Cattaraugus County Agricultural and Farmland Protection Plan

UPDATE, 2020

ACDS, LLC
J. PHILIP GOTTWALS | P.O. BOX 6666 COLUMBIA MD 21045

Acknowledgments

ACDS would like to thank the following for their work and input throughout the progress of this project.

Agricultural and Farmland Protection Board

- David L. Zilker* ***Chairman***
- Barbara D. George ***Vice Chairman***
- Crystal J. Abers
- Brian Andrews
- Charles W. Couture
- Brian Davis*
- James Finch
- David Koch
- Daniel T. Martonis
- Richard Rivers*
- Donald Telaak

Agricultural and Farmland Protection Plan Update Steering Committee

- Stephanie Beneng
- Nathan Blesy
- Megan Boberg
- James Brennan
- Kimberly LaMendola
- Rhonda Lindquist
- Daniel Pawloski
- Sister Melissa Scholl

Cattaraugus County Economic Development, Planning, and Tourism

- Crystal J. Abers ***Director***
- Patrick McGlew ***Development Specialist, Project Manager***
- Marie Myers Shearing ***Planner***
- Katrina M. O'Stricker ***Development Specialist***

Photos: Tim Stockman and Cattaraugus County Office of Economic Development, Planning, and Tourism unless otherwise noted

*Also a member of the Steering Committee

Contents

Executive Summary

Introduction

Cattaraugus County, while rural, is home to a wide diversity of agricultural and agribusiness operations. Traditional agriculture, such as crop production, dairy, livestock, and forestry, operate alongside less traditional operations taking advantage of new market opportunities. Small animal-fiber producers, an industrial hemp grower, fruit and berry farms, and a longstanding local brewery make their home alongside tourism and agritourism venues that encourage new visitors to enjoy the agricultural bounty. However, like many other rural areas, growth in the agriculture sector and the rest of the economy is challenged by an aging population and diminished interest in farming, forestry, or agribusiness as a viable career path.

The county's original Agricultural and Farmland Protection Plan and this update are governed by Agricultural Districts Law, under Section 324 of Article 25-AAA. This law requires that the state create an Agricultural and Farmland Protection Program to provide technical and financial resources to promote the conservation of working farms and farmland. The law also sets out the guidelines for counties and municipalities to follow when creating an Agricultural and Farmland Protection Plan.

The 2020 Cattaraugus County Agricultural and Farmland Protection Plan Update (AFPP) is divided into two sections. The first discusses the agriculture economy in the county and examines economic development tools that support the sector to ensure a strong future. The county has a strong entrepreneurial spirit but is also facing an aging farm owner population, a shrinking number of farms, changing markets, and a shifting agribusiness manufacturing sector.

The second section discusses land use issues and the need for and use of land use tools by local governments to protect agricultural land. Such land does not face traditional development pressure in the county, and the loss of farmland is more likely to come from energy projects than new housing developments. The county's unique situation requires thoughtful planning and policy at both the county and town levels.

Goal Statement

The goal for this AFPP is as follows.

"Agriculture in Cattaraugus County is a significant economic driver and a large part of the county's identity. It is the goal of Cattaraugus County to retain and expand the variety of traditional and non-traditional agricultural businesses operating in the county by supporting entrepreneurialism and business networking, providing timely training, and encouraging farmland protection.

This Ag Plan Update supports County agriculture goals by using key contextual information to construct recommendations aimed at advancing local agriculture."

Summary of Recommendations

Recommendations for the AFPP are based on interviews, data gathering, and analytical work of the project team, as well as feedback from the Agricultural and Farmland Protection Board (AFPB), the Plan Update Steering Committee, and the Cattaraugus County Department of Economic Development

Planning and Tourism (EDPT). Fuller descriptions and action steps are provided at the end of each section of the following report.

Agricultural Development Recommendations

- Build on existing entrepreneurial success by creating a Cattaraugus County rural and resource-based industries incubator.
- Support broadened labor force training programs for resource-based industries.
- Build on important relations to integrate between tourism and resource-based industries.
- Develop specialized training for farmers to address complicated topical issues.

Land Use Recommendations

- Expand farmland protection learning opportunities for farmland owners, farm operators, elected officials, town staff, and citizens at-large.
- Support balanced use of onsite commercial, agricultural, forestry, and related uses.
- Support development of capacity for landowner conservation and related funding and development activities.

2006 Agricultural and Farmland Protection Plan Progress

The following table summarizes the recommendations made and the actions taken in response to Cattaraugus County's 2006 Agricultural and Farmland Protection Plan. The 2020 plan builds on these recommendations.

Agricultural Economic Development	
Develop an agribusiness retention, expansion, and attraction plan	• EDPT maintains an agriculture business directory, brochure, and trail map on its agctt.com website. • Developed "Living in the Country" brochure. • Participating in American Farmland Trust regional navigator project.
Support regional agricultural leadership development	• Partners with various agricultural agencies in the county to advance leadership. • Host vendors at Farmer Neighbor Dinner.
Expand education and training programs	• Holds annual Farm Tour. • Agricultural technology programs expanding at the high school level.
Develop regulatory and policy action program	• EDPT encourages towns to adopt agricultural development plans. • Worked with Chautauqua County to expand regional agricultural planning.
Enhance business development programs and more fully incorporate agricultural needs	• Use AFPB as a mechanism for feedback. • Encourage participation in CCE business development. • Held succession planning program through speaker series (1 event). • Planning hunting lease speaker program.

Support broadened access to capital	• A planning committee held a summit on financing for agri-business and farms. • Investigating loan programs.
Land Use	
Support farm-friendly, county-based land-use policies and programs	• Hosted an informational meeting for agricultural and forest landowners regarding the NY State land acquisition process for Route 219 Expansion. • Facilitated individual meetings between New York Department of Transportation (DOT) staff and agricultural landowners to explore options to avoid land locking property in the path of Rt 219 Facilitate New York State Agriculture and Markets (NYSDAM) meetings with affected landowners to identify mitigation needs when Rt 219 is expanded as part of the Article 25AA Agricultural Notice of Intent Process. • Provided technical support to an affected farm to help them protect their water supply for a dairy herd when Rt 219 is expanded. • Requires real estate disclosure notices for potential buyers of property near working agricultural land at time of purchase. • Completed water and sewer line mapping. • County and soil and water conservation district (SWCD) have provided GIS assistance for town comprehensive plans. • Consolidated county agricultural districts into a single district. • County assists town-level planning to include agriculture in comprehensive plans, zoning ordinances, and subdivision regulations. • Provides assistance to towns that apply to NYSDAM for grants. • Holds annual agriculture tour for county legislators, planning board, and state elected officials.
Actively support town-based agricultural planning	• EDPT provides GIS data and maps to municipal officials to outline location of agricultural land and resources to integrate agriculture's interest in town planning. • EDPT encourages towns to include agriculture in planning and zoning. • Focused on new NYSDAM Town Level Agriculture and Farmland Protection Planning grants at county planning board annual meeting - June 2007. • American Farmland Trust has met with two towns to explain town-level options for agricultural and farmland protection planning. • Planning staff working with two towns to incorporate AFPP principles into their comprehensive plans • Conducts ongoing, formal training for town supervisor, town boards and zoning board members on land-use law.

Support efforts to establish a state tax incentive program to stabilize farmland and investigate a purchase of development rights program for high development pressure areas	• Facilitated meeting for American Farmland Trust to introduce the concept to Senator Young. • Sent letter of support for proposed legislation to state officials regarding Proposed Working Farmland Tax Credit. • Sent letter of support to Senator Catharine Young for enhanced funding for purchase of development programs. • Provided information to farmers and rural landowners about USDA and NY Farmland Protection Programs.
Promote understanding and appreciation of Cattaraugus County agriculture to the non-farm public	• County holds an annual Farmer Neighbor Dinner, supports farmers' markets. • Southern Tier West hosts Fresh Local Western New York program. • Cornell Cooperative Extension (CCE) wrote a section of the Cattaraugus County Bi-Centennial Booklet focusing on farms that have been operated by the same family for over 100 years. • Leadership Cattaraugus added a presentation on agriculture and a visit to the Salamanca Farmers Market to their 2007 program and in 2008 held full day on agriculture as part of the curriculum.
Support broadened access to capital	• A planning committee is in place to organize a summit on financing for agri-business and farms. • Investigating loan programs.

Photo: Brian Davis

Section One: Agricultural Development Plan

Introduction

It is well known that profitable farming operations supported by healthy supply chains and strong support industries are the greatest assets in protecting agriculture as a working landscape. They are also the most cost-effective means to anchor rural economies and support growth in employment and tax base.

Cattaraugus County's proximity to large urban centers in both the US and Canada makes it well suited to create strong market opportunities using its agricultural and natural resources to produce food and fiber products. The strength of its existing tourism and recreation industries also creates many opportunities for farmers and rural landowners to expand their economic base while growing the Enchanted Mountains brand.

This section of the Cattaraugus County AFPP Update focuses its attention on the current economic and supply chain conditions in the county with the intent to find better pathways forward in supporting the industries and entrepreneurs that will carry the agricultural economy forward.

Current Conditions in the Agricultural Value Chain

Agriculture remains one of Cattaraugus County's most important industries, as well as one of its largest land uses despite undergoing significant structural shifts. The local farm economy has traditionally been driven by the livestock sector, which in turn fuels demand for forages and grains. While the livestock sector remains important, its traditional mainstay, dairy, is undergoing dramatic changes and opening opportunities for other livestock and crop segments to rise in importance.

Outside of sector-specific performance, agriculture—locally and regionally—is struggling to cope with existential issues. Among these, the most important issues include the lack of replacement farmers, a declining number of qualified farmworkers, and a new regulatory environment in labor and transportation that may substantially increase the costs of operations.

But all is not negative in the industry. The county has a robust alternative livestock sector anchored by equine, small ruminants and camelids. With this comes a strong, cottage-scale fiber market that may grow even more robust as the region expands its hemp-based fiber industry. Small scale, value-added businesses are also expanding, with two new dairy plants being added to the list of small, local manufacturers in 2019 alone. In addition, farmers are being presented with alternative land-use scenarios such as hunt club leases and solar panel installations that may allow them to monetize their natural asset base.

During the interview and surveying process, there was significant anxiety over the rising costs of simply maintaining land as an asset. Landowners, operators, and the general public all highlighted the level of tax burden as an existential threat to the continuation of both agriculture and forestry operations in the county. It was well understood that protecting these and other economic uses is imperative for managing future growth in tax burden.

Specific to forestry, operators are most influenced by the price of graded Appalachian hardwoods, followed by pulp and other low-grade wood products. Because production cycles are so long, it is difficult for landowners to predict the ultimate value of harvested forest products, and the carrying costs, largely taxes, heavily influence the ability of the landowner to maintain the "crop". Section 480-a of the NYS Real Property Tax Law provides some potential relief, although it can be poorly understood by both practitioners and non-practitioners. Forestland properties enrolled under Section 480-a are eligible to receive up to an 80 percent reduction in assessed value, as determined by calculations which include the land's per acre assessment and the town's

Regarding data in this section:

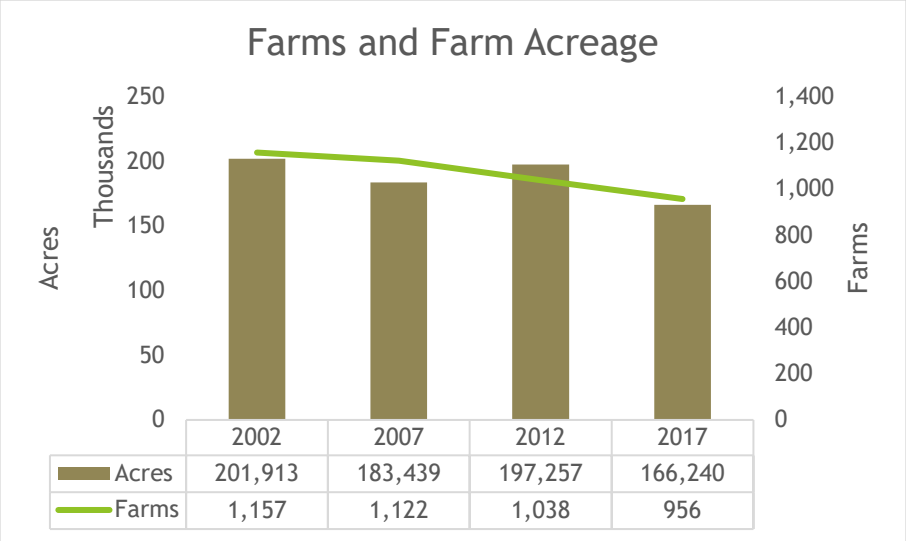
Please note that the report uses a variety of charts and tables to illustrate trends and critical data points. For Census of Agriculture data, some of the tables simplify the presentation by focusing on comparisons between two data years (e.g. 2002 and 2017; 2007 and 2017). In some cases, the years are selected based on data availability. In other cases, it is used to simplify the presentation of long term trends. Still, there are other cases involving farm acreage where cyclical patterns suggest that trends should be based on either the change between 2002 and 2012 or 2007 and 2017.

equalization rate. As a method for municipalities to capture tax revenue lost during timber growing years, a yield tax of 6 percent of realized stumpage value is paid by the forest owner at the time of harvest, except in certain situations whereby the value determination is made by the DEC region. The forest owner is required to carry out the silvicultural prescriptions outlined in a DEC approved forest management plan, and there are substantial penalties for withdrawal from the program. Despite the availability of the 480-a forest tax law program, it does not work well for all landowners. Without alternative relief mechanisms, land carrying costs too often compel non-participant forest owners, especially those with limited means, to sell timber prematurely to avoid cashflow challenges.

The balance of this report looks more deeply into the above issues and others that guide the recommendations for agricultural industry development.

Fewer Farms and Loss of Mid-Sized Farms

Changes in farm characteristics are impacting local agriculture. Farm numbers are shrinking, and acreage per farm is shifting. To recap, in 2018, there were about 956 farms in the county, which represents a 17 percent decline since 2002. There is also a continued hollowing out of mid-sized farms. Since 2007, in the county, there was a 7 percent increase in the average acres per farm from 163 acres per farm to 174 acres per farm. There was also a 5 percent decrease in the median acreage, which means an increase in the number of smaller acreage farms. In fact, farms fewer than 50 acres represented 31 percent of all farms in 2017 and has been growing in proportion since 2002. Farms with 1 to 9 acres grew by 59 percent from 2002 while farms with more than 1,000 acres increased by 17 percent from 2002. All of these changes threaten the future of agriculture in the county.



SOURCE: USDA CENSUS OF AGRICULTURE

Despite these declines, there is rapid growth within the small farm sector driven by the expansion of the county's Amish community. Once concentrated in the western portion of the county, Amish farms can be found in an increasing number of towns. In addition to their agricultural production, Amish farms are often diversified with small, home-based businesses such as retail food stands, small scale manufacturing, repair facilities, and wood product milling complementing farm income. Outside of these individual operations, the Amish community will operate a small-scale cheese plant to utilize Class B milk.

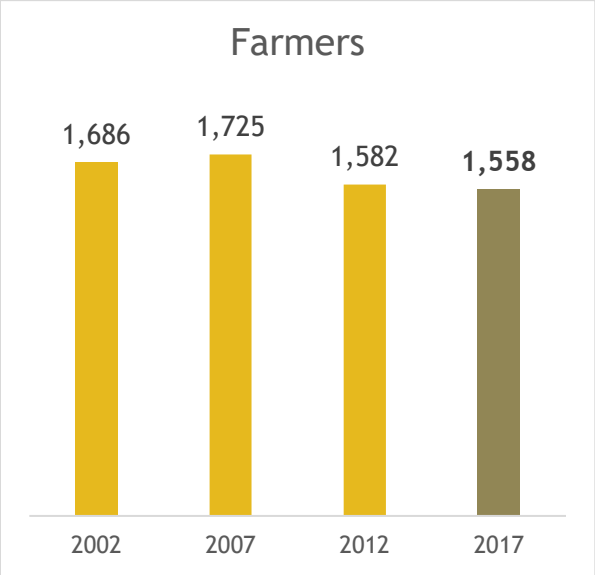
Because the Amish community is growing so quickly, it provides several distinct advantages. First, its large size and operational diversity create the basis for active trail-based tourism. Second, the Amish are investing in both land and hard assets which is adding to liquidity in the farm sector and creating localized competition for land that keeps it from transitioning to nonfarm uses.

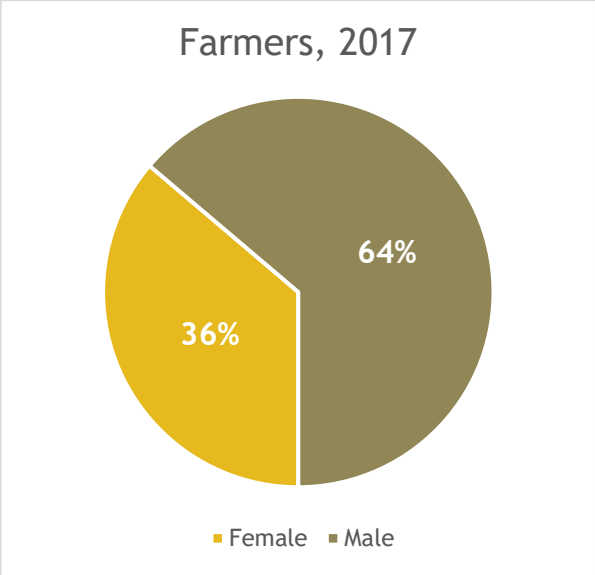
Farm Labor Concerns

The supply of farm labor is a growing concern both in terms of farm operators and farmworkers. The county is dealing with fewer farm operators and an aging farmer population. These conditions suggest that farm ownership transition is a challenge.

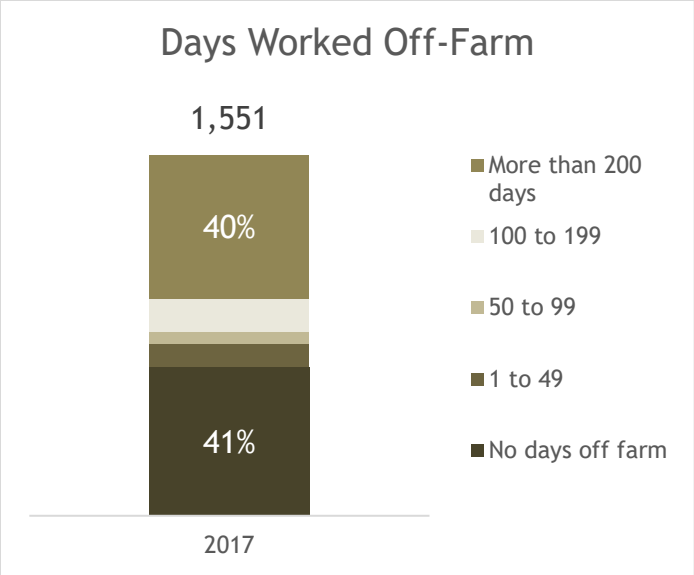
In 2017, the county had 1,558 farmers, which is an 8 percent decline since 2002. While 26 percent of the farmers are considered beginning farmers, aging farm operators exceed the population of young and beginning farmers. The average age of all farmers is 57, and the average age of principal operators is 58. [1] While not directly comparable to past census data, the average age of principal operators increased 9 percent between 2002 and 2012.

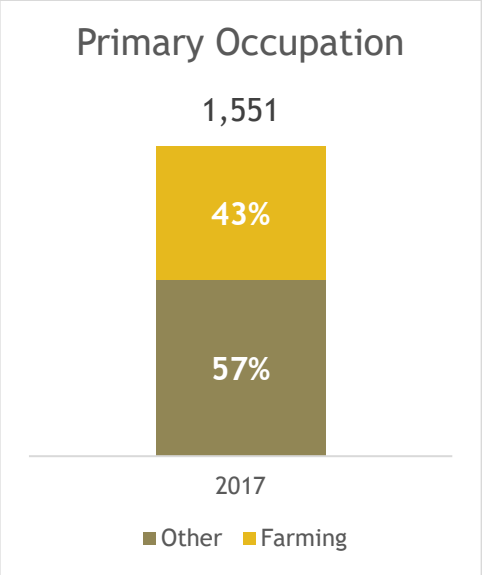
Unfortunately, more and more farmers in the county must find work off-farm to support themselves. About 59 percent of all farmers work off-farm, and 40 percent work off-farm more than 200 days. It is not surprising that 57 percent of all farmers consider another job as the primary occupation. When the average wage of an agricultural worker in the county is $30,389, and the average household in the county spends $53,064 each year, there is a need for multiple jobs or income sources.



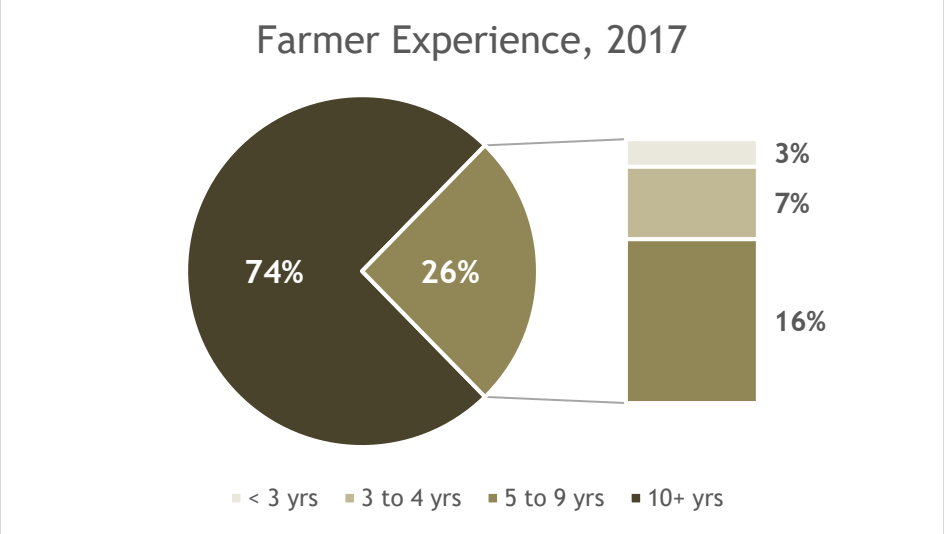


[1] These are from the 2017 USDA Census of Agriculture. Due to changes in data collection, these values cannot be compared to data collected in 2002, 2007, and 2012.





SOURCE: USDA CENSUS OF AGRICULTURE

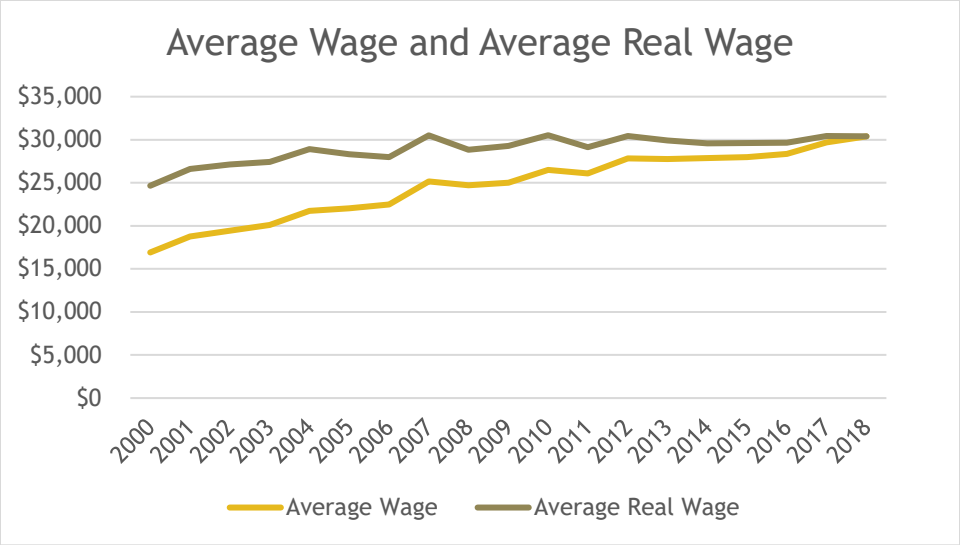


SOURCE: USDA CENSUS OF AGRICULTURE

Farming, Forestry, and Fishing Labor and Wages

The county has a total labor force of about 33,617. According to the U.S. Census and ESRI, about 3 percent of the labor force is in the agriculture/mining industry. About 1.2 percent of the labor force is directly involved in farming, forestry, or fishing. These industries have seen increases in average employment since 2007 and are recovering back to employment levels that existed at the turn of the millennium.

In 2018, the average wage of an agricultural worker in Cattaraugus County was $30,389. While the average wage has been increasing in nominal terms over the last few decades, the average real wage has been stagnant since 2007. That means workers are earning more, but purchasing power has not grown.



DATA SOURCE: QUARTERLY CENSUS OF EMPLOYMENT AND WAGES, DEVELOPED THROUGH A COOPERATIVE PROGRAM BETWEEN THE STATE OF NEW YORK AND THE U. S. BUREAU OF LABOR STATISTICS.

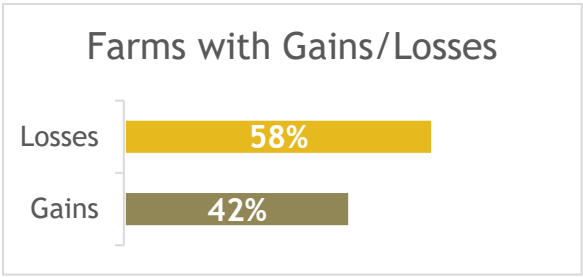
Threat of New Labor Regulations

The ability of farm management to attract and pay labor is important for the health of the agricultural sector. The New York State legislature passed the Farm Laborers Fair Practices Act in June 2019. Under this regulation, farmworkers must receive overtime pay after 60 hours and are entitled to 24 consecutive hours of rest each week. Overtime pay is one and one-half times the normal rate.

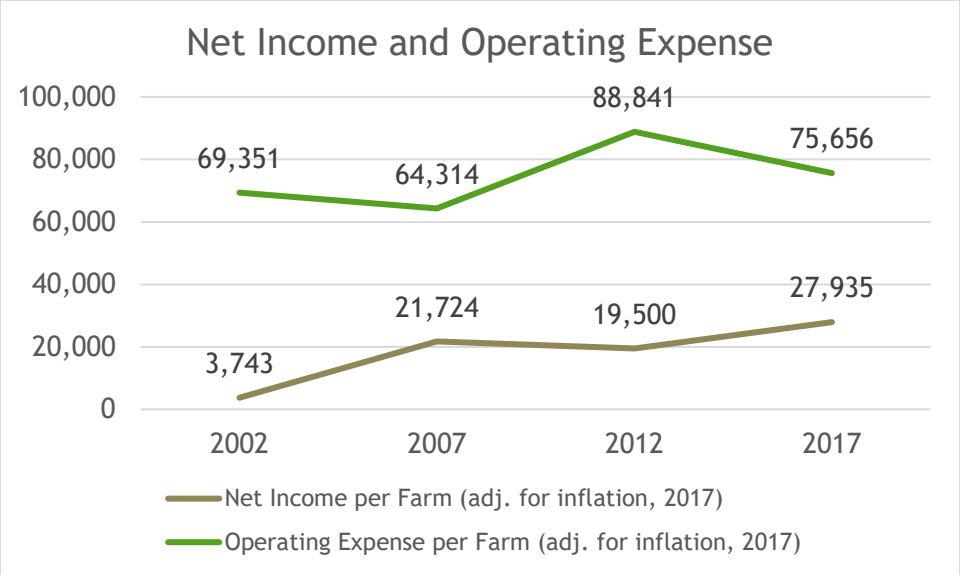
This change will harm many farm operations. Many farms require significant amounts of overtime. This law will lead to hiring fewer workers, reducing hours, or hiring more part-time workers. Ultimately, this may result in lower average wages, which could disincentivize individuals from entering this labor market.

Farm Profitability

According to the U.S. Census of Agriculture, the average net farm income has grown significantly since 2002 and has outpaced the growth in average expenses per farm in Cattaraugus County. Despite this, 58 percent of the farms in the county indicated a net loss in 2017. Given the overall trend towards farm consolidation, this may suggest that a relatively small proportion of farms are significantly more profitable than the rest.



SOURCE: USDA CENSUS OF AGRICULTURE, 2017



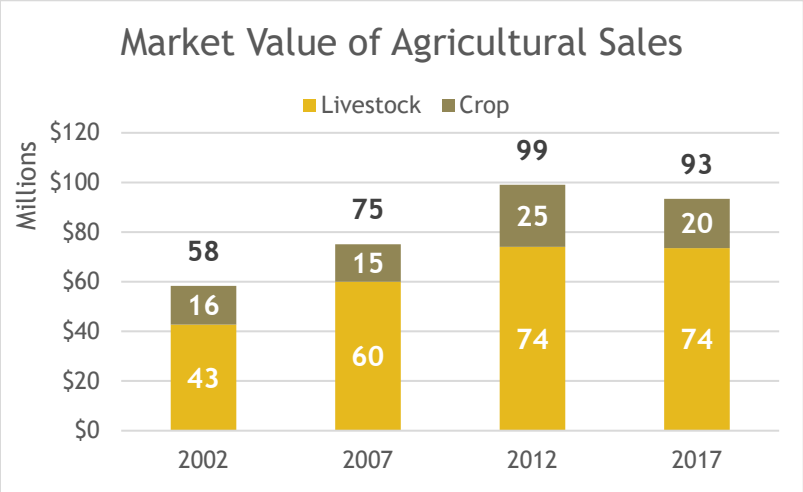
SOURCE: USDA CENSUS OF AGRICULTURE

Agricultural Commodity Output

Cattaraugus County agriculture is predominantly represented by livestock operations and crop production that fulfills the need for animal feed. Over the years, the share of livestock sales has

continued to grow. Meanwhile, the share of crop sales has declined, and crop acreage harvested also declined 13 percent since 2002.

Forage and grain crops are most common, but vegetable production is small but increasing rapidly. Most of the crop acreage is dedicated to growing commodities used to feed the estimated 45,000 cattle, poultry, hogs, goats, and sheep in the county. While grain and soybean production has increased, produce production has had mixed trends, with increases in vegetable but decreases in fruit. The high levels of undisclosed data also suggest low farm numbers.



SOURCE: USDA CENSUS OF AGRICULTURE

Table 1. Top Crops by Acres

	2012	2017
Forage	51,041	41,888
Corn Silage	14,035	10,090
Corn Grain	9,105	7,699
Soybeans	2,964	3,420
Oat	1,678	1,099

SOURCE: USDA CENSUS OF AGRICULTURE

The top sales by commodity also show that dairy, cattle, hay, and grains represent most of the farming activity. Horticultural, vegetable and fruit production represent a smaller share of both sales and farm acreage.

Table 2: Value of Sales by Commodity ($1,000)

	2012	2017	% Change
Milk from cows	58,577	55,636	-5%
Cattle and calves	11,039	15,135	37%
Other crops and hay	8,400	8,397	0%
Grains, oilseeds, dry beans/peas	12,406	6,547	-47%
Horticulture	1,114	2,063	85%
Other animals/animal products	2,950	1,575	-47%
Vegetables	618	1,450	135%
Fruits, tree nuts, berries	1,881	1,261	-33%

SOURCE: USDA CENSUS OF AGRICULTURE

Key Production Sectors

The following sections provide snapshots of the key agricultural sectors, including livestock, dairy, produce, as well as nursery and greenhouse production.

Livestock

Livestock production represents a significant agricultural sector within Cattaraugus County. In 2017, the county generated $73.5 million in sales of livestock. That is 79 percent of the total value of commodity sales in the county. Most of the livestock involves cattle, chicken, and sheep. Both cattle and broiler production are growing, while hog and goat production are decreasing. Overall, livestock inventory has remained relatively stable despite changes between years.

Table 3. Livestock Inventory

Livestock Inventory	**2002**	**2007**	**2012**	**2017**	**% Change**
Cattle and Calves	35,275	32,248	36,378	36,651	4%
Layers	2,242	3,987	3,071	3,539	58%
Sheep and lambs	946	1,790	1,467	1,703	80%
Broilers	800	749	595	1,058	32%
Ducks	211	263	893	675	220%
Goats	400	896	613	652	63%
Hogs	509	591	456	502	-1%
Turkeys	181	85	128	153	-15%

SOURCE: USDA CENSUS OF AGRICULTURE

Cattle and Calves

The cow-calf sector is driven by the dairy replacement business and the production of beef cattle. In 2017, the sector contributed $15.1 million in sales. Since 2002, there was a 9 percent decline in farms that sold cattle and calves. However, the number of animals sold increased by 54 percent. While the county has mostly small cattle farms, the few large farms (those with more than 500 head) have grown greatly in production. Also, between 2002 and 2017, the number of feedlot operations declined by 86 percent, while the number of feedlot cattle sold for slaughter has increased by 213 percent.

Table 4. Cattle and Calves Inventory

	2002	**2007**	**2012**	**2017**
Cattle & Calves	35,275	32,248	36,378	36,651
Cows	19,187	17,580	18,325	17,770
Dairy	16,705	14,606	15,435	14,416
Beef	2,482	2,974	2,890	3,354
Other Cattle [2]	16,088	14,668	18,053	18,881

SOURCE: USDA CENSUS OF AGRICULTURE

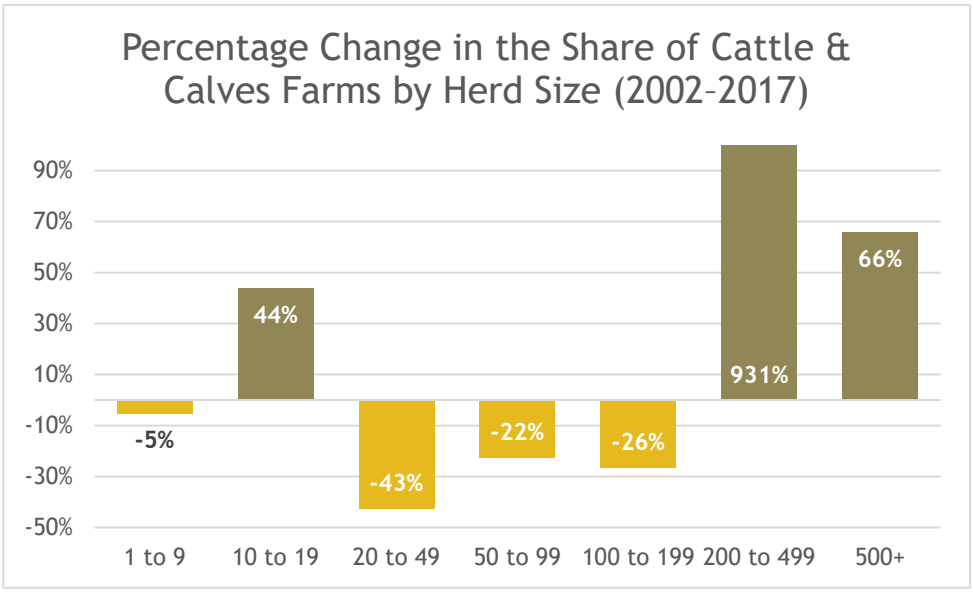
Table 5. Cattle & Calves Farm Sales

Cattle & Calves	**2002**	**2007**	**2012**	**2017**	**% Change**
Farms with Sales	401	396	372	363	-9%
Inventory Sold	11,388	11,714	15,464	17,529	54%
Value of Sales ($1,000)	$4,832	$6,554	$11,039	$15,135	213%

SOURCE: USDA CENSUS OF AGRICULTURE

[2] This includes bulls, steers, heifers, and calves.

This sector is a perfect example of farm consolidation, loss of mid-sized farms, and the rise of small farms. In 2017, 81 percent of cattle operations with sales had fewer than 50 head. Meanwhile, the average number of animals sold by farms with more than 500 head rose from 199 in 2007 to 1,233 in 2017. The chart below reinforces how drastically the farms of each herd size class has changed over the years. Large farms are becoming a larger share of the cattle farms while mid-sized farms are losing representation.



SOURCE: USDA CENSUS OF AGRICULTURE

Sheep, Lambs, and Goats

The small ruminant sector is still a small segment of the local livestock industry, but its impact is growing. Between 2002 and 2017, there was a slight increase in the number of farms and a doubling of inventory sold. Sales of sheep and lambs drove most of this growth. Increases in goats for milk and meat are also contributing factors.

Table 6. Sheep & Goat Farms and Sales

Sheep & Goats	**2002**	**2007**	**2012**	**2017**	**% Change**
Farms with Sales	51	57	63	55	8%
Inventory Sold	709	1,417	1,305	1,457	106%
Value of Sales			255,000	276,000	8%

SOURCE: USDA CENSUS OF AGRICULTURE

Hogs

Hog production is a declining sector in the county. Although there was some growth between 2002 and 2007, there are 11 percent fewer hog farms, a 24 percent decrease in hog farms with sales, and 36 percent fewer hogs sold since 2007. The sector has shrunk so much that now all the hog farms are selling fewer than 50 animals.

Table 7. Hog Farms and Sales

Hogs	**2002**	**2007**	**2012**	**2017**	**% Change**
Farms with Sales	60	86	58	65	8%
Inventory Sold	1,380	1,545	437	988	-28%
Value of Sales	(D)*	115,000	(D)*	194,000	69%

SOURCE: USDA CENSUS OF AGRICULTURE

Poultry

Poultry production is a very small sector that has seen slight growth. Poultry farms in the county are very small-scale. Broiler farms have the most animals compared to other poultry farms, but inventory levels are minuscule compared to industry standards. Although the sales of poultry and eggs were undisclosed in 2017, there has been an increase in the inventory of various poultry numbers since 2002. Sales of broilers, ducks, and turkeys have also grown over time.

Table 8. Poultry Inventory

	2002	**2007**	**2012**	**2017**	**% Change**
Layers	2,242	3,987	3,071	3,539	58%
Broilers	800	749	595	1,058	32%
Ducks	211	263	893	675	220%
Turkey	181	85	128	153	-15%

SOURCE: USDA CENSUS OF AGRICULTURE

Table 9. Poultry Sales

	2002	**2007**	**2012**	**2017**	**% Change**
Broiler Farms with Sales	11	13	22	18	64%
Broilers Sold	472	1,929	2,209	1,842	290%
Turkey Farms with Sales	11	9	8	14	27%
Turkeys Sold	166	139	284	344	107%
Duck Farms with Sales		7	3	6	-14%
Ducks Sold		83	71	181	118%
Poultry & Eggs Sales	26,000	155,000	67,000	(D)*	n/a

SOURCE: USDA CENSUS OF AGRICULTURE

* Withheld by USDA to avoid disclosing data for individual farms

Dairy

The dairy industry continues to be the largest component of New York's agricultural economy, accounting for about 47 percent of the state's agricultural output at $2.53 billion. New York exports a significant share of its dairy production. The industry ranks third in the country at about $383.6 million in export sales, and western New York is one of the state's largest contributors to these exports.

Dairy production is an important sector in Cattaraugus County as well. At $55.6 million in milk sales, it represents about 60 percent of the county's total agricultural commodity output, though the value has declined slowly since the late 1980s. Back then, milk sales represented 70 percent of the county's total agricultural commodity output.

Unfortunately, dairy farms across the country are facing challenging market and industry conditions, forcing many dairy farms to close or consolidate. Since 2002, the county has seen a 14 percent decline in dairy cow inventory and a 34 percent decline in the number of dairy farms. Most of the remaining farms are considered small or very small dairies, with 74 percent having fewer than 50 cows.

As in others, this sector is also experiencing a loss of mid-sized farms. Between 2002 and 2017, the share of farms with 1 to 9 cows increased 69 percent while the share of farms with more than 500 cows increased 128 percent. At the same time, there were sharp declines in farms with 20 to 100 cows, underlining the trend that dairy farms are either staying small or consolidating. Dairy farms that have become very small scale (fewer than 20 head) tend to supplement their dairy operation with additional commodity production or off-farm work. Given the industry and market trends, these farms are at risk of closing in the near future.

Table 10. Dairy Farms and Cows in Cattaraugus County

	2002	2007	2012	2017	% Change
Dairy Cows	16,705	14,606	15,435	14,416	-14%
Dairy Farms	267	226	198	176	-34%

SOURCE: USDA CENSUS OF AGRICULTURE

Table 11. Number of Dairy Farms by Herd Size

Herd Size	2002	2007	2012	2017	% Change
1 to 9	43	37	32	48	12%
10 to 19	33	41	36	32	-3%
20 to 49	89	70	63	50	-44%
50 to 99	73	48	42	19	-74%
100 to 199	17	17	10	15	-12%
200 to 499	8	8	7	6	-25%
500 or more	4	5	8	6	50%

SOURCE: USDA CENSUS OF AGRICULTURE

National Trends

Nationally, the dairy cattle and milk production industry was worth $38.9 billion in 2017. [3] Although the industry has been declining during the last five years, it is projected to grow at 0.3 percent per year for the next five. Production has shifted from the Eastern Cornbelt and Northeast to the Southwest and Western states. [4] Dairy operations and sales are also concentrated in a couple of regions and among fewer and fewer large farms. In 2017, 4 percent of dairy farms had more than 1,000 cows. These farms represented 55 percent of U.S. cow inventory and 56 percent of milk sales.

Additionally, there is tremendous pressure to consolidate or close dairy manufacturing plants. The dairy processing industry tops the list of mergers and acquisitions in the food and beverage sectors. [5] There is also a focus on efficiency and automation that places pressure on smaller operations and drives the trend towards fewer distribution centers and lower labor needs. Often, large wholesalers and supermarket networks created by consolidation require dairy suppliers to supply them directly on a national scale. As a result, there is increased competition for national contracts and higher labor costs. Altogether, these trends can discourage product development and stifle regional brands.

Local and Regional Trends

Cattaraugus County's dairy industry largely consists of small, independent farms and a few large confined animal feeding operations. Over the last several years, low dairy prices have forced many local farms to liquidate herds and leave the business. Declining fluid markets have made it difficult for the region's milk handlers to market all the milk produced, and milk handlers are often finding that milk must be tanked a longer distance, and at a higher cost, than is economically sustainable. The impact has

[3] Curran, "Dairy Farms in the US."
[4] Livestock Marketing Information Center, "Trends: Milk Production Supported by Regional Shifts."
[5] Cornall, "Dairy Tops List of Acquisitions in 2017."

fallen disproportionately on small operators, even though overall milk volume has not significantly changed.

Larger farms with sufficient resources have used this period to become more efficient at employing assets and running operations. As a result, they have reduced the breakeven cost for milk production and are positioned well to benefit from price increases. Yet, even with these efficiencies, these large farms have not been unscathed. Increasing herd sizes means that proximate access to good soils must be secured to ensure nutrient management compliance. Additionally, the decline in the number of fluid processors may mean longer hauling distances to market milk.

Since the county's milk producers do not fall under a Federal Market Order, they must compete for sales with milk from around the U.S. but most specifically from Milk Market Orders 1 and 33. Given the varied pricing and distribution economies these larger producers face, they truly compete on a national level and face unusual pricing anomalies by milk class.

As a producer region, the county belongs in the Northern Crescent as defined by USDA. Over the last several years, this region has been characterized by significant industry consolidation, high feed prices, and a declining labor pool. Due to these factors, the dairy industry in the Northern Crescent has struggled to grow sales beyond costs.

Between 2000 and 2017, milk sales increased by $5.27 per cwt (+41%) while feed costs and total costs grew by $8.79 per cwt (+152%) and $10.08 per cwt (+50%) respectively. This results in an average loss of $10.30 per cwt in 2017, which is greater than the national average loss of $6.46 per cwt. As noted earlier, the impact of these losses has had a disproportionately large impact on small and mid-sized farms and is contributing to the low replacement rate of dairy farmers.

Meeting Consumer Demand

Despite these difficult trends, there is an opportunity to invest in product development to innovate and strengthen the dairy sector. Current consumer trends indicate that while fluid milk consumption has been on a long-term decline, consumption of cheese, butter, and yogurt is increasing. Consumers are also demanding more full-fat, grass-fed, A2 casein protein, high-protein, and probiotic dairy products. The implication is that product development should focus on health, nutrition, functional ingredients (e.g., probiotics and protein), new flavors, and indulgence products such as sweets and ice creams.

Farmers in Cattaraugus County are participating in the expansion of value-added dairy products. In the last year, two new cheese plants opened, and there are plans in place to add fermented and frozen desserts production.

Produce

The produce industry for both fresh and processed fruits and vegetables consistently places New York in the top ten production areas in the nation. The state's produce industry ranked 9th in 2017, with $778.5 million in sales.

Cattaraugus County is not a significant contributor to New York's produce industry with $2.7 million in output in 2017. Produce production is also a small proportion of farm acreage in the county, though the value of sales and acres harvested of vegetables and melons have grown since 2007. In 2017, the county

harvested around 1,446 acres of produce. In contrast, the county harvested 12,984 acres of grain and soybeans. Key reasons are the county's soils and micro-climate, which are not as conducive to vegetable production when compared to Genesee, Wyoming, and Livingston counties. This may limit the ultimate growth potential of vegetables for fresh or processing markets.

Fruit production, specifically grape production, has been a staple of regional agriculture given the influence of Welch's in Chautauqua County and the ideal conditions presented on the northern and western portions of the Allegany Escarpment. Other important fruit crops include berries and tree fruits such as apples and pears.

Table 12. Cattaraugus County Produce Production and Sales

	Acres Harvested			Sales ($1,000)		
	2007	**2017**	**% Change**	**2007**	**2017**	**% Change**
Vegetables and Melons	709	927	31%	846	1,450	71%
Fruits (non-citrus, tree nuts, berries)	788	519	-34%	1,759	1,261	-28%

SOURCE: USDA CENSUS OF AGRICULTURE

While produce production is not an anchor for the local agricultural economy, it is closely linked to the Amish communities and small horticultural operations. Roadside stands and farmers' markets are a regular feature of many communities where these markets play a role in providing critical access to fresh foods. Despite the region supporting large vegetable and dry bean production, Cattaraugus County does not have a significant annual production of any of these crops.

It is important to understand the key national and local trends to gauge the potential impact of changes in the produce industry sector on agriculture and the AFPP.

National Trends

Nationally, vegetable, fruit, and nut farming is a $47.4 billion industry. [6] The vegetable farming industry is projected to grow by 0.6 percent by 2022, while the fruit and nut farming industry is projected to grow 2.7 percent by 2022. Projected increases in prices and demand from wholesalers are expected to help improve the industry. In particular, the production of canned fruits and vegetables is projected to increase.

Two key factors are influencing the competitive landscape. One facet involves supply chain advancements, greenhouse production improvements, and high tech cooling systems that are making many produce items available year-round. [7] Growers taking advantage of these advances can improve their profitability, but the increased supply can place downward pressure on price. Regulations also can influence the industry. For instance, the federal Food Safety Modernization Act Produce Rule and Transportation Rule both impact produce farms and distributors. Also, DOT regulations, such as the

[6] Madigan, "Vegetable Farming in the US"; D'Costa, "Fruit & Nut Farming in the US."
[7] Simpson, "Produce Season Is Here — And It Could Bring a Rich Harvest for Shippers."

Electronic Driver Logs mandate and driver shortages, present challenges for the delivery of time-sensitive produce items. [8]

Local and Regional Trends

Since 2007, vegetable acreage has increased and fruit acreage has declined in the county. Meanwhile, the region saw declines in acreage for both sectors. Sales trends show that vegetable sales are increasing in Cattaraugus County while fruit sales are declining for both the county and the region. Vegetable sales have increased from $0.85 million in 2007 to $1.45 million in 2017.

Despite the presence of favorable production conditions in certain parts of the county, fruit, nut, and berry sales have decreased from $1.76 million in 2007 to $1.26 million in 2017. Much of this can be attributed to changes in Welch's purchasing patterns that are largely driven by consumer preference changes in the beverage industry. Berry production has a fate similar to grapes. These and other fruit crops are unlikely to expand without broadened processing and fresh market outlets.

Table 13. Regional Produce Production and Sales

	Acres Harvested			Sales ($1,000)		
	2007	**2017**	**% Change**	**2007**	**2017**	**% Change**
Vegetables and Melons	30,846	27,818	-10%	50,639	65,268	29%
Fruits	41,487	32,904	-21%	77,180	74,730	-3%

SOURCE: USDA CENSUS OF AGRICULTURE

The major vegetable crops in the county are pumpkin, sweet corn, and squash. Meanwhile, fruit production is led by grape and berry production. However, the county is experiencing production declines in these crops. In 2017, the county harvested about 301 acres of grapes compared to 620 acres in 2007. Similarly, berry production decreased 4 percent since 2007 and has remained between 120-186 acres. Since these fruits are important for both juice and wine, declines in local and regional production can negatively impact the juice manufacturing sectors.

Meeting Consumer Demand

The average American is eating less produce today than they did in 2000. The produce they do eat is tending to be fresh produce rather than processed produce. On the whole, produce consumption declined 11 percent between 2000 and 2015, but that of fresh produce only fell 2 percent while processed dropped 19 percent.

Despite the decline in processed products, Cattaraugus County can address particular product demands. There is a difference in demand between processed fruits and processed vegetables. For instance, consumers are choosing to buy more dried and frozen fruit products, potato chips, and processed legumes, which are all typically sold as snacks. But at the same time, they are consuming less canned, frozen, and dried vegetable products.

[8] Supply Chain Link, "Understanding the ELD Mandate and Leveraging Data Insight"; Supply Chain Link, "3 Factors Impacting Transportation Capacity."

Given the county's growing conditions, growers should focus on growing a combination of crops that can be fresh products, minimally processed vegetables, snack-sized fruits, and IQF or freeze-dried fruits. That said, canned vegetable processing is a specialized sector in the region and will continue to need a supply, as much of the country shifts away from processed vegetables.

Lastly, the demand for organic, non-GMO, and local fresh produce will continue to grow. Organic produce is still a key driver in the market. It represents 8 percent of fresh produce sales in the U.S. but is responsible for 30 percent of the growth in sales. [9] However, the appeal of local products may be more influential. A recent research study showed that American consumers would purchase local produce over organic produce if quality and price are equal. [10]

Nursery, Greenhouse & Specialty Crops

The nursery and greenhouse industry in New York is among the state's most important agricultural sectors. In 2017, the sector contributed about $385.8 million in sales, ranking it tenth in the country.

The statewide importance is not reflected in Cattaraugus County, however. The sector in the county has been declining since 2002. Sales have shrunk from $9.7 million in 2002 to $2.1 million in 2017. Sales in this sector are distributed across a wide range of operations by size, sales, and product line with major companies, such as Schichtel's Nursery, having a multi-county production presence in the region.

The major component of this industry continues to be the open production of nursery stock. Floriculture is the second major driver, mostly in the production of bedding plants. Production in the county is concentrated among fewer and fewer farms. Since 2002, the number of nursery and greenhouse operations has declined from 47 to 33.

Outside of traditional horticultural operations, there are several specialty crop operations in the county, and the number seems to be expanding. These operations are largely focused on emerging markets for plant-based fibers, nutritional supplements, and beverage ingredients. According to interviews, many of these farmers do not feel that they are well supported on production practices, selection of genetics, post-harvest crop management, and market development. There is a strong sense that while the market for some products may be strong today, regional opportunities in crops such as hops and hemp, for instance, may emerge quite differently than in other areas of the U.S. A regional or local approach to market development and research is, therefore, a necessity to keep these opportunities advancing.

Table 14. Horticultural Sales in 2017

	New York	Cattaraugus
Horticulture Total [11]	$385,792,000	$2,063,000
Floriculture [12]	184,654,953	906,313
Nursery	121,595,323	1,040,615
Greenhouse Vegetables & Fruits	38,959,184	55,696
Propagative Material	19,931,182	45,000

[9] Stein, "The Power of Produce 2017."
[10] Stein.
[11] Excludes cut trees, vegetable seeds, and transplants.
[12] Includes bedding plants, indoor flowering plants, indoor foliage plants, cut flowers, cut cultivated greens, and other floriculture plants.

	Sod	18,213,810	0
	Mushrooms & Mushroom Spawn	2,124,970	(D)
	Bulbs & Corms & Rhizomes & Tubers, Dry	167,072	0
	Aquatic Plants	74,087	0
	Flower Seeds	71,084	0
	Short Term Woody Crops	(D)*	0

SOURCE: USDA CENSUS OF AGRICULTURE, 2017

Equine

New York's equine industry is a critical driver of economic activity, both for the agricultural and recreational sectors. A 2017 study conducted by the American Horse Council Foundation revealed that the industry contributed $5.3 billion in economic output and 42,400 jobs. [13] Most of this comes from races and competitions.

Despite its importance, the equine industry remains challenging to understand and measure. Developing a statistical picture of the industry is difficult since the USDA does not generally report equine statistics. The last comprehensive study was the 2000 New York State Equine Study, which attempted to profile the entire state by county. Since then, however, there has not been an update.

The equine sector is important to Cattaraugus County, where it is primarily driven by proximity to Erie County, with its large concentration of horse inventory. Erie is also home to the Buffalo Raceway and the Buffalo International horse show. Cattaraugus also hosts several equine events each year, such as the Ellicottville Rodeo. These venues, races, and events directly bring in hundreds of thousands in economic activity to the region. It was noted in interviews that these revenues are in danger of being lost to competitive local jurisdictions due to failing infrastructure.

The equine industry in the county is very diverse. It includes both working and recreational uses that include team horses used by the Amish; the breeding, boarding, and training of performance horses; and recreational trail riding. In particular, both residents and visitors value recreational trail riding and equine-friendly campgrounds. Many towns are putting considerable effort into creating trails and improving the horse trail riding experience. There has been a robust and successful effort underway since the prior Farmland Protection Plan to support this segment of the industry.

Maintaining the equine industry is important for a healthy local agricultural economy. A strong equine sector can promote the maintenance and reclamation of agricultural land. In particular, it is strongly linked with hay production, and maintaining high volumes of hay production will help reduce feed and straw prices. Moreover, it is critical for keeping agricultural support services such as feed dealers, animal nutritionists, large animal veterinarians, and tractor dealerships. Without these, other livestock farms will face labor and service cost risks.

Other important factors that are challenging to quantify include the industry's recreational, tourism, and educational value. Agritourism has expanded rapidly across the country, and equestrian activities are

[13] American Horse Council, "Economic Impact of the Horse Industry in New York."

* Withheld by USDA to avoid disclosing data for individual farms

well suited for providing both recreational and educational experiences. Lastly, the sector is associated with a positive quality of life as well as land use and viewshed impacts.

Through the interview process, the project team became aware that the county is home to numerous Olympic level performance horse trainers. The USDA does not collect statistics on the economic activities related to these and similar equine operations, and no survey has been completed at the state level since 2008. The interviews revealed that the performance horse sector had a significant economic impact on the county and has opened opportunities to expand the agricultural support services and manufacturing sector through import replacement of nutrition and feed manufacturing services. Additionally, equine events generate significant economic activity through spending by trainers and attendees. Appendix 2-A summarizes findings from the Horse Event Attendance Survey.

Key Manufacturing Sectors

The broad economic sectors of food, beverage, and wood and paper products manufacturing (Table 26) are important to the regional economy [14]. On a more refined level of food processing, the region has firms that make dairy products, animal feed, and confections. At the same time, the forest products industries are anchored by sawmills and wood preservation as well as wood furniture, converted paper, and other wood product manufacturing (Table 27).

Table 15. Regional Location Quotient Classification by Number of Firms (3-Digit NAICS)

Growing and Emerging	2007 LQ	2016 LQ	% Change
Beverage Product Manufacturing	1.60	1.61	1%
Pre-Emergent	**2007 LQ**	**2016 LQ**	**% Change**
Wood Furniture Manufacturing	0.71	0.75	5%
Potentially At Risk	**2007 LQ**	**2016 LQ**	**% Change**
Food Manufacturing	0.71	0.75	5%
Wood and Paper Products Manufacturing	1.59	1.54	-3%

SOURCE: COUNTY BUSINESS PATTERNS

Understanding Location Quotients

Location Quotients (LQ), also known as Location Coefficients, are a measure of a region's industrial specialization compared to a larger area (usually the nation). An LQ greater than 1.0 typically means that a sector is more concentrated in the study area than in the larger geography. In contrast, one less than 1.0 usually means the industry is less concentrated. It should be noted that this report uses both the number of firms as well as total employment numbers due to a limited amount of data available for the county yielding significant undisclosed employment data.

Rows are highlighted in red to indicate a change in categorization or insufficient data. A number of sectors have "n/a" due to undisclosed employment data.

Over the years, there have been shifts within food and beverage manufacturing. In the past, animal slaughtering, baked goods manufacturing, and grain or oilseed milling were more concentrated in the region as compared to the rest of the country. However, these industries have become less concentrated between 2007 and 2016, which indicates they may be at risk and may require more investment.

During this period, beverage, animal feed, confectionery, produce, and seafood manufacturing grew in regional specialization. In particular, the beverage manufacturing sector has been driven by significant increases in wineries, breweries, and distilleries. Also, the produce canning sector is continuing to rank high in employment and revenue generation despite having few firms.

[14] The data discussed in this section is on a regional level, based on NAICS codes, and includes the following counties:

- New York: Allegany, Cattaraugus, Chautauqua, Erie, Steuben, Wyoming
- Pennsylvania: McKean, Potter, Warren

Similarly, the forest products sectors have seen shifts. In recent years, wood furniture industries have become more concentrated. Collectively, these industries rank first in revenue and third in employment. Meanwhile, many of the wood and paper products manufacturing sectors are declining in regional specialization. The industries driving the decline include veneer, plywood, and engineered wood product manufacturing as well as other wood product manufacturing.

Table 16. Regional Location Quotient Classification by Number of Firms (4-Digit NAICS)

Important and High Performing	2007 LQ	2016 LQ	% Change
Dairy product manufacturing	2.58	2.76	7%
Sawmills and wood preservation	2.05	2.20	7%
Growing and Emerging	**2007 LQ**	**2016 LQ**	**% Change**
Animal food manufacturing	1.40	1.73	24%
Sugar and confectionery product manufacturing	2.50	2.91	17%
Converted paper product manufacturing	1.54	1.62	5%
Pre-Emergent	**2007 LQ**	**2016 LQ**	**% Change**
Produce preserving and specialty food manufacturing	0.97	1.00	4%
Seafood product preparation and packaging	0.34	0.80	138%
Potentially At Risk	**2007 LQ**	**2016 LQ**	**% Change**
Bakeries and tortilla manufacturing	1.19	1.08	-9%
Animal slaughtering and processing	1.33	1.18	-11%
Grain and oilseed milling	1.06	0.98	-8%
Other wood product manufacturing	1.69	1.52	-10%
Declining or At Risk	**2007 LQ**	**2016 LQ**	**% Change**
Other food manufacturing	0.98	0.69	-29%
Veneer, plywood, and engineered wood product manufacturing	0.60	0.50	-17%

SOURCE: COUNTY BUSINESS PATTERNS

Table 17. Regional Location Quotient Classification by Total Employment (3-Digit NAICS)

Growing and Emerging	2007 LQ	2016 LQ	% Change
Beverage Product Manufacturing	0.42	1.29	208%
Pre-Emergent	**2007 LQ**	**2016 LQ**	**% Change**
Wood Furniture Manufacturing	0.58	0.77	32%
Potentially At Risk	**2007 LQ**	**2016 LQ**	**% Change**
Wood and Paper Products Manufacturing	1.13	1.08	-5%
Declining or At Risk	**2007 LQ**	**2016 LQ**	**% Change**
Food Manufacturing	0.92	0.71	-23%

SOURCE: COUNTY BUSINESS PATTERNS

At the employment level, specialization can be confirmed in only two sectors: dairy product manufacturing and converted paper product manufacturing. While other areas of specialization may exist, insufficient and undisclosed data make evaluation impossible.

Table 18. Location Quotient Classification by Total Employment (4-Digit NAICS)

Important and High Performing	2007 LQ	2016 LQ	% Change
Dairy product manufacturing	3.13	3.39	8%
Other wood product manufacturing	1.41	1.45	2%
Growing and Emerging	**2007 LQ**	**2016 LQ**	**% Change**
Animal food manufacturing	n/a	n/a	n/a
Converted paper product manufacturing	1.22	1.41	16%
Pre-Emergent	**2007 LQ**	**2016 LQ**	**% Change**
Produce preserving and specialty food manufacturing	n/a	0.38	n/a
Seafood product preparation and packaging	n/a	n/a	n/a
Potentially At Risk	**2007 LQ**	**2016 LQ**	**% Change**
Sugar and confectionery product manufacturing	2.74	1.33	-51%
Sawmills and wood preservation	2.54	1.35	-47%
Bakeries and tortilla manufacturing	0.98	0.75	-24%
Grain and oilseed milling	n/a	n/a	n/a
Declining or At Risk	**2007 LQ**	**2016 LQ**	**% Change**
Other food manufacturing	0.67	0.28	-58%
Animal slaughtering and processing	0.67	0.27	-59%
Veneer, plywood, and engineered wood product manufacturing	n/a	n/a	n/a

SOURCE: COUNTY BUSINESS PATTERNS

Dairy Product Manufacturing

Dairy product manufacturing is an important and high performing sector in the region. It is driven by fluid milk, cheese, and ice cream manufacturing. While fluid milk manufacturing has remained stable in the region relative to the rest of the country, cheese manufacturing is becoming increasingly specialized. The cheese manufacturing sector employs about 1,441 people and generates $664 million in revenue. Its location quotient also improved by 26 percent and may continue to expand as new capacity is brought online.

Fruit and Vegetable Canning

The fruit and vegetable canning industry is an important and growing sector in the region that employs around 1,154 people and generates $1.2 billion in revenue. It is also specialized in the region relative to the rest of the nation and has demonstrated a 10 percent growth in its location quotient (or location coefficient) between 2007 and 2016. To continue this growth, it will be crucial for the county to invest in vegetable production, support services, and infrastructure that supports processing activities. Infrastructure such as cold storage, better roads, and Internet access will be necessary to maintain modern food safety requirements and ensure efficient product movement within the supply chain.

Sawmills and Wood Preservation

The sawmill and wood preservation industry is an important part of the forestry supply chain and has a significant role in the region. These businesses represent one of the first steps in the process of creating the products needed to manufacture furniture, plywood, cardboard, paper, and other wood products. In 2019, this industry employed about 1,853 people and generated $314.8 million in revenue. These figures are expected to expand as Chinese markets reopen following the U.S.-China trade liberalization in late 2019.

This industry has also continued to grow in its regional concentration despite a 19 percent decline in firms between 2007 and 2016. This means that it will be crucial to support logging and forestry services. Moreover, there is an opportunity to strengthen the connection between sawmills and wood furniture manufacturers.

Infrastructure and Support Services

Infrastructure and support services are crucial for maintaining the viability of agriculture. This section highlights several areas of concern for the county and presents opportunities for improvement.

Roads and Flooding

The county has a rural road system that supports a wide range of uses. Consistent with design standards for such roads, many are narrow, have low shoulders, and may be flood-prone. These roads need to accommodate varying transportation methods ranging from the Amish buggies and weekend tourists to tractor-trailers and large farm equipment. The mixing of these vehicle and traffic types on rural roads can create logistical challenges while making them difficult for the towns and county to adequately maintain.

Certain road improvements may be advisable to increase the suitability of the rural road system in accommodating these traffic mixes. By example, wider shoulders would allow for buggy traffic and agricultural equipment safe travel areas. Another important roadway issue is the increased frequency of flooded and washed out roads due to the increase in heavy storms. To accommodate this additional waterflow, it is imperative that DEC permitting frequency to clearing streams and waterways be improved to avoid the necessity for deeper ditches.

Internet Access

Farms are becoming increasingly integrated within the data exchange networks of both their horizontal and vertical supply chains. Because of this, farms across most industry sectors must maintain and submit vast arrays of data ranging from crop/livestock management-related telemetric data to blockchain compliant distribution and food safety data. In addition, many vegetable and fruit farmers are being forced into providing category management and merchandising services that require API and EDI linkages to the enterprise resource management, legacy, and warehouse resource management programs of their customers. Broadband Internet access is essential for modern farms to keep up with this growing demand.

Increased modernization on farms has enhanced the need for broadband access. With many distributors and manufactures ending in-person meetings, the need for sufficient capacity to join video conferences and have ready cell phone access became critical for planning, management, and sales.

Limited Internet and cellular access are an obstacle to economic development in the county and it is critical to upgrade infrastructure to increase broadband access and speeds. There are 17 more farms with access to the Internet since 2012, and the top three methods since 2012 continue to be mobile, satellite, and DSL. In 2012, 170 farms depended on mobile phones for Internet access. In 2017, mobile users grew to 300.

In contrast, both satellite and DSL services are becoming less used. Also, although not many are using fiber optics, the number of farms using it almost doubled from 2012. Fiber optics tend to be expensive to install in rural communities, which leads to low adoption.

Armstrong Cable is currently working within the Southern Tier to expand cable broadband access. With funding support from the State of New York, coverage will be extended in Salamanca, Ellicottville, Ashford, and Mansfield. Armstrong reports that they are seeking to have 60 percent coverage in the county. Several federal grant programs could support the expansion of broadband into rural communities include the ReConnect Loan and Grant Program, Rural Broadband Access Loan and Loan Guarantee, and Community Connect Grants. Cattaraugus County is also working with companies to provide alternate Internet capability to vastly increase coverage.

Table 19. Cattaraugus County Internet Access

	Farms	Percent
Mobile	300	48%
Satellite	143	23%
DSL	98	16%
Cable	70	11%
Unknown	63	10%
Other	17	3%
Fiber Optic	15	2%
Dial-Up	7	1%
Total	622	

SOURCE: CENSUS OF AGRICULTURE, 2017

Agricultural Support Services

One of the most important agricultural service providers is large animal veterinarians, who are integral for serving the county's livestock farms. While there are vets who specialize in equine, there are few large animal vets serving dairy farms. This may be problematic in the long run, given that both equine operations and dairy farms in the county face competitive and economic challenges that hamper business retention or growth.

In many communities, farms provide agricultural services to one another, such as planting or harvesting. The most recent census indicates that the number of farms providing agricultural services has increased by 14 percent since 2007, but sales have declined by 46 percent since 2007. Many farms in the county have aging equipment and require custom services from those with working or modernized machinery. While there is a need for these services, there is also a reluctance to pay for them.

Table 20. Agricultural Services

	2007	2012	2017
Ag Services	49	48	56
Sales from Ag Services	741,000	643,000	403,000

SOURCE: CENSUS OF AGRICULTURE, 2017

Retail and Distribution

Trends in food retail can help assess issues such as food access and opportunities for promoting local agriculture. The food retail sector is represented by grocery stores, supermarkets, convenience stores, specialty food stores, and those that sell alcoholic beverages.

Total food retail in the county has remained steady despite declines in the total number of businesses in the county. On-farm retail and farmers markets have contributed to this stability. The recent expansion of the Olean Farmers' Market demonstrates the viability of farmers markets to serve as strong contributors to food access and community building. On-farm operations such as Pumpkinville Cidery, Cummings Cidery and Spragues represent best in class on farm retail programs.

Food access is a significant issue for many rural communities. Interviews and site visits indicate that many retail stores do not have consistent access to good quality fresh food options. Thus, farmers' markets and farm stands become an important place for buying fresh food. However, farmers' markets are struggling around the county, and there is tremendous pressure for farmers to exit these markets due to operational, economic, and logistical challenges that hamper profitability.

Similarly, population declines may contribute to losses in supermarkets and grocery stores. This situation is a concern as it incentivizes the development of convenience stores that generally do not have fresh food options. However, creative partnerships between convenience stores and farmers' markets can help mitigate these issues. Examples include Giant Eagles ministore concept as well as Dollar Fresh store concepts, which target rural communities through a convenient grocery experience and steeply discounted products, respectively.

Photo: Kimberly LaMendola

Table 21. Food Retail in Cattaraugus County

Industry	2007	2016	% Change	% Change in Share of All Businesses
Grocery stores	**30**	**30**	**0%**	**8%**
Supermarkets and grocery stores	21	19	-10%	-3%
Convenience stores	9	11	22%	32%
Specialty food stores	**5**	**6**	**20%**	**29%**
Beer, wine, and liquor stores	**9**	**12**	**33%**	**44%**

SOURCE: COUNTY BUSINESS PATTERNS

The distribution and promotion of local agriculture in food retail within the county is both a challenge and an opportunity. The challenge is that local freight is on the decline, which hampers the transportation of perishable products within the county. However, partnerships among counties in the region can leverage less than truckload (LTL) freight as well as the growth in both local and specialized long-distance freight to coordinate the distribution of fresh products.

With the expected return of shortened "hours of service" regulations and a renewed effort to see full compliance with electronic logbooks, the project team expects that local transportation options will decline further. Just before the suspension of the 14-hour rule in the summer of 2019, farmers and trucking companies in the region reported increased difficulty in receiving and shipping freight and an increase in the costs of deliveries that pushed the local and regional driving envelope. Furthermore, those businesses with over-the-road trucks that were facing the implementation of electronic logbooks are expecting to lose drivers as older, less technically engaged drivers retired or changed careers. The effects of these trends can be seen in the following table.

Table 22. Number of Freight Companies in Cattaraugus County

	2007	2016	% Change
General freight trucking	**22**	**12**	**-45%**
General freight trucking, local	10	5	-50%
General freight trucking, long-distance, truckload	10	4	-60%
General freight trucking, long-distance, less than truckload	2	3	50%
Specialized freight trucking	**12**	**15**	**25%**
Specialized freight trucking, local	0	1	
Specialized freight trucking, long-distance	12	14	17%

SOURCE: COUNTY BUSINESS PATTERNS

Finally, a growing opportunity exists for shared-last-mile solutions that help provide steady food access in rural communities that are seeing a decline in delivery frequency and a corresponding increase in minimum order size. Finding a solution to sharing costs and increasing delivery frequency could provide a notable benefit to both farmers and retailers alike.

Characterization of Agricultural Viability

SWOT Analysis

SWOT analysis is a tool used by strategic planners and marketers to assess the competitive environment of a region, industry, business, or product. It is a very simple technique that focuses on the **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats (SWOT).

For this study, the strengths, weaknesses, opportunities, and threats were assessed for agricultural production as well as the supporting industries. The SWOT criteria identified are drawn directly from the data analysis as well as the study team's interviews with the agricultural industry and public officials. This analysis should be considered an industry self-assessment.

INTERNAL FACTORS	
Strengths	**Weaknesses**
Tourism and recreation industries	Internet access
Forestry resources	Agricultural labor availability
Proximity to dairy processing cluster	Limited farm transition to younger generation
Proximity to beverage processing cluster	Physical infrastructure decline
Proximity to forest products manufacturing	Lack of regional collaboration
Proximity to vegetable manufacturing	Lack of farmland conservation awareness
Low residential development pressure	Access to conservation programming
Capable industry leadership	Limited local use of conservation planning
Emerging entrepreneurial culture	Impermanence syndrome
EXTERNAL FACTORS	
Opportunities	**Threats**
Specialty crops such as hops and hemp	Variable and adverse weather
Alternative energy development	Labor regulations
Entrepreneurship	
Increasing food access to rural areas	Weak regional collaboration
Farming for the next generation	Limited pool of industry and political leaders

Critical Underlying Issues

Several factors are creating obstacles for improving agricultural viability in the county. The major issue is that the county is undergoing significant economic restructuring. At the core is an aging and declining population. These conditions create labor shortages and the lack of next-generation entrepreneurs in many agricultural production and manufacturing sectors. Many resource-based and manufacturing industries are thus tending to rely on automation, disinvest, or are leaving the county entirely. Ultimately, companies invest elsewhere, and the county is left with limited opportunities. Thus, it is not surprising that the county has a 16.9 percent poverty rate, which is 5.1 percent above the national average. The county also has a 5.3 percent unemployment rate, which is 1.4 percent above the national average.

Without creative and effective solutions, the county risks remaining in a feedback loop that reinforces poverty, the inability to invest, loss of resource-based industries, limited job opportunities, degrading infrastructure, and rural food deserts. Critical solutions will need to accomplish the following:

- Create conditions to support existing businesses and attract new ones.
- Spur entrepreneurship and innovation.
- Encourage the next generation of farm, food, and forestry businesses.
- Provide workforce development, job training, and upskilling.
- Increase and target investment in resource-based industries as well as the manufacturing sector.
- Modernize infrastructure.

Economic Development Tools

Local communities often benefit by providing structured economic development support to regionally important industries. Agriculture is no exception. Public policy efforts to protect the farmland base, such as land-use planning and purchase of development rights, are often more effective when combined with economic development programming.

Effective economic development tools generally concentrate on supporting private industry, while providing clear public benefits such as employment creation, infrastructure improvement, wealth generation, and quality of life enhancement. In the case of agriculture, the greatest public benefit may be the stability of the working landscape and all the secondary benefits that follow. Examples of economic development programming that can benefit the agricultural industry at the local level are summarized below.

Business Development **-** Business development programs focus on supporting the needs of small businesses, generally fewer than 500 employees, by addressing specific needs such as access to financing or technical and professional services. Nationwide, the U.S. Small Business Administration leads efforts to support small business development through its lending programs as well as technical and grant support. As well, most U.S. counties are supported by technical and professional counseling and mentoring services through a Small Business Development Center (SBDC) and the Service Corps of Retired Executives (SCORE). These services are generally offered through a local community college, economic development agency, or Chamber of Commerce. These agencies often add additional benefit to their services by providing access to a broad network of technical and professional specialists that enhance the base value of SBDC and SCORE.

Cattaraugus County has an economic development team that is dedicated to providing support to business start-ups through direct consultation as well as a host of Internet-based services. Agriculture and food are directly supported through this system and benefit from the team's relationship with local service providers such as lenders, accountants, engineers, and attorneys.

In addition to the basic services noted above, some communities choose to provide more directed support to small businesses. Often these services are designed to fill a critical local gap in service provision or are designees to support the unique needs of targeted industry sectors. Examples of this type of enhanced business development programming include:

Business Incubators - Business incubators generally provide flexible real estate and business service solutions for selected small businesses. Business service solutions are generally targeted to the needs of high growth industry sectors and may include professional assistance from attorneys, accountants, and marketing specialists; technical assistance from product developers, laboratories, and engineers; as well as administrative assistance with secretarial duties, personnel, and bookkeeping. Business incubators are costly and technically challenging to implement, but when successful, have a proven track record of accelerating small business growth and keeping those businesses in the community. Agribusiness incubators are employed for a variety of uses ranging from developing biotechnology products (e.g., Monsanto's St. Louis-based incubator) to supporting value-added food products (e.g., Unlimited Future, Inc, in West Virginia).

The use of virtual incubators to support agriculture and food has been successfully employed in many areas. The National Business Incubation Association considered virtual incubators, or incubators without walls, a best practice for rural business incubation because they allow limited resource communities to channel resources into businesses, rather than infrastructure and overhead.

A notable New York state example is the Hudson Valley Agribusiness Development Corporation (HVADC). It operates a formal incubator-without-walls program that specifically supports businesses in the agriculture and food sector by delivering targeted specialty services to entrepreneurs. The HVADC incubator has been in operation for over ten years and is supported financially by local communities, the State of New York, various federal programs, as well as local and national philanthropic organizations.

Entrepreneurship Training and Support - Entrepreneurship training and support is very similar to business incubation in that it provides support services to start-up and early-stage companies that generally have a high need for specialized technical and professional services. However, these programs often support a wider array of business sectors ranging from agriculture to retail and high technology. These programs rarely offer real estate options or day-to-day business support and are therefore much less expensive to operate versus a business incubator. Agribusiness entrepreneurship training and support programs are becoming popular across the United States, and, as an example, the HVADC has developed an extensive network that provides several such services for the Hudson Valley region.

Small Business Support Networks - Small business support networks tend to be informal, peer-based systems where small businesses counsel one another. These systems are often sponsored, but not operated, by an agency or organization such as an economic development office or industry association and rely on participating businesses to direct their programming. Programming may include a speakers' series relative to topical industry issues, advisory boards, and brown bag lunches. Agribusiness roundtables are popular in many areas of the United States to improve network development among farmers as well as upstream and downstream industries.

Small Business Finance - Small business finance programs generally target gaps in private sector funding, such as limited access to equity capital within a region or specific industry sector. Most programs are oriented toward providing revolving credit and include the provision of capital for

early-stage businesses, farm ownership, interest rate buy-downs, loan guarantees, down payment loans, and operating capital. One of the greatest challenges in making finance programs work is developing enough deal flow to cover the costs of operations. Agricultural finance programs such as Aggie Bonds are used nationally to improve farmer access to development capital and to enhance capital availability to new farmers.

Workforce Development - Workforce enhancement programs recognize that businesses and economies cannot function without a well-trained and available workforce. When companies, no matter the industry, seek to relocate or expand within a marketplace, workforce conditions, both current and future, are among the first tier of criteria they examine. Because of this, communities often seek to address workforce development from a global, economy-wide, or firm level. At the local level, communities use public financing through the school system, primarily through higher education, to reinforce the skill sets that are required by that community's industrial base. In transitional economies, this means that workforce development issues are likely to focus on new job classifications rather than historic job classifications. Firm-level workforce development assistance is typically used to assist at-place and relocating employers with discrete training needs and is often supported through loans and grants.

Business Cluster Development - The U.S. economy has seen a trend toward concentrated geographic clustering of industries led by access to key infrastructure, workforce characteristics, concentrations of wealth, advances in information technology, and enhanced telecommunications capacity. Communities have responded by developing targeted strategies to enhance the lifecycle development of companies within a business cluster. Lifecycle development includes supporting companies at all stages of development, from start-up to mature. A business cluster includes a primary industry sector as well as its input, output, support sectors. Because business cluster development is industry-specific and generally forward-looking, it requires that significant community resources be speculatively dedicated to targeted assets in-place as a precursor to industry development. For this type of development to be successful, the area must support, or have the capacity to support, at least the minimum needs of the target industry; otherwise, business cluster development will likely fail.

Agriculture is a business, especially as it relates to upstream and downstream industries and marketing, that is predisposed to clustering due to efficiencies of scale and the industry's propensity to spin-off new ventures. For example, Lancaster County, Pennsylvania, has been successful, through its Chamber of Commerce, in attracting a strong agribusiness cluster. This cluster continues to grow in strength despite high growth pressure in the area.

Economic Development Incentives - Many communities offer economic development incentives to attract or retain their industrial base. Incentives are often financially based and tied to a corporation's costs of relocation, real estate development, job creation, or expected tax impact. Incentives are best employed as part of a larger economic development strategy. They must clearly be understood in the context of their fiscal impact on a community as well as their true impact on relocation decision making. Many incentive programs are put in place as a competitive response to programs in other jurisdictions and often do not match local needs and assets.

Economic development agencies in New York have been creative in using Payment in-Lieu of Taxes (PILOT) programs to facilitate capital investment in commercial activities and on-farm improvements

that meet the required program requirements for processing, manufacturing, and distribution. Formerly, these programs were limited in use to non-agricultural businesses only.

Infrastructure Development - A community cannot be effective in retaining or attracting industry if its basic infrastructure such as roads, water, and sewer cannot accommodate industry needs. Good economic development planning, therefore, makes sure that the current and future needs of industry are accounted for as communities plan infrastructure. This planning becomes doubly important when a community is engaged in a business cluster development activity that requires the development or enhancement of specific infrastructure such as redundant broadband access.

Infrastructure development generally applies to upstream and downstream agribusinesses. It includes such examples as Sandpoint, Idaho expanding its sewer and water capacity to accommodate the development of a new dairy processing facility. Currently, this is the only such facility in that region and serves as an important milk outlet for regional farmers.

Real Estate Development - In today's corporate environment, many relocation decisions are made and implemented with very short development cycles. Communities that have worked with the real estate development industry to pre-position built capacity and/or pad sites often have an advantage in attracting and retaining businesses. As with other economic development tools, the target industries must be clearly understood and a marketing strategy in place for this tool to be effective. Otherwise, real estate investments may go un-recovered or moved at fire-sale rates.

Most food businesses make location decisions rapidly. To attract businesses that will greatly impact the county and region, it is necessary to have a catalog of ready greenfield sites with the proper infrastructure prepared. Having pre-positioned real estate that is pad-ready and certified with tax benefits in place helps to close recruitment deals quickly. A prime example of such sites can be found in the Keystone Opportunity Zone program in Pennsylvania.

Regulatory and Policy Guidance - As the regulatory environment at the local, state, and federal level becomes more complex, compliance becomes costlier across all sectors. Many communities have developed responses to this issue through their economic development offices to streamline processes and improve efficiency in both the development process as well as on-going corporate operations. Tools such as one-stop licensing, regulatory ombudsmen, and specialized training of enforcement officers have proven both inexpensive and effective.

HVADC often serves as regulatory ombudsmen on behalf of farmers. According to local farmers, this process can significantly shorten the development cycle and provides an important feedback loop to politicians regarding the agricultural impact of regulations.

Agricultural Development Recommendations

Based on the information laid out in the section above, the project team developed recommendations for Cattaraugus County. They are designed to fit within the existing capacity of county and town governments and focused on the unique aspects of its agriculture economy. Agricultural development recommendations are focused on industry development and profit enhancement opportunities with the purpose of increasing farmland protection in Cattaraugus County through economic success.

Recommendation 1: Build on Existing Entrepreneurial Success By Creating a Cattaraugus County Rural and Resource-Based Industries Incubator.

Need: Agriculture, forestry, food, fiber, beverage, recreation, and related businesses thrive in Cattaraugus County because of skillful entrepreneurship and a strong natural resource base. As the county faces a crisis in a declining number of entrepreneurs entering these industries, it is imperative that a program be designed to both incentivize participation in these industries while using the existing core group of entrepreneurs to help support and train the next generation. Several local businesses made this recommendation and have a willingness to support their own business expansion as well as start-ups. They want to build upon the energy and innovative ideas present in the community to grow a larger and stronger cluster of food, agriculture, and forest products businesses.

Description: This recommendation revolves around a partnership between public and private entities that leverages existing programs as well as the strength of local entrepreneurs to enhance innovation through collaboration, training, network development, and resource sharing. Critical to the success of this initiative is the creation of a support program that nurtures intra- and inter-industry sharing of intellectual, human, and financial capital with the intent to grow business opportunities and support young and emerging entrepreneurs. The focus would be on core rural and resource-based industries like farming, forestry, fiber, food, beverages, tourism, recreation, and energy.

Built on a virtual incubation model, the Cattaraugus County rural and resource-based industry incubator would offer comprehensive entrepreneurial support services. Those would include needs evaluation, project planning support, grant writing assistance, and one-on-one counseling to support wide ranging technical and professional issues. It is recommended that Cattaraugus County follow the example of the Hudson Valley Agribusiness Development Corporation's (HVADC) Incubator Without Walls (IWW).

Actions: This recommendation is expected to be driven by EDPT with strong participation from entrepreneurs in sectors such as farming, fiber, forest products, food, beverage, energy, recreation, and tourism. The intent will be to integrate these industries through a purpose-built entrepreneurial development system as well as leveraging the assets of willing private sector supporters from these sectors. Critical actions required are as follows.

1. ***Create a proactive, multi-year program to support the individualized needs of young and beginning entrepreneurs.***
    a. Develop a pilot program to package a professional and technical service network made up of private sector expertise and built on the model of a HVADC's small business counselor services.

b. Implement, in cooperation with regional partners and Cornell Cooperative Extension, the Kaufman Foundation rural entrepreneurship curriculum or similar program.
c. Develop a service corps of mentors and counselors with specific professional or technical expertise to provide direct support to agricultural entrepreneurs and to work with the county SBDC and SCORE programs.
d. Build a mentor-protégé program designed for multi-year support of emerging entrepreneurs that utilizes annual contracted work plans and paid mentors.
e. Create an adult internship program for on the job learning and job sharing.

2. ***Create integration between businesses and sectors through formal gatherings.***
    a. Facilitate the development of formal "masterminding" roundtables of farmers, agribusinesses, and other related industries that may benefit from periodic discussions about business and management issues, market development, and other relevant topics.
    b. Conduct quarterly brown bag lunches for farmers that focus on networking and the topical discussion of important issues such as business management, transition planning, marketing, multi-use property management, innovation, technology adoption, real estate, policy/regulations, and other relevant topics.
3. ***Enhance the adoption of best practices and innovation.***
    a. Support private sector efforts to develop an innovation park by integrating sector needs, advancing design discussions, and writing grant applications.
    b. Attend the AURP (Association of University Research Parks) 2021 spring training event with interested private sector participants to study best practices.
    c. Conduct an annual winter training exposition in collaboration with industry to explore emerging technologies in critical growth sectors of the rural economy.
    d. Support the expansion of applied research capabilities in key production sectors, such as food, forest products, and beverages, to increase the rate of technology development and achieve early-adopter status in emerging markets such as mass timber.
4. ***Support emerging project development.***
    a. Provide, in collaboration with local and regional partners, direct project planning and assistance for development projects that require complex financing and land development activities. Early project types may include:
        i. Corporate R&D activities
        ii. Livestock feed mill
        iii. Mass timber construction facility
        iv. Biomass processing facility
        v. Dairy processing plant
        vi. Livestock aggregation and processing business
    b. Support engineering and process design assistance through pre-negotiated rates with qualified engineering and technical support contractors.

Issue priority: High

Recommendation 2: Support Broadened Labor Force Training Programs for Resource-Based Industries.

Need: All interviewed industry sectors agreed that both workforce skills and availability are steeply declining across all job categories from unskilled labor to highly skilled technical jobs. Skills shortages most generally described as falling into one of four categories:

1. Life skills – Examples: timeliness, reading competency, math competency, communication
2. Job skills – Examples: CDL drivers, tractor operators, millers
3. Technical skills – Examples: programming, GIS, laboratory, food safety
4. Management skills – Examples: human resource management, training, finance.

Skills development programs benefit many sectors in the economy. Training in life and management skills, for example, support businesses throughout the economy, not just the agricultural sector.

Specific farm-related skills shortages could also be applied elsewhere, such as mechanics, welding, Class A commercial drivers' licenses, and equipment operations. All these fit well within existing BOCES programs, though specific modifications may be needed. In the case of farm skills, animal husbandry is in modest demand, as are technical skills related to on-farm technology integration.

Preparing the next generation to farm is critical. Currently, 29 percent of farm operators are age 65 and older, and 60 percent 55 and older. Furthermore, being prepared to farm means more than having technical area certifications and a few hours of internships. It means having a well-informed understanding of whole farm management that comes with progressive experience at making daily management and financial decisions. Currently, the county and region have many short-course oriented training programs for beginning farmers but offer no long-term, managed mentor-protégé programs. These programs are often used in the technology industry and have a strong correlation to business success, but they have high costs and significant management burdens.

Description: This recommendation suggests that a coordinated effort be made to implement formalized workforce improvement activities across multiple educational platforms that provides employers with a meaningful way to evaluate basic skills development. Employing the ACT WorkKeys program within the local K-12 programs as well as regional technical and higher education institutions will help provide a coordinated response that is easily understood and supported by industry. It will also provide a means to certify student accomplishments that are portable and transferable.

Where specific skills for agriculture are needed, the program should work with labor unions, local trade schools, BOCES, high school agriculture programs, Jamestown Community College, and Erie Community College to produce the necessary curriculum to certify achievement. Essential to such certification will be internship programs to ensure that the skills can be applied in-situ.

If the program has sufficient capital and human resources, it would be beneficial to consider a mentor-protégé program. The United States Department of Defense, Office of Small Business Programs, operates a nationally recognized model for such programs.

Actions: With the possibility that organized labor will have a greater influence on the future of the agricultural labor force, these actions focus on two approaches to labor force development. The first uses a traditional approach through existing training and job development programs and the second

uses the model of union-organized training and certification programs. The third element of this recommendation focuses on improved access to management-level staff.

1. Traditional labor force development
    - Survey farmers, foresters, and food/beverage industry participants (hereafter, industry cluster) to determine the largest gap in skills and the most important future labor skills for:
        - Core occupations – Skills essential to the existence of the industry cluster
        - Supportive occupations – Leveraging skills to maximize cluster returns
        - Transformative occupations – Future skills required to meet changing nature of the clusters.
    - Based on the above, work with BOCES, Cattaraugus-Allegany Workforce Development Board, local school systems, the Community College, and others to develop a WorkKeys approach to:
        - Training programs for most demanded and/or critical technical skills
        - Certification program for life skills, such as workplace math, timeliness, and reading comprehension
        - Labor screening system.
    - Develop labor-sharing and labor pooling service to increase availability of core and support occupation skills.
    - Develop a challenge grant program to encourage innovative, on-site workforce training.
    - Expand internship programs at high schools and BOCES.
    - Explore the feasibility of and funding requirements for a mentor-protégé program modeled after DoD programs.
2. Engage with labor unions to develop union managed training and certification programs for Core Occupations as defined above.
3. Support access to, and development of, management skills.
    - Create a cluster-based jobs clearinghouse for management and skilled labor pool.
    - Develop on-site management training programs for key professional and technical skills.
    - Encourage local school districts to promote agriculture as a career option for STEM students.
4. Work with regional partners to create centers of excellence focused on distinct elements of the resource-based industry clusters that constitute 1) the largest economic contributors, and 2) rapidly emerging clusters. These centers may be affiliated with BOCES, community colleges, or universities, and managed collectively with industry affiliated board to:
    - Set regional workforce and management training objectives.
    - Establish regional benchmarks.
    - Achieve economies of scale in delivering highly technical workforce training.
    - Create centers of intellectual property development and applied research.

Issue priority: High

Recommendation 3: Build on Important Relations to Integrate Between Tourism and Resource-Based Industries.

Need: Approximately 58 percent of Cattaraugus County farms have operating losses, and the average farm has a net income of just less than $28,000. Because of this, it has become important for farms to derive alternative income streams from their property and other farm assets.

Description: Tourism, recreation, agriculture, and forestry are among the largest employers and income generators in Cattaraugus County. While these industries are often mutually supportive and may benefit from coordinated development activities, business interactions are typically incidental. This recommendation is to develop the means to increase cross-promotional and cross-marketing activities, formalize relationships between industry segments, and support individual business development activities. It also examines ways to support opportunity discovery and development in a manner that is mutually supportive of the underlying agricultural and forestry uses.

Actions: The following actions are recommended:

1. Catalog, classify and map agricultural, forestry, recreational and quality-of-life assets in Cattaraugus County and the surrounding regions to create the background data for marketing efforts, project development, corporate attraction, and opportunity promotion.
2. Work within existing tourism infrastructure to support the creation of a resource-based industry marketing initiative that identifies and packages existing events and assets and builds tour packages around these assets.
3. Coordinate with resource conservation and recreation organizations to create a challenge grant program for small private operators to encourage:
    a. Venue development, particularly those with mixed-use activities
    b. Cross marketing partnerships
    c. Adaptive reuse of working lands for recreational purposes
    d. Conduct on-site operator training and development activities.
4. Develop a regional agritourism marketing initiative that expands the existing trail systems and further coordinates event development while supporting development of new destinations, events, and attractions particularly in the areas of eco-tourism and agritourism.

Issue priority: High

Recommendation 4: Develop Specialized Training for Farmers to Address Complicated Topical Issues.

Need: The level of sophistication required to manage a modern farm has increased dramatically with recent changes in New York State labor law. Farmers must also deal with complicated land use issues related to alternative energy and the need to both vertically and horizontally integrate within the supply chain. Current farmer support, such as ccaghelp.com, introduce many of these topics and may serve as a gateway for enhanced services.

Description: Farmers and resource-based industry (RBI) operators are facing rapidly changing legal and regulatory structures that may affect different elements of their businesses in transformative ways. At the time of the writing this report, a web of complicated compliance issues related to food safety, transportation safety, labor management, collective bargaining, information management, data privacy, public access, gender equality, long-term land contracting, and financing in quasi-regulated industries were confounding landowners and operators.

This recommendation proposes a method to monitor issues such as those highlighted above and create a system to assist farmers and communities in dealing with their impacts. Initial actions should focus on assisting landowners with 1) the development and negotiation of lease structures, such as those associated with solar and wind projects, which can be very complicated; 2) preparation for implementing proper employment practices for compliance with new NYS farm labor regulations; 3) collective bargaining of new farm labor agreements; 4) compliance with the Food Safety Modernization Act; and 5) complying with data and Internet privacy laws at the federal, state and local levels.

Actions: The following actions are recommended:

1. Form an industry-led coordination committee to:
    a. Identify key issues.
    b. Raise funds to support technical assistance.
    c. Identify local programs to administer assistance.
    d. Develop requests for qualifications for professional and technical service providers.
    e. Create an intake and evaluation system for technical assistance.
2. Create a searchable web library within ccaghelp.com, where forms and information related to best-case management of technical, financial, and legal issues may be found.
3. Develop an "on-call" response capability to assist with rapid changes in the regulatory structure that may heavily impact local businesses. (For example, implementation of several new or amended DOT regulations at the beginning of this project caused a temporary, but severe, shortage of trucks and limited local and long-distance transportation activities that were biased against local businesses.)
    a. Use a web form for intake on ccaghelp.com.
    b. Create a means test [15] for underwriting services costs thereby supporting those with the greatest needs and/or most restricted resources.

Issue priority: High

[15] A *means test* is a determination of whether an individual or family is eligible for particular programs based upon whether the individual or family possesses the means to do without that help.

Section Two: Agricultural Land Use Plan

Introduction

The land use section of the AFPP highlights the need for improved farmland preservation tools that fit both the community context and institutional capability. It also provides an analysis of community conditions related to land-use patterns and policy controls, following with a discussion regarding the current conditions in county agricultural land use, soils, infrastructure, and development pressure. The section concludes with an evaluation of existing land-use tools and recommendations for implementing solutions that will strengthen farmland preservation.

Agricultural Land Use Conditions

Agriculture and forestry are significant land uses within Cattaraugus County. Both play a role in minimizing tax burden, conserving land, and driving the resource-based rural economy. Currently, farmland represents about 20 percent of the county's land base and privately-owned timberland occupies about 60 percent. This section describes the key farmland trends and soil conditions within the county, which provides context for evaluating land-use controls and adjusting strategies to strengthen farmland protection.

Farm Trends

Farmland Assessment

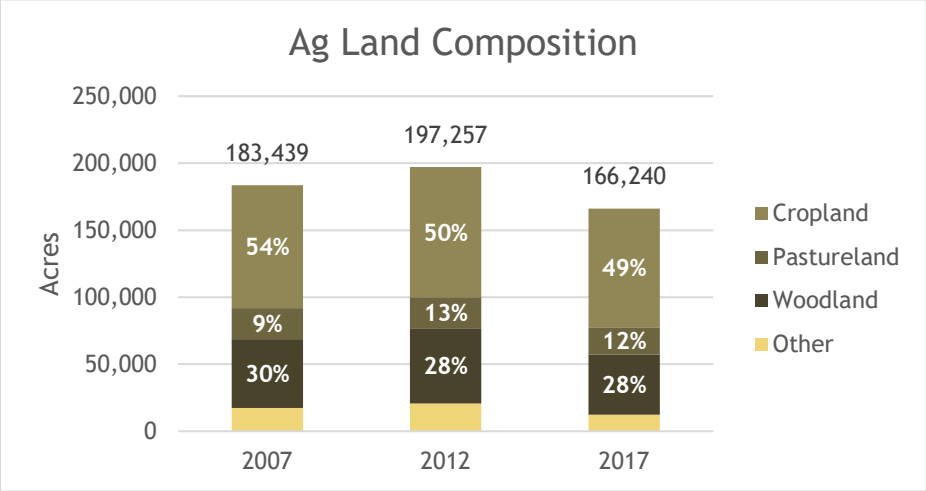
In 2017, about 20 percent (166,240 acres) of Cattaraugus County's 837,341 land acres were estimated to be in farm ownership or use. This number represents an 18 percent decline since 2002, the largest percentage decline in the region. Also, the county has the smallest proportion of land in farms compared to the other counties in western New York.

Table 23. Farmland in the Region

County	Land Acres	Farm Acres	% Share
Allegany, NY	658,756	161,713	25%
Cattaraugus, NY	837,341	166,240	20%
Chautauqua, NY	678,544	223,634	33%
Erie, NY	667,319	143,081	21%
Steuben, NY	889,955	397,157	45%
Wyoming, NY	379,358	234,861	62%
McKean, PA	626,685	43,084	7%
Potter, PA	692,042	97,780	14%
Warren, PA	565,841	68,153	12%

SOURCE: USDA CENSUS OF AGRICULTURE

Most of the agricultural land is in cropland. Since 2007, there has been a decrease across all agricultural land uses in absolute terms. Cropland declined 3 percent, pastureland declined 12 percent, woodland declined 13 percent, and other agricultural land declined 28 percent.



SOURCE: USDA CENSUS OF AGRICULTURE

Farms and Farm Size

The number of farms in the county has declined by 17 percent since 2002, with the continued hollowing out of mid-sized farms. Like most of the country, this is reflected in data that show increases in the average farm size, the proliferation of small acreage farms, and increases in the number of large farms.

Since 2007, there was a 7 percent increase in the average acres per farm from 163 acres per farm to 174 acres per farm. There was also a 5 percent decrease in the median acreage, which means an increase in the number of smaller acreage farms. Farms with fewer than 50 acres represented 31 percent of all farms in 2017, and the size has been growing in proportion since 2002. In particular, farms with 1 to 9 acres grew by 59 percent from 2002 while farms with more than 1,000 acres increased by 17 percent from 2002.

The trend of declining farm numbers means that there might not be enough active operations to maintain land in agriculture in the long run. Despite increases in the number of large farms, it is not

enough to outpace the rapid growth of small farms and a decline in mid-sized farms. This is happening despite a strong and growing presence of small Amish farms and wood product operators that are aggressively competing for land that many of the large CAFO operators are not interested in farming. The growing importance of Amish farms as a component of livestock and produce farming will help to blunt the decline in farm acreage and introduce new beginning farmers into the agricultural economy.

Having too many small acreage farms generates challenges as well. Small farms are often used for supplementary income or serve as recreation, hobby, or retirement farms. Farms of this size frequently operate outside of normal industry structures and, in some cases, the operators are not seeking to make significant profits or to expand the business model.

The sustained decline in nationwide direct market sales is complicating small farm profitability. It has hit farmers' markets, community-supported agriculture (CSA) operations, and roadside stands particularly hard. For some direct market outlets, such as the Olean Farmers Market and Canticle Farm CSA, growth and development, rather than decline, have been the norm. To continue growth, accommodating more remote sales and contactless delivery will be important. All these issues impact land use in the county. The following section discusses how agricultural operations use land in the county.

Land Use Practices

The 2017 Census of Agriculture collected data on various land-use practices. Cattaraugus County has about 2,642 acres under conservation easements. Fewer than 1 percent of the farms in the county use cover crops, which represent 6 percent of the cropland acreage. A very small percentage of farms benefit from federal conservation programs.

Table 24. Conservation Practices

	Farms	Acres
Conservation easement	10	2,642
Cover crop (non-CRP)	85	5,126
Federal programs, conservation, and wetlands	36	1,090

SOURCE: USDA CENSUS OF AGRICULTURE, 2017

Based on what is reported, there are more acres under conservation tillage than there are under conventional tillage. Additionally, 132 farms in the county are using rotational or management intensive grazing, and 27 farms are using alley cropping or silvopasture.

Table 25. Tillage Method

	Farms	Acres	% of Cropland
Conservation tillage, no-till	60	4,548	5%
Conservation tillage, other	76	10,713	12%
Conventional tillage	208	14,305	16%

SOURCE: USDA CENSUS OF AGRICULTURE, 2017

Cattaraugus County has about 120,000 acres of prime farmland. Additionally, another 8 percent of the county's soils can be converted into prime farmland if drained. In 2017, 210 farms reported draining 17,040 acres using drainage tiles or artificial ditches.

Table 26. Drainage Method

	Farms	Acres
Drained by tile	145	7,869
Drained by artificial ditches	165	9,171

SOURCE: USDA CENSUS OF AGRICULTURE, 2017

Land Value Trends

The value of land, buildings, and agricultural assets in the region has grown. For Southern Tier counties, they have all doubled in value per acre, with Wyoming County having the highest increase of 158 percent. Cattaraugus County has also benefited from increased values, though not as much as its neighbors.

Table 27. Southern Tier County Land Value per Acre

County	2002	2017	% Change
Allegany	$1,056	$2,013	91%
Cattaraugus	$1,293	$2,291	77%
Chautauqua	$1,401	$2,645	89%
Wyoming	$1,341	$3,463	158%

SOURCE: USDA CENSUS OF AGRICULTURE, 2017

The rise in agricultural land values regionally and locally is driven by complex factors related to both the agricultural economy and the nonagricultural economy. Within the agricultural community, much of the value creation is due to three factors. The first is the expansion of confined animal feeding operations (CAFOs). These farms have a compelling need to control sufficient acreage for land application of nutrients. Many of the farmers interviewed by the project team highlighted this as a primary reason for rapid, localized increases in both competition for and price of land. The second factor relates to regional growth--predominately outside of the county--in demand from higher yield uses, such as vegetable, horticulture, equine, and specialty crops. In addition to placing a higher economic value on the land for these crops, these production operations also make significant investments in the land such as drain tile, irrigation, livestock watering systems, and fencing that all contribute to the increase in value. The final contributor to the increase relates to the change in acreage being employed in agriculture. Marginal lands are often the first to leave agriculture, causing the lowest value production lands to be taken out of production first. Mathematically, this causes an increase in the reported average of productive agricultural land.

Nonagricultural uses for farmland are also pushing the value change. Among the top regional influencers are recreational uses, residential construction, conservation activities, energy projects, mineral

extraction, other forms of commercial conversion. The influence of these factors varies widely by locality and market conditions. Within Cattaraugus County, farmers generally reported nonagricultural value pressure coming from recreational uses, vacation homes, and speculative activities surrounding solar power generation.

Land Ownership and Tenure

Renting farmland is becoming prevalent in the region. Between 2002 and 2017, Cattaraugus County experienced an 11 percent decline in the number of acres of owned farmland, while there was a 13 percent increase in rented acres. Rented farmland represents about 21 percent of farmland in the county.

Compared to the rest of the Southern Tier counties, the county has the smallest growth in rented farmland. Allegany County experienced a 45 percent increase in rented farmland. Based on interviews, it appears that the use of rented farmland is increasingly a part of a nutrient management strategy for concentrated animal feeding operations (CAFOs) [16] looking to spread the nutrient load of excess manure.

Table 28. Ownership and Tenure

	Owned Farmland			Rented Farmland		
	2002	**2017**	**% Change**	**2002**	**2017**	**% Change**
Allegany, NY	49,247	54,823	11%	28,159	40,933	45%
Cattaraugus, NY	62,516	55,860	-11%	31,069	35,173	13%
Chautauqua, NY	80,365	84,391	5%	39,054	51,261	31%
Wyoming, NY	97,863	108,709	11%	51,790	63,821	23%

SOURCE: USDA CENSUS OF AGRICULTURE

Soils Assessment

From the perspective of farmland conservation, the State of New York focuses its conservation easement funding on the protection of highly productive soils that generally follow the productivity classes needed to support the state's top agricultural industries. For the purposes of the farmland protection plan as a means to guide competitive conservation easement grants, the three farmland classes are recognized in New York:

1. Prime Farmland
2. Prime Farmland if Drained
3. Farmland of Statewide Importance.

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the county has about 120,000 acres of prime farmland, which is 15 percent of the county's total acreage. The county also has about 65,000 acres, or 8 percent of total acreage, that constitutes soils that can become prime farmland if drained.

New York State also has its own soil classification system that denotes soils as Good, Normal, or Poor. This classification system has a two-fold purpose. First, it is used by county assessors to assign value for

[16] CAFO: According to USDA a CAFO is an intensive animal feeding operation (AFO) in which over 1000 animal units are confined for over 45 days a year. Dairies with more than 700 head are considered CAFOs. NYS defines CAFO's differently based on species.

taxation purposes. Second, the system provides guidance on the value of lands that may be uniquely productive in New York, such as its muck soils, or important to critical industries, like livestock, for the production of hay, and quality pasture. Within the state's classification system, approximately 9 percent of the county's soils are considered good. Meanwhile, half of the soils are classified as poor. The maps below indicate that the good and normal soils are primarily located on the western and northwestern side portion of the county.

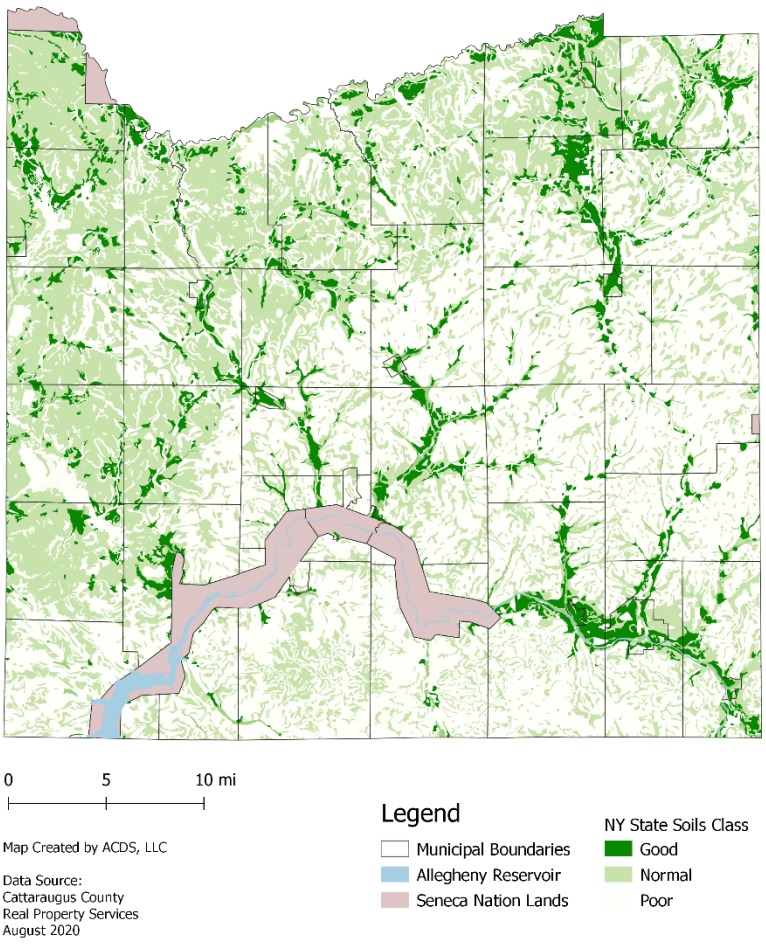
Table 29. New York State Soil Classification for Cattaraugus County

Soil Class	**Acres**	**% Total**
No Data	4,664	1%
Good	72,015	9%
Normal	325,384	39%
Poor	428,870	52%
Total	830,932	100%

SOURCE: CATTARAUGUS COUNTY REAL PROPERTY SERVICES

The soils discussed above are widely dispersed across the county, which can create challenges for production management as well as aggregating lands for a competitive easement funding application. Farming, however, has adapted to these issues in many places and found the means to be competitive in the marketplace. For instance, many of Cattaraugus' soils provide productive grazing lands that support the transition to grass-fed livestock operations. Furthermore, many of the soils extant in the county are highly productive for forestry uses. The presence of these soils makes forestry and forestry-support activities important for many landowners.

Cattaraugus County
New York State Soils Classes



Key Definitions

Prime Farmland: USDA defines this as land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. These soils have a number of properties, including temperature, moisture, susceptibility to erosion, pH, water table, permeability, and others. Criteria are described in the National Soil Survey Handbook section 622.03 / Farmland Classification.

Prime Farmland if Drained: These soils meet all the prime farmland criteria except for a high seasonal water table depth and be classified as prime farmland if the limitation is overcome with drainage.

Farmland of Statewide Importance: In New York, these soils do not meet all the criteria for Prime Farmland or Prime Farmland if Drained, but are mineral soils in land capability classes 2e, 2s, 2w, 3e, 3s, 3w, or 4w.

Development and Infrastructure

Development is scattered across the county with highly varied growth patterns experienced from town to town based on the underlying market conditions. For instance, towns such as Little Valley and Ellicottville have experienced positive residential growth and corresponding business growth due to the high demand for seasonal housing. [17] Because this housing is seasonal, growth in dwelling units comes without a corresponding growth in population.

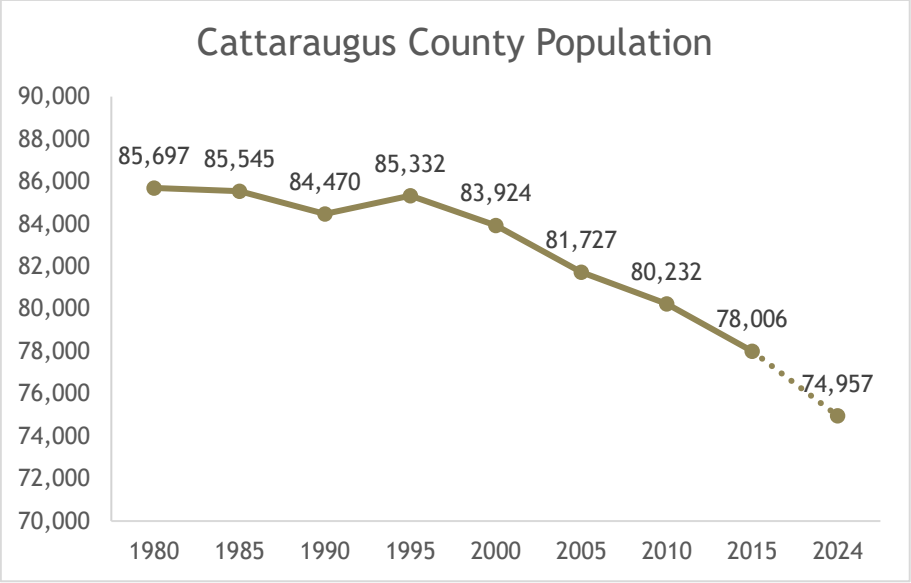
The overall development pattern can be described as static, with new units entering at a rate close to unit retirement. As a result, new residential development is not a threat to agriculture and forestry in Cattaraugus County. Instead, development pressure is driven by emerging and extant commercial and industrial activities such as solar energy, wind energy-related projects, recreation, mining, and other industrial activities.

Though the county is not experiencing population growth, the county will need infrastructure upgrades to roads, telecommunications, and utilities to support existing residents and businesses. However, it will be important to carefully manage expansion or renovation projects in ways that support the rural economy without diminishing access to agricultural and forestry resources.

Population and Housing

Population trends are indicative of future development needs. Growing populations require increased residential and commercial development while declining populations can lead to high vacancy rates and stagnating housing stock.

Cattaraugus County faces a declining population. Between 1995 and 2015, there was an 8.6 percent decline in the population, and this decine is projected to continue. The current population is about 77,348 and is estimated to be 74,957 in 2024. That is a 0.49 percent decline each year between 2019 and 2024. Population density in the county also declined from 64.1 persons per square mile in 2000 to 59.8 in 2019.



SOURCE: US CENSUS

The region is also experiencing continued population declines and lower population densities.

[17] A **vacant housing unit** is one with no one is living in it at the time of the Census unless its occupants are only temporarily absent. In addition, a vacant unit may be one which is entirely occupied by persons who have a usual residence elsewhere. It also includes newly constructed units that are not yet occupied.

Housing efficiency, which is measured by the number of housing units per person, has also declined considerably between 2000 and 2017. In 2017, seven of the nine counties in the region had less than 2.0 housing units per person. The exceptions were Erie (2.17) and Wyoming (2.26).

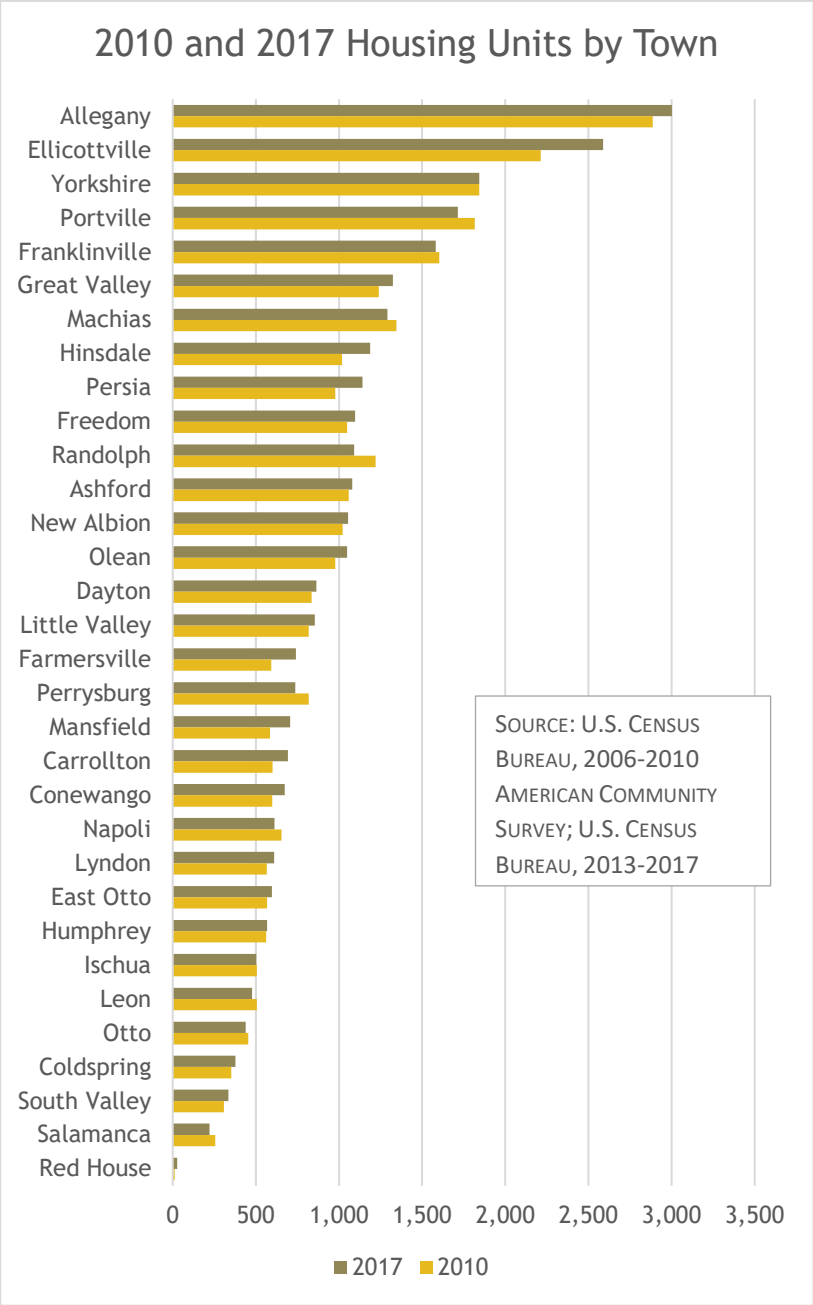
Table 30. 2017 Population and Housing

	Allegany	Cattaraugus	Chautauqua	Wyoming
Population	47,400	78,175	130,846	40,886
Housing Units	26,324	41,431	67,422	18,085
Land Area (sq. mi.)	1,029	1,308	1,060	593

SOURCE: US CENSUS

Housing

Total housing in the county increased by 4 percent between 2010 and 2017. Occupied housing decreased slightly by 0.2 percent from 22,920 units to 22,871 units. Meanwhile, vacant housing grew 18.3 percent from 6,939 units to 8,209 units. About half of all county housing is in eight towns.



Permanent residents do not always drive housing demand in Cattaraugus County. With abundant recreational activities and prominent parks and tourist attractions, the county boasts a high rate of "vacant" housing, meaning that the owner has a primary residence elsewhere. Many homes are used as second homes or rentals, and thus are not captured in data. Towns with proximity to tourist assets and recreational activities are often the focus of recreational development and may show the highest levels of new housing and vacant units.

Construction Since 2000

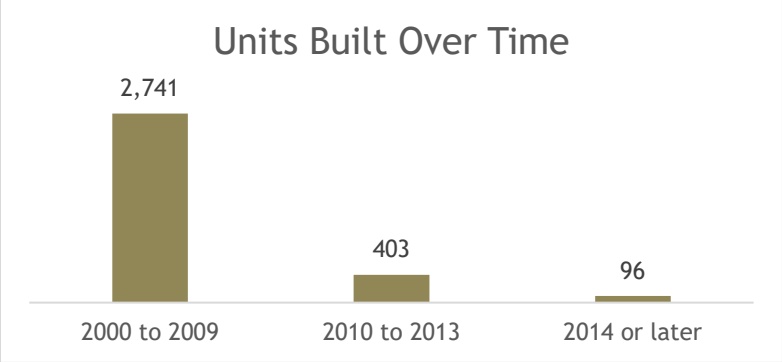
Over the years, the rate of housing construction has declined precipitously. There were around 274 housing units built per year between 2000 and 2009. Since 2010, about 71 housing units were built each year. Most importantly, housing development has declined significantly since 2014, with new construction occurring in only 12 of the 32 county towns.

Still, about two-thirds (66 percent) of the towns had increases in housing between 2010 and 2017. Seven towns had more than a 15 percent increase in housing units, with most of these towns having high vacancy rates. The data suggest plateauing housing construction and insufficient residents.

Residential development is also occurring across a wide range of housing types. Most homes in the county are detached single-family homes. Such units consume the most land per capita and contribute

to the decline in open space. The second most popular housing type is mobile homes, which represent 17 percent of the housing units.

Between 2010 and 2017, there has been an increase in attached single-family homes. These include townhouses, duplexes, and rowhouses. Similarly, the number of developments with more than 20 units almost doubled. These tend to be multi-family apartment complexes, which helps reduce sprawl.



SOURCE: U.S. CENSUS BUREAU, 2013-2017 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Table 31. Units in Structure

Units	**2010**	**2017**	**% Change**
1-unit, detached	20,792	21,836	5%
1-unit, attached	592	1,041	76%
2 units	1,327	1,208	-9%
3 or 4 units	883	856	-3%
5 to 9 units	606	490	-19%
10 to 19 units	232	99	-57%
20 or more units	221	405	83%
Mobile home	5,206	5,138	-1%
Boat, RV, van, etc.	0	7	

SOURCE: U.S. CENSUS BUREAU, 2006-2010 AMERICAN COMMUNITY SURVEY; U.S. CENSUS BUREAU, 2013-2017 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Vacancies and Seasonal Housing

The county's towns have an average vacancy rate of 26 percent in 2017, an increase from 23 percent in 2010. If population declines continue, the number of vacancies can be expected to increase. Based on population projections and mean household size, it is expected that vacancies will increase by about 105 units between 2019 and 2024.

Table 32. Occupied vs. Vacant Units by Town

Town	Occupied	Vacant	% Occupied	% Vacant
Allegany	2,781	221	93%	7%
Ashford	895	184	83%	17%
Carrollton	598	95	86%	14%
Coldspring	272	105	72%	28%
Conewango	505	168	75%	25%
Dayton	716	148	83%	17%
East Otto	460	136	77%	23%
Ellicottville	596	1,992	23%	77%
Farmersville	474	267	64%	36%
Franklinville	1,155	427	73%	27%
Freedom	887	210	81%	19%
Great Valley	892	433	67%	33%
Hinsdale	816	372	69%	31%
Humphrey	318	249	56%	44%
Ischua	371	132	74%	26%
Leon	397	80	83%	17%
Little Valley	725	130	85%	15%
Lyndon	285	325	47%	53%
Machias	829	463	64%	36%
Mansfield	330	376	47%	53%
Napoli	430	182	70%	30%
New Albion	821	233	78%	22%
Olean	861	188	82%	18%
Otto	324	115	74%	26%
Perrysburg	648	90	88%	12%
Persia	1,022	119	90%	10%
Portville	1,539	175	90%	10%
Randolph	971	121	89%	11%
Red House	17	10	63%	37%
Salamanca	203	19	91%	9%
South Valley	156	178	47%	53%
Yorkshire	1,577	266	86%	14%

SOURCE: U.S. CENSUS BUREAU, 2013-2017 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Nine of the towns have a vacancy rate of 33 percent or more. Four of these towns have vacancies in more than half of the housing units. In 2010, most of the vacancies were in houses used for seasonal, recreational, or occasional use, mostly due to tourism and resort activity. For instance, Ellicottville has a 77 percent vacancy rate and has 27 percent of the seasonal and recreational housing.

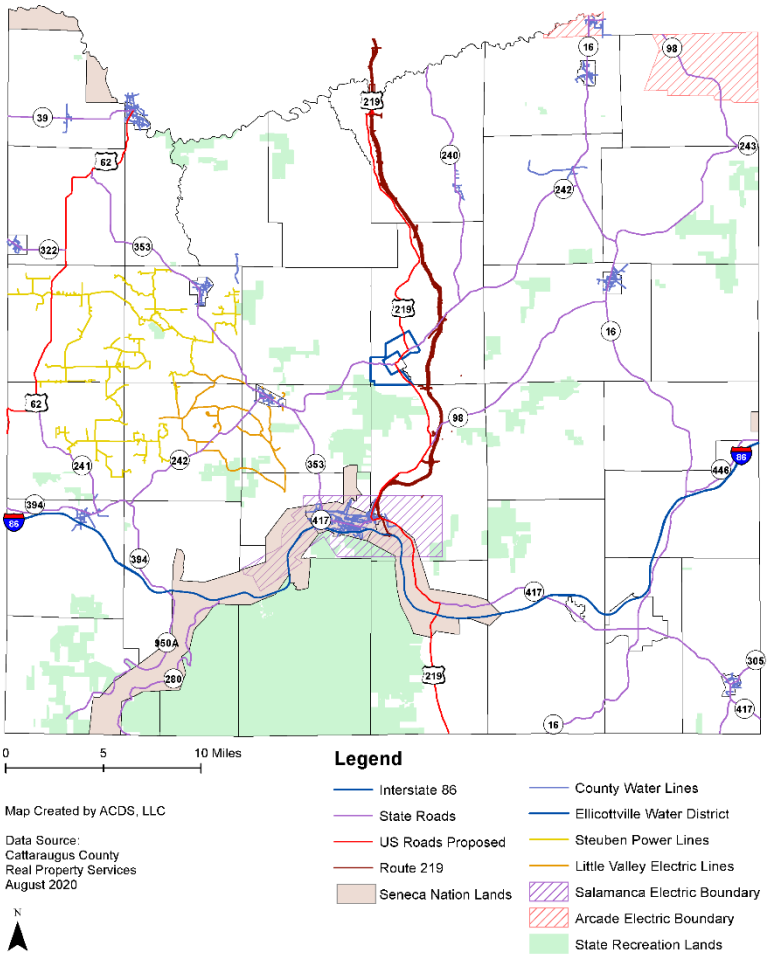
Table 33. Vacancy Status, 2010

Vacancy Status	**Units**	**% of Total**
For rent	384	5%
Rented, not occupied	49	1%
For sale only	358	5%
Sold, not occupied	103	1%
For seasonal, recreational, or occasional use	5,923	77%
For migratory workers	5	<1%
Other vacant	870	11%

SOURCE: U.S. CENSUS BUREAU, 2006-2010 AMERICAN COMMUNITY SURVEY

While vacancies are important to understand, selection of a data source for reporting and understanding vacancies is a challenge, in large part due to definitional differences in the various reporting structures. ACDS finds that the U.S. Census provides the greatest consistency over time but is limited by the decennial nature of collection efforts, which makes year-to-year comparisons challenging. It should be noted that the numbers in Table 11 will be updated in the 2020 Census. In the absence of new numbers, it is difficult to determine how each vacancy status has changed.

Partial Infrastructure & State Recreation Lands



Infrastructure Assessment

Infrastructure such as roads, water, sewer, electric, gas, and telecommunication services are critical to the success of the agricultural sector. The availability and price of electricity and other resources can significantly influence farm profitability. Additionally, farms depend on safe and well-maintained roadways to move equipment, receive goods and services, and ship farm products.

However, infrastructure, particularly roads, water, and sewer, can also accelerate non-farm development in rural areas. Without appropriate land-use planning, infrastructure extensions can occur in a fiscally inefficient and haphazard manner and spur scattered new development in agricultural areas.

(Full size map available in Appendix 1-D.)

Land Use Tools

Farmland provides the benefits of food production, stabilization of local economies, protection of the environment, and enhancement of the quality of life. Its loss is a concern for many rural counties across the country. Given the diversity of agriculture and the various governmental programs, the protection of agriculture and farmland takes many forms. They come often in the structure of land-use regulations, agriculture economic development initiatives, and purchase of development rights (PDR) to permanently secure a land base for the industry.

This subsection discusses key land-use planning techniques such as comprehensive plans, zoning, subdivision regulations, transfer of development rights (TDR), and PDR. In particular, planning and zoning are important farmland protection tools for local communities. When a local government strives to sustain its agricultural economy and protect farmland, these objectives should be reflected in the planning and zoning process.

Comprehensive Plans

Comprehensive plans, also known as master or general plans, allow communities to create a long-term vision for their future. They outline local government policies, objectives, and guidelines regarding development. Typically, they identify areas best suited for a variety of land uses, including agriculture, forestry, residential, commercial, industrial, and recreational activities. Effective comprehensive plans are developed where land-use authority resides at the municipal level.

Comprehensive plans can establish a commitment to local agriculture by protecting natural resources and promoting farm business opportunities. They can form the basis of a local farmland protection strategy by identifying areas to be protected for agriculture and areas where development will be encouraged. They also should aim to conserve natural resources while providing affordable housing and adequate public services.

Given the increasing vertical integration of agriculture with the food, beverage, fiber, energy, art, entertainment, and education sectors, land-use planning must catch up with the land-use needs of these emerging opportunities. At a minimum, land-use planning efforts should open the discussion of the appropriateness of these expanded agricultural opportunities within the discrete context of each municipality as well as at the whole county level.

Zoning

Zoning is usually the chief tool, along with a water and sewer plan and a transportation plan, to implement what the community agreed to work toward in the comprehensive plan. Legally, all zoning requirements must be created in accordance with a comprehensive plan. Zoning controls usually function at the most local level of government, and it allows that jurisdiction to regulate and control the physical development of land.

The basic purpose of zoning is to divide a municipality into residential, commercial, industrial, and agricultural zones. Zoning laws specify and restrict the uses that can be made in each zoning district. For instance, an R-1 residential zone may only allow one single-family detached home per acre rather than apartment complexes or other multifamily structures. These regulations also control the density of development and whether animals or livestock are allowed. Other zoning ordinances regulate resource extraction, land set aside for public institutions, open space requirements, and protected lands.

Most zoning codes focus on residential, commercial, and industrial districts. The focus is problematic for agriculture, since many municipalities adopt codes that are only designed for urban and suburban land uses. Further, zoning codes that allow for agricultural activity are often excessively restrictive since the underlying use is often residential. The primary issue rests in the use of allowances, which rarely considers the changing nature of agriculture like production activities, processing activities, on-site marketing, and other uses such as tourism and special events. The proximity of residential and agricultural properties often presents conflicts. Residents may complain about large farm vehicles or odors from livestock and composting activities. Farmers may also come in conflict with residents or visitors who are unfamiliar with agricultural practices. In Cattaraugus County, this conflict was noted particularly in interaction with the Amish community relating to transportation and operating practices.

Addressing these issues involves creating a pro-agriculture zoning code that is complementary to other land uses. Zoning codes are driven by comprehensive plans, which also set the tone for economic development plans and subdivision codes. The comprehensive plan should lay the foundation for a zoning code that is flexible and inclusive of agricultural activities.

Many rural and suburban zoning codes do not consider new and innovative agricultural activities, which are essential for the future viability of agriculture in the region. Performance-based zoning is one method to provide more flexibility. Rather than a code of permitted and conditional uses, performance-based zoning allows planners to set goals for land use zones. For instance, a zone can have goals for the number of agricultural jobs created. Such a goal allows businesses to meet standards without specifying how they will accomplish the goal. However, it requires well-designed performance criteria to prevent spot-zoning and encourage community-appropriate uses.

Several different zoning techniques that may be used to encourage the protection of farmland are outlined below.

Agricultural Protection Zoning (APZ) - Agricultural protection zoning stabilizes the agricultural land base by keeping large tracts of land relatively free from non-farm development. For APZ to be effective, the area's farming industry must be profitable and farmers must be committed to keeping their land in production. APZ ordinances designate areas where farming is the primary land use. They discourage development that could impair the land's use for commercial agriculture, and they restrict the density of residential development. They generally require building on small lots as opposed to dividing tracts into large, equally sized lots. Most ordinances make use of a fixed density, allowing, for instance, one dwelling for every 25 acres. Others are based on a sliding scale, with the dwelling and acreage allowances more flexible.

Sliding Scale Zoning - Sliding scale zoning uses a scale to determine the number of lots that potentially could be developed in an area. When a community wants to keep development at one dwelling unit per 3 acres, while discouraging large subdivisions on agricultural land, owners of small parcels may be allowed more units per acre thereby directing development to areas where it has lower conversion and value impacts on large blocks of farmland.

Cluster Zoning - Cluster zoning ordinances allow or require houses to be grouped close together on small lots to protect open land. They increase density on part of a parcel while leaving the rest undeveloped, which allows the construction of the same number of houses while minimizing the impact on the area's natural resources. For example, the zone's residential

density is one unit per five acres and the parcel in question is 100 acres. A parcel could be divided into either twenty 5-acre parcels or twenty 1-acre parcels and an 80-acre parcel. In both examples, the result is twenty building lots (not considering the 80-acre parcel as a separate building lot) with a density of one unit per five acres. In the latter example, however, a relatively large, agriculturally viable parcel remains.

Cluster subdivisions may keep land open for future agricultural use, but generally they are not designed to support commercial agriculture. In addition, clustering may create tension between residential and agricultural land uses if new neighbors object to the sights, sounds, and smells of commercial farming. To increase its usefulness as a farmland protection tool, provisions should be made to protect commercial farming or recognize that cluster arrangements may be more appropriate near less-intensive farming operations. New York Town Law, Section 281, allows municipalities to permit, or require, cluster development.

Performance Standards - Performance standards can minimize the impact of development on farming. They may be used to steer development away from prime agricultural soils and existing farm operations. They usually are applied on a case-by-case basis, and they require discretionary decisions by a local planning board. Some factors that can be used as performance standards are:

- Potential for conflict with agriculture.
- Need to minimize the amount of converted agricultural soils.
- Agricultural productivity of the land and soils involved.
- Compatibility with existing or permitted uses on adjacent property.

Overlay Districts - Some communities have used agricultural overlay districts to direct development away from prime farmland. While overlays lessen the impact of development on agriculture, they generally regulate how–not if–farmland is developed. So far, such districts have not been used to change underlying density requirements or limit non-farm uses. Agricultural overlay districts can be used to trigger cluster zoning provisions, buffer strips, or other performance standards.

Large-Lot Zoning - Generally, large-lot zoning (that designates minimum lot sizes as small as five to ten acres) is not considered a farmland protection technique. In fact, it may encourage the premature conversion of farmland since it often results in the purchase of more residential acreage than homebuilders want or need. Large-lot zoning often is used in conjunction with lists of “permitted by right” uses that fail to view agricultural areas as important commercial zones worthy of special protection from incompatible uses.

Subdivision Regulations

Unlike zoning ordinances, which address whether specific uses are permitted, subdivision regulations specify how development will transpire and exactly what form it will take. For example, zoning ordinances designate how many lots can be developed on a parcel, but subdivision regulations determine where those lots will be located and how the land is developed. Subdivision regulations are usually the home of buffer requirements (the distance of homes or wells from farm operations) that can be critical for the continued operation of adjacent farms.

Buffers - In rapidly growing areas, development inevitably will occur adjacent to active farm operations. Based on the concept that "good fences make good neighbors," buffers create physical barriers between potentially incompatible land uses. Buffers may be created by strips of land (from 50 to 500 feet wide) or by vegetation such as existing hedgerows, planted trees, and shrubs. Some subdivision ordinances require the developers to provide the buffers. Buffers must be designed on a site-specific basis and adapted to address different types of agricultural operations. However, in some cases, they may not be effective.

Mitigation Techniques - Mitigation techniques applied to high-quality farmland refers to a "no net loss" approach to farmland protection. Land taken out of agriculture use or zoning must be replaced with either new land of equal size or productivity brought into agricultural use elsewhere, or a fee paid by a developer to protect acreage elsewhere permanently.

In New York, the state legislature has created a mitigation requirement in the Agricultural Districts Law. Section 305(4)(h-1) which requires mitigation when land is taken by eminent domain for use as a landfill. The provision became effective January 1, 1998, representing the first time that a mitigation requirement has been applied to farmland in New York. The Army Corps of Engineers has also utilized the concepts of mitigation and "no net loss" routinely for the protection of wetlands. Such mitigation provisions are a way to balance growth and resource protection.

Transfer of Development Rights (TDR)

Transfer of development rights (TDR) programs allow landowners to transfer the right to develop one parcel of land to a different parcel of land. (By contrast, cluster zoning usually shifts density within a parcel.) TDR programs can protect farmland by shifting development from agricultural areas to areas planned for growth.

Section 261-a of the Town Law and Section 7-703 of the Village Law explicitly empower municipalities to authorize the transfer of development rights. Such programs are defined in these provisions as "the process by which development rights are transferred from one lot, parcel or area of land in any sending district to another lot, parcel, or area of land in one or more receiving districts."

TDR is best implemented in areas with high development pressure that is most often found in large subdivisions. There is little evidence to support that this type of development pattern exists or is emergent in the county and it therefore not considered a viable tool.

Purchase of Development Rights (PDR)

In general, landowners possess a variety of rights to their property, including the right to use water resources, harvest timber, or develop the property consistent with local regulations. Some or all of these rights can be transferred or sold to another person. PDR programs enable landowners to voluntarily separate and sell their right to develop land from their other property rights. Participating farmers are typically offered the difference between the restricted value of the land and the fair market value of the land. A permanent conservation easement is recorded in the land records binding all future owners. The land remains in private ownership and on the tax rolls.

Local PDR programs can prevent development that would effectively eliminate the future possibility of farming in an area. Selling an easement allows farmers to cash in a percentage of the equity in their

land, thus creating a financially competitive alternative to development. Agricultural producers often use PDR program funds to buy and/or improve land, buildings, and equipment, retire debt, and increase the viability of their operations. The reinvestment of PDR funds in equipment, livestock, and other farm inputs also may stimulate local agricultural economies.

PDR programs have both benefits and drawbacks.

Benefits

- Protects farmland permanently, while keeping it in private ownership.
- Participation is voluntary.
- Allows farmers to capitalize on unrealized assets - their land.
- Can be implemented by state or local governments or private organizations.
- Can provide farmers with a financially competitive alternative to development.
- Can protect ecological as well as agricultural resources.
- Removes the non-agricultural value of land, which, in some places, helps keep it affordable to farmers.

Drawbacks

- They are expensive to manage and maintain.
- PDR programs generally are over-subscribed. In New York, funding for PDR has been limited, with demand far exceeding available funds.
- Purchasing easements is time-consuming. Participants in the state program generally must wait at least a year before all details regarding their easements are finalized.
- Monitoring and enforcing easements require an ongoing investment of time and resources.

The effectiveness of PDR programs depends on how well municipalities address several key issues. There are many factors that a municipality or organization needs to consider before participating in the New York State Agricultural and Farmland Protection Program or before designing their own local PDR program. These include deciding what kind of farmland to protect, which geographical areas to focus on, how to set priorities, what restrictions to put on the use of the land, how much to pay for easements, how to raise purchase funds, how to administer PDR programs, and how to monitor and enforce easements.

Setting Priorities

Setting priorities for a PDR program is an exercise in achieving balance. Since the program is voluntary, it needs to be attractive to the farmers who own the county's prime agricultural resources. Flexible easement conditions and reasonable prices to facilitate participation by farmland owners are as important as raising the public funds to buy the easements. The process of setting priorities assumes funding and participation. It takes a number of forms.

With the development of Geographic Information Systems (GIS), strategic farmland mapping is a relatively new expression of a jurisdiction's priorities. It is a very effective way to graphically depict what is the most important and vulnerable land so that purchasers with limited funds can be strategic. This

sort of mapping is also an indispensable tool for the education of the public and local officials about the connection between agricultural resources and public infrastructure decisions.

Eligibility criteria are the minimum requirements for participation. Sometimes they are reflections of purpose clauses or other legal requirements in state PDR-enabling legislation or local ordinances. They often include categories such as location, development potential, parcel or farm size, soil quality, and stewardship provisions. These criteria are the first round of a selection process because they decide who can apply to sell easements.

Once applications are received, a ranking formula is used to decide the order in which offers will be made until the funds allocated to that 'batch' of properties is spent. It is a means of stating preferences among eligible applicants. Because the goal of the program is the long-term protection of the land base, rankings formulas typically are heavily weighted for soil quality and size characteristics and for adjacency to other farmed and/or protected land. However, they often contain categories of points measuring economic productivity, capital investment, threat or ease of development, and degree of public policy support (i.e., agricultural protection zoning) context for the purchase.

Agricultural Conservation Easements

The conservation easement is the legal instrument that protects the land for agriculture over time. It is a written document signed and acknowledged by all parties involved. It is filed with the county clerk's office so that future owners and lenders will learn about the restrictions through a title report. Depending on the circumstances of the transaction, the easement may need to meet the requirements of the New York Environmental Conservation Law and the federal tax code.

The purchase of development rights uses a conservation easement to secure the removal of development rights on the property. Most conservation easements are permanent. The farmland owner retains all other rights of ownership and can continue to farm the land as he or she did before. The land remains private and on the tax rolls.

Because agriculture is always evolving, agricultural conservation easements must be flexible and tailored to meet its ever-changing conditions. Generally, they:

- Extinguish virtually all non-farm development rights (i.e., the right to build residential or non-agricultural structures).
- Limit future uses of the land that degrade the agricultural value or productivity of the land.
- Encourage the business of farming.
- Permit the construction of new farm buildings and farm employee housing.
- Do not require public access.

Determining Easement Value

In general, the value of an easement is the fair market value of the property minus its restricted value, as determined by a qualified appraiser. For example, if the market value of an unprotected parcel of farmland is $200,000, but worth only $100,000 if protected with an agricultural conservation easement, then the farmer is paid the difference of $100,000 for selling the development rights. Landowners may choose to donate some or all of the value of their development rights as a way to permanently protect their farmland and potentially reduce income and estate taxes.

Program Costs

Most PDR programs (including New York State's) require a local dollar match, so county or municipal funds are also necessary for the implementation of PDR projects. For example, the New York State PDR program will fund up to 75 percent of the cost of a purchased easement. Local jurisdictions must match the remaining 25 percent. The following section outlines several ways local communities can finance their PDR programs.

Bonds - In the past decade, many New York communities have recognized that farmland conservation is a long-term investment. Several of these communities have issued municipal bonds to pay for the purchase of development rights of farmland. Suffolk County on Long Island was the first. In 1976, they authorized a $21 million bond program to pay for the development rights to thousands of acres of farmland. Since then, several towns on the eastern end of Long Island also have instituted bond programs of their own. In the 1990s, the western New York town of Pittsford authorized two consecutive $5 million bonds to fund its farmland protection program.

General Revenues - Other communities have set aside annual appropriations to pay for farmland protection projects by using current revenues. The town of Amherst has allocated funding for its projects in this manner, as has the town of Ithaca.

Real Estate Transfer Taxes - In 1998, the state legislature and Governor Pataki approved a law that allowed five towns in the Peconic Bay region of Long Island to establish individual community preservation funds. The proposed funding mechanism would create a 2 percent real estate transfer tax to apply to most high-end property sales. The tax, paid by the purchaser, is based on property value above a designated threshold.

In 1998, the proposed real estate transfer tax was approved by voter referendum in all five towns as a way to raise money for the protection of farmland and other resources. The money raised in each town through tax revenues will be used to purchase development rights on farmland, as well as protect other environmentally sensitive or historic properties. New York State approval will be required before local communities can increase the real estate transfer tax.

Public/Private Partnerships - Some municipalities have successfully used partnerships with private organizations to facilitate their PDR programs. In some areas, local land trusts, once formed primarily by conservationists concerned about vanishing habitat and open space, have been formed to tackle the challenges of preserving farmland. A private land trust can have the needed easement settlement and administration expertise that municipalities may lack.

For example, a land trust may play a key role in assembling PDR applications; holding, monitoring, and enforcing easements; managing the PDR program; or providing a portion of the local match as in-kind credit or in cash. In addition, land trust involvement may increase the incentive for farmer participation, since landowners who donate an easement or a portion of their property to a nonprofit land trust may receive a federal tax deduction, thus offsetting some of their capital gains tax liability.

Stewardship and Monitoring

When landowners sell or donate an agricultural conservation easement to the state, a municipality or a qualified nonprofit conservation organization, that agency or organization then 'holds' the easement.

The holder of an easement is obligated to monitor the land involved and uphold and enforce the terms of the agreement.

Though the New York State Agricultural and Farmland Protection Program provides funding to purchase development rights to farmland, New York State Department of Agriculture and Markets does not hold easements. It is often the town or county that holds the easement and therefore takes on the perpetual responsibility to monitor its conditions.

Known as stewardship, the process of holding and maintaining easements is an important consideration to any PDR program. Good stewardship will help ensure the perpetual nature of the easement. The municipality holding the easement should set up a system for administering, monitoring, and enforcing the easement terms. That involves creating baseline documentation, maintaining a good working relationship with the landowner, monitoring the property, and, if needed, addressing violations. In recognition of this permanent obligation and responsibility, project costs in the New York State Agricultural and Farmland Protection Program can include funding for stewardship expenses as part of the initial transaction for which state assistance payments are sought.

Integrating Farmland Preservation Tools into Conservation Toolkit

This section highlights the need for land preservation, evaluates the level of integration within local conservation tools, reviews key tools and programs, and identifies alternative funding sources.

Recognizing the Need for Preservation

There are countless economic and environmental benefits of land preservation, including improved water quality, better soils, better drainage, increased biodiversity, increased tourism, and increased land value due to open space. In Cattaraugus County, the general public recognizes that farmland protection is critical. Surveys were made available at the county fair and via Cornell Cooperative Extension and the Farm Bureau; 45 people responded. Survey responses from county residents indicated that 61.4 percent were "very concerned" over farmland loss. When asked what actions the county should address for issues facing farms, the answers that generated the highest response rates involved farmland protection: providing incentives for farmland to be protected, including tax incentives, and providing grants for farmland protection.

While the public and farmers all acknowledge the importance of farmland preservation, there are limitations in the county's ability to meet preservation goals. Some of the influencing factors have to do with human resources and development trends.

The county recognizes that town planners need dedicated training to advance knowledge on conservation tools. Additionally, there is a need for coordination among towns to implement conservation goals that are mutually supportive of broader conservation initiatives.

Development trends also make it difficult to fund traditional conservation programs such as purchase of development rights (PDR) or transfer of development rights (TDR). Cattaraugus County is faced with non-traditional development patterns, which has led to a bifurcated market. There is not a lot of new housing construction due to declining populations, and new construction tends to either be single-family detached units or multi-family attached units. The county is experiencing a declining tax base and a reliance on seasonal tourist activity, neither of which generates sustainable streams of funds. Also, except for a few towns, conversion pressure on agricultural or forest land is driven by the economics of industry or non-residential development pressure (recreation, energy, conservation), which adds more complexity to the planning process.

Despite these challenges, the county can strengthen the integration of farmland preservation into conservation strategies. There is an advantage to a lack of a rigid regulatory structure, as it can also allow for more modern or innovative approaches.

Integration with Comprehensive Planning

Zoning and local planning both seek to protect the natural resources of the region. Comprehensive plans are more expansive in scope and more collaborative with other ordinances than are farmland preservation plans.

A review of the most current comprehensive and zoning plans reveals that not every town in the county has one and that enforcement is varied. Currently, only 18 of the 32 towns have comprehensive plans or zoning plans, and only 16 of the towns have both as of September, 2020. The county also recognizes

that “many of these towns lack professional planning expertise to address issues economic development, zoning, and land use, transportation, agricultural support, and community revitalization.”

TOWN	COMP. PLAN	ZONING	SUBDIVISION	SITE PLAN	PLANNING BOARD
Allegany	Y	Y	Y	Y	Y
Ashford	Y	N	Y	Y	Y
Carrollton	Y	Y	N	N	Y
Coldspring	Y	Y	Y	Y	Y
Conewango	N	N	N	N	N
Dayton	N	Y	N	Y	Y
East Otto	Y	Y	Y	Y	Y
Ellicottville	Y	Y	Y	Y	Y
Farmersville	N	N	N	N	N
Franklinville	Y	Y	Y	N	Y
Freedom	Y	N	N	N	Y
Great Valley	Y	Y	Y	Y	Y
Hinsdale	N	N	N	N	Y
Humphrey	N	N	N	N	Y
Ischua	N	N	N	N	Y
Leon	N	N	N	N	N
Little Valley	Y	Y	Y	N	Y
Lyndon	N	N	N	N	N
Machias	N	N	N	N	N
Mansfield	Y	Y	Y	Y	Y
Napoli	N	N	N	N	N
New Albion	Y	Y	Y	N	Y
Olean	Y	Y	N	N	Y
Otto	N	Y	N	N	Y
Perrysburg	Y	Y	Y	N	Y
Persia	Y	Y	Y	Y	Y
Portville	Y	Y	N	Y	Y
Randolph	Y	Y	Y	Y	Y
Red House	N	N	N	N	N
Salamanca	N	N	N	N	Y
South Valley	N	N	N	N	Y
Yorkshire	Y	Y	Y	Y	Y
Total	**18**	**18**	**14**	**12**	**25**

There is also concern that the existing town plans have insufficient support for agriculture. Only three towns had a direct reference to the Right-to-Farm law and only four towns reference resource conservation within the comprehensive plans.

Towns must balance the complex needs of each community by creating regulations that support a range of community uses. Sometimes these uses may conflict, as is the case when the industrial conditions of agriculture, such as spraying or manure spreading, clash with the quiet enjoyment expected by residents. When this happens, normal business activities, such as plowing on dry days, might be a nuisance to residents. To help towns manage these potential conflicts, the NYSDAM provides guidance documents and a self-evaluation form to provide a framework for understanding how farm-friendly local regulations may be. The survey form can be found in Appendix 1-A.

Review of Tools and Programs

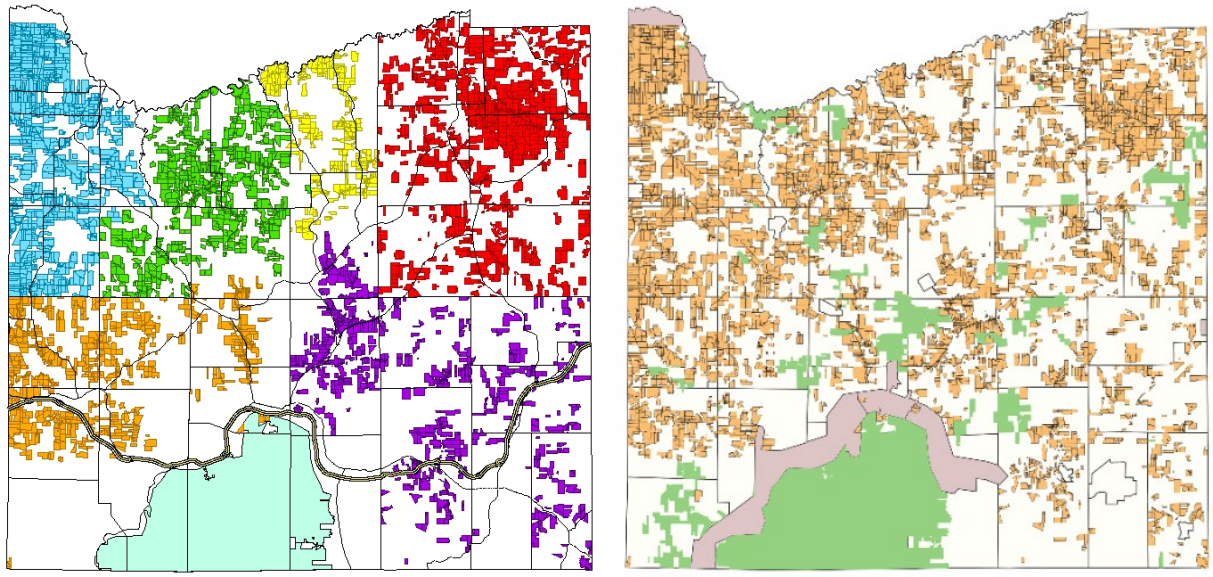
There are six mechanisms for Cattaraugus County to consider for preserving the county's remaining farmland: agricultural districts, right-to-farm laws, permanent conservation easements, a critical farm program, conservation subdivision regulations, and soil protection. Additional information about these tools and others can be found in American Farmland Trust's document Planning for Agriculture in New York. [18]

Agricultural Districts

New York State formalized its agriculture and farmland protection efforts in 1971 with the passage of the Agricultural Districts Law, under Section 308 of Article 25-AA. The law recognizes that, though agricultural land is one of the state's most important resources, non-farm development threatens farmland throughout New York. The law's purpose is to provide local, non-regulatory mechanisms for keeping land in agricultural production.

The Agricultural Districts Program is the primary farmland protection tool in Cattaraugus County. In 2016, the county merged its six agricultural districts into a single district representing the entire county. Currently, the county has 238,276 acres and 5,305 parcels belonging to the agricultural district. Also, 1,307 properties within the district have an agricultural exemption, while 241 properties outside of the district that have the exemption.

[18] http://www.farmlandinfo.org/planning-agriculture-new-york-toolkit-towns-and-counties



Caption: 2006 Ag District Map with six districts (left) and 2020 Ag District Map (right).

While the agricultural district is a long-standing and stable program, there are not many new parcel enrollments. Interviews with county staff and Farmland Protection Board members indicate that the program is well enrolled. Efforts to add new district parcels are a regular feature of the program with two new applicants in 2019 and seven in 2020. The agricultural district guarantees right-to-farm by protecting farmers from private nuisance suits as well as providing certain tax benefits as described in New York State Agricultural and Markets Law Section 300. Section 306 of the law makes it clear that these benefits are restricted to those farms enrolled in the Agricultural Districts program. The participation period is eight years and automatically renews, which does not provide the long-term preservation necessary to protect farmland. Where permanent conservation strategies are desirable, other tools and strategies must be employed.

Right to Farm

The state's Agricultural Districts Law also establishes right-to-farm protections, which strengthens the ability of farmers to defend themselves in a nuisance suit or dispute brought by a neighbor or local government. In 1995, the Cattaraugus County Legislature passed its own right-to-farm law. However, very few towns reference these laws in their planning and zoning ordinances.

Right-to-farm laws may also be used to shield farmers from excessively restrictive local laws or to ward off intrusive and unwanted public infrastructure. Right-to-farm provisions can improve the viability of farm businesses since a "farm-friendly" local business climate can allow farmers to invest more in the future of their operations. However, right-to-farm laws are not meant to shield farmers from all legal disputes with neighbors. Rather, the laws assert that a person who voluntarily moves into the vicinity of the nuisance activity (which is interfering with his or her enjoyment of the property) has no right to expect that a court would restrict such activity.

The Agricultural Districts Law now provides five types of right-to-farm protections for farm businesses:

- **Definition of Agriculture** – Requires the commissioner of NYSDAM to determine whether land uses are agricultural in nature.

- **Local Ordinance Provision** – Provides protection against laws that unreasonably regulate farm operations in agricultural districts.
- **Notice of Intent** – Requires analysis of proposed public projects that may impact farms in agricultural districts.
- **Sound Agricultural Practice Determinations** – Offers limited protection from private nuisance claims.
- **Disclosure Notices** – Informs property buyers about farming practices before they purchase property in an agricultural district.

Many notice-of-intent filings concern proposals to extend water and sewer lines into farming areas. These filings are so common that the Department of Agriculture and Markets has developed guidelines for water and sewer transmission mains located wholly or partially within an agricultural district. Three of the four guidelines relate to construction. They strive to minimize the disruption of farm enterprises, address soil compaction and erosion, and provide repair for any damaged agricultural drainage systems. The fourth guideline recommends that future water and sewer service be provided only to agricultural structures.

Permanent Agricultural Conservation Easements

As discussed earlier, conservation easements are voluntary legal agreements between a landowner and a land trust or government agency that permanently limits uses of the land to protect its conservation values. Agricultural conservation easements (ACE) restrict the future development of a property and preserves the land in perpetuity. ACEs permit agricultural production activity, reduce the property tax burden, and provide an immediate charitable donation tax deduction for landowners. The restrictions on the land can help farm operators and residents plan for their futures and protect prime farmland.

ACEs have many benefits in helping to anchor the land base associated with agriculture and do best when combined with active economic development support for agriculture to ensure that the industry persists alongside the land base. ACE programs are most effective when they use prioritization to target limited funds towards the highest and best uses based on important local criteria.

Priority criteria often start with the USDA Natural Resource Conservation Service Land Evaluation and Site Analysis (LESA) as the basis for evaluation (Appendix 1-B). This system can be modified to create a scoring system and priority preservation map that incorporates additional, locally significant evaluation factors. Those can include development pressure, road frontage, the presence of specialized agricultural assets, historical significance, special environmental conditions, and community and other important factors. Appendix 1-C specifies the ranking criteria and includes a priority farmland map.

While ACE programs are a cornerstone tool of agricultural protection efforts for many counties, participation in the Cattaraugus is low. Currently, the county has very few farms under conservation easements. According to the Census of Agriculture, only ten farm properties are under an easement. A key reason is the lack of active land trusts to hold these easements. Additionally, the general requirements for easement funding from New York State make it very difficult for new applicants in the county to be competitive in an easement application because individual farms have difficulty meeting the goal of 50 percent or more in Prime and Productive soils. Applications for small acreages also tend to be less desirable in the state competition, which impacts the many small farms in the county. However, pooling farms in a single application can be beneficial in overcoming some of these obstacles.

Critical Farms Program

Critical Farms Programs provide financial assistance in the form of emergency revolving credit for the acquisition of easements on farmland at risk of development, particularly when easements through traditional land preservation programs cannot be acquired promptly. There are two methods to accomplish this acquisition:

The purchase of an easement option can be quickly committed to preservation and provides intermittent or emergency funding to finance the acquisition of easements on critical lands. It can be put in place more quickly than the 12-to 18-month process it takes to enter existing easement programs. The lending authority or partner land conservancy would buy an option to purchase an easement from the landowner, acting as a legal agreement to place an easement on the property within a fixed time. When a permanent easement is placed on the land, the easement option is repaid to the Critical Farms Program, with the landowner retaining any excess funds received from the easement. If the easement is not sold privately during this period, the option contract automatically becomes a permanent agricultural conservation easement, which serves as the payment of the contract.

In-fee purchase and resale with easement enables the overseeing entity to purchase properties on the market and/or from interested sellers when the property is at high risk of being purchased for nonagricultural use. The property is then auctioned with an easement in place to a private buyer. This system can also prioritize the sale of productive farmland to individuals capable of managing a farming operation, thus bolstering farmland as well as agricultural activity in the county.

A technical assistance grant could be used to create a Critical Farms Program and allocate the revolving funding required for the success of the program. NYSDAM has an established Land Trust Grant Program, which provides $50,000 technical assistance grants to county agriculture and farmland protection boards. Such grants enable counties to identify the specific amount of funding required because funding requirements for Critical Farms Programs vary by market. Since these programs act as revolving loan funds, the principal value is expected to remain within the program. Given the security provided by outside funding for ACE, these tend to be low-risk endeavors and may fit well within an economic development loan fund.

Conservation easements through the Critical Farms Program effectively sell development rights to protect farmland from development permanently. While there is local interest in conservation easement programs, the principal challenges for Cattaraugus County farmers is funding availability for acquiring

development rights, and the presence of an entity willing to hold those easements. Because of this, farmers are left with fewer options for monetizing the underlying value of their farm land.

Conservation Subdivision Regulations

Subdivision regulations are put in place to conserve undivided, buildable tracts of land as open space. In subdivisions, development is grouped and limited to one portion of the tract to conserve as much open space as possible. These regulations must be consistent both with the zoning laws of the area as well as the comprehensive plan. Subdivision reviews are also critical in this process to ensure that development protects and enhances the environment and rural resources.

Cattaraugus County has a model conservation subdivision ordinance for local municipalities to use alongside existing subdivision ordinances. It allows communities to review and adopt cluster subdivisions that prioritize preservation and allow valuable open space to be identified early in the review process and set as aside as permanent conservation land.

The most significant barrier to conservation subdivision regulation in the county is that very few towns have the regulatory structure to implement basic land use controls (e.g. conservation subdivision, cluster development, zoning, etc.). Without a structure and sufficient staffing, it is difficult to employ these strategies and enforce compliance.

Soil Protection Through Mitigation

Quality soil is less likely to degrade, improves crop health, and benefits the environment by improving the absorption of water and nutrients, which minimizes soil loss and runoff. Furthermore, a higher level of organic matter in soil coupled with no-till farming practices reduces labor costs, machinery costs, and time requirements, thus resulting in an economic gain for the farm operator.

One way to protect these soils is through soil mitigation. In New York, the Agricultural District Law requires mitigation when land is taken by eminent domain for use as a landfill. The law was also amended to involve mitigating the impact of wind energy projects on farms by requiring the replacement or recovery of agricultural soils. These provisions help balance growth and resource protection that is meaningful at the parcel level.

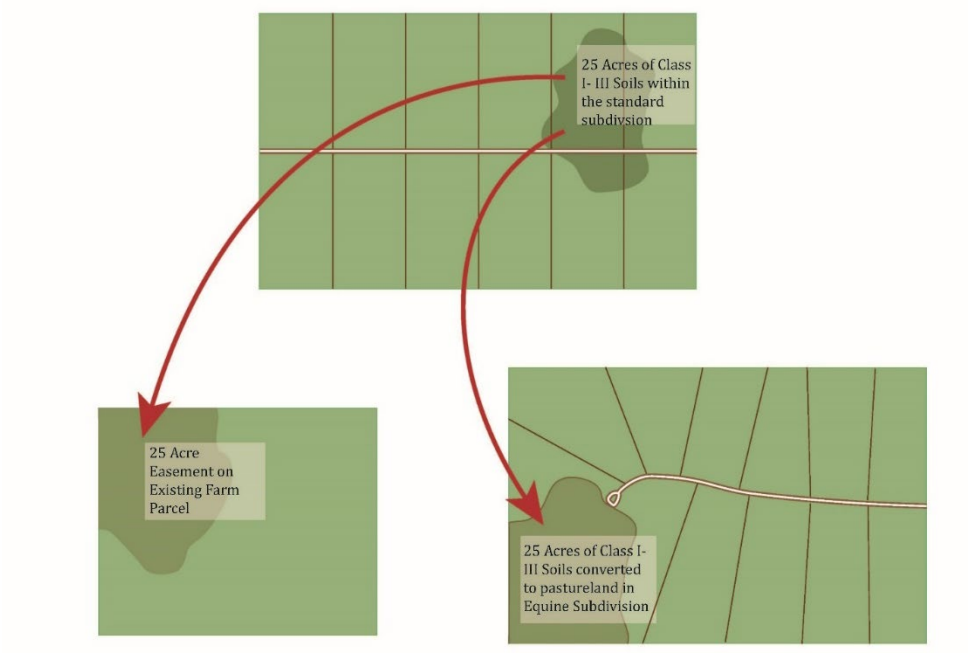


Figure 1: Soil mitigation technique

The most common mitigation method is based on the “no net loss” approach

used to protect wetlands. This approach to farmland protection, demonstrated in Figure 1, requires that towns adopt zoning and subdivision codes to replace lost high productivity soils with properties of equal size and productivity class within the development plan, elsewhere in the county, or pay a hefty fee-in-lieu. Mitigation programs create a privately funded market for the protection of high-quality agricultural soils.

The mitigation requirement should reflect the need to protect agriculturally significant concentrations of these soils by establishing a minimum soil concentration before the rule is initiated. Mitigation should ensure the protection of like-kind and like-quality soils and encourage banking within areas of concentrated agricultural production activity. Likewise, soil mitigation may target areas where land resources may need to be conserved to allow for climate change mitigation strategies such as expanded groundwater recharge, water impoundments, and water quality improvement projects.

Currently, the notion of soil mitigation in the county is often associated with mining or energy projects as well as large livestock operations that require nutrient management plans. Unfortunately, no towns have regulations to protect high-quality soils or mechanisms to offer mitigation and transfers.

Providing farmers with resources to protect or mitigate soils is valuable for the ongoing prosperity of the remaining farmland in the county, as well as the economic prosperity of individual farms. The county should encourage farm operators to take advantage of NRCS's conservation innovation grants through their Environmental Quality Incentives Program to continue to prioritize soil quality and thus ensure the longevity of their land. Additional resources are available from the Soil and Water Conservation District's Agricultural Environmental Management Program. Furthermore, the county can consider encouraging best practices for soil protection on currently unoccupied land, particularly in agricultural districts, to protect and preserve remaining soil.

Funding Sources for Land Conservation

Counties across the United States that have notable farmland conservation easement success have often committed significant local resources to fund the high costs of purchasing and managing easement programs. The impetus behind this type of aggressive funding activity is often the rapid increase in the cost of borrowing that a county faces due to rampant or uncontrolled growth. Such growth is often affiliated with uncontrolled service and capital costs. Land conservation is seen as a non-regulatory solution to growth control whose ultimate funding costs are less expensive than widespread infrastructure expansion, increased annual service demand, and the costs of higher interest rates from lower bond ratings. In these cases, counties may use bond funds to purchase hundreds of millions of dollars in easement acquisition within a short window of time while allocating annual funds to support annual easement evaluation for contract compliance that can cost hundreds of thousands of dollars more.

In cases such as Cattaraugus County's, there is no such impending need to fund easement acquisition. Easement acquisitions are more likely driven by a farm's need to extract value from the farm's assets to recapitalize or support retirement and transition. In these cases, funding needs tend to be more ad hoc and may change over time. Given the perpetual nature of conservation easements, the oversight and management of easements may outweigh the initial purchase price of the easement itself.

Some of the more common types of funding can be found in the list below. [19]

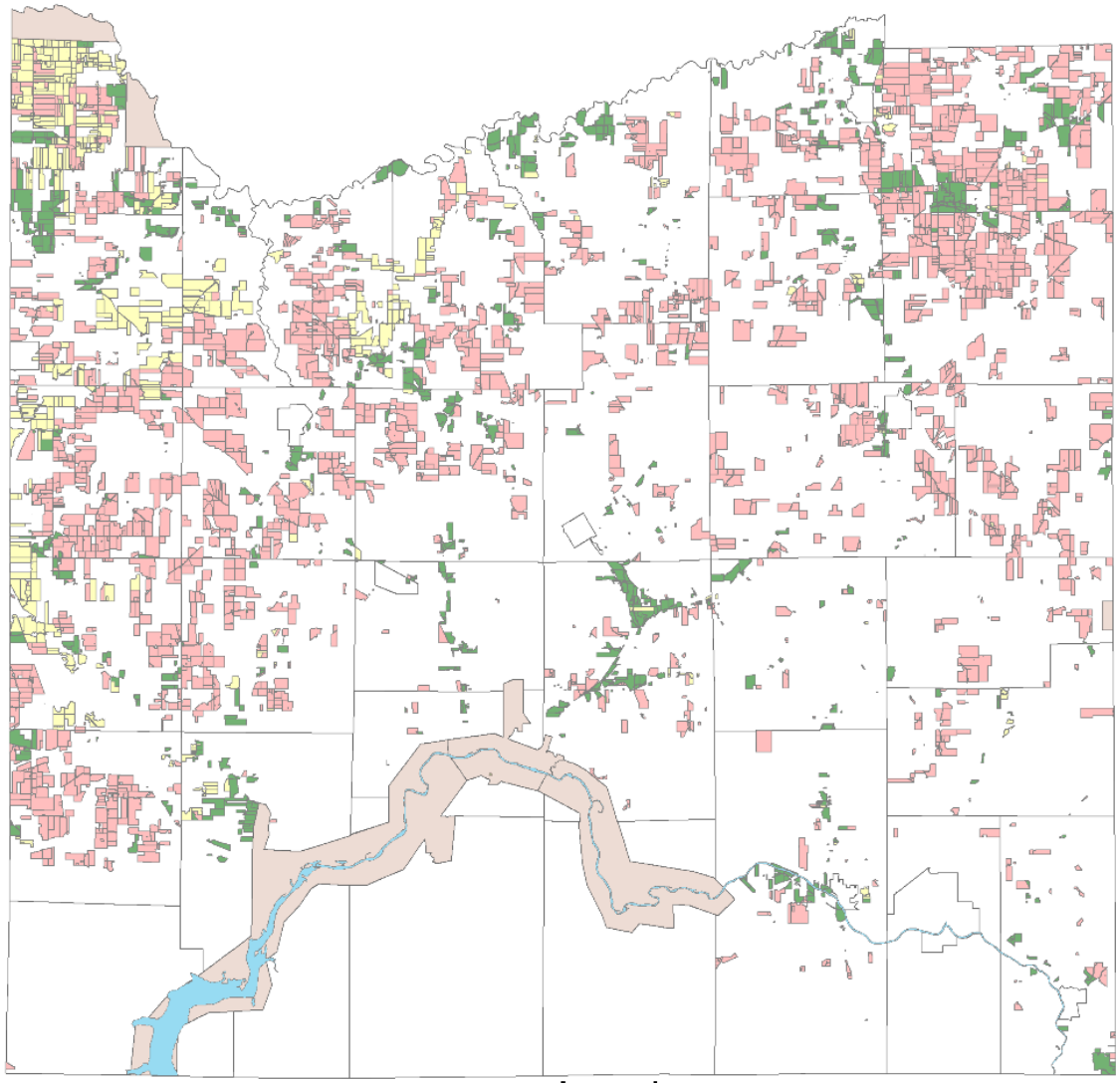
- Public
  - Federal
    - USDA – conservation grants
    - IRS – tax credits and credit syndication
  - State
    - Project bonding
    - General obligation funds
    - Special use funds
    - Lottery
    - Tax credits
  - Local
    - Project bonding
    - General obligation funds
    - Special use funds
    - Tradeable rights (enables private market in TDR)
    - Loan funds
- Private
  - Donation by landowner
  - Conservation easement purchase - Examples: Open Space Institute, Nature Conservancy, Ducks Unlimited
  - Tradeable rights – Examples: TDR, forest conservation and soil mitigation
  - Conservation Finance
    - Purchase leaseback - Examples: Equity Trust, Dirt Capital, Local Farms Fund
    - Investment trusts – TIMO and REIT

Lands to be Protected

The Cattaraugus County AFPB considered identifying individual parcels having high preservation value, and which would help retain farm viability in the county. Instead, a Land Evaluation and Site Assessment (LESA) system was chosen to prioritize farmland protection sites in a consistent and unbiased manner. These ranking tools are included in the Appendices.

[19] For more information: https://s30428.pcdn.co/wp-content/uploads/sites/2/2019/09/State_Purchase_of_Agricultural_Conservation_Easement_Programs_2018_AFT_FIC.pdf

Priority Farmland in Cattaraugus County, NY



Map Created by ACDS, LLC

Data Source:
Cattauragus County
Real Property Services
August 2020

Land Use Recommendations

Land use recommendations focus on policies and programs intended to increase farmland preservation while protecting working landscape activities and encouraging the flexibility for agriculture to grow into the future. Cattaraugus County has some limitations on existing land-use planning, especially at the town level. The following recommendations are meant to strengthen land-use policies across the county.

Recommendation 1: Expand Farmland and Forestland Protection Learning Opportunities for Land Owners, Farm Operators, Elected Officials, Town Staff, and Citizens At-Large.

Need: As identified in the land use section of the report, few of the county's 32 towns have existing land use plans or zoning codes that are designed to be specifically supportive of the agriculture, food, and forest products industries. Furthermore, ACDS found, through interviews and focus groups (https://www.cattco.org/2020-ag-plan-focus-group) that there is a low level of understanding about specific farmland and forestland protection tools across a broad spectrum of individuals ranging from farmers to elected town officials.

Improving the capability of municipalities, farmers, and forest operators to protect vital community and production assets will foster a better understanding and more robust application of common land-use tools. An example of where such an understanding can improve community results may be found in the recent solar farm proposals on high quality agricultural soils. With proper farmland protection planning at the town level, this conflict may have been foreseen and proper mitigation strategies could have already been in place. As a result, farmland protection goals at the county and local level would have been easier to achieve.

Description: Create short-form training programs that can be integrated into existing meeting structures, introduced as modules within existing EDPT training activities, or delivered online through the ccaghelp.com. Such methods will effectively enhance access to the training and education resources needed improve the application and utilization of the many existing farmland protection tools currently available at the community level.

To improve the above condition, the towns in Cattaraugus County are encouraged to develop town-level farmland protection plans using the NYSDAM grant program. To ensure that grant applications are properly submitted and documented, the AFPB and EDPT are encouraged to create a sample application. The county can also support the data and GIS mapping needs required in the application process, as well as supporting the data and necessary training needs that through the planning process when grants are awarded.

Actions: Separate actions are suggested based on the targeted group as follows:

1. Create convenient training protocols and quick reference guide materials for town officials.
    a. Develop training materials for town officials that coordinates training activities on issues of countywide significance with other town functions, such as Supervisors' Meetings.
    b. Create an online library of fact sheets about commonly used land-use planning, economic development, and conservation tools.
    c. Work with partners to create short training modules that can be delivered online.

    d. Support grant writing efforts at the town level to encourage the development of municipal Farmland Protection Plans.
        i. Develop sample application process.
        ii. Support application review and submittal.
2. Develop training protocols for periodic meetings of local officeholders.
    a. Create issues-based memoranda such as:
        i. Economic impact of agriculture, food, and forest-products industries.
        ii. Commonly used planning and economic development tools.
        iii. Current issues facing industry and community.
        iv. Understanding fiscal impact analysis.
    b. Conduct a tour of agriculture, food, and forest products businesses including issues-based discussions of critical issues.
    c. Develop summaries of all cost-share and public grant programs that benefit agriculture and forest land owners.
3. Conduct annual landowner training to increase awareness and understanding of programs and regulations affecting farm and forestry operations, such as:
    a. Intergenerational transfer planning
    b. Conservation program opportunities.
    c. Land use regulations application and changes.
    d. Alternative income opportunities.
    e. Financial planning and asset management.
    f. Forest land management.

Issue priority: High

Recommendation 2: Support Balanced Use of Onsite Commercial, Agricultural, Forestry, and Related Uses.

Need: Modern agriculture is increasingly vertically integrated and diversified. This is evidenced in the fact that 57 percent of farm families rely on nonfarm income for survival. When this revenue is farm-related, it often comes from business services, personal services, retail, and manufacturing activities.

Furthermore, land development pressures in Cattaraugus County are not consistently coming from the residential construction common in many other areas of the state, where traditional farmland protection tools such as conservation easements are employed. In the local context, conversion pressure is slower-paced and often comes in the form of alternative land uses such as surface mining, energy projects, commercial development, recreational activities, tourism, and/or value-added uses. While these uses provide a means to help farmers monetize their land base, they can conflict with the underlying farm activities, the intent of local land-use plans, or community context.

Description: To avoid complications from potential conflicts, this recommendation offers an approach to community and farm-level planning that will protect important community assets and private-use rights to assets such as Prime and Productive soils. The basis for the following actions is time-sensitive and focuses on the critical issues facing landowners and communities today while establishing a basis for allowing new uses as they present themselves. An example is an emergence of building product manufacturing that stems from hemp fiber processing.

Actions: The following actions are suggested to produce positive change and can be completed in a parallel fashion.

1. At the community level
    a. Engage a policy and planning intern from an appropriate planning degree program to identify best practices in town-level planning and zoning activities in:
        i. Wind power
        ii. Solar power
        iii. On-farm value added activities:
            1. Tourism activities
            2. Special events
            3. Manufacturing and processing
            4. Long term storage
            5. Mineral and forest products extraction
            6. Sales to include reselling of other farm and resource-based industry products.
    b. Conduct a review of performance zoning for above uses on resource-based industry lands prior to next comprehensive plan.
        i. Identify current best practices for performance zoning in NY.
        ii. Explore factual basis for performance criteria.
        iii. Identify model laws for nonurban uses of performance zoning.
    c. Update Right to Farm Ordinances to reflect above
2. At the farm level
    a. Provide technical assistance to landowners in evaluating new income opportunities for consistency with existing operations and compliance with local, state, and federal laws.
    b. Develop a moderated blog for information sharing between and among farms, related entities, and communities.
    c. Review consistency of proposed activities with town and county right to farm ordinances

Issue priority: High

Recommendation 3: Support Development of Capacity for Landowner Conservation and Related Funding and Development Activities.

Need: Landowners are very interested in more effectively monetizing their land assets through conservation easements, complimentary recreational opportunities, alternative energy projects, value-added manufacturing, and long-term leasing. Yet, these landowners often lack the resources and knowledge to fully participate in these opportunities. Furthermore, there is no single organization to assist landowners with the protection of farming and forestry activities, to serve as a partner in evaluating conservation-related activities, and to support easement acquisition, management, and monitoring.

As a result of this gap, there are few permanent agricultural conservation easements in the county, despite the interest. The vagaries of agriculture in Cattaraugus County, the distribution of Prime and Productive Soils and the strong interrelationships between forestry, recreation, and agricultural activities, make the skillset required to manage such an effort unique effectively. Because of this, it is difficult for larger national and regional conservancies to dedicate the resources necessary to succeed. The ACDS project team recommends that the AFPB, Farm Bureau, and the EDTP work with a conservation organization to create the necessary capacity.

Special consideration should be given to supporting the leasing needs of livestock and crop farmers and their landlords. According to interviews, farmers are increasingly relying on rented land to accommodate their needs for crop production and nutrient management. Many of these leases are informal, unstructured, and have short or undefined terms. From a farmer's standpoint, such leases create risk and uncertainty, particularly for CAFO operators, and may result in reduced investment in the type of capital assets and capital improvements that keep local farms competitive. Without properly structured leases, farmers and landowners will not make the necessary capital investments to maximize the return on the land, which in the long run may negatively impact equity value.

From the landowner's perspective, understanding complex legal documents is challenging, particularly where multifaceted, custom leases are required for both agricultural and nonagricultural (e.g., solar arrays) uses. The additional effect of not formalizing long term business relationships, as reported during interviews, is that when the land transfers due to changing life circumstances, the property often transitions out of agriculture without the opportunity for the farm operator to make a purchase.

Description: This recommendation is intended to support the transition of a conservation organization into a full-service working lands land trust. The services beyond those traditionally offered by a land trust would include one-on-one services to support long term leasing, intergenerational transition, alternative enterprise adoption, and similar activities that relate to economic and environmental sustainability. Southern Maryland Resource Conservation and Development offers a model of such services (https://www.somdrcd.org).

Given Cattaraugus County's rich natural-resource base, the organization that ultimately works with farmers must have a broad understanding of conservation programming in environmental areas such as species protection, wetland conservation, historic and cultural lands conservation, and working forests protection. The potential diversity of resources found on any single property means that proper organizational staffing and resources will be critical to success.

Actions: There are several straightforward processes required to initiate the program as follows:

1. Develop land trust business model
    a. Create mission and goals around supporting economic and environmental viability.
    b. Develop project evaluation criteria consistent with conservation funders requirements.
    c. Identify service area.
    d. Create outreach and marketing methodology.
    e. Develop easement monitoring strategy.
    f. Create financial management and resource development strategy.
    g. Create landowner services programs, e.g. form leases, whole farm planning and estate management.
2. Create alternative enterprise program based on learning, outreach, and cooperation
    a. Land-based energy systems
    b. Agri-tourism, recreation, and alternative farm enterprises
    c. Value chain development.
3. Create model easement document consistent with requirements to receive funding using NYS Environmental Defense Fund.
4. Develop fundraising team to support program creation, with data and mapping support from EDPT.

Issue priority: Moderate

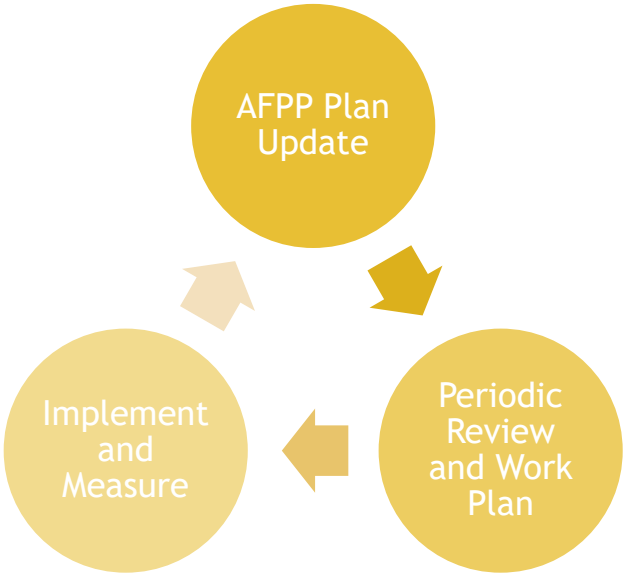
Implementing the Plan

Many elements of the AFPP update involve fundraising, education, training, and organizational development as prerequisites to program implementation. These activities will help form the underpinning structures that will support the enhanced conservation program participation, improved land use planning, enhanced farm income, new farmer development, and improved agricultural systems performance that Ag and Markets Law 25-AAA envisions as the proper and beneficial outcomes of this process.

Commitment to the organizational steps required can be difficult and time consuming. Because of this, they often require a dedicated committee of volunteers and paid staff to generate sufficient movement to carry the programs forward. Within the context of this plan, two land use recommendations and one agricultural development recommendation are considered prerequisite to truly achieving sound and long-lasting results. These three recommendations should be the focus of initial program development and fundraising activities:

- ***Agricultural Development Recommendation 1*** - Build on Existing Entrepreneurial Success By Creating a Cattaraugus County Rural and Resource-Based Industries Incubator.
- ***Land Use Recommendation 1*** - Expand farmland and forestland protection learning opportunities for land owners, farm operators, elected officials, town staff, and citizens at-large.
- ***Land Use Recommendation 2*** - Support development of capacity for landowner conservation and related funding and development activities.

The AFPP update provides a guiding vision for agricultural preservation and development in the county as well as a strategic direction for achieving those ends. Both the vision and strategy are based on long held community interests as well as the current economic realities of the agricultural and forestry industries. Over time, these conditions are likely to change in unexpected ways, which will necessitate amendments to the plan outside of the normal update cycle.



Developing a process to accommodate these changes is required to keep the plan relevant. ACDS recommends creating a subcommittee of the AFPB to conduct a bi-annual review of the AFPP, updating findings and recommendations. The team should then prepare a work plan for 1) amending findings and recommendations based on changes in the economy and land use conditions, and 2) implementing recommendations. At a minimum, the biannual work plan should include specific actions to be taken, a budget note, staffing requirements, and other information, as deemed necessary.

Budget Notes

Given the current economic downturn, it may be necessary for Cattaraugus County to cooperate with non-governmental agencies, farmers, foresters, agribusinesses, neighboring jurisdictions, and others, to positively influence the future of the industry. Necessary support will come in many forms, ranging from funding to technical and professional services. A memorandum will be supplied to the EDPT staff to provide a framework for developing these funding arrangements and partnerships on a recommendation by recommendation basis.

Land Use Appendices

Appendix 1-A: Farm Friendly Audits

Audit of Land Use Regulations (Zoning, Site Plan, Subdivision Regulations) in:_____

Ask this question…	Yes	No	Notes
1. Are farm stands limited to selling just products from that farm? Do they need a site plan review or special permit?			
2. Does zoning allow for accessory uses such as greenhouses, barns, garages, equipment storage, etc. permitted as of right?			
3. Do application requirements include asking for submittal of information or maps about farming that might be taking place on or near the project parcel? Whether it is in an agricultural district? What farming activities take place on or near the site? Whether prime farmland soils are present?			
4. Do standards exist that require the PB or ZBA to evaluate impacts of a project on agriculture?			
5. Do any design standards exist that direct building envelopes to areas on a parcel that would still allow farming to occur on remaining open spaces?			
6. Does the regulation define agriculture, ag structures, farmworker housing, agri-tourism, or agri-business?			
7. Are farm-related definitions broad and flexible and not confined to a certain number of acres or income earned?			
8. Are non-traditional or retail-based farm businesses allowed in a district or agriculture zoned district? For example, can a farmer set up a brewery on-site and sell products on-site?			
9. Does the community have a farmer sitting on their planning board?			
10. Is an Ag. Data Statement as per AML 25-aa required as part of an application for site plan, subdivision, special use or other zoning?			
11. Does the community require placement of an agricultural disclosure statement on plans or plats when development takes place in a NY certified agricultural district?			
12. Are any ag-related uses required to get a special use permit or go through site plan review?			
13. Does the regulation define and allow for farmworker housing? Are mobile homes allowed as farm worker housing?			
14. Are silos and other farm structures exempt from height requirements?			
15. Are personal windmills and solar panels allowed for farms? With permits or permitted as of right?			

Audit of Comprehensive Plan in: _____

Ask this question…	Yes	No	Notes
1. Does the plan have a section on agriculture?			
2. Does the plan include maps of agricultural lands, important farmland soils, agricultural districts, etc.?			
3. Was the plan based on public input that included questions or exploration about the role of agriculture in the community? I.e. did a survey include questions about agriculture? Was there anything in workshops about it?			
4. Does the mission statement or goals address agriculture in any way? Is there any visible demonstration of the value of agriculture to the community in the plan?			
5. Does the plan consider agriculture as an important resource in town?			
6. Does the plan recognize or reference a local or county agriculture and farmland protection plan?			
7. Does the plan include any data on farms and farmland? Income or occupations from farming or other demographic data?			
8. Does the plan establish policies towards farmland and farming?			
9. Does the plan identify the value of farmland and farms to the community?			
10. Does the plan offer any recommended actions related to farming or farmland or ways to preserve or enhance farming?			
11. Does the plan establish a policy and/ or future actions for the agricultural use of open space that may be created in a conservation subdivision or clustering?			
12. Does the plan discuss NYS Agricultural Districts and how the town can be supportive of those?			
13. Does it consider farmland a natural resource and encourage easements or other protections of that land? Is there a policy discussed for PDR, LDR, or TDR?			
14. Does the plan recommend growth in areas that are currently farmed? Does it recommend extension of infrastructure into core farm areas? Is agriculture a consideration of where growth does or does not take place?			

Appendix 1-B: Land Evaluation and Site Assessment

The National Resources Conservation Service (NRCS) division of the U.S. Department of Agriculture (USDA) developed a Land Evaluation and Site Assessment (LESA) system. It analyzes soil productivity and social, environmental, and economic factors to help in formulating policy and make land-use decisions.

Developing a LESA system for Cattaraugus County is straightforward. It will help the Agriculture and Farmland Protection Board effectively target land with the highest need for protection, inform zoning ordinances for the long-term continuation of agricultural use, prioritize sites for land conservation programs (such as a Critical Farm Program, conservation easements, etc.), and identify land of lesser agricultural importance for other types of development. LESA systems can also be applied to forestlands in the County.

LESA uses a two-part evaluation system - Land Evaluation (LE), and Site Assessment (SA) - that assigns values and weights to relevant factors in land use and development, such as soil quality and other factors affecting a site's agricultural significance.

The steps for creating a LESA system are listed below, as outlined by NRCS' LESA Guidebook:

1. Appoint a LESA committee in your jurisdiction.
2. Specify one or more factors measuring soil quality for the Land Evaluation component.
3. Specify another set of factors relating to non-soil site conditions for the Site Assessment component.
4. Develop a rating scale for each factor.
5. Assign weights to each of these factors.
6. Tally the weighted factor ratings to obtain LESA score.
7. Prepare score threshold for decision-making.

LESA Committee

While creating the committee, it is imperative to include a wide range of representatives to create a comprehensive LESA system. The committee should include individuals including county officials, farmers, soil and water experts, Agricultural and Farmland Protection Board members, and agricultural business owners. Local official support is important for political legitimacy and to inform policy and influence land-use decisions. Furthermore, it is suggested that someone with LESA training - or at least knowledge - be included to support the development and execution of the system.

Once formed, the committee should assess potential users and applications of the system to identify the needs and to understand the applications for which the system will be used. This assessment can inform the funding, staffing, and policy requirements to create a system that benefits all potential users. The committee will also be tasked with defining the factors and weights, conducting a field test of the system to ensure its accuracy, and proposing thresholds for decision-making.

The selection of factors and establishing their respective ratings and weights is an important task for the committee. The factors will depend on policy objectives, user demands identified in the user assessment, and time (and budget) constraints.

Land Evaluation

The land evaluation (LE) portion rates the soil qualities of a site for agricultural use. It needs to be based on the best available data to provide the most accurate depiction of the land. Soils data can be found through NRCS and the Soil and Water Conservation District. These entities should also participate in ranking the data for productivity.

For Cattaraugus, the *Soil Survey of Cattaraugus County, New York* published by the USDA's Soil Conservation Service in cooperation with Cornell University Agricultural Experiment Station, will be a useful, albeit outdated, tool in providing data to inform Land Evaluation criteria. Additionally, the web soil survey through NRSC has more updated soil data that can be used as a data source.

There are four types of land classification systems commonly used for land evaluation that can be used in the LE component, outlined below in the order of most to least detail.

Soil Potential Ratings

Rate each soil mapping unit based on its yield potential for specified indicator crops and include the costs of overcoming soil limitations. This rating system considers revenues associated with soil's productivity as well as the costs associated with managing soils to achieve desired productivity levels. This system enables planners to consider the economic value of soils to farmers after soil limitations are overcome.

Soil Productivity Ratings

The use of estimated yields for specified indicator crops, as reported in soil surveys, to provide a measure that considers Cattaraugus County's agricultural industry from a soil productivity standpoint. This system does not consider the costs of soil management.

Land Capability Classification

This USDA classification system groups soils based on risks of damage to soils by agricultural use and identifies the limitations for agricultural use inherent in the soils in each area. Naturally, the fewer the limitations, the more suitable the soil is for agriculture. The Soil Conservation Services used this classification system in Cattaraugus' 1992 Soil Survey, attached. This existing resource is an excellent source of information for Cattaraugus' LESA system, although more updated information might be beneficial.

Important Farmlands Classification

Use the national criteria for defining prime and unique farmland to consistently compare Cattaraugus County's farmland with farmland in other areas and to monitor losses to conversion. These broader categories may result in a loss of distinction between soil types and is not recommended for Cattaraugus County.

Factors and Weights

The most important consideration for the LE component is choosing the appropriate factors to assess. Soil productivity ratings and land capability classifications are the most readily available information and are therefore the most useful in a time-sensitive and resource-constrained process. Factors should be assigned correlating weights (between 0 and 1.0) that depict the factor's importance to Cattaraugus County. The weights will consider the results from the user assessment, policy objectives from the county, and will take into consideration land use and zoning laws. In the case of Cattaraugus County, forestry soil types should be weighted positively.

Because Cattaraugus is a large county with over 100 soil types, a simple LE model, such as the land capability classification system, may be the most effective. However, the land capability classification system does not internalize the costs of soil limitations, and should, therefore, be coupled with soil productivity ratings, or, if possible, soil potential ratings, to capture both soil and yield potential. Soil productivity ratings can be developed with the help of NRCS if the Committee can provide yields, gross

returns, management costs, and net returns of prominent crops in Cattaraugus County, which includes forage (hay, haylage, grass silage, greenchop), corn for silage, corn for grain, soybeans, and oats.

Table 34. Top Crop Acres

	2012	2017
Forage	51,041	41,888
Corn Silage	14,035	10,090
Corn Grain	9,105	7,699
Soybeans	2,964	3,420
Oat	1,678	1,099

SOURCE: USDA CENSUS OF AGRICULTURE

Once the factors are chosen, the Committee must scale them by assigning values between 0 to 100 to each unit of the land classification system. The Soil and Water Conservation District has likely already compiled a list dividing soils into ten subgroups through their Soil Group Worksheets for property tax purposes. Using this list, it is possible to calculate the net return of each soil group by subtracting production costs and the costs of initial and continuing limitations from gross returns. Then, the soil with the highest net return would be set to equal to 100 and set against the following scales as a percentage of the highest net return for each soil subcategory. See Table 4.2 from the LESA Guidebook as an example.

Table 4.2. Land Evaluation for Latah County, Idaho

Ag. group	Capability class	Farmland importance	Productivity index	Percent of ag. soils	Thousands of acres	Factor scale
1	IIe	Prime	100-82	2.8	13	100
2	IIIe, IIIw	Prime	82-71	5.4	25	82
3	IIIe	Statewide	82-71	21.3	102	76
4	IIIe,IVe	Other	71-65	8.8	42	62
5	IVe,IVw	Statewide	65-47	8.8	42	52
6	IVe,IVw	Other	71-47	16.3	9	49
7	IVe	Other	53-47	2.0	9	43
8	IIIw,IIIe,IVe	Statewide	39-25	4.0	19	38
9	IVe,VIe	Other	39-25	7.8	37	36
10	VII	Other	No crop	22.8	107	0

Source: Stamm et al., 1984.

Site Assessment

Site Assessment (SA) factors are grouped into three categories, below. Like the LE portion, each factor is to be assigned a scale.

- **SA-1** measures characteristics other than soil that are related to agricultural productivity or farming practices. Examples include:
    - Size of site
    - Compatibility of adjacent uses
    - Shape of site
    - Percentage of site in agricultural use
    - Percentage of site feasible to farm
    - Environmental limitations on agricultural practices
    - Availability and reliability of irrigation water.

- **SA-2** factors measure development pressure on a site, such as:
    - Land use policy designation
    - Percent of surrounding land in urban and rural development
    - Distances to public sewers, public water
    - Distance to urban growth boundary, to urban feeder highway
    - Distance to protected farmland
    - Pressure from energy use conversion.
- **SA-3** factors measure other public values, such as historical, environmental, scenic, or cultural, of a site, such as:
    - Open space value of a site
    - Wildlife habitat
    - Wetlands and riparian areas
    - Educational value of site
    - Floodplains protection.

To create the most informative LESA system, a combination of the three-factor groups should be represented. However, including various factors from all three groups is time- and labor-intensive. If time and budget constraints require a more direct approach, it is suggested that Cattaraugus County uses a combination of LE + SA-1, with the following factors: size of the site, compatibility of adjacent uses, the percentage of the site in agricultural use, environmental limitations to agricultural practices, and percentage of site feasible to farm.

Like the LE component, each SA factor is assigned a correlating weight between 0 and 1.0 to demonstrate its importance. For example, in preserving agricultural land, compatibility of adjacent land uses might be of more importance for this purpose than the availability of water. In this case, the former would have a higher weight than the latter.

Because Cattaraugus County has over 100 soil types, each site must represent the average of the soil types by proportionately weighing each soil type on the site, as shown below.

Table A.1. Calculating LE weighted factor ratings for sites with more than one soil using land capability, soil productivity, and important farmland groups.

Soil name	Factor rating (0-100)	X	Factor weight	=	Weighted factor rating	X	% of site (fraction)	=	Site partial rating
Soil A									
Land capability	65	X	0.20	=	13.00				
Soil productivity	60	X	0.15	=	9.00				
Important farmland	75	X	0.15	=	11.25				
Soil A subtotal					33.25	X	0.50		16.63
Soil B									
Land capability	92	X	0.20	=	18.40				
Soil productivity	90	X	0.15	=	13.50				
Important farmland	100	X	0.15	=	15.00				
Soil B subtotal					46.90	X	0.50	=	23.45
LE subtotal (add partial site ratings)									40.08

Cattaraugus County has competent GIS capability to the parcel level that defines soil types, agricultural districts, flood zones, and wetlands, which will be incredibly useful in both defining parcel sizes and identifying soil types, which should aid in this exercise. The committee will still be tasked, however, with defining the rating and weight of each factor, as well as identifying the factors themselves. Again, these factors will be determined by policy objectives, the user assessment, and resource constraints.

Decision-Making Applications

For the system to be useful, the committee must develop thresholds for the results of LESA. For example, thresholds can be established to prioritize land parcels for farmland protection projects. The developers of LESA recommend that multiple thresholds be established: thresholds for individual factors, as well as total LESA scores. If multiple thresholds are established, the LESA system can be more versatile in that it can be applied to multiple end-uses. The specific objectives of Cattaraugus County will determine the thresholds.

Using LESA

The proposed LESA system should be tested before being implemented on a wide scale. Special attention should be made to SA factors to ensure the factors play a significant role in the objective of the LESA system, which, among other potential objectives based on the user assessment, should be the preservation and protection of farmland. Furthermore, it is important to eliminate factors that are redundant to ensure the most efficient use of resources.

Setting up a LESA system takes three to eight months, and it is advised to have an NRCS staff member to assist with the technical aspects of the Land Evaluation component. The LESA committee would be responsible for decisions about factor selection, scaling, and weighting, as well as identifying costs for overcoming soil limitations.

When developing a LESA system for Cattaraugus County, it is important to realize the limited prime and productive farmland that the county has, as well as the widely dispersed nature of these soils. Table 1, attached, demonstrates the lack of prime farmland, and therefore of prime and productive soils. A LESA system tailored to Cattaraugus County can be an excellent tool in identifying prime and productive farmland to achieve the desired result of protecting farmland to ensure the future of agricultural productivity for generations to come. However, it is likely to produce relatively few target properties based on soils criteria and parcel unless other, more subjective, factors are more heavily weighted.

Appendix 1-C: Prioritizing Farmland for Conservation

Given the expense associated with permanently protecting farmland, it is strongly advised that any jurisdiction using public funds to invest in permanent conservation to develop a framework evaluating and ranking properties. The results of such a process typically yield a scoring sheet, such as the example provided on the following pages, and a spatial representation of priority target areas (Priority Farmland Map), based on the scoring criteria.

The process of designing the prioritization framework starts uses the NRCS LESA system as the initial guiding principles to ensure that the evaluation is process-oriented and based on quantitative measures and limiting the impact of purely opinion-based factors. This will allow the Agriculture and Farmland Protection Board to engage in a structured and collaborative process of reviewing applications and assisting the engaged stakeholders in negotiating an outcome that supports the continuation of profitable agriculture in Cattaraugus County.

To be successful, the framework should be:

- Simple – Constructed with the minimum criteria to make fast and effective decisions.
- Adaptive – Subject to periodic review and update to reflect changes in the community structure or agricultural industry.
- Flexible – Sufficiently modular to incorporate site or community features that may need to be substituted within the evaluation to allow proper scoring.
- Explicit – Clearly written so that it can be interpreted by all stakeholders.

The framework should incorporate sufficient analytical measures to allow the base criteria to be evaluated using available GIS layers to highlight areas that may be under the highest threat. Such criteria may include:

- Measures of conversion pressure
- Protection of environmental areas
- Preservation of highly productive, or unique soils
- Concentrations of preserved areas
- Location of critical infrastructure.

Incorporating these and other features may allow the AFPB to run scenarios through the county GIS system to determine which areas are under the greatest conversion pressure and therefore deserving of conservation funding. The goal, in this case, can be defined as generating the highest value of farmland conservation within the fixed limits of the human and financial capital available.

Sample criteria and a Cattaraugus County priority farmland map follow.

Sample Ranking Criteria

10 questions; maximum

1. Is the parcel in a "**priority farm area**"?

- ☐ >1,000 – 10 points (block #1)
- ☐ 750 – 999 acres – 8 points (block #2)
- ☐ 500 – 749 acres – 6 points (block #3)
- ☐ 300 – 499 acres – 4 points (blocks 4 & 5)
- ☐ <300 acres – 2 points (block #6)
- ☐ No core farm area – 0 points

Explanation: Large clusters of working farms have the conditions and support systems that are likely to maintain agriculture in the long-term.

Note: see the "sample priority farm areas" map.

2. What is the **size of the farm property** (or properties)?

- ☐ More than 200 acres – 10 points
- ☐ 151 – 200 acres – 8 points
- ☐ 101 – 150 acres – 6 points
- ☐ 51 –100 acres – 4 points
- ☐ 26 – 50 acres – 2 points

Explanation: Preserving large farm properties helps to retain more land for agriculture.

3. What percentage of the **farm property is actively being farmed** or used for agricultural purposes (such as field crops, pasture, row crops, orchard, managed timber, etc.)?

- ☐ 80% or more – 10 points
- ☐ 60% to 79% – 8 points
- ☐ 40 to 59% – 6 points
- ☐ 20-39% – 4 points
- ☐ Less than 20% – 2 points

Explanation: Lands actively being farmed are a good indication of the percentage of the land available for agriculture in the future.

4. Does the parcel receive an **agricultural exemption** or is it within an **agricultural district** (or to be included upon district revision)?

- ☐ Yes – 10 points
- ☐ No – 0 points

Explanation: Participation in the agricultural district implies that there is some level of commitment to agriculture on the part of the landowner (even if temporary).

Agricultural district number (if applicable): _____

5. How much of the farm property contains **prime farmland soils** (as designated by the USDA)?

   - ☐ More than 80% of the property contains prime farmland soils – 10 points
   - ☐ 60% –80% of the property contains prime farmland soils – 8 points
   - ☐ 40 – 59% of the property contains prime farmland soils – 6 points
   - ☐ 20 – 39% of the property contains prime farmland soils – 4 points
   - ☐ Less than 20% of the property contains prime farmland soils – 2 points

Explanation: According to the USDA, "Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods." *U.S. Department of Agriculture, Natural Resources Conservation Service, 2007. National Soil Survey Handbook, title 430-VI. [Online] Available: http://soils.usda.gov/technical/handbook/.*

6. How would you characterize the level of **on-farm investment** (barns, storage buildings, fruit trees, processing equipment, etc.)?

   - ☐ High level of on-farm investment – 10 points
   - ☐ Average level of on-farm investment – 6 points
   - ☐ Low level of on-farm investment – 2 points

Explanation: The level of investment in on-farm equipment is one indicator of the farm's ability to survive into the near future

7. Is the farm a "**Bicentennial Farm**" or "**Century Farm**" as designated by New York State Agricultural Society or locally?

   - ☐ State designated bicentennial farm – 5 points
   - ☐ State designated century farm – 4 points
   - ☐ Locally-known century farm – 3 points

Explanation: Farms with a history of family ownership are often deeply rooted in the community and likely to remain into the future.

Notes: A bicentennial farm is one in operation by the same family for 200+ years. A century farm is one in operation by the same family for 100+ years.

8. Does the farm have **community ties and/or visibility** (CSA, farmstand, farm market, agri-tourism opportunities, or similar)?

   - ☐ Yes – up to 5 points
   - ☐ No – 0 points

Explanation: People may be more likely to support local agriculture when they have a connection to the land that grows their food.

9. Are conservation practices or low-impact farming practices such as the use of buffers, conservation tillage, crop rotation, or nutrient management practiced on the farm?

- ☐ Yes – up to 10 points
- ☐ No, but landowner has agreed to integrate conservation practices into this
- ☐ conservation project – 5 points
- ☐ No – 0 points

Explanation: The use of conservation practices in agriculture helps to balance the protection of agricultural lands with the protection of natural resources.

10. What is the likelihood that this farm will continue to remain a farm in the future (next 20 years)?

- ☐ Highly likely – 10 points
- ☐ Moderately likely – 6 points
- ☐ Unsure or unlikely – 2 points
- ☐ Very unlikely – 0 points

Explanation: The goal of farmland preservation is to maintain the best farmland for food and other crops into the future. This is a discretionary judgment based on many factors, including the farm ownership and generational transfer opportunities, level of investment in the farm, surrounding development pressure, etc.

11. Is this farm a primary source of income for a farmer?

- ☐ Farm is owner-operated and serves as a principal source of income for the owner -10 points
- ☐ Farm is leased to a farmer that generates a principal source of income from the farm - 8 points

Explanation: Farms that serve as a primary source of income for a farmer are an indication of commitment to agriculture. They are also important to the economy.

Points sum: _____

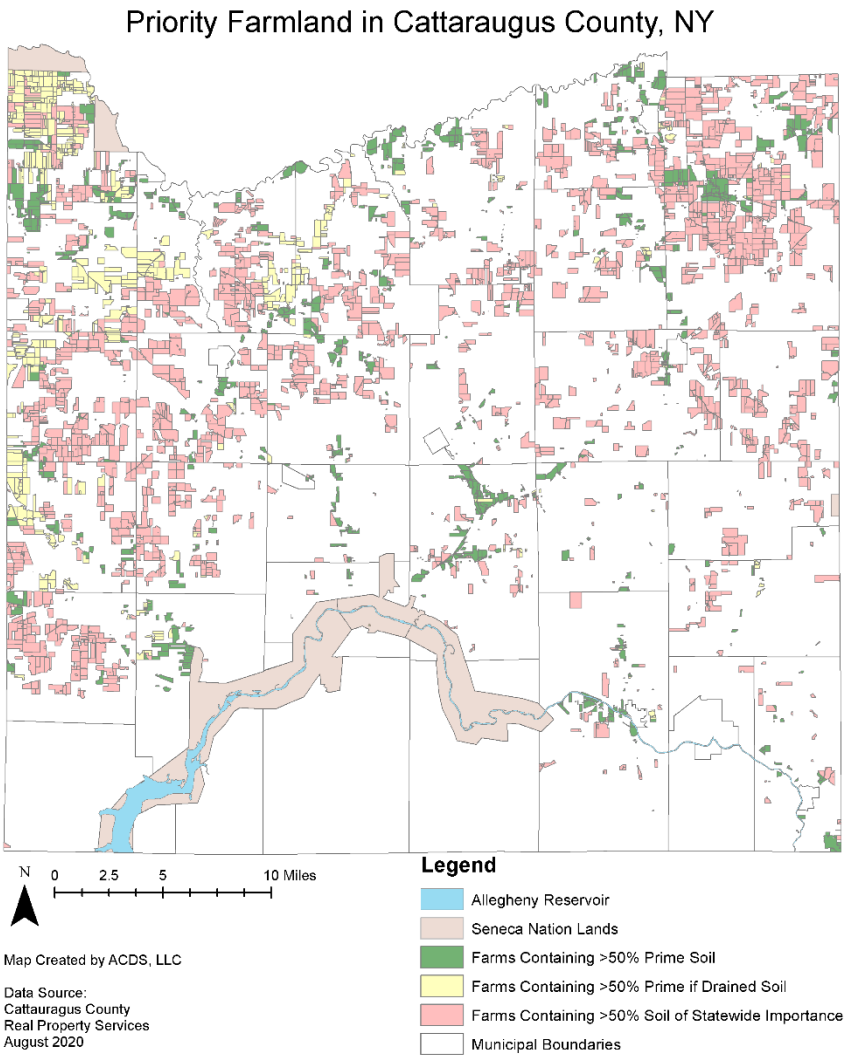
Maximum Score = 100 points

NOTE: The map on the following page highlights farms that have more than 50% soils listed as Prime and Productive by corn productivity class or are of statewide importance. Parcels highlighted are either over 100 acres as a stand-alone property; or meet the same soil criteria, are 25 acres or larger, and adjacent to protected lands.

Target Areas for Protection in Cattaraugus County

The following is a preliminary map that outlines the priority farmland in Cattaraugus County. It is based on these criteria:

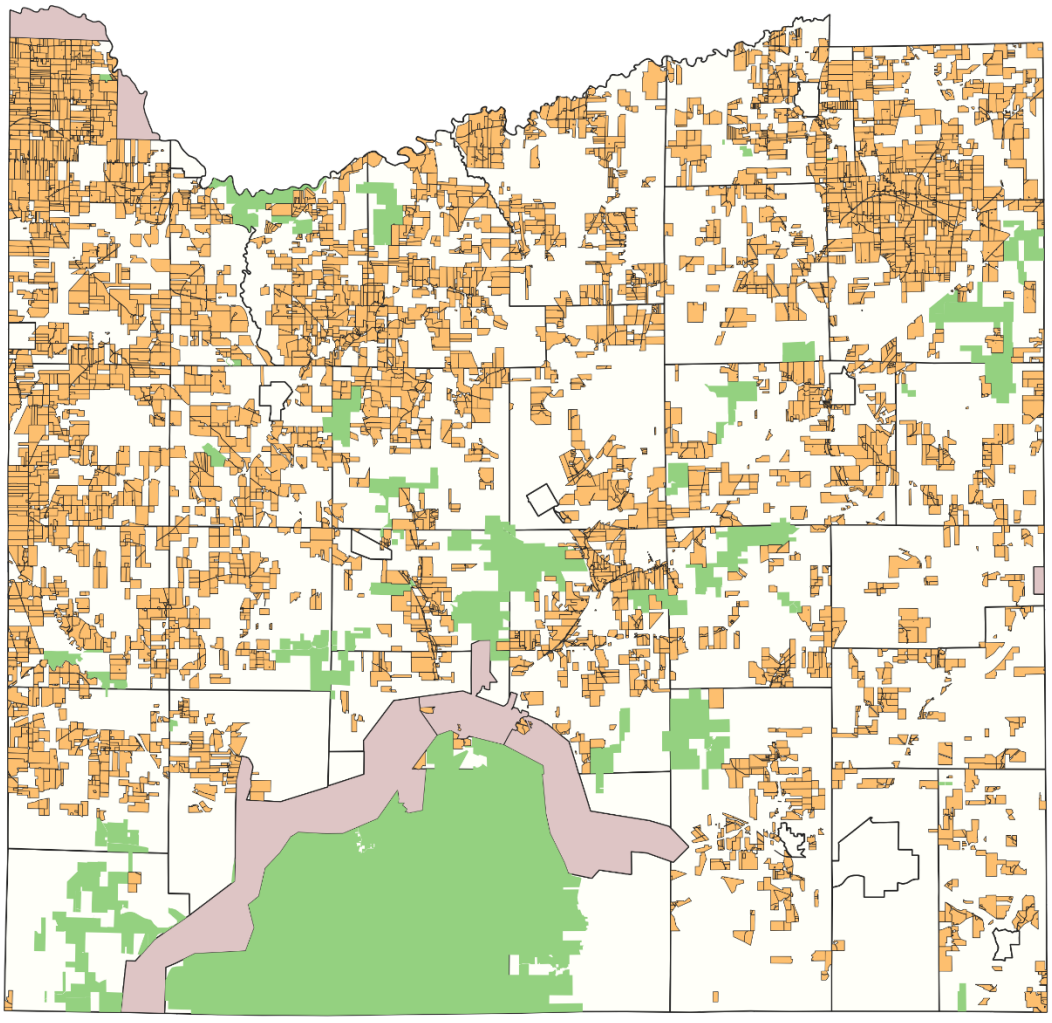
- Parcels in the agricultural district
- Agricultural parcels that are greater than 100 acres
- Agricultural parcels with more than 50% of the soils being classified as prime, prime if drained, soils of statewide importance.



The following table indicates the number of acres and parcels that meet the criteria.

USDA Soil Classification	**Acres**	**Parcels**
Prime	23,575.36	1,134
Prime if Drained	19,632.96	577
Statewide Importance	107,116.72	2,303

Cattaraugus County Agricultural District



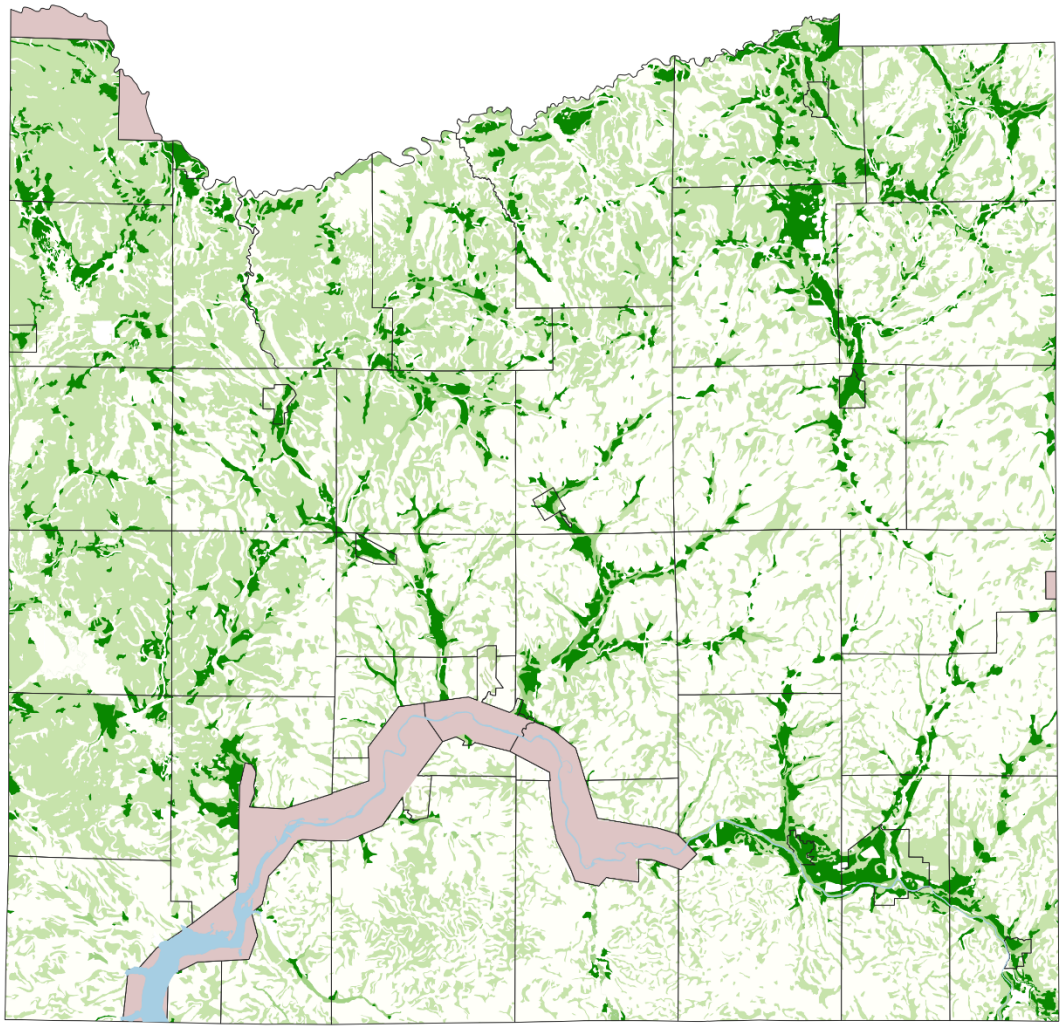
0 5 10 mi

Map Created by ACDS, LLC

Data Source:
Cattaraugus County
Real Property Services
August 2020

Legend
- Agricultural Parcels
- State Recreational Land
- Seneca Nation Lands
- Municipal Boundaries
- Major Roads

Cattaraugus County
New York State Soils Classes



0 5 10 mi

Map Created by ACDS, LLC

Data Source:
Cattaraugus County
Real Property Services
August 2020

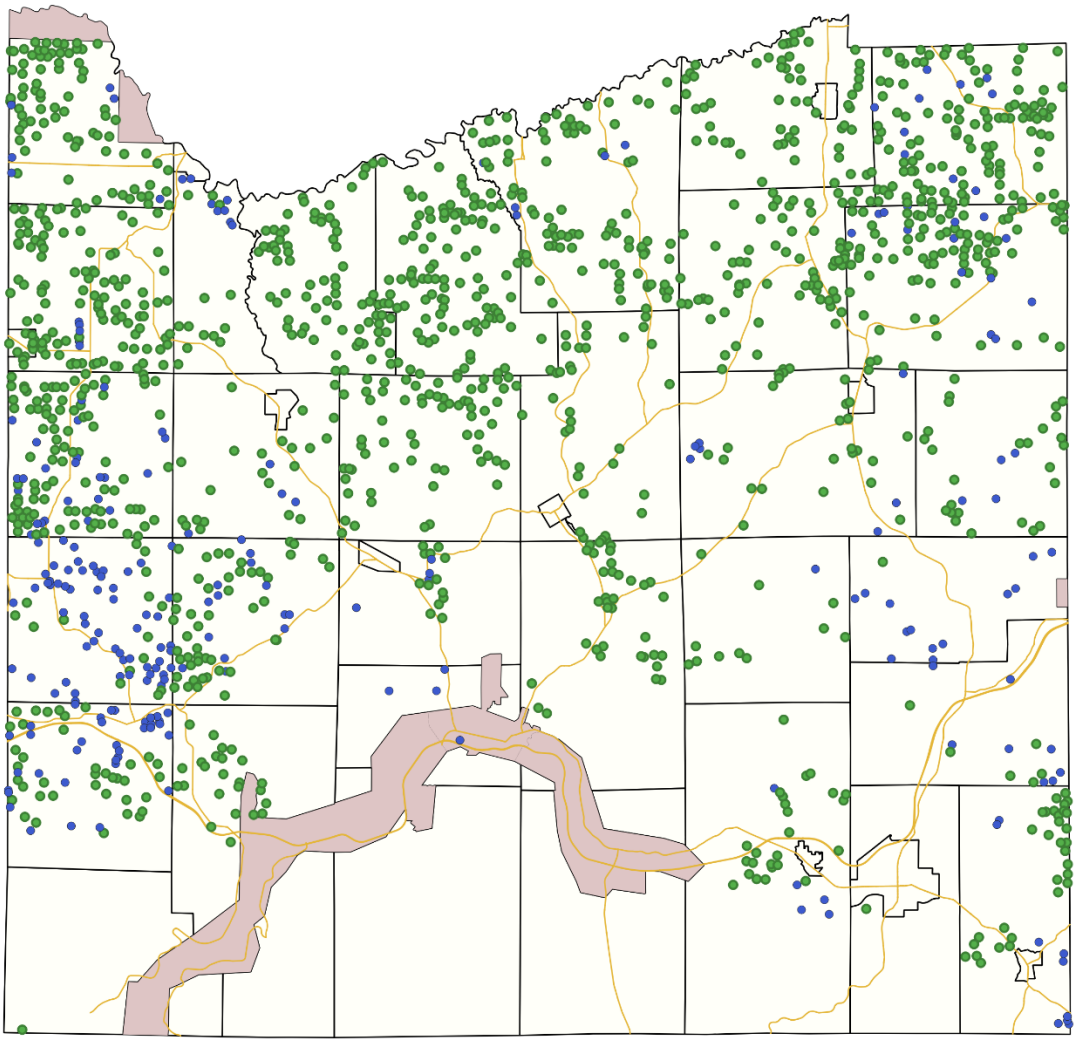
Legend

- Municipal Boundaries
- Allegheny Reservoir
- Seneca Nation Lands

NY State Soils Class

- Good
- Normal
- Poor

Parcel Points with an Agricultural Exemption



0 5 10 mi

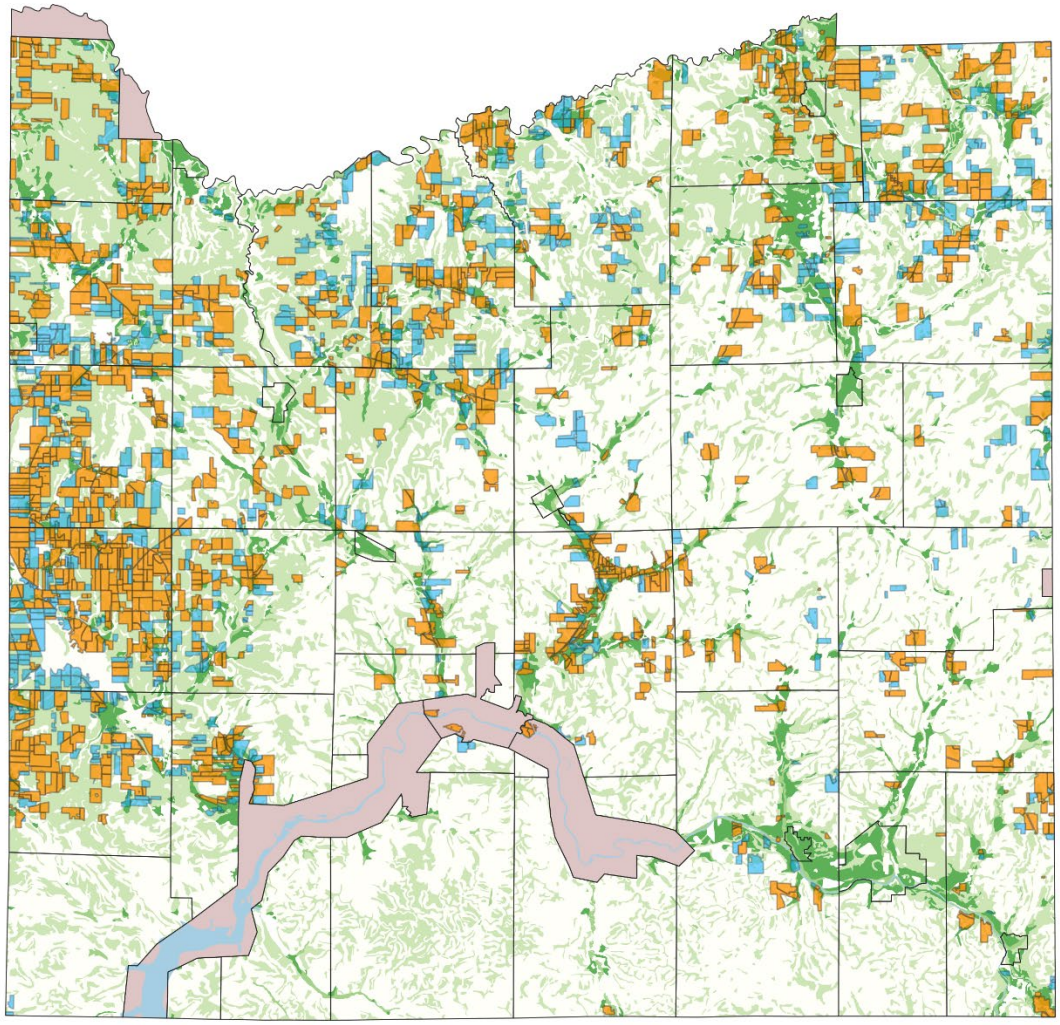
Map Created by ACDS, LLC

Data Source:
Cattaraugus County
Real Property Services
January 2020

Legend

- Inside District (1,307 properties)
- Outside District (241 properties)
- Major Roads
- Seneca Nation Lands
- Municipal Boundaries

Cattaraugus County
Active & Vacant Ag Parcels



0 7.5 15 mi

Map Created by ACDS, LLC

Data Source:
Cattaraugus County
Real Property Services
August 2020

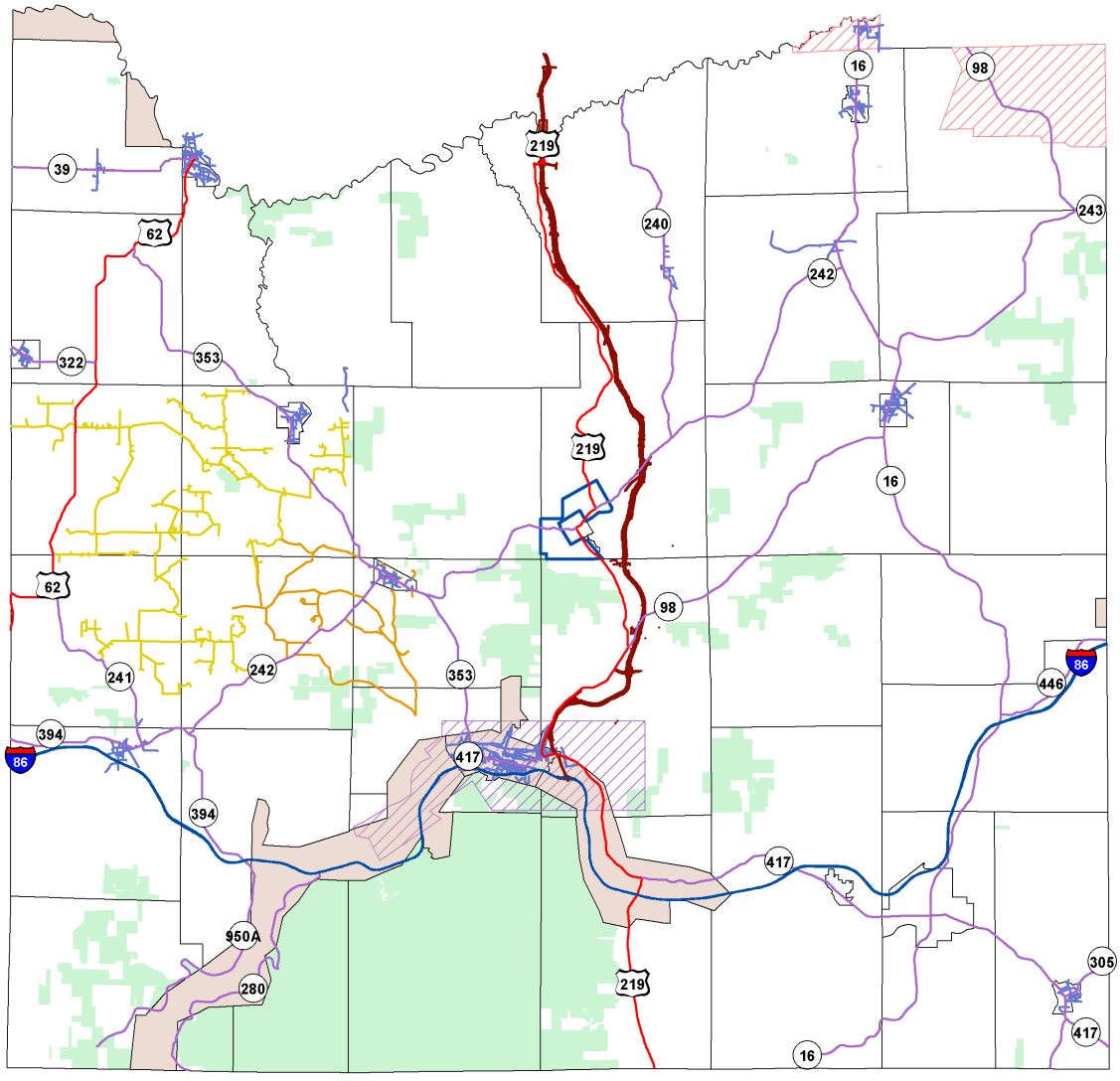
Legend

Seneca Nation Lands

Ag Parcels
Vacant
Active

NY State Soils Class
Good
Normal
Poor

Partial Infrastructure & State Recreation Lands



0 5 10 Miles

Map Created by ACDS, LLC

Data Source:
Cattaraugus County
Real Property Services
August 2020

N

Legend

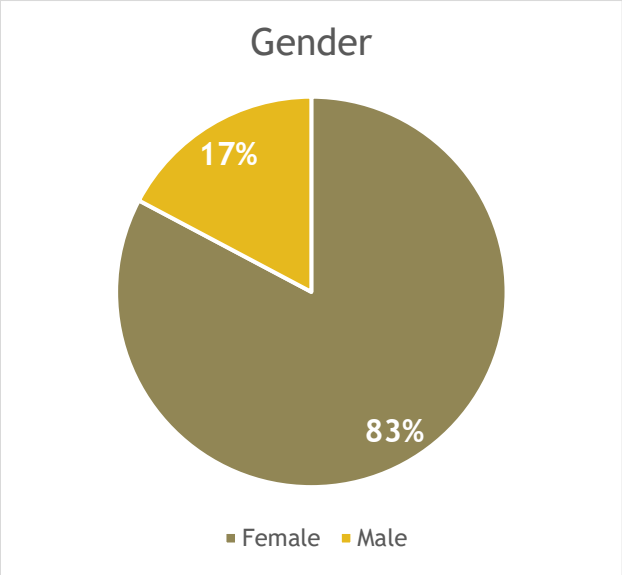
- Interstate 86
- State Roads
- US Roads Proposed
- Route 219
- Seneca Nation Lands
- County Water Lines
- Ellicottville Water District
- Steuben Power Lines
- Little Valley Electric Lines
- Salamanca Electric Boundary
- Arcade Electric Boundary
- State Recreation Lands

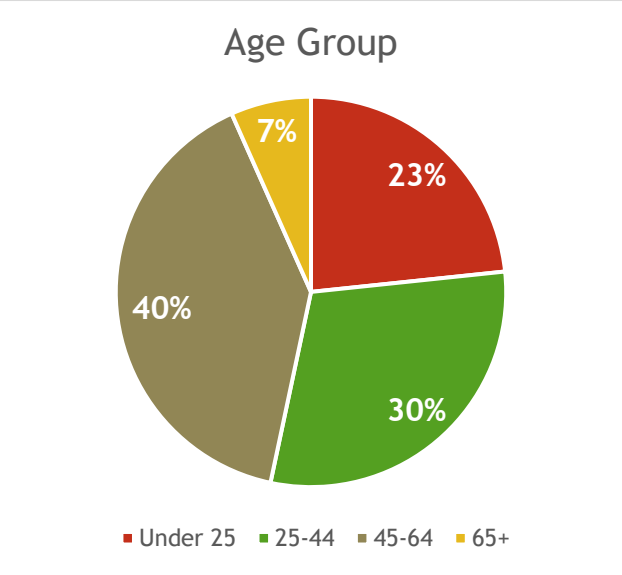
Agricultural Development Appendix

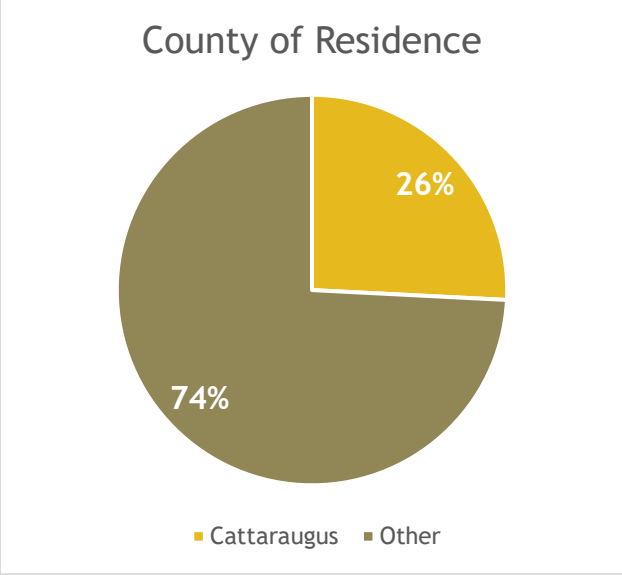
Appendix 2-A: Horse Event Attendance Survey Summary

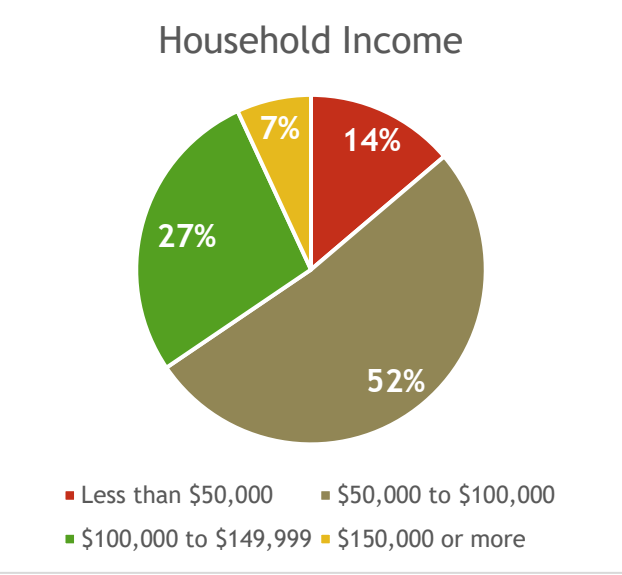
The equine sector is an important facet of the agricultural economy both within Cattaraugus County and the region. Survey responses were collected at an equine event and 31 people participated.

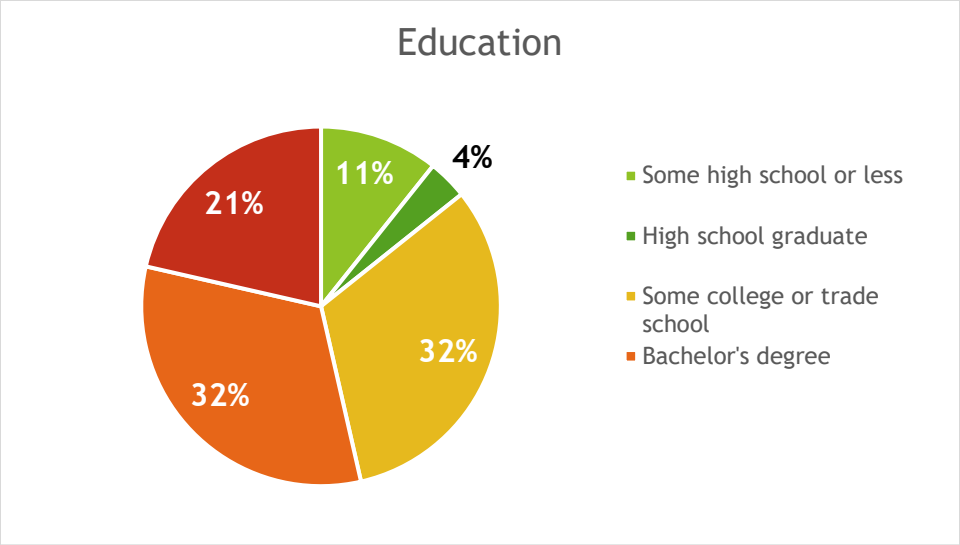
The respondents are primarily from outside of Cattaraugus County and are predominantly female. About 62 percent of the respondents are either a horse rider or owner. With the average travel party of eight, people are typically bringing family and friends to these events.

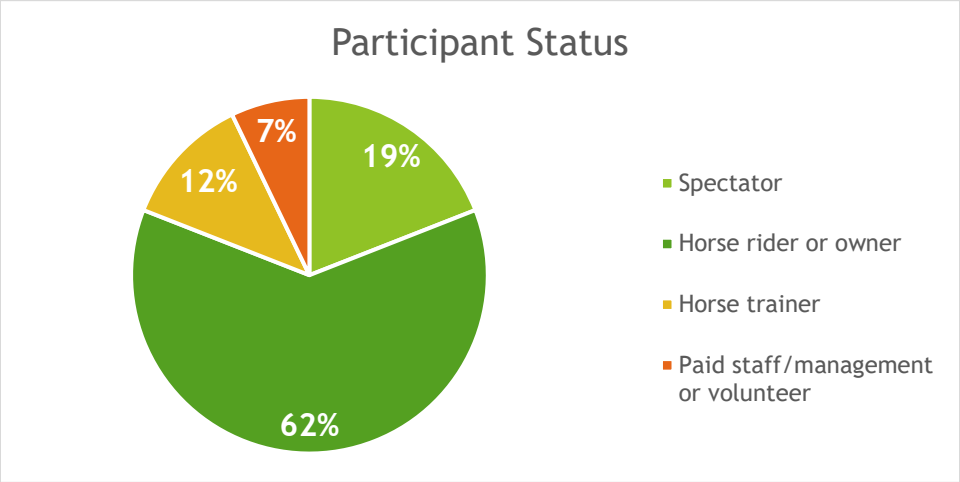










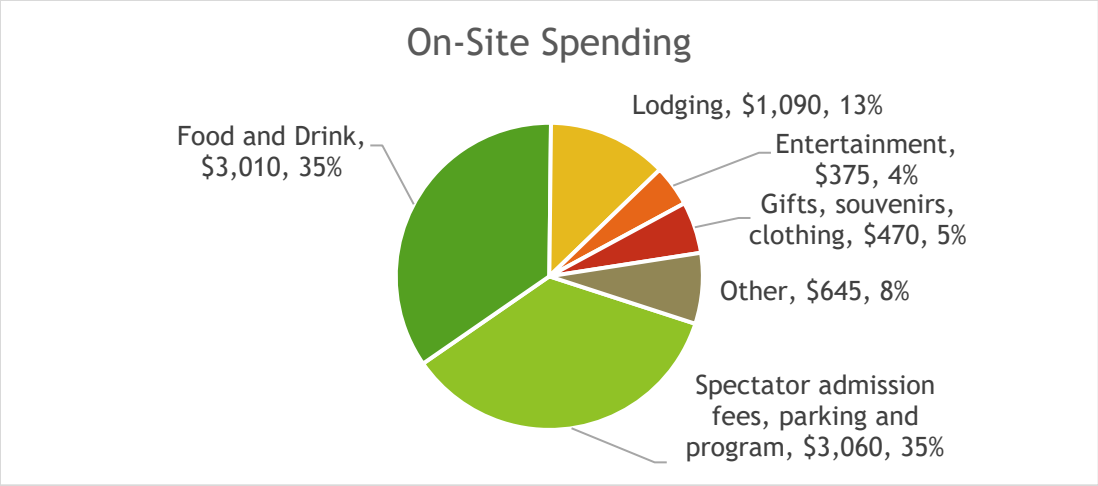


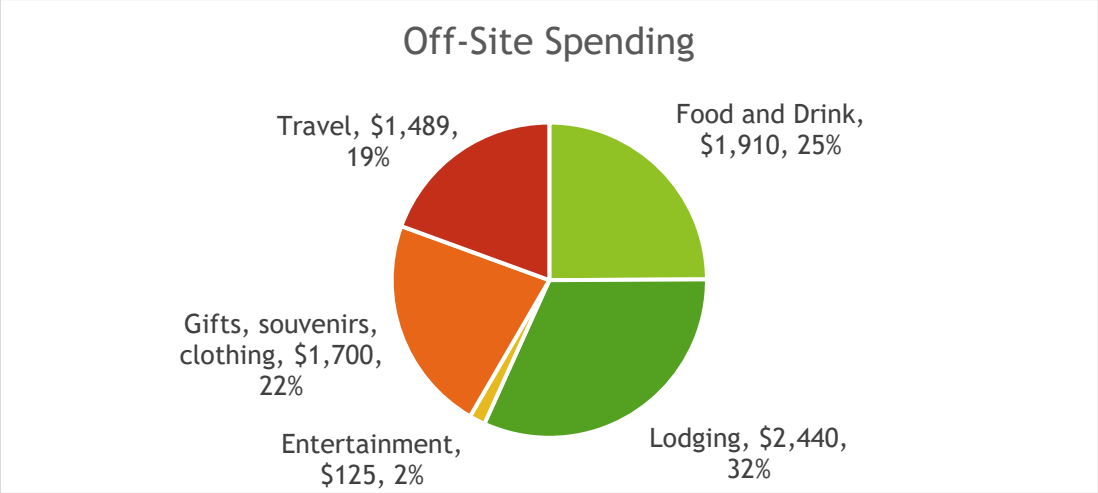
Event Spending

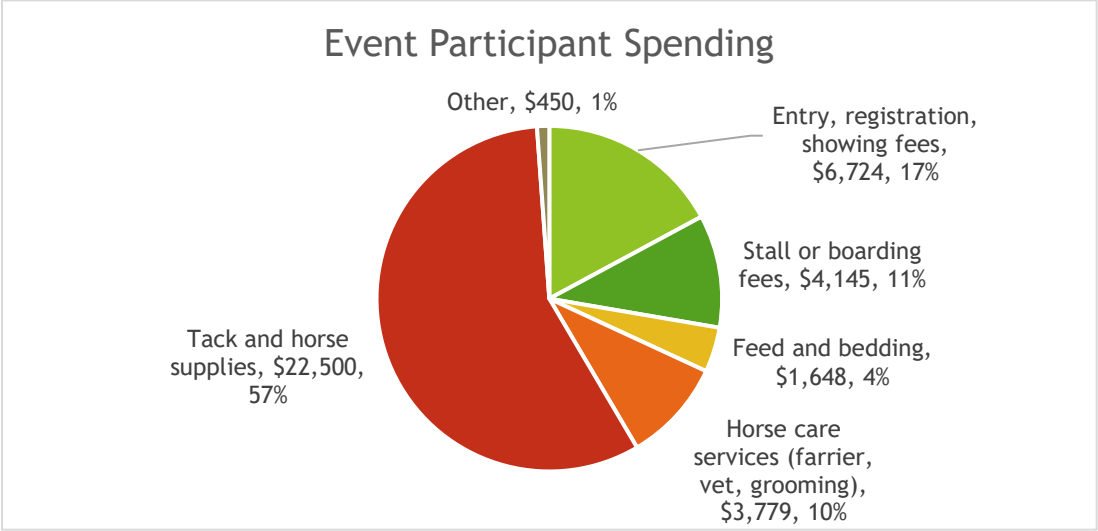
Spending occurs on- and off-site by event participants. The major events include the Battle Series Open Show (4 events) and the Open Breed Show (1 event). The respondents went to the following venues: Cattaraugus County Fairgrounds and Hamburg Fairgrounds.

On-site and off-site spending from visitors totaled around $16,339 in 2019 based on survey responses. About $8,650 or 53 percent of this was spent on-site, with average spending of $279 per person. About 70 percent of this spending was on admission, parking, food and drink. Meanwhile, off-site spending was about $7,689 with average spending of $248 per person. Off-site spending is primarily divided between four categories: lodging, food and drink, gifts, and travel. The charts below detail the expenses.

Finally, event participants spent a total of $39,246 with average spending of $1,509 per person. Event participants are those that participate as contestants in the events. Not surprisingly, 57 percent of the expenses were for tack and horse supplies.


On-Site Spending
Lodging, $1,090, 13%
Entertainment, $375, 4%
Gifts, souvenirs, clothing, $470, 5%
Other, $645, 8%
Spectator admission fees, parking and program, $3,060, 35%
Food and Drink, $3,010, 35%


Off-Site Spending
Travel, $1,489, 19%
Food and Drink, $1,910, 25%
Gifts, souvenirs, clothing, $1,700, 22%
Entertainment, $125, 2%
Lodging, $2,440, 32%


Event Participant Spending
Other, $450, 1%
Entry, registration, showing fees, $6,724, 17%
Stall or boarding fees, $4,145, 11%
Feed and bedding, $1,648, 4%
Horse care services (farrier, vet, grooming), $3,779, 10%
Tack and horse supplies, $22,500, 57%

Definitions

Agribusiness – business sector encompassing farming and farming-related commercial activities; businesses that collectively process, distribute, and support farm production

Agricultural District – farmland acreage protected, based on Article 25-AA of New York State Agriculture and Markets Law, to encourage and promote the continued use of said farmland for agricultural production

Agricultural Value Assessment – means the value per acre assigned to land for assessment purposes determined pursuant to the capitalized value of production procedure prescribed by Article 25-AA; provides property tax relief based on non-development assessment values

Agriculture – science of occupation of cultivating land and rearing crops and livestock

Agritourism – agriculturally based operation or activity that brings visitors to a farm or ranch

Community Supported Agriculture (CSA) – food retail system that connects food producers and consumers by allowing the consumer to subscribe to the harvest of a farm or group of farms

Confined Animal Feeding Operation (CAFO) – defined by the USDA as a farm in which 1,000 animal units are raised in confinement for more than 45 days per year; animal unit is equivalent of 1000 pounds liveweight; 1,000 animal units is equivalent to 700 dairy cows, 1,000 beef cows, 2,500 adult pigs. NOTE: CAFO definitions vary based on regulatory authority which may be state or federal.

Farm Operation – practices used to grow crops, produce livestock, and to maintain the viability of the farm

Food Safety Modernization Act (FSMA) – law providing FDA with new authority to regulate the way foods are grown, harvested, and processed, shifting the focus from responding to foodborne illness to preventing it

Land Evaluation and Site Assessment (LESA) – point-based approach for rating the relative importance of agricultural land resources based upon specific measurable features developed by the USDA

Prime and Productive Soils – land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses

Abbreviations

ACE: Agricultural conservation easements

AFPB: Agricultural and Farmland Protection Board

AFPP: Agricultural and Farmland Protection Plan

AFT: American Farmland Trust

APZ: Agricultural protection zoning

CAFO: Concentrated animal feeding operation

CCE: Cornell Cooperative Extension

DOT: Department of Transportation

EDPT: Economic Development, Planning, and Tourism

FSMA: Food Safety Modernization Act

IRS: United States Internal Revenue Service

NC: Nature Conservancy

NRCS: Natural Resources Conservation Service

NYSDAM: New York State Department of Agriculture and Markets

PDR: Purchase of development rights

REIT: Real estate investment trust

SCD: Soil conservation district

SUNY: State University of New York

SWOT: Strengths, weaknesses, opportunities, threats

TIMO: Timber investment management organization

TDR: Transfer of development rights

USDA: United States Department of Agriculture