
11. Farm business training and technical assistance (1.21)
12. Require buffers between residential developments and farmland (1.14)
13. Marketing in support of agri-tourism (1.14)
14. Extension of high-speed internet (1.08)
15. Events to celebrate agriculture (0.93)

## Questions for Non-farmers

### Why do you rent/lease your farmland for farming? (check all that apply)

Non-farming landowners were asked why they rent/lease their land to farmers. Among the 20 landowners who responded to this question, the three most common answers were to support local agriculture (66.67%), keep land open (61.9%), and rental income (61.9%). Less common answers included:

1. lowering property taxes (52,38%)
2. family tradition (23.81%)
3. control drainage and runoff (9.52%)




### If you do not rent your land for farming, what is the reason you do not make the land available for agricultural production?

All survey respondents skipped this question besides one. Their reason for not making their open land available for farming was to have “peace & quiet”.

### Do you have a written lease agreement with the farmer who works your land?

18 non-farming landowners answered this question while 13 chose to skip it. Of those 18 respondents, 11 said they do have a written lease agreement (61.1%), whole 7 said they do not have a written lease agreement (38.9%).

## Do you place any restrictions on farming practices on your land?

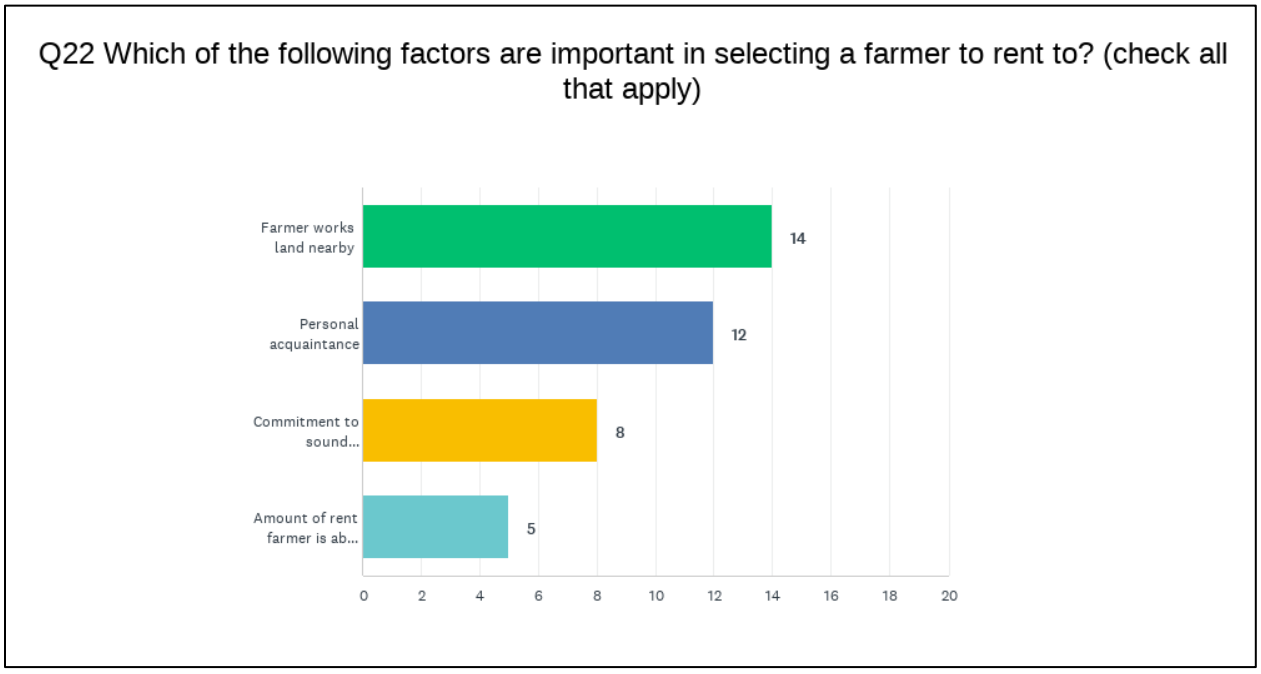
Most landowners who rent/lease their land to farmers do not place restrictions on the farming practices for their land. Overall, 10 respondents indicated that they do not (62.5%) while 6 respondents (37.5%) said that they do.

For landowners that do place restrictions, these restrictions include:

1. Comply with the guidelines set by the Natural Resource Conservation Service
2. No hunting
3. No cabbage

## Which of the following do you consider factors important in selecting a farmer to rent to?

Lastly, non-farming landowners were asked to identify several factors that they consider when selecting a farmer to rent their land to. Based on the responses of 20 respondents, the two most important factors are if the farmer works land nearby (70%) and if they are a personal acquaintance (60%). Lesser factors that landowners consider include the farmers commitment to environmental practices (40%) and the amount of rent the farmer is able to pay (25%).



# APPENDIX B:
# RELEVANT PLANS, STUDIES, AND RESOURCES

# Local Law Filing

NEW YORK STATE DEPARTMENT OF STATE
41 STATE STREET, ALBANY, NY 12231

**(Please Use this Form for Filing your Local Law with the Secretary of State)**

Text of law should be given as amended. Do not include matter being eliminated and do not use italics or underline to indicate new matter.

~~County~~
~~City~~
Town of MURRAY, ORLEANS COUNTY, NEW YORK
~~Village~~

Local Law No. 1 of the year 20 01

A local law entitled "THE RIGHT TO FARM LAW OF THE TOWN OF MURRAY"

Be it enacted by the Town Board of the

~~County~~
~~City~~
Town of Murray, Orleans County, New York as follows:
~~Village~~

SECTION 1: Legislative Intent and Purpose

It is hereby found and declared by the Town Board of the Town of Murray that agriculture lands are irreplaceable assets. To that end, the Town Board affirms that farming is an essential activity. Farming, as defined in this local law, reinforces that special quality of life enjoyed by citizens, provides the visual benefit of open space and generates economic benefits and social well-being within the community. Therefore, it is emphasized to residents that the Town of Murray encourages agriculture and requests that residents be understanding of the necessary day-to-day operations associated with agricultural land use.

It is the general purpose and intent of this local law to maintain and preserve the rural tradition and character of the Town of Murray, to permit the continuation of agricultural practices and the business of farming, and to encourage the initiation and expansion of farms and agricultural businesses. In recognition of the fact that there are many practices and activities which are inherent to and necessary for the business of farming, it is the specific purpose and intent of this local law to attain the aforementioned goals and objectives by providing that such practices and activities may proceed and be undertaken free of unreasonable and unwarranted interference or restrictions.

The Town Board, in an effort to promote and foster a harmonious relationship between the residents of the Town of Murray, and to conserve, protect and encourage the development and improvement of agriculture land for the production of food and other products, hereby declares that it shall be the policy of the Town of Murray to provide reasonable notice to prospective landowners that farming activities may occur on neighboring lands.

SECTION 2. Definitions

Unless specifically defined below, words or phrases used in this local law shall be interpreted so as to give them the meaning they have in common usage and to give this local law its most reasonable and effective application.

As used in this local law, the following terms shall have the meanings indicated:

Agricultural Land: Any single parcel or multiple, contiguous or noncontiguous parcels which together represent all the real property within the boundaries of the Town of Murray currently used for agricultural operations or upon which agriculture practices are being utilized or upon which agriculture farm operations or agriculture practices may in the future be established or utilized.

Agricultural Farm Operations: Any person, organization, entity, association, partnership or corporation engaged in the business of agriculture or farming or agriculture practices, whether for profit or otherwise.

Agriculture Practices: All activities conducted on a farm which are necessary to the operation of the farm, including but not limited to the cultivation of land; the raising of crops; the raising of livestock, dairy cows and poultry; stables and horse boarding facilities; horticulture; timber; fur-bearing animals; the production, whether for sale to others or home use or consumption, of plants and animals, fruits, vegetables and field crops; plantations, orchards, nurseries, greenhouses, or other similar agricultural practices used primarily for the raising, marketing or sales of on-premises produced agricultural or horticultural commodities. Agricultural practices shall also include any activity now permitted by law, engaged in, by or on behalf of a farmer in connection with and in furtherance of the business of agriculture or farming and shall include without limitation the collection, transportation, distribution and storage of animal and poultry waste; storage, transportation and use of equipment for tillage, planting, harvesting and marketing; transportation, storage and use of legally permitted fertilizers, limes, insecticides, herbicides and fungicides, all in accordance with local, state and federal law and in accordance with the manufacturer's instructions and warnings; construction of farm structures and facilities as permitted by local and state building code regulations; construction and maintenance of fences and other enclosures; and the use and/or maintenance of related pastures, idle or fallow land, woodland, wetland, farm ponds, farm roads, and certain farm buildings and other structures related to the agriculture practices.

The following examples are intended to be illustrative of common agricultural practices covered within this definition, but are not inclusive:

1. Providing for the wholesale and retail marketing (including so-called "you pick" marketing) and sales of the agricultural output of the farm and related products that contribute to farm income, including the sale at the owner's farm stand of agricultural products so long as at least seventy-five percent (75%) of the annual gross sales of the farm stand have been grown on said farm.

2. Replenishing soil nutrients, including, but not limited to, the spreading of manure and applying approved chemical and organic fertilizers.

3. Using federally approved products, in accordance with label instructions, as recommended by the New York Agricultural Experiment Station, the United States Environmental Protection Agency and the New York State Department of Environmental Conservation for the control of pests, predators, varmints and diseases affecting plants and livestock and for the control of weed infestation.

4. Transporting large, slow-moving equipment over roads within the Town of Murray, in accordance with local, state and federal law and regulation.

5. Clearing of woods using accepted techniques, installing and maintaining vegetative and terrain alterations, and other physical facilities for water and soil conservation and surface water control.

The foregoing uses, activities, and rights when reasonable and necessary for agricultural or horticultural production and when conducted in accordance with generally accepted agricultural practices may occur on holidays, Sundays and weekends, day or night.

Farmer: Any person, organization, entity, association, partnership or corporation engaged in the agricultural farm operation or agricultural practices as defined herein.

Farming: The act of engaging in an agricultural farm operation and/or agricultural practices as defined herein.

Farm: Shall include livestock, dairy, poultry, fur-bearing animal, agricultural, fruit, vegetable, and field crop farms, plantations, orchards, nurseries, greenhouses, or other similar operations used primarily for the raising of agricultural or horticultural commodities.

SECTION 3. Right-To-Farm

Farmers, as well as those employed or otherwise authorized to act on behalf of farmers, may lawfully engage in agricultural practices or an agricultural farm operation within the Town of Murray at any and all such times and at all such locations as are reasonably necessary to carry on an agricultural farm operation or agricultural practice. In determining the reasonableness of the time, place and methodology of such operation, due weight and consideration shall be given to both traditional customs and procedures in the agricultural industry as well as to advances resulting from increased knowledge or improved technologies.

SECTION 4. Nuisance

No agricultural practice or appurtenances thereto, conducted or maintained in a manner consistent with management practices such as those recommended by state and federal agencies within the educational aspects of farmers and agricultural practices, herein and hereafter referred to as accepted customs and standards, shall be or become either a public or private nuisance.

SECTION 5. Interference Prohibited

No person, group, entity, association, partnership, or corporation shall engage in any conduct or act in any manner so as to unreasonably, intentionally, knowingly, and/or

deliberately interfere with, prevent, or in any way deter the practice of farming within the Town of Murray.

SECTION 6. Penalties

Non-compliance with any provision of this local law shall not affect title to real property, nor prevent the recording of any document. Violation of any provision of this local law may constitute an offense punishable by a fine not less than Twenty-Five Dollars ($25.00) nor more than One Hundred Fifty Dollars ($150.00) for each day's violation or continuation of the violation.

In addition, an action to restrain or enjoin any violation of this local law may be brought in a Court of competent jurisdiction by an aggrieved entity and/or the Town of Murray.

SECTION 7. Resolution of Disputes.

Should any controversy arise regarding any inconvenience or discomfort arising out of or occasioned by any agricultural practices or agricultural operations, the matter shall be referred to the Town of Murray Agricultural Advisory Committee (AAC) in an attempt to resolve the matter informally prior to resorting to litigation. The AAC shall be comprised of five members including the Town of Murray Zoning Enforcement Officer, one Town Board member, one Planning Board member, one Zoning Board member and one individual who is engaged on a full-time basis in agricultural farm operations as herein defined.

Any complaint with respect to agricultural practices or agricultural operations shall be submitted to the AAC in writing, within twenty (20) days of the occurrence of the activity or activities giving rise to the complaint. Within thirty (30) days of its receipt of a written complaint, the AAC shall hold a public hearing to consider the matter. Notice of the public hearing shall be published in the Town's official newspaper at least five (5) days in advance of the hearing, and a copy of the notice shall be mailed to each of the parties to the controversy.

At the public hearing, the AAC shall hear testimony from the parties to the controversy and from any other interested persons. The effectiveness of the AAC as a forum for the resolution of disputes is dependent upon full disclosure and discussion of all pertinent facts pertaining to the dispute. To that end, the parties are encouraged to cooperate in the exchange of all pertinent information with respect to the controversy. The AAC shall also be authorized to conduct such independent investigations into the matter as the AAC deems appropriate. Within twenty (20) days after the public hearing, the AAC shall render a written report and recommendation and mail copies to both parties and to the Town Board.

If either party to the controversy disagrees with the AAC's report and recommendation, that party may pursue other legal remedies.

# APPENDIX B

# RELEVANT PLANS, PROGRAMS & RESOURCES

## NYS Agricultural District Program

Approximately 35 parcels, comprising 22,708 acres, in the Town of Murray are within Orleans County Agricultural District 1. (See Agricultural District Map.) The Agricultural District program and NYS Agricultural District Law support the long-term economic viability of farming through the following benefits:

- Agricultural use assessment allows eligible farmland to be taxed based on its value for agricultural production rather than at its fair market value. Landowners must apply annually to receive agricultural use assessments. The land must be used in a farm operation that generates the required minimum gross income to be eligible. The parcel does not need to be located within a certified Agricultural District to be eligible for agricultural use assessment.
- Local governments may not enforce laws, ordinances, rules, or regulations which would unreasonably restrict or regulate farm operations within an agricultural district unless it can be shown that public health or safety is threatened.
- To discourage private nuisance lawsuits, the NYS Department of Agriculture & Markets will issue opinions and interpretations regarding what is considered a "sound agricultural practice."
- To limit the impact of projects that receive public funding or require an eminent domain, State agencies, local governments, and public benefit corporations that intend to acquire more than one acre of land from any active farm within an agricultural district or more than 10 acres in total from a district must file a notice of intent with the Commissioner of Agriculture and the County agricultural and farmland protection board.
- Assessments for special improvement districts are limited to dwellings and farm structures directly benefiting from the services.

Agricultural Districts in Orleans County were first established in 1974. Currently, one Consolidated Agricultural District covers approximately 115,000 acres countywide. The Orleans County Planning Department manages the Agricultural District Program for Orleans County. Every eight years, the County reviews the district, and the County Legislature decides whether to add or remove parcels. Landowners may request their parcels added to an Agricultural District during the annual 30-day open enrollment period during the month of June. (See the enrollment form at the end of this Appendix.)

## Agricultural Value Assessments

Most of the farmland in the Town of Murray is assessed based on its agricultural value as provided for by the NYS Agricultural Districts Law. Landowners must apply annually to their Town Assessor to receive the agricultural assessment.

To qualify, the parcel must be used as part of a farm operation that meets one of the following criteria:

- At least seven acres of land that produces a minimum of $10,000 annually (or less than seven acres that has at least $50,000 annually), on average, during the preceding two years from the sale of crops, livestock, or livestock products

- A start-up farm operation in the first year of operation that meets the acreage and sales thresholds

Rented land is eligible for the agricultural value assessment if it satisfies the minimum acreage and sales threshold on its own or is used as part of a larger farm that a larger farm operation has a lease agreement with the owner of five years or more.

## Agricultural Environmental Management (AEM)

The Orleans County Soil & Water Conservation District administers the Agricultural Environmental Management program, which works with farmers to maintain farming as a profitable and environmentally sound enterprise. Cost shares are available through state-funded grants. Participation is voluntary and begins with completing the Tier I Survey. Once the initial phase is completed, Tier II involves an in-depth survey and site visit. Implementing and evaluating Best Management Practices (BMPs) occur during Tiers III and IV.

Examples of BMPs include:

- Stormwater diversion from barnyards
- Livestock water source development
- Fuel storage and spill containment
- Pesticide storage and mixing areas
- Silage leachate management
- Milkhouse waste management
- Buffer strips and vegetative filter strips
- Manure management systems

Participating farmers maintain control over the improvements and benefit from the expert assistance of SWCD staff.

## Cornell Cooperative Extension of Orleans County (CCE)

Cornell Cooperative Extension of Orleans County (CCE) publishes an annual guide to farm markets, farm stands, and direct sales. It promotes agri-tourism through its “Agri-Venture” website.

In addition, CCE staff and resources through Cornell and affiliated organizations are available to assist farmers with business planning and marketing.

## Orleans County Tourism

The Orleans County Tourism Office promotes agri-tourism with a dedicated page on its website. Orleans County Tourism also maintains a website https://orleanscountytourism.com that includes a The “Agritourism” page that highlights the county’s agricultural prowess strengths and how the climate and geography of the area make for an ideal condition for growing bountiful crops of apples, peaches, pears, grapes, berries and a wide variety of vegetables.

The Orleans County Official Visitor Guide, the essential promotional product from Orleans County’s participation in the “I Love NY” program through NYS Empire State Development, lists businesses, attractions, and events of interest to visitors and is widely distributed throughout the Region. Businesses may purchase advertising, but an ad is not required to be listed in the guide. Murray

farms highlighted in the tourism guide and website (as of Spring 2023) include Hurd Orchards and Erie Way Tree Farm, Flowers & Wreaths.

Orleans County Tourism staff can assist any farm operation interested in promoting visitor experiences to complement farm operations. Technical assistance includes advising how best to advertise. In addition, the County Tourism Director will assist businesses by publicizing events on its Events Calendar, listing them in its Destinations map, and cross-promotions with County initiatives. Farms can submit applications for listing.

## Farm-to-School Program

New York State's Farm-to-School program encourages school districts and other educational institutions to purchase local farm products and increase children's understanding of agriculture. Information is additionally available to service directors, farmers, processors, teachers, parents, and community members.

## Technical Assistance for Private Easements

The Genesee Land Trust works with landowners and governments to preserve active agricultural land in Orleans, Monroe, Wayne, Genesee, Livingston, and Ontario Counties. GLT manages conservation easements and works with landowners to obtain funds from NYS to purchase development rights. Its staff can meet with landowners to explain how conservation easements work, their tax impacts, and other legal ramifications. More information and contacts are available on the organization's website.

## Orleans County Canal Corridor Local Waterfront Revitalization Program (LWRP)

The Orleans County Canal Corridor Local Waterfront Revitalization Program (LWRP), completed in 2020, included the following goals to support agriculture:

- Increase access to natural and agricultural areas
- Provide financing for agricultural siphoning and facilitate its deployment in rural areas

One of the Priority Projects recommended in the LWRP is **Siphon for Agriculture & Tourism Development.**

# APPENDIX B

# RELEVANT PLANS, PROGRAMS & RESOURCES

Several farmers in the Town of Murray siphon water from the Erie Canal for irrigation. Currently, the New York State Canal Corporation allows farmers to place siphons for irrigation in the Erie Canal free of charge. The reduced cost improves the cost of doing business for area farmers.

## Reimagine the Canals

The NYS Canal Corporation identified Western New York Irrigation as a finalist for the Reimagine the Canals grand prize. The project proposed the following outcomes:

- Establish an irrigation district to ensure farmers have reliable access to water during the summer growing season
- Modernize canal outflow infrastructure to better respond to changing weather conditions
- Create a new grant program through the NYS Department of Agriculture and Markets to encourage private-sector investment in irrigation infrastructure

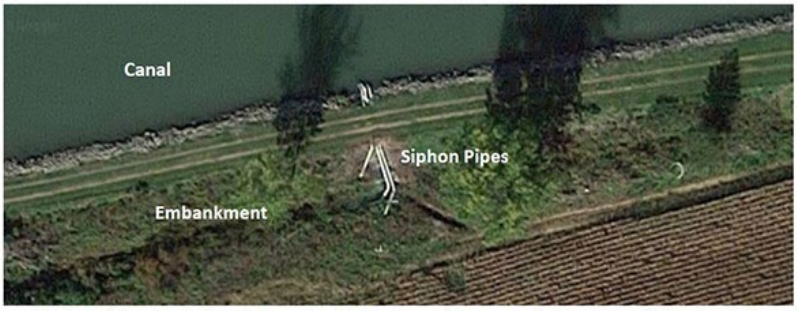
Although the project was not selected for funding, the Canal Corporation intends to continue the dialogue with project sponsors and explore other avenues for implementing the concept.

A video produced for the project explains how Canal water is diverted into Sandy Creek, and other streams that flow north from the Canal provide water for irrigation at farms that may be several miles away from the Canal. Other farmers siphon water directly from the Canal. Irrigation enables farmers to produce more high-value crops such as berries, tree fruits, and vegetables and to earn greater yields from existing farmland. As more frequent and prolonged droughts are anticipated due to climate change, securing sufficient water supply through irrigation is needed to support farming and the agricultural economy in Orleans County.

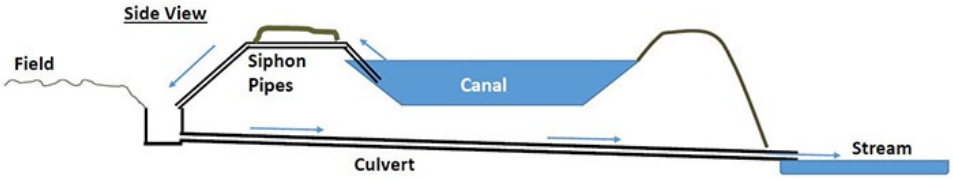
The following graphic and an informative video describing the proposed project are on Canal Corporation's website.

# APPENDIX B

# RELEVANT PLANS, PROGRAMS & RESOURCES




Si•phon (n): a bent pipe that carries water upward over an obstruction and then back downwards




## Beer, Wine, Cider, and Spirits

Enacted in 2012, NYS Farm Brewery Law offers a special license to breweries that use hops and other ingredients grown in New York State. To receive a Farm Brewery license, 20% of hops and 20% of other ingredients used in the beer must be produced in the State. These percentages rose to 60% in 2019 and will increase to 90% in 2024. The farm brewery license allows brewers to serve beer and cider by the glass and sell products at retail stores and farmers' markets. Similar laws govern the production of wine, cider, and spirits.

The law is intended to stimulate agricultural production and economic development. Beer producers seek to partner with farmers in NYS to produce sufficient hops, malting barley, and other ingredients to meet the license requirements.

## Energy Efficiency & Renewable Energy Grants and Incentives

The NYS Energy Research & Development Authority (NYSERDA) offers free energy audits valued at up to $3,000 for farm operations, as well as cost-sharing for targeted audits and benchmarking. Applications are available online.

The Rural Energy for America Program (REAP), administered by USDA Rural Development, provides grants for up to 50% of the cost, as well as loan guarantees, for energy efficient improvements and renewable energy installations on farms or at small businesses. More than $2 billion has been allocated to this program through 2031. Applications are accepted quarterly.

LETTER of INTENT for ANNUAL ENROLLMENT

Date:

Corey Winters, Planner
Orleans County Department of Planning & Development
14016 Route 31 West
Albion, New York 14411-9382

Dear Mr. Winters:

I am hereby requesting my parcel(s) of farmland, bearing the following tax identification number(s) be **included** in Agricultural District No. 1 in Orleans County during the June enrollment period:

| | |
|---|---|
| 1 _____ | 2_____ |
| 3_____ | 4_____ |
| 5_____ | 6_____ |
| 7_____ | 8_____ |
| 9_____ | 10_____ |

Sincerely,

_____

*Owner **Sign Name** Above*

_____

*Owner **Print Name** Above*

_____

*Owner Mailing Address (**Street Number and Name**) Above*

_____

*Owner Mailing Address (**City, State, Zip Code**) Above*

_____

*Owner **Phone Number** or **Email Address** Above*

Please send completed and signed original form to County – not a photocopy.

# APPENDIX C:
# ENERGY-RELATED AGRICULTURAL BEST PRACTICES

### 3. High-Efficiency Fans

The most substantial and impactful upgrade to reduce energy costs is buying high-efficiency (HE) fans when old fans need replacement. These can be costly to purchase, but better fan design and construction is very effective for reduced annual costs and improved performance over time. Before buying HE fans, make sure you obtain the Ventilation Efficiency Rating (cfm/Watt) from the manufacturer, and choose the fans with the highest ratings (you can view independent tests from BESS Lab). Visit AgEnergyNY.org to connect with experts who can share guidance specific to your farm and to learn about rebates that might be available for appropriate technologies.

### 4. General Measures for Ventilation Efficiency

- Establish a periodic fan cleaning schedule (every 3 to 4 weeks).
- Inspect and replace worn belts and pulleys.
- Install fan covers or use roll-up vent louvers or doors on unused fans during the heating season.
- Straighten bent discharge cones and repair shutters that are not closing properly.

| Energy Best Practice: High-efficiency Ventilation with VFDs | |
|---|---|
| **Description** | High efficiency fans with VFDs and controls optimized for required humidity, temperature, and air circulation. |
| **General Operational Requirements** | Average weekly use more than 20 hours. |
| **Potential Energy Savings[1]** | 20-80% |
| **Typical Simple Payback[2]** | 3-12 years |
| **Possible Barriers** | Cost; building design and farm context may limit what fan and control options are appropriate. |
| **Non-Energy Benefits** | Improved produce quality and animal health. |
| **Industry Information and References** | BESS Lab 2021, Bartok 2001, Sanford 2011, Sanford 2006. |

***Table Notes:***

*1. The row for **Potential Energy Savings** represents the potential savings as a percentage of the total energy use for each technology category. For example, if ventilation was 10% of a farmer's electricity usage, and the table showed a Potential Energy Savings of 25%, the net effect would be a 2.5% overall electricity energy savings. A farmer can then predict **Annual Cost Savings** by estimating 2.5% off their annual bill. If that farmer's annual electricity bill is $10,000 then the potential cost savings for implementing HE ventilation would be $250 per year.*

*2. Simple Payback is the installation costs divided by the potential energy cost savings, showing how long it takes for annual cost-savings from an upgrade to pay for the initial costs. A farmer can use this information to predict the **Expected Implementation Cost** by taking the annual cost savings from note #1 and multiplying it by the Simple Payback for the technology being investigated. If the HE ventilation example had an annual cost savings of $250 and had a Typical Simple Payback of 3.0 years, then the estimated implementation cost for that upgrade would be $750.*

***References:***


- *Bioenvironmental and Structural Systems Laboratory (BESS Lab). 2021. Agricultural Ventilation Fans. University of Illinois, Urbana, IL. Available at: http://www.bess.illinois.edu/index2.htm*
- *Bartok, Jr., John W. 2001. Energy Conservation for Commercial Greenhouses. NRAES-3. Cornell University, Ithaca, NY. 84 p.*
- *Sanford, S.A. 2011. Greenhouse Energy Efficiency. A3907-01. University of Wisconsin Extension, Madison, WI. Available at: https://learningstore.extension.wisc.edu/Assets/pdfs/A3907-01.pdf*
- *Sanford, S.A. 2006. Benefits of Adjustable Speed Fans for Bulk Potato Storage Ventilation Systems. University of Wisconsin-Madison, Biological Systems Engineering.*


## Resources

Energy efficiency resources are being developed for farmers by Cornell Cooperative Extension and the New York State Energy Research and Development Authority, in collaboration with topic-experts in NYS. Visit AgEnergyNY.org to find cost-saving resources for farms:

- Recommendations for energy-efficient technologies
- Easy access to funding resources
- Conservation practices to optimize energy use

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## Ready to get started?

**Visit AgEnergyNY.org to learn more and to get advice on energy efficiency and farm operations, learn about available grants and incentives, or obtain a free energy audit of your farm operations.**

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ENERGY-RELATED AGRICULTURAL BEST PRACTICES

# Refrigeration

## For Vegetable Farms

## Farms can use less energy, save money, and be more resilient through equipment upgrades that pay for themselves

There are several measures and technologies available to help vegetable farms reduce energy use and save money. Vegetable farms include single-item farms such as onions or potatoes as well as multi-product farms growing vegetables such as tomatoes, peppers, cucumbers, cabbages, green peas, snap beans, squash, sweet corn and more.

## Refrigeration Recommendations

A refrigeration system is necessary to store produce until ready for distribution. You can purchase pre-made cooling units setup for energy efficiency when expanding or replacing equipment, or implement best practices to improve the performance of existing refrigeration systems. Because energy-saving upgrades require capital expenditures, these best practices are most appropriate in areas where refrigeration operates for several months annually.

### 1. Scroll Compressors

In comparison with other types of compressors, scroll compressors are more efficient and less prone to mechanical failure since there are only two moving parts – a fixed and an orbital scroll. Scroll compressors can reach 100% volumetric efficiency and operate more smoothly and quietly because of the absence of gas compression pistons. Switch to scroll compressors when you need to replace or get a new compressor or refrigerator – scroll compressors save money by reducing energy use, while improving performance.

### 2. Refrigeration Controls

Electronic controls of refrigeration components can precisely adjust compressor and fan operations in response to real-time conditions, to improve energy efficiency and overall system performance. Most refrigeration systems do not need advanced electronic controls to operate efficiently. However, complex systems with multiple compressors call for more elaborate refrigeration controls.

### 3. Strip Curtains

Consistently keeping the walk-in cooler doors closed is the best way to maintain desired temperature and moisture levels. Strip curtains can be installed as a low-cost measure to reduce energy loss when cooler doors are open.

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### 4. Brushless Motors

Old and worn standard-efficiency motors should be replaced with high-efficiency options – the more hours a motor operates, the more cost-effective it is to replace it with a high-efficiency electronically commutated (EC) motor, also known as a brushless motor. Compared with standard brushed or induction motors, brushless motors use less raw materials to build, are less prone to mechanical failure, dissipate less heat, and are smaller and more energy efficient. These features make brushless motors better for the environment and long-term operations. Although the upfront cost may be more, the return on investment tends to be quick, especially for motors that run for many hours.

### 5. Disconnect Defrost Heaters in Walk-In Coolers Kept Above Freezing

Electric defrost systems use heating elements installed next to a refrigerator's evaporator coils. These are used during defrost cycles to melt accumulated ice which would otherwise degrade refrigerator performance. The electrical heating elements are energized in defrost cycles and the refrigerator blows hot air around those elements over the evaporator coil to melt the ice.

If you use a walk-in cooler for refrigeration above freezing temperature, the built-in evaporator fans can melt the ice sufficiently. Disconnecting electric defrost systems will prevent them from becoming energized during the defrost cycle, avoiding unnecessary energy use and costs.

### 6. Install a Hot Gas Defrost System

Hot gas defrost systems use heat from a refrigerator's compressor to melt any frost on the evaporator coil. This defrost system consumes less energy than heating air with electric heating elements. Hot gas defrost also heats the entire evaporator coil, and only a small amount of that energy warms the refrigerated area, meaning the refrigerator has to do less work to stay cool through defrost cycles.

Hot gas defrost generates less moisture compared to electric defrost because the evaporator coil is heated using air already in the refrigeration system. Hot gas defrost also tends to have a shorter defrost time, because hot gas is immediately available from the compressor when the defrost cycle begins. Shorter defrost cycles help reduce temperature variations throughout a refrigerator's operating cycles and also reduce strain on the compressor, improving the lifespan of refrigerator parts. Hot gas defrost uses more complicated piping and tends to be more costly to design and install. It is recommended that this technology be installed when replacing or expanding refrigeration systems.

*Table 1. Summary of refrigeration recommendations.*

| | High-efficiency Refrigeration System | Compressed Air Optimization | Preventative Maintenance – Refrigeration Tune Up | Preventative Maintenance – Scroll Compressors |
|---|---|---|---|---|
| **Description** | Well insulated, high-efficiency, walk-in cooling. Include controls (temp/humidity/air exchange rate/etc.), strip curtain, brushless motors, scroll compressors, etc. | Setpoints should be closer to 90 psi (110 psi max); lead-lag arrangements should be tuned; a new variable speed compressor should be installed when the base load is sufficient to warrant the expense. | Clean and inspect condenser coils; clean and inspect evaporator coils; clean drain pan; clean and inspect fans; clean or replace screens, grills, filters, and drier cores; tune defrost cycles. | Inspect and replace oil level, oil filter, and inlet screen. See equipment manuals for specific instructions. |
| **General Operational Requirements** | Higher cost items require annual use of more than just a seasonal four months. | For farms with compressed air needs beyond general shop uses | N/A | N/A |
| **Potential Energy Savings[1]** | 9-44% | 5-30% | 1-5% | 1-5% |
| **Typical Simple Payback[2]** | 1-9 years | 1-7 years | 1-3 years | 1-3 years |
| **Possible Barriers** | Cost. | Cost; unique compressed air requirements. | Equipment access (which should be corrected). | Equipment access (which should be corrected). |

***continued on next page***

| | High-efficiency Refrigeration System | Compressed Air Optimization | Preventative Maintenance – Refrigeration Tune Up | Preventative Maintenance – Scroll Compressors |
|---|---|---|---|---|
| **Non-Energy Benefits** | Improved produce quality. | Reduced wear and tear on the compressor. | Avoiding premature equipment failure. | Avoiding premature equipment failure. |
| **Industry Information and References** | MFEP 2012. | DOE 2003. | Wisconsin Focus on Energy 2020, and 2015. | DATCP 2006, Langston 2011. |

***Table Notes:***

*1. The row for **Potential Energy Savings** represents the potential savings as a percentage of the total energy use for each technology category. For example, if refrigeration was 10% of a farmer's electricity usage, and the table showed a Potential Energy Savings of 25%, the net effect would be a 2.5% overall electricity energy savings. A farmer can then predict **Annual Cost Savings** by estimating 2.5% off their annual bill. If that farmer's annual electricity bill is $10,000 then the potential cost savings for implementing HE refrigeration would be $250 per year.*

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***References:***


- *Langston, D. 2011. The Case for a Refrigeration Preventative Maintenance Program. Aire Rite Air Conditioning and Refrigeration, Inc. Available at: https://cdn.ymaws.com/www.rfmaonline.com/resource/resmgr/rfma_conference_presentation_archives/the_case_for_a_refrigeration.pdf*
- *Massachusetts Farm Energy Program (MFEP). 2012. Dairy Farms Best Practices: High Efficiency Refrigeration and Scroll Compressors. Massachusetts Department of Agricultural Resources, Amherst, MA. Pages 27-33. Available at https://massfarmenergy.com/wp-content/uploads/2014/03/Dairy%20Farms%20Best%20Practices.pdf*
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