Tioga County Agricultural and Farmland Protection Plan Update

Prepared for:

Tioga County Department of Economic Development and Planning

56 Main Street
Owego, New York 13827
P. 607.687.8257

Prepared by:

Environmental Design & Research,
Landscape Architecture and Engineering, & Environmental Services D.P.C. (**EDR**)

217 Montgomery Street, Suite 1000
Syracuse, New York 13202
P. 315.471.0688

In association with:

George R. Frantz & Associates

604 Cliff St.
Ithaca, NY 14850
P. 607.256.9310

Adopted May 12, 2015

Tioga County Legislature

Richard L. Huttleston, District 1
Martha C. Sauerbrey, District 2 (Chair)
Michael Roberts, District 3
Tracy Monell, District 4
Loretta Sullivan, District 4
Raymond P. Case, District 5
Dale N. Weston, District 6
Ed Hollenbeck, District 7
William Standinger, District 7

Tioga County Agricultural and Farmland Protection Board

Lisa Bloodnick, Tioga County Farmer
Andrew Fagan, Cornell Cooperative Extension of Tioga County
Ed Hollenbeck, Tioga County Legislature
Terie Huseby, Tioga County Real Property Tax Services Office
Elaine Jardine, Tioga County Department of Economic Development & Planning
John Lacey, Tioga County Farm Bureau
Timothy Lawton, Tioga County Farmer
Pam Moore, Tioga County Planning Board and Farmer
Gary Phelps, Tioga County Farmer
Dale Weston, Tioga County Soil & Water Conservation District Board of Directors
Ben Whittemore, Tioga County Farmer

Tioga County would like to thank the following departments, agencies, and organizations for their participation in the development of the Agricultural and Farmland Protection Plan:

Tioga County Department of Economic Development & Planning
Tioga County Soil & Water Conservation District
Tioga County Geographic Information Services Division
Cornell Cooperative Extension of Tioga County
Tioga County Agricultural Resource Group
Tioga County Farm Bureau

The Tioga County Agricultural and Farmland Protection Plan is made possible through a grant from the New York State Department of Agriculture and Markets, and has been produced with the assistance of Environmental Design & Research, D.P.C. (Syracuse, NY) and George R. Frantz & Associates (Ithaca, NY).

Contents

Section 1: Introduction

Pursuant to Article 25-AAA of the New York State Agriculture and Markets Law, the New York State Department of Agriculture and Markets administers the Farmland Protection Planning Grant program which provides assistance to local governments in their efforts to support the viability of the agricultural sector. In 2012, Tioga County applied for and received funding through the FPPG program to update its existing Agricultural and Farmland Protection Plan, which was approved by the County Legislature in 1998. In the sixteen years since its adoption, many of the recommendations of the 1998 plan have been implemented, and it has generally served the county well. However, many aspects of the practice and regulation of agriculture have changed dramatically since that time, and a revised assessment of the current state of agriculture in Tioga County, as well as a new series of goals, strategies, and recommended actions, is therefore warranted.

The updated plan is the result of the collaborative efforts of the Tioga County Department of Economic Development & Planning (ED&P), the Tioga County Agriculture & Farmland Protection Board, and a project Steering Committee representing many perspectives within the agricultural community (see Public Participation section, below). It is made possible through the continued support of both the Tioga County Legislature and the New York State Department of Agriculture and Markets (NYSDAM). Tioga County would like to specifically acknowledge the support of John Brennan of NYSDAM's Farmland Protection Program, whose assistance was instrumental in advancing this planning initiative.

Vision and Definition of Agriculture

Section 301 of the New York State Agriculture and Markets Law defines farm operations as "the land and on-farm buildings, equipment, manure processing and handling facilities, and practices which contribute to the production, preparation and marketing of crops, livestock and livestock products as a commercial enterprise." In addition to traditional crop and livestock operations, this definition also specifically includes commercial horse boarding, timber, compost, mulch, biomass, and equine operations. Section 301 also notes that farm operations may consist of one or more parcels of owned or rented land that may or may not be contiguous. The Agriculture & Markets Law can be found at the NYSDAM or NYS Legislature websites.

In adopting this Plan and advancing its recommendations, Tioga County recognizes the value of the agricultural sector to the community, economy, and environment. These values are reflected in a vision statement crafted to guide the development and implementation of this Plan:

> *In the coming decades Tioga County will continue to host a diversity of full- and part-time agricultural businesses throughout the county. These agricultural enterprises will individually and collectively continue a heritage of land and water conservation, production of high quality agricultural products, and innovative adaptation. This Plan envisions supportive County policies and broad community support for agriculture that will create a climate where agriculture remains viable and diverse, while continuing to contribute to the economic growth of Tioga County, enhancing the quality of life for its residents, providing for the stewardship of its natural resources, and producing food and other agricultural products.*

Establishment of Goals

The following goals represent broad future outcomes that the County seeks to achieve in support of this vision:

1. Achieve sustainable growth in the agricultural economy
2. Maintain adequate access to quality farmland
3. Attract new and beginning farmers
4. Develop and support agricultural education and provide technical assistance
5. Improve communication between farmers, rural landowners, and public agencies
6. Assist farms in dealing with environmental challenges and opportunities
7. Increase the economic viability of agriculture through increased energy efficiency and use of local natural energy resources

Organization of Plan

Guided by the project vision statement, this Plan is organized as follows:

- Section 1 introduces the plan and its organization.
- Section 2 describes the public participation process that supported and informed the development of the Plan, including agency and organizational representation, public meetings, outreach initiatives, and the New York State environmental review process.
- Section 3 examines current conditions relative to County demographics, economic, and environmental indicators, and assesses the current state of agriculture in Tioga County.
- Section 4 describes the methodology by which Tioga County has ranked and identified agricultural lands that are most appropriate for land protection initiatives.
- Section 5 describes a series of strategies and actions intended to advance Tioga County agriculture and help the county to achieve its vision and goals.
- Section 6 discusses the process of implementing the Plan, including potential partnerships between Tioga County agencies and their affiliate agencies and organizations.

Section 2: Public Participation

Pursuant to the guidance of Article 25-AAA, Tioga County has developed this Plan with input from a wide range of stakeholders throughout the community. The involvement of key agricultural stakeholders, including both organizational and individual perspectives, as well as the public at large has been critically important in the creation of a plan that represents a shared vision for the future of the county. This spirit of cooperation will be equally important in the future, as Tioga County seeks to implement the recommendations set forth herein.

The engagement of the public and key stakeholders began at the outset of the planning process with the creation of a project Steering Committee. The following individuals offered their time and talents in guiding Tioga County and its team of project consultants in shaping and drafting the final Plan:

- Elaine Jardine, Tioga County ED&P (Project Manager)
- Wendy Walsh, Tioga County SWCD (Project Manager)
- Andrew Fagan, Cornell Cooperative Extension of Chemung and Tioga Counties
- Michele Kline, Cornell Cooperative Extension of Tioga County
- Kat Loeck, Cornell Cooperative Extension of Tioga County
- Rick Neuman, Tioga County SWCD

- Pam Moore, Tioga County Farmer
- Bill Ostrander, Tioga County GIS
- Gary Phelps, Tioga County Farmer
- Brian Reaser, Tioga County Soil & Water Conservation District (SWCD)
- Bob Strong, Tioga County Farmer
- Loretta Sullivan, Tioga County Legislature

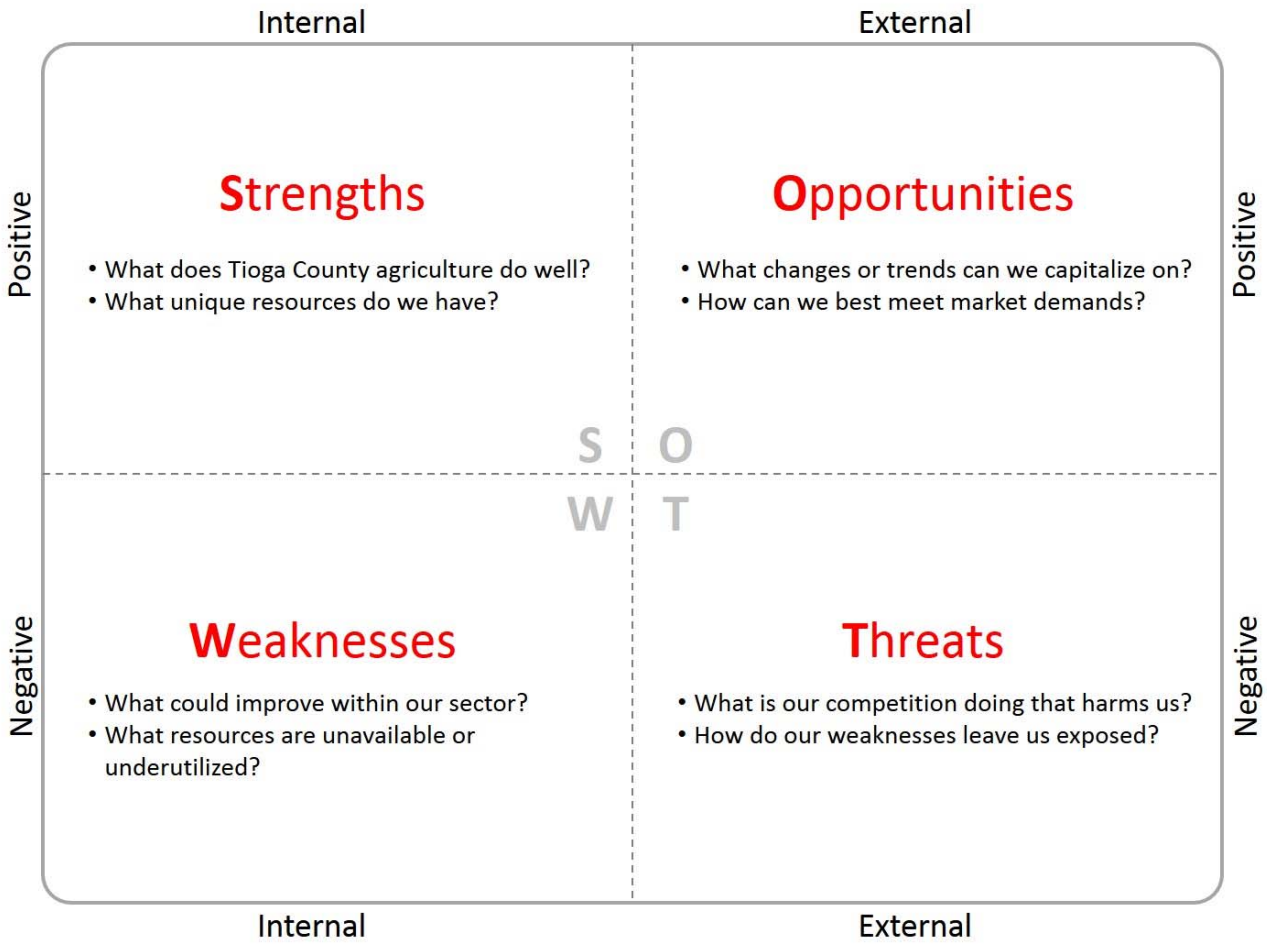
The Steering Committee outlined a series of public participation strategies at the outset of the planning process in an effort to engage valuable perspectives throughout the county and farming community (see Appendix A). These strategies and their associated outcomes are discussed below.

Public meeting #1/SWOT analysis

On October 30, 2013, Tioga County ED&P and the project Steering Committee hosted more than 30 local farmers at the United Methodist Church in Tioga Center for a discussion regarding the present and future state of farming in Tioga County. The participants provided invaluable input for the project team, identifying a number of opportunities and challenges that are unique to Tioga County agriculture, as well as their perspective on the impact of state and federal agricultural, environmental, and trade policies on local farms and farmers.

To solicit this input, the project team led meeting participants through a "SWOT" exercise, targeting various Strengths, Weaknesses, Opportunities, and Threats that exist within the agricultural community. These four concepts were depicted on two separate axes (positive/negative traits, and internal/external traits), and considered in terms of five factors thought to have the greatest impacts on farming operations within the region: markets, land value, farmer demographics, regulations, and alternative energy resources (see Figure 1). A full summary of results from the SWOT analysis is provided in Appendix B: Public Participation Summaries.

Figure 1, Example SWOT activity



Focus group discussions

Members of the Steering Committee met with various representatives throughout the agricultural sector in a series of focus group discussions held in January, 2014. The purpose of these discussions was to gather input relative to specific issues facing the agricultural community, and to gain insight from their collective knowledge and experience. From January 8-22, the Steering Committee met with groups representing the following subsectors:

- Agribusiness
- Dairy and field crops
- Livestock
- Produce and horticulture
- Value-added/specialty

Focus group discussions were tailored to the specific needs and concerns of each group, but were based on a number of issues that span the subsectors, including but not limited to the following: local business opportunities and resources; supply chain, marketing, and distribution matters within the region; local

regulations; strengths and weaknesses of Tioga County in attracting agricultural enterprises; changes in the marketplace; and future business plans. A full summary of focus group discussions is provided in Appendix B.

Survey

In addition to public meetings and focus group discussions, the Steering Committee also mailed paper surveys to agricultural community members throughout the county. More than 900 surveys were sent out in March, 2014; 150 surveys were completed and returned. The list of recipients reflected the breadth and depth of the agricultural economy in Tioga County; it included active farming operations of all types and sizes, family and corporate farm operators, conservation organizations, agribusiness representatives, agricultural property owners and trusts, food and fiber processors, and others.

The survey was designed to collect information distinct from that which is available through other data sources such as the USDA Census of Agriculture. Through the survey, respondents provided information regarding the markets for their respective products, value-added practices, operational and economic factors influencing their businesses, employment, and future plans. A full summary of survey responses discussions is provided in Appendix B.

Consultation with agencies and organizations

Throughout the planning process, representatives of the project Steering Committee engaged with other agencies and organizations with a stake in the future of the agricultural sector. The input and valuable perspective of life-long and new farmers, as well as experienced professionals in the public and private sectors, provided the county with feedback from those who will help carry this plan forward. The following agencies and organizations were consulted throughout the planning process:

- Tioga County Soil & Water Conservation Board of Directors
- Cornell Cooperative Extension
- New York and Tioga County Farm Bureau
- Tioga County Agricultural Resource Group
- Tioga County Agricultural and Farmland Protection Board

Common concerns

Throughout the development of the plan, stakeholders raised several common concerns. The following list highlights repeated and important issues that face farmers in Tioga County:

- Property and other local taxes are too high
- The statewide ban on natural gas hydrofracking restricts property rights and a potential revenue stream
- Land speculation for natural gas drilling is impacting land availability and prices
- Increasing state and federal regulations and their associated costs continue to negatively impact agricultural sustainability

- Decreasing support for Cornell Cooperative Extension of Tioga County has limited their presence and agricultural program offerings
- The lack of equipment and implement dealers and farm service businesses in Tioga County increases costs and causes inefficiencies
- There is insufficient recognition from county and local elected officials of the economic impact of farm businesses
- The available workforce within the county does not meet the needs of farm business owners
- The potential growth of value-added agricultural enterprises requires more support in the form of marketing research and professional expertise
- There are not enough peer-to-peer networking opportunities for agricultural professionals and businesses within the county
- Only a small percentage of Tioga County's farm products are sold to customers within the county
- Farm goods produced in Tioga County do not have adequate marketing opportunities at the state level
- Area youth are not exposed to agriculture and agricultural career opportunities in school
- Young and/or beginning farmers have few incentives to establish operations in Tioga County
- County Board of Health Order 599 related to rabies, which is the only one in New York State, creates unnecessary fear of contact with farm animals

Public meeting #2

On March 24, 2015, Tioga County hosted an Open House at the Candor Fire Department and invited the public to review and comment on the draft plan. Nearly 30 people attended. They were welcomed by the Tioga County Dairy Princess and local elected and agency leaders, and toured five "stations" throughout the room: an introduction to the project, the common concerns listed above, maps describing the land prioritization process, lists of the plan's goals and strategies, and the matrix of goals, strategies, and recommended actions featured in Section 5 (Table 19). Farmer and non-farmer participants were asked to identify their priorities indicated by stickers at each station, and to submit comments with suggestions and revisions on the provided index cards as needed.

To summarize the input gathered at the Open House, the three Common Concerns that rated the highest with both farmers and non-farmers were:

- Property and other local taxes are too high
- The statewide ban on natural gas hydrofracking restricts property rights and a potential revenue stream
- Area youth are not exposed to agriculture and agricultural career opportunities in school

Additionally, a high-rated concern by non-farmers was:

- Increasing state and federal regulations and their associated costs continue to negatively impact agricultural sustainability

The three highest rated Goals by farmers and non-farmers alike were:

- Goal 1: Achieve sustainable growth in the agricultural economy
- Goal 3: Attract new and beginning farmers to the agricultural sector
- Goal 7: Increase the economic viability of agriculture through increased energy efficiency and the use of local natural energy resources

Details on input received at the Open House are included in Appendix B.

Section 3: Existing Conditions

Existing Programs

The Tioga County Soil & Water District and Cornell Cooperative Extension of Tioga County are the primary agencies involved in supporting and educating the county's agricultural sector. Their funding, research, and assistance programs are critically important to the viability of farm businesses and the county.

Tioga County Soil & Water District

In 1978, the Tioga County Soil & Water Conservation District was designated by the County Legislature as the local planning, management and implementing agency to protect water resources from non-point water pollution in the areas of agriculture, construction activity, silviculture, stream banks, and roadbanks. In doing so, the District provides professional advice, technical assistance, and coordinates funding assistance from private or governmental sources to individual landowners, groups or municipal governments.

The TCSWCD also provides technical assistance to agricultural producers through New York States Agricultural Environmental Management (AEM) Program. AEM is a confidential and voluntary program, which is incentive-based and locally led. It utilizes coordination and teamwork to efficiently and cost effectively address all natural resource concerns on the farm involving soil, water, animals, plants and human considerations, as prioritized through a watershed approach. Lastly, the SWCD provides several other services to assist farms including providing soils classification data to landowners applying for agricultural exemptions on the property taxes, permitting assistance for stream projects, and equipment rentals such as a tire cutter and no-till drill.

Cornell Cooperative Extension

The Cornell Cooperative Extension Association of Tioga County offers the following agricultural programs:

- The South Central NY Agriculture Program, led by a local Ag Team Leader, serves farmers and rural landowners in Chemung, Cortland, Tioga, Tompkins and Schuyler Counties in New York State. This team of six educators provides specialized programming in the areas of fruit and vegetable production, commercial horticulture, livestock, agriculture economic development, and forestry. They work to improve enterprise viability, explore opportunities for new business development, support local markets, and diversify farm enterprises. They also support adoption of sustainable farming practices to help farmers produce high quality agricultural produce, practice proper animal husbandry, decrease pest damage, improve post-harvest food quality, ensure food safety, protect the environment, conserve energy and natural resources and improve farm profitability.
- The South Central NY Dairy & Field Crops Program, which is supported by Cornell University, serves the counties of Chemung, Cortland, Tioga & Tompkins. The team consists of three full-time staff who specialize in field crops, dairy health, and grazing. They provide educational opportunities and technical assistance to help the industry with emerging issues, production bottlenecks, on-farm research projects and new technologies. The primary audiences are dairy and field crop producers as well as agri-service providers with secondary audiences of the media, non-farm residents and consumers. The program focuses on areas that will help improve farm profitability within the region.
- The Agriculture Resource Education Program serves farmers throughout Tioga County, offering technical advice based on university research. CCE Tioga employs an educator specializing in agriculture who conducts farm and office visits, fields telephone calls, and conducts formal and informal workshops. Additionally, CCE Tioga offers 4H and Master Gardener programs. This team works with community partners to strengthen the relationships between farmers and consumers and to promote the awareness of local agriculture as well as the connections between the local food and environmental systems.

Land use

The nine towns and six villages comprise Tioga County cover approximately 331,940 total acres of land area, approximately 32.5% of which is currently in farms. The proportion of land in farms has remained

relatively steady in recent years, although USDA Agricultural Census estimates indicated higher proportion (38.6%) in 2002. The number of farms within the county as of the latest estimate (2012) represents an 11% decrease from 2002, for a total of 536 farms, at an average of 201 acres per farm. It is noted that data show relatively steady agricultural land use data from 1997 through 2012 with the exception of 2002, when data collection or sampling procedures may have produced this anomaly.

Table 1, Tioga County land in farms, 1997-2012

	2012	2007	2002	1997
Land in farms (ac)	107,873	106,834	128,224	109,356
Proportion of land in farms	32.5%	32.2%	38.6%	32.9%
Number of farms	536	565	604	497
Average size of farm (ac)	201	189	212	220

Source: USDA Agricultural Census

Although agricultural land accounts for nearly 33% of the land mass within the county, agricultural properties account for only 3.1% of the total number of parcels within the county according to the distribution of properties by class code, a classification that is given to every property of every type for taxation purposes. The distribution of properties with agricultural class codes throughout Tioga County shows a concentration in agricultural vacant properties, with smaller concentrations in properties used for field crops and dairy production. Two additional class codes (one regarding residential lands, another regarding vacant lands) also feature agricultural properties, though the specific use(s) of the residentially-coded properties used in agricultural production cannot be determined.

Table 2, Tioga County land use, 2013

Broad Use Category	Description	Parcel Count
100	Agricultural Properties	806
200	Residential Properties	17,201
300	Vacant Land	5,549
400	Commercial Properties	1,002
500	Recreation and Entertainment Properties	88
600	Community Service Properties	355
700	Industrial Properties	97
800	Public Service Properties	492
900	Public Parks, Wild, Forested and Conservation Properties	278
Total Parcels in All Broad Use Categories		25,868

Source: New York State Office of Real Property Tax Services

Table 3, Agricultural land uses in Tioga County, 2013

Property Type	Class Code*^	Description	Parcel Count
Agricultural	100	Agricultural	1
	105	Agricultural Vacant Land (Productive)	360
	110	Livestock and Products	2
	111	Poultry /Poultry Products: eggs,chickens, turkeys, ducks, geese	3
	112	Dairy Products: milk, butter and cheese	159
	113	Cattle, Calves, Hogs	55
	114	Sheep and Wool	2
	116	Other Livestock: donkeys, goats	3
	117	Horse Farms	8
	120	Field Crops	191
	140	Truck Crops (not mucklands)	3
	160	Other Fruits	2
	170	Nursery and Greenhouse	8
Residential	241	Primarily residential, also used in agricultural production	89
Vacant	321	Abandoned Agricultural Land	56

Source: New York State Office of Real Property Tax Services

^Table does not include class codes with no properties within the County (e.g. Fur Production)

Farming operations

Although some large (500-999 acre) and very large (1,000 acre or more) operations do exist within the county, most operations are between 50 to 179 acres. The number of farms within each size category has shifted in recent years. However, the general distribution of farms between each has remained relatively steady.

Table 4, Farms by size

	2012	2007	2002	1997
1 to 9 acres	30	30	32	19
10 to 49 acres	93	118	106	74
50 to 179 acres	219	235	237	189
180 to 499 acres	147	140	173	167
500 to 999 acres	34	29	41	39
1,000 acres or More	13	13	15	9

Source: USDA Agricultural Census

Likewise, there have been a number of shifts in the type of farming operations since 1997, but few substantial changes. Of particular note is the reduction in the acreage of cropland from 2002 to 2012 (a

32% reduction) and harvested cropland acres (down 26%). Although a smaller shift by comparison, a 28% increase in acreage dedicated to pasture is also noted during the same time period. The reduction in Tioga County's cropland and harvested cropland over that decade is substantially larger than that which occurred at the state level, which saw a decrease of 13% and 2%, respectively, over that same period.

Table 5, Land in farms

	2012	2007	2002	1997
Cropland				
Farms	449	490	551	479
Acres	50,688	53,816	74,588	62,716
Harvested Cropland Farms	409	420	476	449
Harvested Cropland Acres	41,176	42,342	55,922	46,017
Woodland				
Farms	416	421	438	375
Acres	32,755	31,660	33,689	30,906
Pasture (permanent pasture and rangeland, other than cropland and woodland pastured)				
Farms	376	360	259	157
Acres	13,750	13,368	10,738	7,977
Other Uses (land in farmsteads, buildings, livestock facilities, ponds, roads, wasteland, etc.)				
Farms	447	413	431	377
Acres	10,680	7,990	9,209	7,755

Source: USDA Agricultural Census

The diversity of agricultural operations throughout Tioga County can be assessed in terms of the range of commodities grown within the county, the acreage dedicated to crop types, and the inventory of livestock. Although some measures have changed since 1997, the following table provides an indication of the diversity of agricultural operations within the county, as demonstrated by the variety of commodities grown or raised and their relative market values for each census year. As shown below, the number of farms engaged in dairy and cattle production has decreased significantly over the course of 15 years (43% and 37%, respectively). Comparisons of market value over this time period are complicated by inflation, federal price support programs, and natural year-to-year variations in yield; therefore, specific values should be viewed as a general indicator of sub-sector health and relative production levels.

Table 6, Top commodity groups by value of sales

	2012	2007	2002	1997
Milk, Including other Dairy Products	$22,268,000	$27,295,000	$20,807,000	$21,271,000
Farms	77	104	108	135
Other Crops and Hay*	$4,618,000	$1,511,000	$1,716,000	n/a
Farms	245	202	192	n/a
Nursery, Greenhouse, Floriculture and Sod	$807,000	$1,469,000	$2,560,000	$1,343,000
Farms	16	14	37	62
Other Animals & Other Animal Products	$218,000	$860,000	$421,000	$262,000
Farms	18	16	11	39
Grains, Oilseeds, Dry Beans and Dry Peas	$4,680,000	$712,000	$457,000	$344,000
Farms	96	53	38	39
Vegetables, Melons, Potatoes and Sweet Potatoes	$930,000	$690,000	$816,000	$549,000
Farms	27	21	31	27
Fruits, Tree Nuts and Berries	$197,000	$242,000	$115,000	$234,000
Farms	23	19	18	17
Cut Christmas Trees and Short Rotation Woody Crops*	$92,000	$288,000	$441,000	n/a
Farms	12	13	23	n/a
Equine (horses, ponies, mules, burros and donkeys)*	$123,000	$115,000	$211,000	n/a
Farms	30	29	42	n/a
Poultry (including eggs)	$134,000	$84,000	$44,000	(D)
Farms	85	75	28	17
Hogs	$102,000	$81,000	$174,000	(D)
Farms	34	40	26	20
Cattle (including calves)	$2,495,000	(D)	$2,082,000	$2,443,000
Farms	183	201	210	292
Sheep and Goats (including products)	$84,000	(D)	$80,000	$89,000
Farms	35	42	54	23
Aquaculture*	-	(D)	$13,000	n/a
Farms	0	1	3	n/a

Source: USDA Agricultural Census

**Indicates items not measured for 1997 survey, or category definitions that been substantively revised in subsequent surveys*

(D) Indicates data withheld by USDA to prevent the disclosure of information relative to individual businesses

Top crop items by acreage within the county shows a substantial concentration of acreage dedicated to forage. As shown below, yields for these crops have increased relatively consistently since 1997, with the exception of 2002 for nearly all of those listed.

Table 7, Top crop items by acreage

	2012	2007	2002	1997
Forage (land used for all hay and haylage, grass silage and greenchop)	30,363 ac	33,075 ac	44,222 ac	32,785 ac
Farms	350	363	323	373
Yield (dry equivalent)	2.1 ton/ac	2 ton/ac	2 ton/ac	1.7 ton/ac
Corn for Silage or Greenchop	4,981 ac	4,982 ac	7,474 ac	7,964 ac
Farms	71	73	102	149
Yield	14.3 ton/ac	16 ton/ac	9 ton/ac	13.1 ton/ac
Corn for Grain	3,819 ac	3,430 ac	2,279 ac	3,882 ac
Farms	67	45	43	81
Yield	135.6 bu/ac	136 bu/ac	85 bu/ac	104 bu/ac
Oats for Grain	518 ac	595 ac	896 ac	897 ac
Farms	22	18	35	40
Yield	57.8 bu/ac	49 bu/ac	53 bu/ac	51.7 bu/ac
Soybeans*	434 ac			
Farms	7			
Yield	52.2 bu/ac			
Cut Christmas Trees	361 ac	703 ac	1,076 ac	
Farms	13	20	26	

Source: USDA Agricultural Census

**Data prior to 2012 is withheld by the USDA to avoid disclosing data for individual operations*

Table 8, Top livestock inventory items

	2012	2007	2002	1997
Cattle and Calves	14,902 (267)	16,924 (250)	20,063 (292)	22,672 (310)
Beef Cows	1,684 (153)	1,559 (153)	2,130 (142)	2,159 (138)
Milk Cows	6,454 (88)	7,857 (102)	9,104 (126)	10,562 (148)
Layers	3,502 (124)	2,753 (82)	2,051 (46)	867 (36)
Colonies of Bees	1,191 (17)	1,485 (6)	1,883 (5)	284 (5)
Horses and Ponies	1,185 (159)	1,298 (181)	1,228 (170)	532 (96)
Goats	922 (37)	1,246 (46)	1,004 (35)	(D) (6)
Hogs and Pigs	1,209 (41)	415 (37)	1,965 (25)	1,166 (28)
Sheep and Lambs	671 (37)	647 (29)	1,207 (39)	1,123 (33)

Source: USDA Agricultural Census
Note: Values in parenthesis ( ) indicate the number of farms with inventory
(D) Indicates data withheld by USDA to prevent the disclosure of information relative to individual businesses

Characteristics of operators and operations

The agricultural sector in Tioga County is comprised of primarily white male operators, although both the number and proportion of female operators has grown substantially since 1997. The percentage of female principal operators has grown from approximately 10% in 1997 to more than 26% in 2012, a dramatic change in a relatively short period of time. As is the case throughout the state, the average age of principal operators continues to increase, from 54.1 in 1997 to 59.3 in 2012. Minority farm operators have not increased or decreased substantially within the county over this time period. Although both the total number of operators and total number of male operators is on the decline within the county, the number of female operators (both principal operators and others) has increased.

Table 9, Operator characteristics

	2012	2007	2002	1997*
Total Operators	897	934	913	846
Principal Operator by Sex				
Male	424	452	519	n/a
Female	112	113	85	n/a
All Operators by Sex				
Male	567	611	645	n/a
Female	330	323	268	n/a
Principal Operators by Primary Occupation				
Farming	290	246	344	302
Other	246	319	260	195
Average Age of Principal Operator	59.3	58.5	54.6	54.1
All Operators by Race				
American Indian or Alaska Native	2	7	-	-
Asian	-	-	-	-
Black or African American	-	1	1	-
Native Hawaiian or Other Pacific Islander	-	-	-	-
White	870	903	888	n/a
More than one race	4	-	6	n/a
All Operators of Spanish, Hispanic or Latino Origin	6	4	8	2

Source: USDA Agricultural Census
**Some values are not available (n/a) through the 1997 USDA Census of Agriculture*

Between 1997 and 2012, farm acreage in full ownership has increased by more than 12,500 acres, while the acreage in partial ownership has decreased by more than 14,600 acres. The acreage rented by tenants has risen above the levels seen in 1997, after decreasing below 2,000 acres in 2007.

Table 10, Farm tenure

	2012	2007	2002	1997
Full Owners	369 (55,789 ac)	367 (48,463 ac)	372 (49,379 ac)	281 (43,211 ac)
Harvested Cropland	249 (13,126)	238 (11,048)	259 (11,460)	241 (12,657)
Part Owners	144 (48,438)	178 (56,581)	214 (76,451)	194 (63,126)
Owned Land in Farms (ac)	31,257	37,408	46,801	44,345
Rented Land in Farms (ac)	17,481	19,173	29,650	18,781
Harvested Cropland	140 (26,046)	168 (29,954)	200 (43,097)	191 (31,778)
Tenants	23 (3,346)	20 (1,790)	18 (2,394)	22 (3,019)
Harvested Cropland	20 (2,004)	14 (1,340)	17 (1,365)	17 (1,582)

Source: USDA Agricultural Census

Note: Values in parenthesis ( ) indicate the number of acres held by the corresponding full owners, partial owners, or tenants.

Family and individually-owned operations are the most common type of ownership organization within the county. Of the 536 operations within the county, 87% of these (and 75% of the acreage in farms within the county) are held by a family or individual as of 2012. Partnerships account for approximately 8% of the operations and 18% of the acreage. Family-held corporations account for 3% of operations and 5% of farm acreage. Non-family-held corporations and other ownership organizations account for only 3 and 8 operations in total, and hold an undisclosed amount of acreage.

Table 11, Farm business organization types

	2012	2007	2002	1997
Family or Individual	468 (81,119)	492 (76,350)	535 (95,691)	435 (83,868)
Partnership	41 (19,540)	54 (24,284)	45 (23,099)	55 (23,700)
Corporation				
Family Held	16 (5,712)	14 (5,476)	15 (22,585)	7 (1,788)
Other than Family Held	3 (D)	2 (D)	6 (6,666)	-
Other (cooperative, estate or trust, institutional, etc.)	8 (D)	3 (D)	3 (183)	-

Source: USDA Agricultural Census

(D) Indicates data withheld by USDA to prevent the disclosure of information relative to individual businesses

Agricultural Districts

The Agricultural District Program is administered at the local level by the Tioga County Department of Economic Development & Planning. Both incorporation and removal of properties into and out of the program is voluntary. The program is regulated through Article 25-AA of the Agriculture and Markets Law, and is intended to facilitate the continued use of farmlands within the state. The Agricultural District Program provides farmers with legal support and protection against unreasonably restrictive local regulations and nuisance complaints, as well as access to funding streams that are made available to properties within the Program.

Table 12, Tioga County Agricultural Districts

	Total acres in district	Acres in farms	Change in farm acreage since 2004	Acres of cropland	Acres owned by farmers	Acres rented by farmers
District 1	46,148	29,469	-10,605	22,178	28,087	1,382
District 2	25,405	25,396	+2,654	12,773	24,699	693
District 3	23,776	22,742	+3,882	8,411	22,173	569
Total	95,329	77,607	-4,069	43,362	74,959	2,644

Source: Tioga County Department of Economic Development & Planning

Tioga County is home to three New York State Certified Agricultural Districts that cover each of the nine towns within the County: the Towns of Barton, Candor, Spencer and Tioga (District 1), Owego and Nichols (District 2), and Richford, Berkshire, and Newark Valley (District 3). The Agricultural Districts cover 95,329 total acres of land, 77,607 acres of farmland, and 43,362 acres of cropland as of 2012. The 4,069 acres of farmland that have been removed from the county's Agricultural Districts since 2004 represent approximately 3.8% of the total acreage in farms throughout the county in 2012. The losses are due to the removal of more than 10,000 acres from District 1, which is the largest of the three in terms of geographic coverage. This is an anomaly that is not typical of recent trends.

Agricultural property tax exemptions

Agricultural use-value assessments are the most common and most valuable of a number of tax exemptions available to farmers and farm properties within the county. Use-value assessments are available for farm properties both within and outside of Agricultural Districts; however, properties outside of the district must remain in agricultural use for a period of eight years, otherwise it is subject to conversion fees. The equalized value of 754 agricultural use-value property tax assessments in Tioga County's three Agricultural Districts in 2012 amounted to a total value of nearly $27,000,000, or 2.06% of the overall exempted value within the county. Other exemptions granted for agricultural buildings, greenhouses, forestland, and a conservation easement brought the total value of exemptions related to

agricultural properties up to nearly $45,000,000, or 3.44% of the overall exempted value within the county.

Of the nine categories of property tax exemptions within the county (which include exemptions for properties owned by public agencies, school districts, non-profits, etc. as well as private residences with STAR exemptions), agricultural and forest property exemptions were the fifth-largest category in terms of total value. By way of comparison, the category of exemptions granted for residential properties (other than multiple dwellings) and nonresidential properties owned by veterans, clergy, first-time homebuyers, and other eligible individuals accounted for $611,860,000, or approximately 47% of the total county exempt value.

Table 13, Agriculture-related tax exemptions in Tioga County, 2013

	# of Exemptions	Total Equalized Value of Exempt Parcels	Total Equalized Value of Exemptions	Percent of Value Exempted	% of Total County Exempt Value
Agricultural building	57	$13,517,000	$2,623,000	19.4%	0.20%
Agricultural District	754	$98,373,000	$26,954,000	27.4%	2.06%
Agricultural land not in District	64	$7,869,000	$2,537,000	32.2%	0.19%
Silos, storage tanks, etc.	2	$567,000	$1,444,000	25.4%	0.01%
Temporary greenhouses	2	$377,000	$120,000	31.8%	0.01%
Forestland (certified after 9/1974)	20	$3,085,000	$937,000	30.4%	0.07%
Conservation easement perpetual	1	$156,000	$43,000	27.6%	0.003%
Group total	997		$44,926,000		3.44%

Source: NYS Office of Real Property Tax Services

Income and expenses

Income and expenses are major contributors to the health of individual farm enterprises and the agricultural sector as a whole. Both are dependent on many external factors operating at both the local and global scales. These factors include but are not limited to local property and other taxes, state and federal regulatory constraints, shifts in federal price support programs (e.g. milk prices) and commodity prices, large-scale shifts in the national and global economies (e.g. interest rates, fuel prices, foreign exchange rates), competition for labor, etc.

Of the 536 farms in Tioga County in 2012, less than half (200, or 37%) experienced net income gains. The average net gain for those farms was $70,824. Likewise, of the 897 total farm operators within the

county, only 198 (22%) reported net income gains. The average income for those operators reporting net gains was $17,975. Net cash income, the number of farms and operators reporting gains, and the average value of those gains are all down since 2007, before controlling for inflation. The corresponding number of farms and operators reporting net losses shows corresponding increases, and the value of those losses has also increased since 2007.

Table 14, Income and expenses

	2012	2007	2002	1997
Net Cash Farm Income of Operation	$9,784,000	$11,366,000	($697,000)	$3,501,000
Average per farm	$18,254	$20,117	($1,158)	$7,030
Farms with net gains^	200	213	258	220
Average per farm	$70,824	$69,305	$34,916	$22,954
Farms with net losses	336	352	344	278
Average per farm	$13,038	$9,647	$28,213	$5,572
Net Cash Farm Income of Operators	$9,635,000	$11,358,000	($443,000)	n/a
Average per farm	$17,975	$20,102	($776)	n/a
Farm operators reporting net gains	198	213	265	n/a
Average per farm	$71,098	$69,321	$35,028	n/a
Farm operators reporting net losses	338	352	337	n/a
Average per farm	$13,145	$9,681	$28,859	n/a

Source: USDA Agricultural Census

^ Farms with total production expenses equal to market value of agricultural products sold, government payments, and farm-related income are included as farms with gains of less than $1,000.

As income has decreased, expenditures have increased. The table below shows total farm production expenses and average expenses per farm, as well as a comparison of expenditure categories relative to total expenditures. Relative to all other expenditures, feed and agricultural services remain the most significant expenditure categories. Increased fuel, rent, and seed/plant prices have increased the proportion of total expenditures dedicated to those categories by a substantial amount.

Table 15, Expenditures by type[a]

	2012	2007	2002	1997
Total Farm Production Expenses	$29,596,000	$28,109,000	$34,106,000	$24,282,000
Average per farm	$55,216	$49,750	$56,654	$42,451
Expenditure categories as a percent of total expenditures				
Ag services[b]	15.3%	16.2%	17.2%	12.1%
Animals	3.0%	3.1%	1.7%	6.0%
Chemicals	1.6%	0.9%	1.9%	1.7%
Feed	26.2%	28.0%	21.6%	33.0%
Fertilizer[c]	3.9%	3.9%	4.5%	3.9%
Fuel	7.8%	7.4%	6.5%	4.2%
Interest	4.1%	4.8%	3.8%	6.9%
Labor[d]	9.2%	9.9%	9.5%	11.8%
Rent	3.6%	1.7%	1.7%	1.1%
Seeds & Plants	4.3%	3.9%	1.5%	2.1%
Supplies & Repairs	11.5%	12.0%	21.2%	8.7%
Taxes[e]	9.5%	8.3%	8.9%	8.3%

Source: USDA Agricultural Census

a Not including depreciation

b Includes customwork, machinery, utilities, and other production expenses

c Including but not limited to lime, soil conditioners, and manure

d Includes both hired and contract labor

e Includes property, real estate, and other taxes, excluding those paid by landlords

The property tax burden is of particular concern to many Tioga County farmers and farmland owners. Although they appear to be relatively flat in comparison to other expenditures as shown in Table 15, property taxes were identified throughout focus group discussions and survey responses as one of the primary obstacles to the viability of agriculture in the county and region. It is also important to note that the costs of regulatory compliance can be hidden in Table 15, as they are included in multiple individual line items, rather than a discrete category. Regulatory compliance represents both direct costs (e.g., equipment or training) and opportunity costs (e.g., foregone monetary or non-monetary benefits), both of which can have substantially negative impacts on farm business operations. Examples of these direct and indirect costs are identified below.

Registration, tracking, and training

For example, recent changes to New York State Motor Carrier Safety regulations (NYCRR Part 820) requires annual inspections for braking systems, coupling/towing systems, frames, cabs/bodies, wheels, steering, and suspension systems for all farm plated vehicles with gross vehicle weights between 18,000 and 26,000 lbs. This has increased direct equipment expenditures above and beyond previous regulations, which required only basic DMV safety inspections. Other direct expenditures associated

with regulatory compliance include the cost of registration for implements of husbandry (even for those pieces of equipment pulled by farm-plated vehicles), product tracking paperwork, and mandatory food handling training and regulations. Each of these (and many others) increase farm expenditures, while providing no economic return to farm business owners.

CAFO requirements

There are also significant impacts to farm income and expenditures relative to compliance with New York State Confined Animal Feeding Operation (CAFO) permitting regulations. Dairy operations seeking to expand to more than 300 cows must pay for a comprehensive nutrient management plan (and annual updates), as well as the design and construction of capital projects relative to manure collection, storage, and wastewater/stormwater management. Given the long-term uncertainty surrounding CAFO regulations and the short-term volatility of milk prices, many small dairy operations choose not to scale their operations beyond the 300-head threshold, even if they have the capacity to do so. As such, CAFO regulation compliance represents both a direct cost for those operations that expand above the threshold, and an opportunity cost for those that do not.

TMDL restrictions

In 2010, the Environmental Protection Agency (EPA) set a pollution diet, known as "Total Maximum Daily Load" (TMDL) for 6 Bay States and Washington D.C. Each jurisdiction has been given its own "target allocations" for nitrogen, phosphorus, and sediment and was required to develop a Watershed Implementation Plan (WIP) to meet target allocations and provide reasonable assurance that reductions will be achieved and maintained. New York State submitted a WIP that identified over twenty Agricultural Best Management Practices (Ag BMPs) with a variety of implementation levels to achieve the reductions in nutrient and sediment loads through continued implementation of farmstead and field conservation practices. The implementation of these practices throughout the watershed to meet the load allocations will mean additional costs to our local farms. EPA has given the 6 Bay States and Washington D.C. until 2025 to meet the load allocations they have set for each jurisdiction. If states fall behind on progress toward their load allocations the EPA may step in with "backstop" actions to ensure progress, which will involve additional regulatory measures on farms.

Tioga County rabies law

Local regulations may also pose direct or opportunity costs to Tioga County farmers. For example, Tioga County Board of Health Order 599 restricts the general public from coming into direct contact with farm animals, for the purpose of preventing the transmission of rabies. This represents a lost opportunity for animal owners to make valuable connections with the non-farming public at fairs, agri-tourism venues, and other community events, as well as the loss of potential income for animal owners that could provide services for hire.

Farm employment

Accurate assessments of farm employment are traditionally complicated by the seasonal nature of the work, the non-farm focus of common measures of employment and unemployment, and the tendency of farm owners and laborers to under-report farm jobs and income. Despite these limitations, the results of the 2012 Agricultural Census are provided below as a general indicator of farm-related employment. The 107 Tioga County farms with hired labor in 2012 reported a total payroll of $2,652,000.

Table 16, Farm employment

Farms with:	Number of farms	Number of workers
Hired Labor	107	422
1 worker	32	32
2 workers	28	56
3 or 4 workers	25	84
5 to 9 workers	16	106
10 workers or more	6	144
Workers by days worked	**Number of farms**	**Number of workers**
150 days or more	44	123
1 worker	18	18
2 workers	6	12
3 or 4 workers	11	(D)
5 to 9 workers	8	44
10 workers or more	1	(D)
Less than 150 days	91	299
1 worker	36	36
2 workers	26	52
3 or 4 workers	20	67
5 to 9 workers	5	35
10 workers or more	4	109

Source: USDA Agricultural Census

Under-represented agricultural businesses

The conditions described previously outline the size and shape of the agricultural sector that currently exists within the county. However, there are several farm and supporting businesses that are either not currently found within the county, or are under-represented relative to current market demand. Focus group discussions and survey responses indicated the absence of a number of potential agricultural-related businesses that could fill existing gaps in the county's agricultural economy, including the following:

- Implement and equipment dealers: Focus group participants indicated that they frequently travel outside of the county to purchase and repair implements and equipment, which increases both the time and cost of equipment maintenance. It also forces local farmers to keep more parts and equipment on hand than what is necessary.
- Small cereal grain and hop production/processing: The growth of the statewide beverage production industry, in addition to recent changes in state tax laws for brewers and distillers, have led to a large increase in the market demand for New York State-grown grain and hops. New York State maltsters are currently paying premium prices for grain, and the favorable state tax law for brewers and distillers will likely contribute to increased demand for both grain and hops in the near future.
- Non-traditional or niche crop and livestock production: While niche operations have increased throughout the region in recent years, insurability remains an obstacle to their establishment. Access to crop insurance for niche operations (e.g. sunflowers, malting barley) could increase local production of high-value crops with established and growing markets within the region.
- Pastured livestock: Stakeholders also indicated that the increase in market demand for pasture-fed livestock, together with the suitable local conditions and regional technical assistance programs for pasture operations, could lead to more livestock opportunities in the county.
- Post-harvest processing and storage facilities: Like equipment suppliers, the lack of local access to feed and grain cleaning, drying, and storage facilities and fiber processors can be a detriment to local agricultural operations. Farmers must frequently travel outside the county for post-harvest processing – these added costs associated with moving products to market can be a disincentive to the establishment of new, small, and niche operations within Tioga County. Several focus group participants and survey respondents noted a lack of cold storage facilities within the county, a gap that hinders the development or expansion of small livestock operations.
- Farm product marketing and distribution: As with processing and storage facilities, farm product marketing is a critically important services to which many Tioga County farm business owners do not have adequate access. Agricultural marketing and distribution services exist within the region, but do not often include Tioga County farmers. Many farm businesses within the county could benefit from a dedicated farm product marketing and distribution service of some sort.
- Value-added agriculture: Survey respondents indicated a low rate of participation in the growing value-added market. Of the minority of respondents that process their products prior to selling them, a small number are engaged in slaughtering, preserving, and drying/roasting of

agricultural products. Very few (if any) producers are engaged in packaging, cooking/baking, grinding/hulling/milling, extracting, curing/smoking, or handcrafting of their products.

- USDA-inspected slaughtering facilities: Lack of adequate access to USDA-inspected slaughterhouses limits the ability of local livestock operations to meet growing demand for local meat products. The lack of local access increases transportation cost that must be either borne by the farmers or passed along to their consumers, and inhibits a potentially productive business opportunity for both livestock operations and slaughtering facilities.

Section 4: Identification of Farmland to be Protected

One of the cornerstones of the NYSDAM Farmland Protection Planning Grant program is the identification of priority farmland to be targeted for protection implementation measures. State law guides county farmland protection initiatives to consider at least four factors with regard to the identification of priority lands for protection: their value to the agricultural economy of the county, open space value, consequences of possible conversion, and relative level of conversion pressure. In addition, counties may consider additional factors as seen fit according to local priorities or conditions.

Tioga County's agricultural lands feature a variety of different geographic, environmental, economic, and social factors that contribute to the value of each respective property. Some of these are consistent with standard determinants of priority lands elsewhere in the state (e.g., the quality and suitability of soil types), while other geographic and environmental factors are more unique to Tioga County.

In collaboration with a number of stakeholders throughout the county, a methodology has been established for the identification of priority farmland that reflects matters of local environmental and economic significance. This process incorporates various forms of geospatial data along with the first-hand knowledge of local agricultural producers and professionals. The intent of this exercise is to facilitate future efforts to protect viable agricultural pursuits and preserve valuable agricultural resources.

Methodology

The Tioga County Agriculture and Farmland Preservation Plan Steering Committee selected and weighted five criteria for prioritizing farmland for future protection and preservation efforts. Each criterion and their maximum numerical values are listed in Table 17, below.

Table 17, Weighted attributes of farmland prioritization

Attribute	Maximum Numerical Value
Prime agricultural soils or soils of statewide importance	30
Land in active agriculture	25
Location within floodplain	20
Land serving as a buffer for a significant natural resource	15
Level of competition by non-agricultural uses	10
Total	*100*

Prime agricultural soils and soils of statewide importance

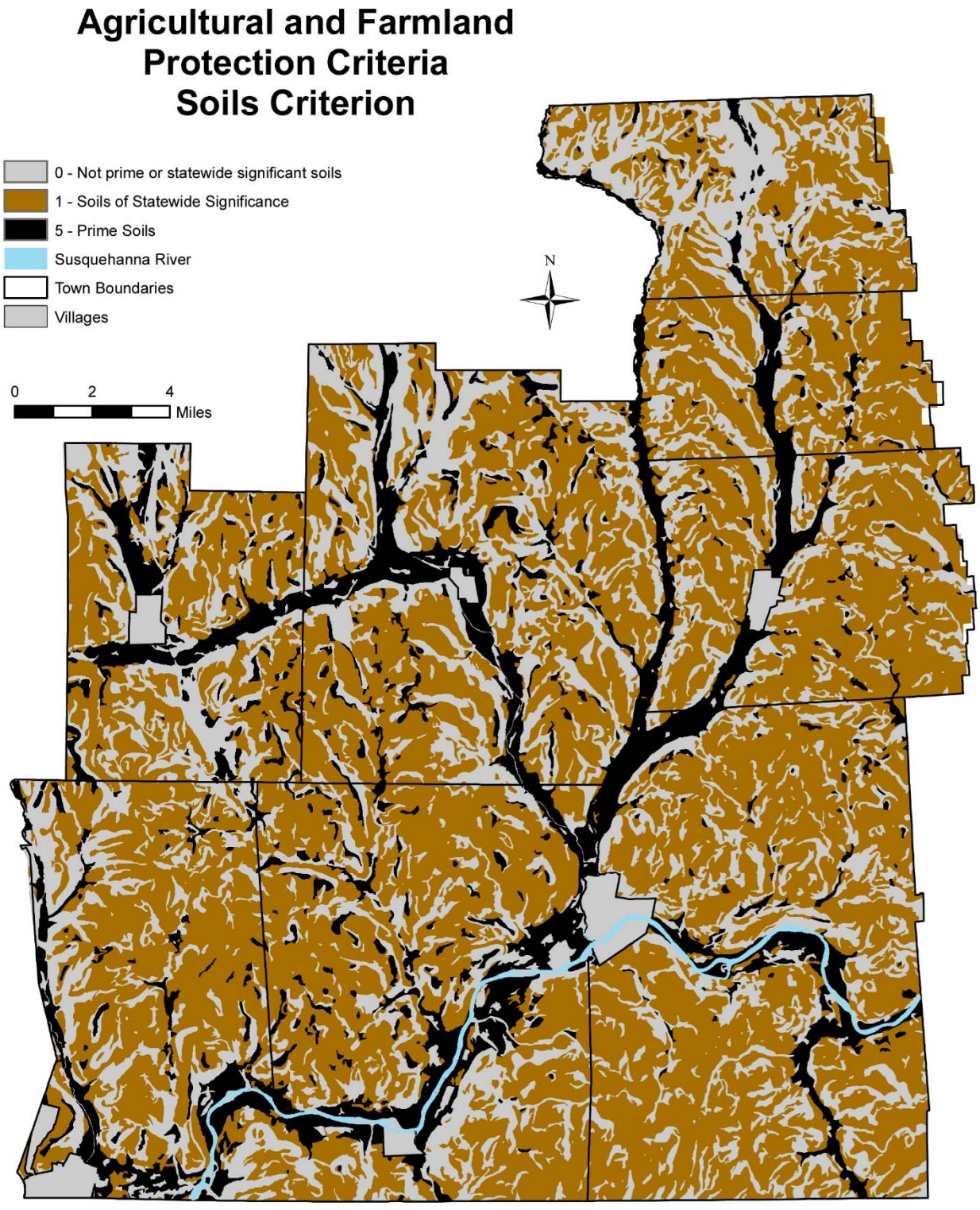
The United States Department of Agriculture defines prime farmland as follows:

> *Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding. (U.S. Department of Agriculture Handbook #18, October 1993)*

The nature of Tioga County's geography is such that its prime soils are concentrated largely in the river valleys of the Susquehanna River, Owego Creek, Catatonk Creek, and Cayuta Creek. As the USDA definition suggests, these soils are rich, productive, and amenable to a wide range of production types. Their location along watercourses is not coincidental; they are the product of thousands of years of deposition along the rivers and streams that constitute the Susquehanna River Basin watershed. Pockets of prime soils also exist elsewhere within the county, including along the many rounded hillsides so common throughout the county's landscape.

The county's prime agricultural soils are complemented by an even wider range of USDA soils of statewide importance. Although these soils do not meet "prime" standards, they may still produce high yields of crops when treated and managed accordingly, and in some cases may be as productive as prime soils. Soils of statewide importance are found in many areas throughout the county. Figure 2 displays the location of these soil classifications in 900 square meter (30m x 30m) blocks. For the county's purposes relative to the Agricultural and Farmland Protection Plan, these classifications are assigned numeric values at a ratio of 5:1:0 for prime soils (shown in black), soils of statewide importance (shown in brown), and other soils (shown in white), respectively, where higher values represent a greater priority for farmland protection measures.

Figure 2, Prime agricultural soils and soils of statewide importance

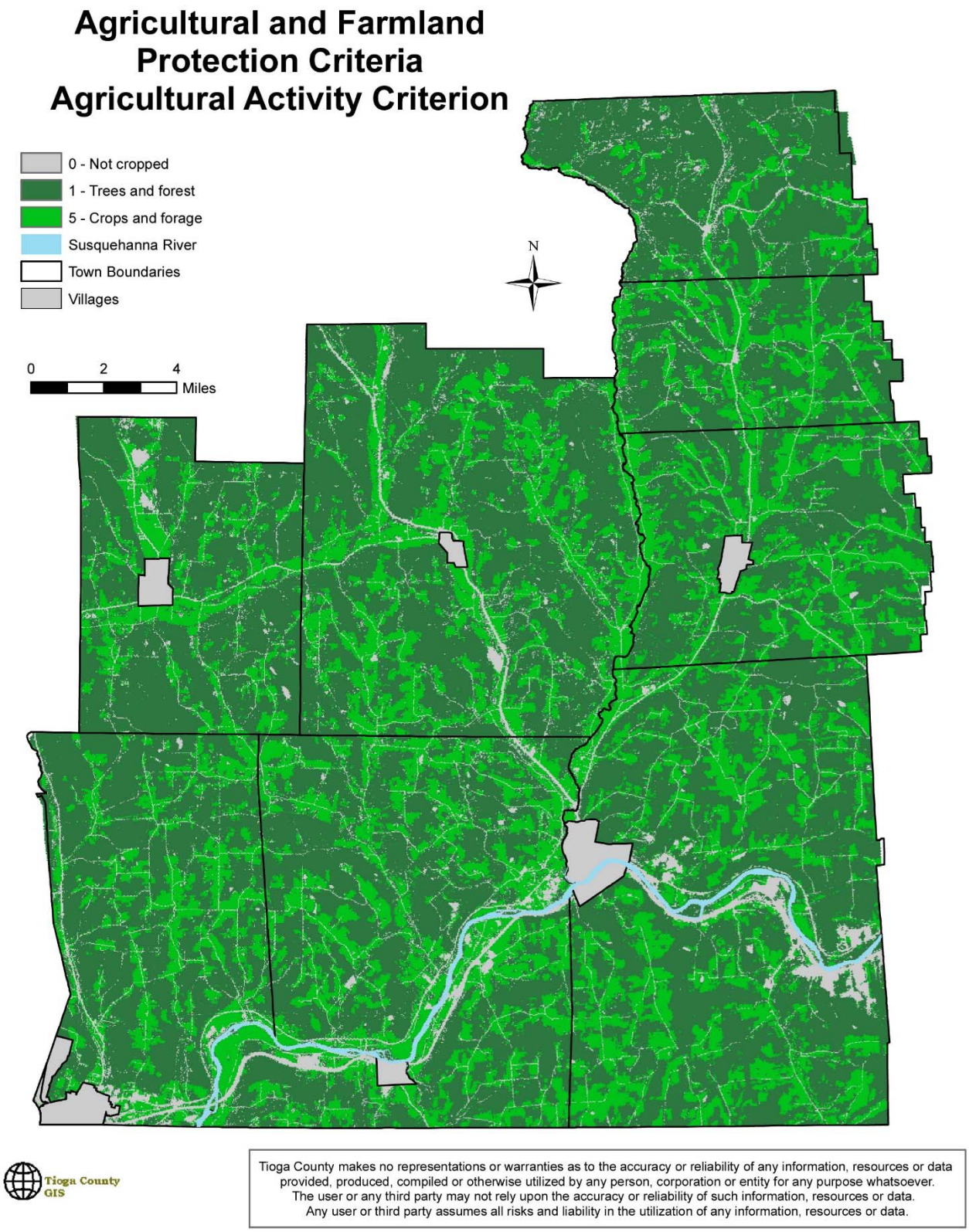


Land in active agriculture

Land which currently features agricultural uses is also used to identify priority farmlands in the county. The primary purpose for the inclusion of this criterion is to direct the county's efforts to those areas or properties where they are most appropriate. While each is appropriate in and of itself, the other four criteria may include land which is suitable for agriculture but not used as such. By identifying land which is actively used for agricultural purposes, this methodology directs the county's priorities only toward properties or areas where implementation efforts are necessary and useful.

The identification of land in active agricultural use utilizes the Cropland Data Layer produced by the National Agricultural Statistics Service of the U.S. Department of Agriculture in 2013. Land use features within this database were reclassified into three broad categories and assigned numeric values as shown in Figure 3: 0 - not cropped (gray), 1 - trees and forest (dark green), 5 - crops and forage (bright green), where higher values represent a greater priority for farmland protection measures.

Figure 3, Land in agricultural use



Land in floodplains

The prioritization of land in floodplains serves multiple purposes, reflecting both economic and environmental concerns that impact the agricultural sector and the community at large.

Floodplains feature ecological conditions that are ideal for many types of agricultural production, some of which cannot be found outside of the floodplain. The deposition of silt, nutrients, and other critically important components of soil that occur as a result of occasional flooding results in exceptional soil fertility. Although the floodplains found in Tioga County are not particularly wide, they are generally flat and feature well-drained soils, two characteristics that are particularly suitable for agricultural uses.

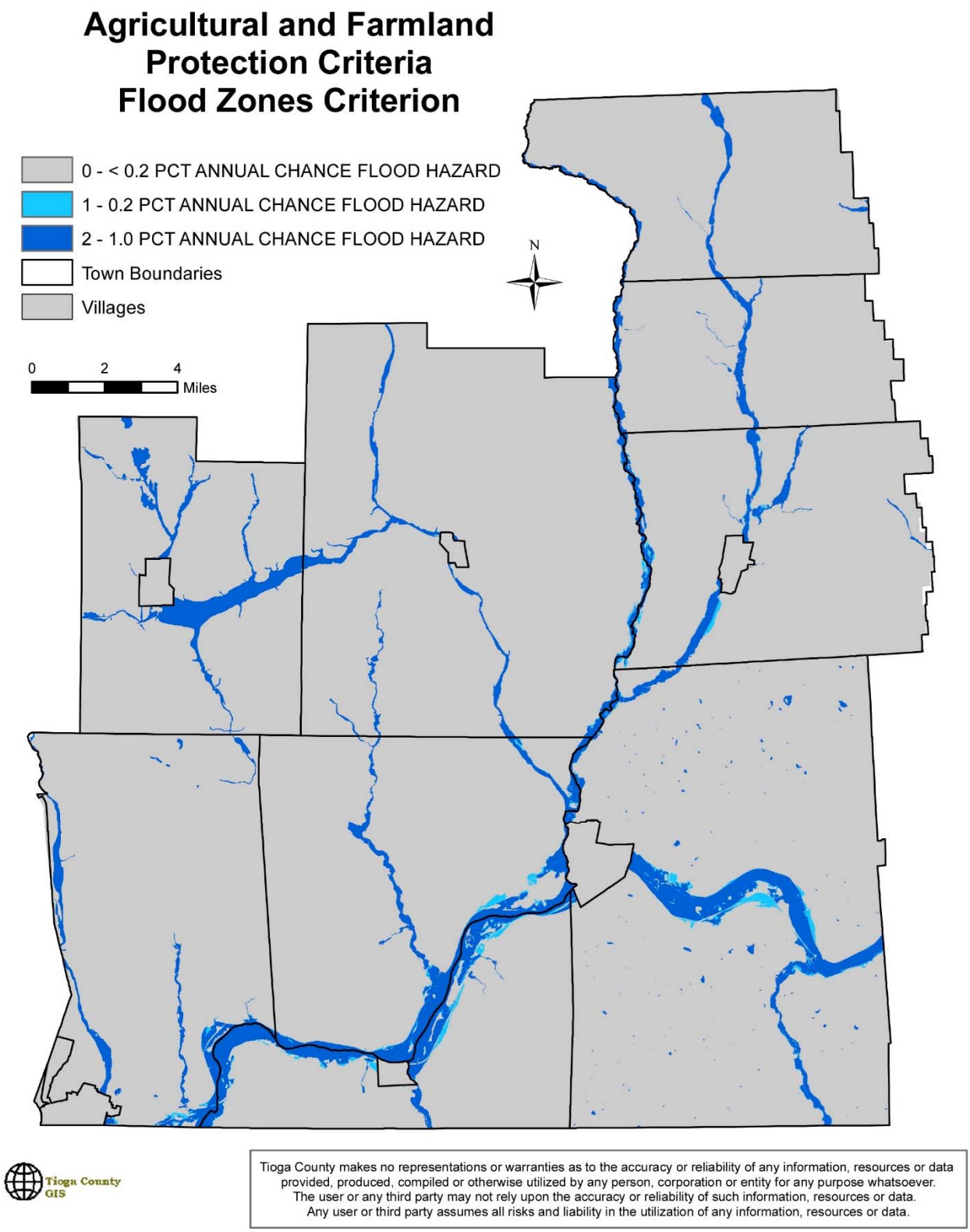
In recent years, Tioga County has experienced a number of catastrophic flooding events that have resulted in millions of dollars of damage to both public and private property and infrastructure. These events have sharpened the county's focus on resiliency in the face of extreme weather events. The flat and well-drained nature of floodplains may make these areas as attractive for development as they are for agriculture; unfortunately, development within the floodplain increases long-term risks both to individual properties and the community as a whole by impairing the natural function of rivers and streams. By contrast, although agricultural uses may also be damaged by periodic flooding, they pose much less risk of catastrophic loss, and help to mitigate the events' impacts on the community at large.

The Federal Emergency Management Agency (FEMA) provides floodplain data. In Tioga County, land falls into one of the following categories, as shown in Figure 4:

- A and AE zones have a 1.0 percent or greater annual chance of a flood hazard (dark blue)
- The X500 zone has an annual chance of a flood hazard less than 1.0 percent and greater than or equal to 0.2 percent (light blue)
- The X zone has an annual chance of a flood hazard of less than 0.2 percent (white)

For the purposes of this exercise, the FEMA data was reclassified to assign values of 2 to the A and AE zones, 1 to the X500 zone, and 0 to the X zone, where higher values represent a greater priority for farmland protection measures.

Figure 4, Land in floodplains

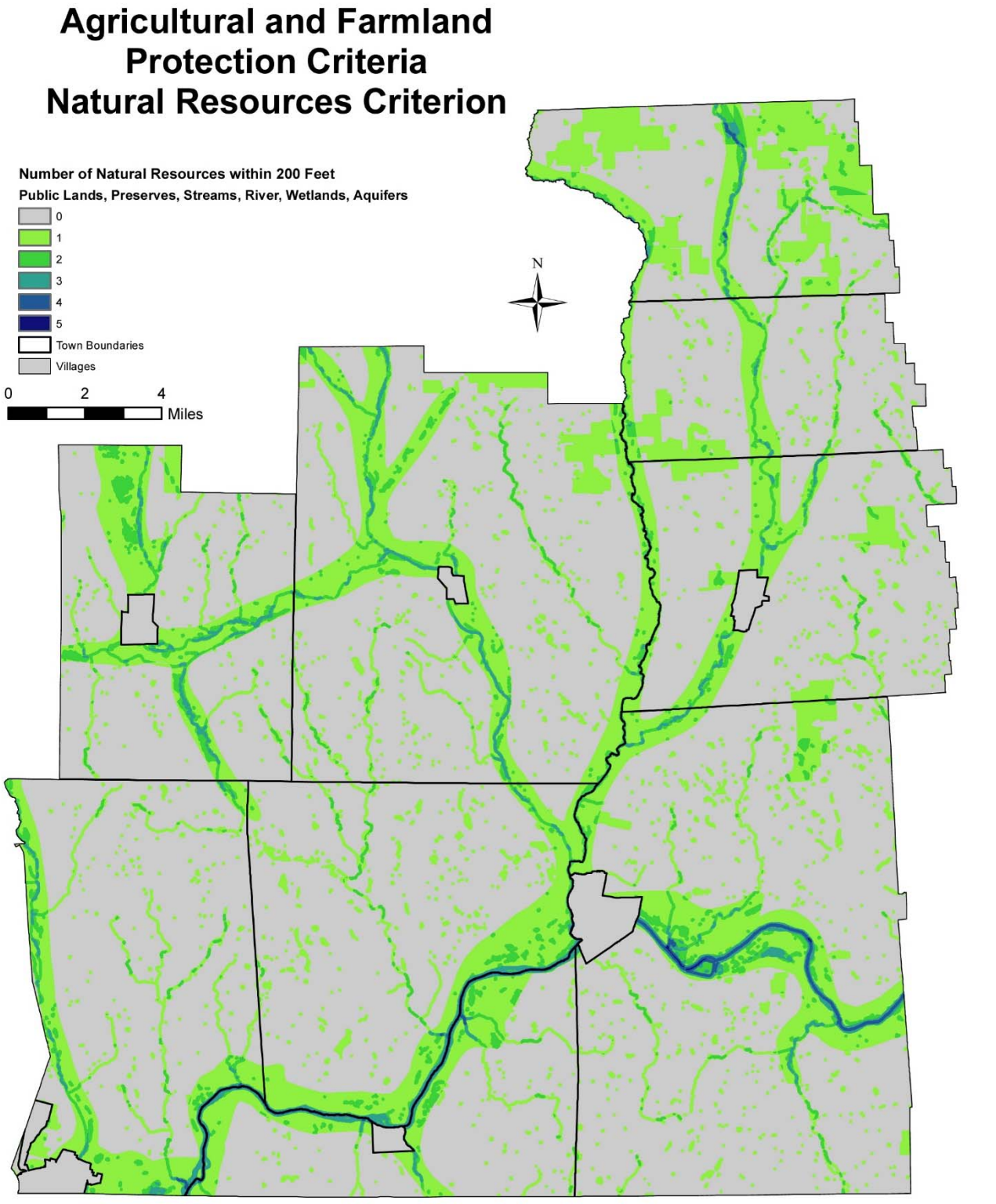


Natural resource buffers

Although more intensively managed than other portions of the undeveloped landscape, farmland is considered an integral component of the ecology of Tioga County. As such, natural (e.g. undisturbed forest) and agricultural areas throughout the county benefit from their adjacency or proximity to one another. Potential edge effects of disturbed landscapes on forest habitats notwithstanding, agricultural landscape features such as pastures and grasslands, vegetative hedgerows, and woodlots provide critical sources of habitat, food, and shelter for wildlife. Woodland and grassland bird species forage on waste grain; insectivorous birds, bats, and other animals help to control agricultural pests; and well-maintained fields may help control sedimentation and nutrient loading in nearby watercourses. Contiguous natural and agricultural areas also represent a cultural benefit to the county, as they help to maintain a bucolic landscape that is a hallmark of a local rural lifestyle.

This criterion considers the proximity of land to certain natural resources: aquifers, streams, the Susquehanna River, wetlands, nature preserves and parks (including public forests). For the purposes of this exercise, 200-foot buffers are generated around these features. All land is awarded one point for each natural resource category that is within a distance of 200 feet, with higher numerical totals representing greater priorities for farmland protection measures. Figure 5 shows the countywide map with a yellow (score = 0) to dark blue (score = 5) color ramp.

Figure 5, Natural resource buffers



Development pressure

Development pressure is a common theme of many farmland protection initiatives. Many types of development represent a permanent (or nearly permanent) degradation of the conditions that have contributed to quality soil, amenable topography, and a suitable climate for agricultural production since the retreat of the Pleistocene glaciers.

Although development pressure is a common concern with regard to agricultural resource protection, the nature of development in a rural area such as Tioga County is not analogous to that which is experienced in more populated areas (e.g. Westchester or Erie Counties). In other regions of the state, particularly those experiencing population growth, commercial development and either incremental or wholesale residential subdivisions continue to consume both active and abandoned farmland.

Tioga County experiences this pressure to a limited extent, but farmland in this area is also consumed by the expansion of gravel mining operations. The same geological conditions that have contributed to the flat, well-drained areas favored by both agriculture and traditional development also make the river valleys of Tioga County attractive for these mines, and several prime agricultural properties have been lost in recent decades as a result.

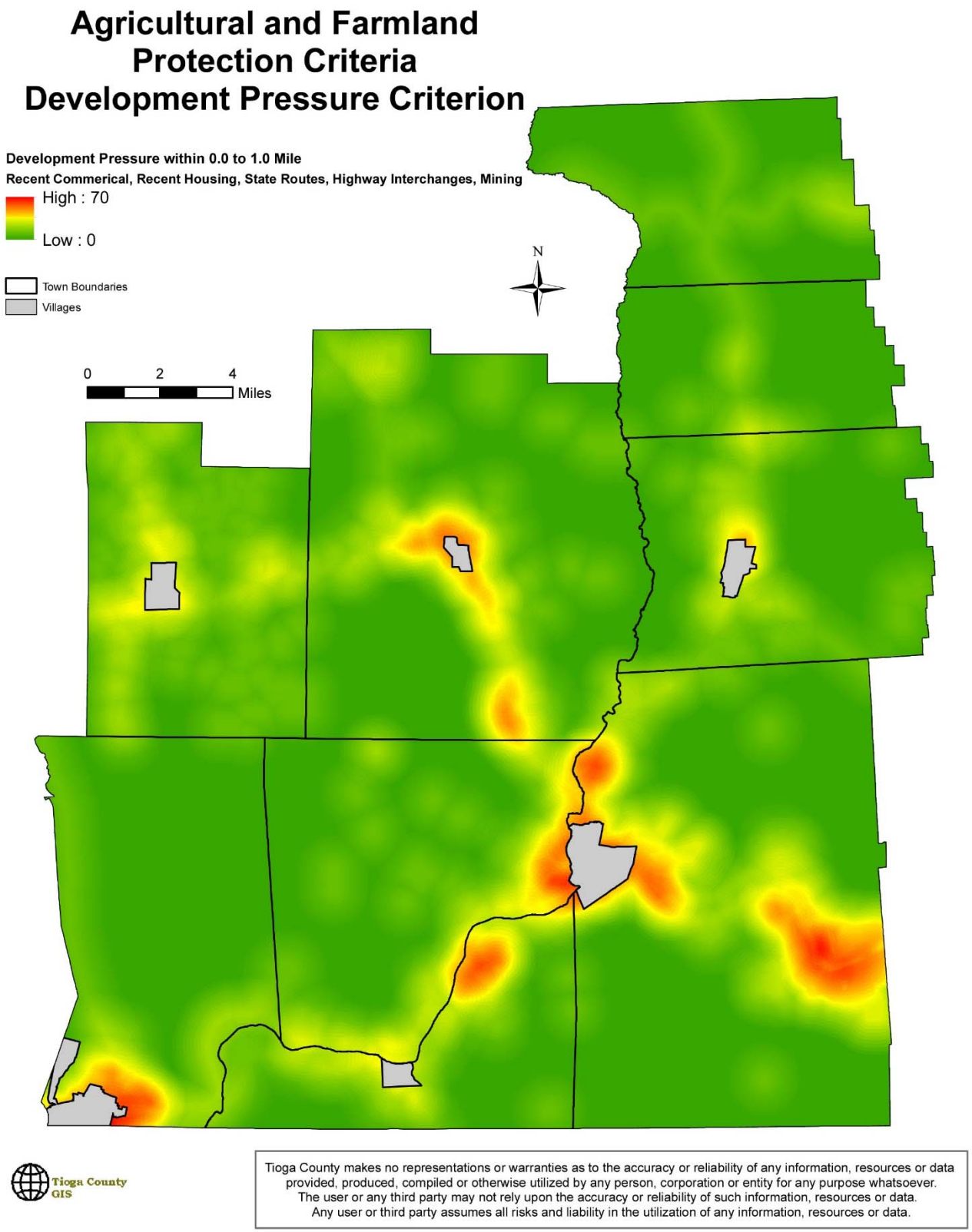
For the purposes of this exercise, several indicators of existing and potential future development pressure are considered. These include infrastructural elements that typically facilitate commercial and residential development (water, gas, and sewer mains, as well as state roadways), as well as the location of gravel mining operations. For each of these features, buffers are generated in 0.1 mile increments of all land within a mile of each feature. Scores are assigned to land within those buffers as follows:

- Land more than one mile from these features receive a score of 0
- Land less than 0.1 miles from these features receives a score of 10
- Land from 1.0 mile to 0.1 mile from these features receives a score between 1 and 9, according to proximity

This analysis is performed for each feature, and the scores for each are added together to give each 900 square meter (30m x 30m) parcel of land a total development pressure score where higher values represent a greater priority for farmland protection measures.

The results of the development pressure analysis are shown in Figure 6, where high values are redder, and low values were greener. The highest score achieved was 62. The map uses a minimum-maximum classification so that land with scores in the middle of the range of scores is yellow.

Figure 6, Development pressure



Analysis

The cumulative scores for each 900 square meter are the arithmetical product of their raw scores for each criterion and a series of multipliers used to weigh criteria in accordance with the priorities established by the Steering Committee. The value that each 900 square meter block of land received for each criterion was multiplied by the appropriate factor that awarded full value for the criterion to the land with the highest raw scores. Table 18 shows the multiplier for each criterion.

Table 18, Weighted values used in final analysis of priority lands for protection

Criterion	Max. raw score	Multiplier	Max. weighted score
Prime agricultural soils or soils of statewide importance	5	6	30
Land in active agriculture	5	5	25
Location within floodplain	2	10	20
Land serving as a buffer for significant natural resource(s)	5	3	15
Level of competition by non-agricultural uses	62	10/62	10
Total			***100***

After multiplication of the raw score for each criterion by the appropriate multiplier, the scores for each criterion are summed to yield the total score for each cell. Figure 7 shows the result, with land scoring more than 48 placed in the category of highest preservation priority (blue), cells scoring between 21 and 48 placed in the category of medium preservation priority (yellow), and cells scoring 21 or less placed in the category of lowest preservation priority (gray).

The selection and weighting of the criteria as described in Table 18 are a testament to the importance of agricultural uses within the floodplain, which is underscored in Figure 7. As shown there, the highest priority agricultural lands for protection are located largely in and around watercourses in Tioga County, including but not limited to the following:

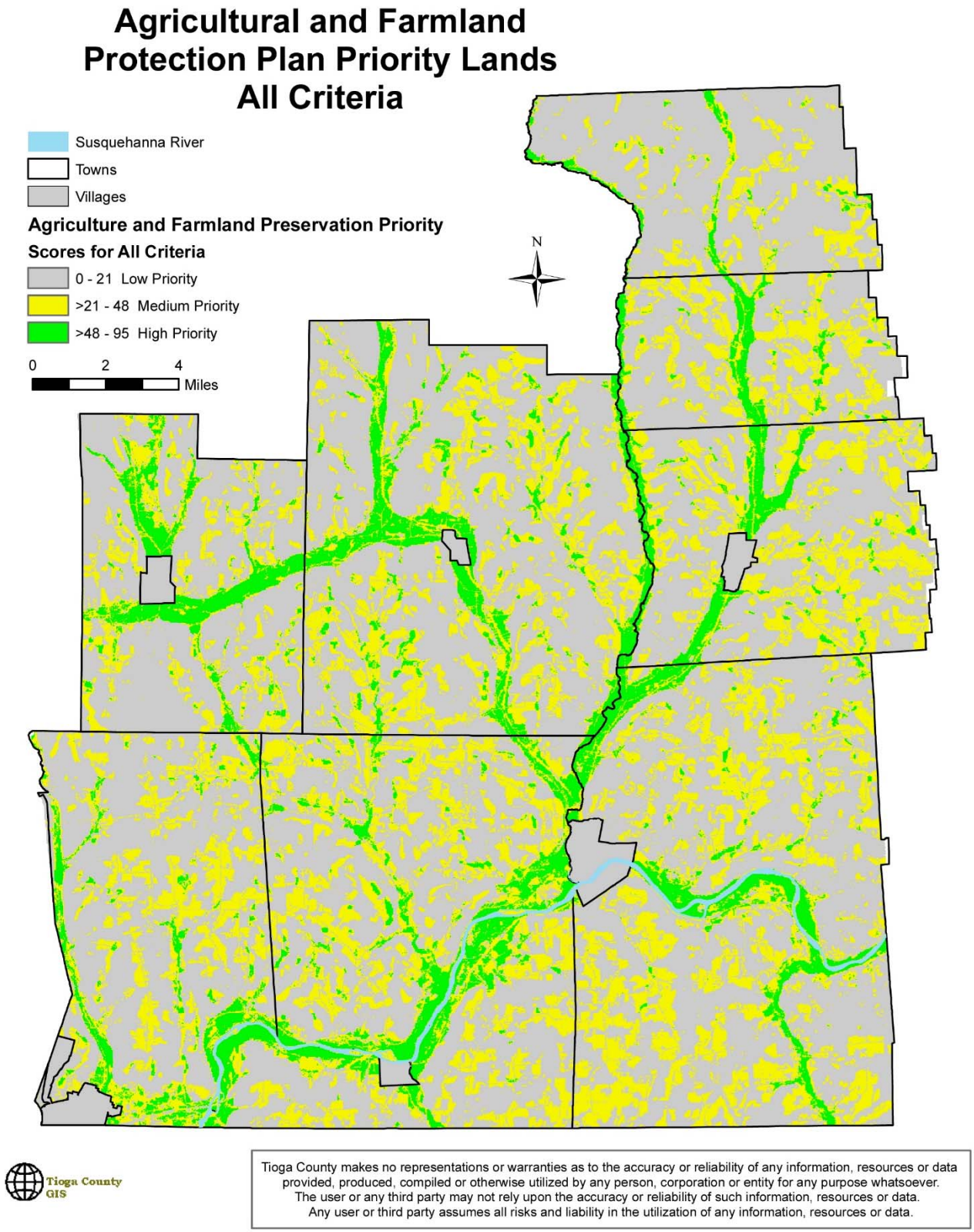
- Susquehanna River
- East and West Branches of the Owego Creek
- Catatonk Creek
- Cayuta Creek
- Pipe Creek
- Wilseyville Creek
- Michigan Creek
- Apalachin Creek
- Wappasening Creek

For many reasons discussed throughout this section, working agricultural fields located in floodplains are important not only to agriculture itself but also the county as a whole. During a flood event, these agricultural floodplains, which contribute to flood attenuation and water absorption and therefore beneficial to flood mitigation, do not require the attention of emergency services. Not only is money saved, but it also means the risk to human life is eliminated both on the part of residents and emergency service providers, and of course, resulting in less property damage overall. Therefore, resources aimed at maintaining and enhancing agricultural uses within the priority areas shown in Figure 7 will have beneficial impacts that go far beyond individual farm businesses. This effort contributes to the quality of life countywide.

The distribution of priority lands highlights the importance of the agricultural economy to each town, resident, and business throughout the entire county. Although the Town of Richford may not feature as many priority areas as the Town of Tioga, for example, its residents still pay county taxes. To the extent that farming enterprises in any one town remain viable, county taxpayers in all other towns benefit both directly and indirectly, as agricultural uses are generally tax-positive (meaning that they require fewer county expenditures than what they pay in county taxes).

It is noted that the purpose of identifying lands for future protection is to focus limited resources toward those areas where intervention efforts may have the greatest positive impact on the viability of the county's agricultural sector. However, this exercise does not strictly limit Tioga County's resources only toward the lands shown in green, nor does it limit the county's resources only toward farms and farmland itself. Land-based approaches toward farmland protection (e.g., conservation easements, purchase of development rights, etc.) are just some of the options available to the county. Many worthy efforts and investments may be made that would help to improve and sustain the local farming community that do not necessarily focus on farmland per se (e.g., expansion of broadband infrastructure, development of processing facilities, etc.).

Figure 7, Identification of priority farmland for protection



Section 5: Strategies and Recommended Actions

As noted on page 2 of this plan, the following seven goals have been established in support of a vision for a viable, diverse, and growing agricultural sector within Tioga County:

1. Achieve sustainable growth in the agricultural economy
2. Maintain adequate access to quality farmland
3. Attract new and beginning farmers
4. Develop and support agricultural education, and provide technical assistance
5. Improve communication between farmers, rural landowners, and public agencies
6. Assist farms in dealing with environmental challenges and opportunities
7. Increase the economic viability of agriculture through increased energy efficiency and use of local natural energy resources

These goals represent broad future outcomes that the county and its partners in agricultural protection would like to achieve through the creation and implementation of this plan. Throughout the course of this initiative, a range of stakeholders throughout the county have contributed to a robust list of

recommendations for the purpose of advancing the county's vision and goals. Organizations and individuals have discussed their own existing activities, proposals for future initiatives, and business plans. In light of the input received during the planning process from a range of critical stakeholders, and in consideration of the opportunities and constraints that exist throughout the regional agricultural sector, the following strategies are proposed as a comprehensive approach to achieving the county's goals.

Description of agricultural and farmland protection strategies

Increase the profitability of existing farm enterprises within Tioga County

The agricultural sector means many things to many people: a source of local identity; steward of environmental resources; employment center; provider of food and fiber, etc. But at the heart of more than 530 farming operations within the county is a *business enterprise*. Like all businesses, farming operations have revenues, expenditures, assets, and liabilities. They assume risk, invest in their own growth, and occasionally fail. Sustainable growth of the agricultural sector can only be achieved if downward trends of farming enterprise profitability are reversed through increased revenues and/or decreased expenditures.

Develop new opportunities for production, aggregation, marketing, and distribution

In order to achieve growth, Tioga County's agricultural sector will have to "grow the pie", which will require a reevaluation of what is grown and raised, how it is moved to market, and to whom it is sold. The evolution of the agricultural value chain is rapid and ongoing, and demands flexibility and innovation on behalf of growers, packers, shippers, and retailers. This will require Tioga County's agricultural sector to consider changes both within and outside the county, integrate the practices that are working best in other regions, and develop those that are unique to its own resources.

Increase opportunities for new farm owners and operators

For many years, the agricultural sector has suffered downward trends in the number of new operators entering the field, which has resulted in the steady increase of median age among existing operators. With fewer entrants and an aging "bubble" of operators that will leave the sector within the next generation, Tioga County is at risk of losing those farm businesses and the institutional knowledge contained within them. Existing networks within the agricultural sector and beyond must work to show younger generations that a farming career can be both personally and professionally rewarding.

Assist municipalities in the development of farm-friendly policies and ordinances

Regulatory burdens on farming operations have been increasing in recent years, at the same time as reductions to the direct and indirect resources that the federal and state governments once provided to the agricultural sector. While many farming operations are shielded from local regulatory over-reach through the protections offered by their Agricultural Districts, there remain several aspects of local regulations and policies that could be revised to ease those burdens and better facilitate the growth of local operations. Although the county does not have a direct role in most land use regulation, it does have indirect influence to local municipalities through funding, programming, and technical assistance.

Support local property owners' applications for participation in land conservation programs

Land conservation programs are one approach to maintaining an adequate supply of farmland in the community. Voluntary public and private programs are available to local operations with the intention of keeping land in production in the long-term, in exchange for tax benefits or direct payments to landowners. Landowners can often be discouraged from participation by the shifting and cyclical nature of funding for such programs, or by the daunting amount of paperwork required. Given the community-wide benefits of preserved farmland that come at little cost to the county, there is certainly a role to play in supporting landowners interested in applying to these programs.

Facilitate the transfer of agricultural property for agricultural purposes

The purchase and sale of property is an expensive process, and this is no different when it comes to agricultural properties. Multiple levels of government exact multiple types of fees, from sales tax to estate tax, real estate transfer taxes, notarial fees, mortgage recording taxes, etc. While reducing the county's role in the expense of this process may not have a large direct impact, there may be opportunities to incentivize sellers to work with buyers that will keep their land in production.

Explore the possibilities of incentive based programs for beginning farms

In recent years, property speculation related to mineral rights has had a negative impact on the availability and affordability of farmland in Tioga County, making it even more difficult for beginning farms and farmers to establish themselves here. To further complicate matters, incentive-based programs for new farmers are emerging across the northeast, in response to many of the same demographic conditions faced by Tioga County (specifically, the increasing median age of farm operators). In order to compete for the types of entrepreneurs looking to establish new farming businesses, Tioga County and its economic development partners will have to do their part to attract, welcome, and support them where possible.

Educate the agricultural community about available programs and technical assistance

Financial and technical assistance programs exist at multiple levels of government, involve multiple agencies and the private sector, and are designed for multiple types and sizes of agricultural enterprises. There seems to be a program for every farm business and every type of farmer, but navigating this network is no easy task, particularly for those that are new to the field. In their interactions with landowners, farmers, neighbors, and municipal staff, county agencies have a role to play in making connections between the many programs at work within the county and those that could potentially benefit from them.

Develop educational strategies and provide outreach to local youth

One of the greatest obstacles to developing future farming entrepreneurs is simply getting the concentrated attention of young people that may be receptive to that message. The competition for the time and attention of young people is tight and getting tighter both within and outside of the school system. As a result, agricultural curricular components are largely absent, and extracurricular activities such as 4-H, FFA, and others are at risk of declining enrollment. The agricultural sector throughout the county should support formal and informal agricultural educational outreach in an effort to help attract the next generation of agricultural operators and entrepreneurs into the workforce.

Develop educational strategies and provide outreach to the general public

The benefits of educational outreach are not limited to younger people, however. Many adults in the non-agricultural community have an incomplete understanding of where their food and fiber comes from, and what it takes to produce, process, and transport the agricultural products they depend on. A deeper understanding of these systems is critically important to building community support for farm-friendly policies and farmland protection implementation measures.

Inform elected officials of agricultural concerns, trends, and opportunities within the county

Over the course of the past several decades, the direct participation of farm owners and operators in their local governments has decreased. As a result, the local policies most important to them – whether related to land use decisions and regulations, taxes, or other issues– are often shaped without the benefit of their experience. In addition to educational outreach strategies aimed at youth and the public at large, targeted outreach to elected officials will ensure that local and regional decision-makers receive greater exposure to the issues that matter most to farms and farmers, so that local governance can more adequately reflect the importance of the agricultural sector to communities and economies throughout Tioga County.

Serve as a conduit for communications between landowners and affiliated agencies

Tioga County staff members interact with landowners large and small on a daily basis, whether through the Department of Economic Development & Planning, the Office of the County Clerk, Department of Public Works, Office of Real Property Tax Services, Soil & Water Conservation District, or any number of

others. Various departments and agencies offer programs that could be of great benefit to landowners that may not even know what is available to them. As a conduit for communications between landowners and appropriate agencies, county departments and staff members can have a direct impact on agricultural and farmland protection initiatives relative to both economic viability and environmental stewardship.

Promote the use of best practices on farms to provide for environmental sustainability on farms

This strategy capitalizes on the efforts of the Soil & Water Conservation District, Cornell Cooperative Extension, and other agencies and organizations dedicated to the environmental quality and stewardship of the county. Many of these agencies administer valuable programming aimed at reduced erosion and nonpoint source pollution, stream restoration, wetland protection, energy production from agricultural sources, and other sustainable practices. The promotion of these programs to landowners and farm operators will help to ensure that they receive the assistance that has been designed for them.

Prevent, minimize, and mitigate flood damage

Flood damage has been one of the primary environmental concerns throughout Tioga County's agricultural sector in recent years. After several catastrophic flooding events in several parts of the county, many agricultural operations suffered severe damage not only to their crops, but also to their land, equipment, and structures. While agricultural uses are acknowledged as the most appropriate land use within the floodplain, the county seeks to prevent and minimize flood damage to farms to the extent possible, and to mitigate this damage where and when it occurs.

Work with local and state agencies to enhance farmers' access to sources of renewable energy

Agricultural operations have natural advantages regarding access to renewable energy in that many can produce energy on the farm, through resources such as methane and biomass. The production and consumption of renewable energy on the farm is one way in which operations can become more self-sufficient, resilient, and even profitable. However, the process of developing the required infrastructure (i.e. production, transmission, and distribution systems) can be complicated and capital-intensive. County agencies can capitalize on their direct relationships with local landowners to increase participation in local, state, and federal renewable energy programs that serve agricultural operations, as well as those administered by utility providers.

Support the development and use of local natural energy resources

The practice of agriculture is built on a foundation of the responsible use of natural resources; indeed, no sector of the economy is more reliant on the environmental quality of land, air, and water resources more so than the farming community. The development of local energy resources can generate revenue for landowners, which is consistent with the county's goal of increasing the viability of farming enterprises.

Goal/strategy/action matrix

Through the Agricultural and Farmland Protection Plan, Tioga County seeks to advance these strategies in an effort to achieve its vision and goals for the future of the agricultural sector. The county has identified a number of potential implementation measures associated with each strategy that will help farmers, county staff and their programming partners, and the general public to create an environment that supports the viability, diversity, and growth of the agricultural community. Table 19 identifies a number of recommended actions in support of the goals and strategies listed above, as well as a number of potential lead agencies or organizations that could advance each action. A key to agency and program acronyms is provided below:

- AEM- Agricultural Environmental Management
- AFPB- Tioga County Agriculture & Farmland Protection Board
- ARG- Tioga County Agricultural Resource Group
- CCE- Cornell Cooperative Extension of Tioga County
- CoC- Tioga County Chamber of Commerce
- EDP- Tioga County Department of Economic Development & Planning
- EQIP- Environmental Quality Incentive Program
- FB- Tioga County Farm Bureau
- GIGP- Green Infrastructure Grant Program
- IDA- Tioga County Industrial Development Authority
- NYSDAM- New York State Department of Agriculture & Markets
- REAP- Tioga County Rural Economic Area Partnership
- STERPDB- Southern Tier East Regional Planning & Development Board
- STREDC- Southern Tier Regional Economic Development Council
- SWCD- Tioga County Soil and Water Conservation District
- Tourism- Tioga County Office of Tourism

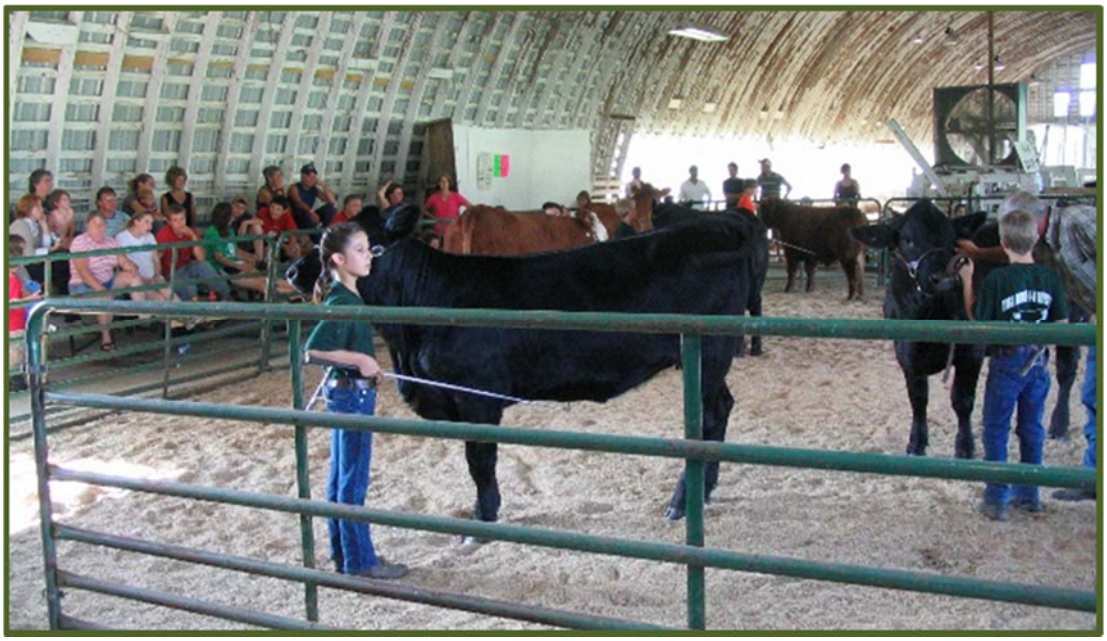


Table 19, Goal/Strategy/Action matrix

Goal	Strategy	Recommended actions	Agency or group to complete the action
1. Achieve sustainable growth in the agricultural economy	a. Increase the profitability of existing farm enterprises within the County	i. Publish, distribute and educate farm and rural landowners with informational materials regarding available property tax exemptions, tax credits, and investment credits	CCE in partnership with USDA Waverly Office
		ii. Examine the feasibility of a local machinery/equipment cooperative	SWCD, CCE
	b. Develop new opportunities for production, aggregation, marketing, and distribution	i. Partner with regional initiatives such as Finger Lakes Fresh Food Hub, Broome & Chemung County Farm Market efforts.	CCE in partnership with existing groups
		ii. Develop and support funding opportunities (e.g. STREDC Rural Initiative or others) for both on farm and county-based value added processing including feasibility for packing house, brick-and-mortar aggregator, or web-based aggregator	CCE, REAP, EDP, IDA, STREDC
		iii. Identify crop and livestock that can increase farm profitability	CCE
		iv. Partner with food and health network to address food procurement policies to increase purchase of farm products by institutions	CCE
		v. Provide information and training to local farmers to enhance their success in beginning and expanding direct farm marketing enterprises, understanding of social media and internet opportunities	CCE
		vi. Provide education and training to support Agri-Tourism opportunities	CCE, CoC, Tourism, ARG
		vii. Encourage the development of expanded broadband infrastructure, cellular coverage, and improved rail service	EDP, STERPDB, IDA
	c. Develop new opportunities for farm finance and business development	i. Facilitate the establishment of a finance cooperative specifically oriented to agricultural lending and agricultural enterprise development	IDA, CCE, FB
		ii. Utilize existing or emerging funding resources (e.g. STREDC Rural Initiative, Southern Tier On-Farm Enhancement Program) to leverage farm business expansions	IDA, STREDC, CCE
		iii. Establish farm business development program to provide business mentorship and assist with enterprise budgeting, marketing strategies, etc.	CCE, FB

Goal	Strategy	Recommended actions	Agency or group to complete the action
2. Maintain adequate access to quality farmland	a. Increase opportunities for new farm owners and operators	i. Publish guidance materials and informational sessions for intergenerational transfer, succession planning, and related business continuity concerns, and distribute guidance materials to farm owners and owners of large rural parcels	CCE, Small Business Administration, FB
		ii. Promote local participation in the NY FarmNet and Finger Lakes FarmLink programs	CCE
	b. Assist municipalities in the development of farm-friendly policies and ordinances	i. Promote adoption of Right to Farm laws by the County (via resolution) and all towns in Tioga County	SWCD, FB, CCE, NYSDAM
		ii. Educate municipal agencies on the use of Agricultural Data Statement in decisions involving lands near or adjacent to agricultural operations	EDP
		iii. Examine impacts on local agricultural operations for proposed actions subject to County review pursuant to Section 239-m of the General Municipal Law (e.g. issuance of special use permits; approval of site plans; granting of variances, etc.	EDP, AFPB, NYSDAM
		iv. Review municipal ordinance and comprehensive plans for real and potential barriers to agricultural land uses and provide examples of ag friendly ordinances	EDP, AFPB, NYSDAM, FB
		v. Review and update guidance documents regarding purchase of development rights and develop language for leasing and transferring of development rights	ARG
	c. Support local property owners' applications for participation in land conservation programs	i. Publish and distribute program or process summaries for USDA Agricultural Land Easement program, NYS Purchase of Development Rights program, independent easement donation, and local/regional land trust programs	ARG
		ii. Provide letters of support for candidate properties from County Agricultural & Farmland Protection Board for state and federal programs as requested	AFPB, EDP
	d. Facilitate the transfer of agricultural property for agricultural purposes	i. Review options and provide suggestions to legislature on fees associated for agricultural transfer of properties through farm succession plans	EDP , STERPDB
3. Attract new and beginning farmers into the agricultural sector	a. Reduce barriers to entry into farm ownership	i. Explore incentive-based programs for beginning farmers' access to land and capital	CCE, ARG

Goal	Strategy	Recommended actions	Agency or group to complete the action
3. Attract new and beginning farmers into the agricultural sector (cont'd)	b. Educate new and beginning farmers about available programs and technical assistance	i. Publish and distribute information summarizing local, regional, state, and federal assistance programs for beginning farmers in Tioga County, including on the county website and via a mobile application	CCE, ARG, EDP
		ii. Create a one stop shop for farmers to access program information, this would include information about NRCS, FSA, SWCD, and CCE programs at an annual event	ARG
4. Develop and support agriculture education and technical assistance programming, and provide technical assistance	a. Develop educational strategies and provide outreach to local youth	i. Pursue funding for the development of new curricula in BOCES, K-12 education and after school programming	CCE, ARG
		ii. Develop and implement an "agricultural ambassador" program for local youth	CCE
		iii. Support broad-based youth programming (e.g., community garden programs, FFA, 4-H, etc.)	CCE
	b. Develop educational strategies for the general public	i. Support existing farm apprenticeship and internship programs	ARG
		ii. Continue county support of Sundaes at the Farm and other public awareness programming	ARG
	c. Continue support for SWCD and CCE programming	i. Update agricultural outreach print materials	SWCD, CCE
		ii. Schedule program update meetings with legislative leaders	SWCD, CCE
		iii. Seek local, state, and federal financial support for SWCD and CCE programs	SWCD, CCE
5. Improve communication between farmers, rural landowners, and public agencies	a. Inform elected officials of agricultural concerns, trends, and opportunities within the county	i. Publish and distribute a periodic (e.g. semi-annual) summary of the state of agriculture within the county, tracking measurable indicators of progress and provide presentation of the information at a legislative work session	ARG (FB, SWCD, CCE)
	b. Serve as a conduit for communications between landowners and affiliated agencies	i. Maintain a multi-media clearinghouse of program information (including contact information) relative to USDA/NRCS, FSA, SWCD, CCE, and Farm Bureau programs and projects	ARG
		ii. Promote the establishment of agriculture advisory committees in Tioga County municipalities with large agricultural sectors to advise town boards and committees on matters pertaining to agriculture	FB, AFPB, CCE, SWCD, EDP
		iii. Create a structure through the Agriculture and Farmland Protection Board for mediating and resolving disputes between farmers and non-farmers over agricultural practices	CCE, SWCD, FB, NYSDAM

Goal	Strategy	Recommended actions	Agency or group to complete the action
5. Improve communication between farmers, rural landowners, and public agencies (cont'd)	b. Serve as a conduit for communications between landowners and affiliated agencies (cont'd)	iv. Educate and train local assessors on ag assessments, ag districts and properties with conservation easements	SWCD & NYSDAM
		v. Educate and keep and open line of communications with law enforcement officials (County Sheriff, State Troopers, NYSDEC Environmental Officers, code enforcement)	ARG (FB)
		vi. Partner with local assessors and agricultural organizations/agencies to create an informational session for agricultural landowners regarding agricultural assessments	SWCD, NYSDAM
6. Assist farms in dealing with environmental challenges and opportunities	a. Promote use of best practices on farms to provide for environmental sustainability on farms	i. Publish and distribute summaries of available grant/loan programs within the county relative to environmental improvements (e.g. EQIP, GIGP, NY Rising, AEM), and support local project applications into these programs	ARG
	b. Create local advisory committee to provide local input on changes and modifications to best management practice strategies	i. Participate in Local Working Groups meetings	SWCD, ARG
	c. Promote enrollment in voluntary incentive-based agricultural programming	i. Educate and inform farms about AEM program, including planning and implementation process	SWCD
	d. Prevent, minimize, and mitigate flood damage	i. Promote the value of protecting river bottomlands and floodplains for agricultural use as a means of reducing flood damage in Tioga County	ARG
		ii. Educate public on benefits of agriculture in floodplains	ARG
		iii. Review local flood damage prevention ordinances and promote updated ordinance language to incorporate best practices	EDP
		iv. Publish and distribute a model floodplain overlay ordinance to those communities with existing ordinances	EDP
		v. Pursue funding for a cost-benefit analysis of flood impacts and mitigation relative to different floodplain land uses in the county	EDP, AFPB, SWCD

Goal	Strategy	Recommended actions	Agency or group to complete the action
6. Assist farms in dealing with environmental challenges and opportunities (cont'd)	d. Prevent, minimize, and mitigate flood damage (cont'd)	vi. Pursue funding to develop a watershed model simulating potential outcomes of developing farmland located in the floodplain and flood-prone areas, and develop maps prioritizing this flood-mitigating natural infrastructure throughout the county	EDP, AFPB, SWCD
7. Increase the economic viability of agriculture through increased energy efficiency and use of local natural energy resources	a. Work with local and State agencies to enhance farmers' access to sources of renewable energy	i. Publicize state, federal and local programs that provide financial support for investments in measures to increase the energy efficiency of farm operations	CCE, ARG
		ii. Promote the development of on-farm renewable energy sources such as wind, solar and biomass	CCE, ARG
		iii. Support the efforts of public and private entities to build infrastructure for use of renewable energy resources	CCE, ARG
	b. Support the responsible development and use of local natural energy resources.	i. Promote and educate farmers and rural landowners about best management practices relative to energy development (ex. NYSDAM Ag Mitigation for Pipeline Right of Way projects)	CCE, SWCD, NYSDAM
		ii. Promote and educate farmers and rural landowners on wood lot management for sustainability	CCE, SWCD
		iii. Encourage town boards to update their plans to allow for oil and gas development and other energy alternatives.	EDP, AFPB, FB, IDA, CoC
		iv. Provide education to municipalities about home rule, comprehensive plans and zoning as it pertains to oil and gas development and other energy alternatives	EDP, AFPB, FB, IDA, CoC, ARG
		v. Support the environmental restoration of land utilized for resource extraction and utility transmission utility construction corridors (e.g., pipelines and power lines)	SWCD, NYSDAM, FB


Stoughton
FARM
PLANTS · PRODUCE
MAPLE SYRUP

Section 6: Plan Implementation

Opportunities for partnerships

Tioga County is home to a wide range of long-standing and productive partnerships, many of which work on agricultural issues either directly or indirectly. County staff members have either led or participated in a number of valuable partnerships, including but not limited to the Water Quality Coordinating Committee, the Tioga County Agricultural Resource Group, the Upper Susquehanna Coalition, and the Rural Economic Area Partnership. Each of these has advanced issues or causes that are critically important to the growth and viability of the agricultural sector.

Some of the implementation actions identified in Table 19 will depend on these existing partnerships if they are to be carried forward; others will require new opportunities to be explored throughout the food system. In general, recommended actions that focus on improving the economic context of farming in Tioga County may require new approaches that respond to recent changes in economic development programs at the state, regional, and local levels.

In particular, any issue regarding the development of the agricultural economy within the county should be examined in partnership with the Southern Tier Regional Economic Development Council (REDC). Members of the REDC are essential allies in terms of advocating for state funding resources for public

and private projects large and small. The Southern Tier REDC has highlighted the rural farm and forest-based economy as one of several focus areas within which it aims to attract investment, and projects that advance this cause with the support of the REDC will have improved prospects for state economic development funding. The Southern Tier REDC's Rural Initiative has awarded more than $4.2 million in low-interest revolving loans since its inception, and its mission is well aligned with many of the recommended actions advanced through this plan.

Other potential partners may leverage one another's staffing capabilities, access to funding resources, and organizational contacts. Due to the limited nature of Tioga County's population, partnerships with regional organizations (e.g., the Food and Health Network of South Central New York), or those operating in neighboring counties (e.g., Finger Lakes Culinary Bounty) may offer unique growth and/or marketing opportunities reaching larger audiences.

Beyond agency and organizational partnerships, new networking opportunities between and among the county's farmers, distributors, and consumers could also improve the viability of farming operations. In this regard, the most important role for county agencies is to provide the platform for the development of these connections. The implementation of the recommended actions listed in Table 19 would have county agencies hosting an information clearinghouse, organizing and participating in agricultural working groups, hosting informational sessions for elected officials, farmers, and the general public, and facilitating improved communications between government agencies and agricultural stakeholders. Each of these actions offers networking opportunities that could help reduce barriers to entry for new farm enterprises, enhance farm businesses' viability, and strengthen valuable connections between the people and organizations involved in the practice, support, and regulation of agriculture.

Opportunities for elected officials

Local elected officials can and should be allies of the farming community, advocates for projects that benefit the agricultural economy, and facilitators of a regulatory climate that attracts and retains talented agricultural entrepreneurs. To be most effective in these roles, local elected officials must be kept informed regarding local agricultural trends, changes, opportunities, and constraints. A number of actions may help to create champions of agricultural issues among local boards, councils, legislatures, and executive leadership:

- Support the agencies that support farmers: This is an essential role for local elected officials in terms of maintaining and enhancing agricultural viability. Support for agencies such as SWCD and CCE was a common theme among stakeholders across the county throughout the development of this plan. Their programs, networks of contacts, and institutional knowledge of the local agricultural sector are Tioga County's greatest agricultural resources. In order to serve their constituents effectively, and in order to implement the recommended actions advanced within this plan, these agencies must receive the support of elected leadership.
- Recruit agricultural representatives to participate in local and county governance: Consensus among many agricultural stakeholders suggests that farmers (both farm business owners and their employees) and their interests are not well represented among elected leadership. This

situation has become increasingly difficult as so many farmers have begun to supplement their income with off-farm part- and full-time jobs. These constraints notwithstanding, it is important for farmers to play a larger role in the issues of local governance. Existing county and municipal leaders should seek to recruit representatives of the agricultural sector to participate in working groups, committees, or as elected leaders themselves, in order to ensure that the voice of agriculture is better represented.

- Prioritize agricultural economic development: County leaders are often faced with decisions on infrastructure improvements (e.g., transportation, water/sewer, broadband networks), local tax policy, and program funding requests. Each of these plays a critical role in agricultural economic development, even if they are not always specific to agriculture. It is incumbent upon elected leadership to recognize the barriers faced by agricultural businesses that seek to start or grow within Tioga County, and understand how their decisions influence local farmers and farm businesses.
- Advocate for implementation projects and initiatives: Local elected officials will be called upon to help implement the recommended actions featured in this plan through direct funding requests, committee sponsorship or other legislative support of resolutions, bills, or amendments, and letters of support for grant requests. They can also support the implementation of this plan through proactive, direct communication with regional, state, and federal elected officials and agency staff to advocate for priority projects and/or regulatory issues.

Opportunities for funding

In a time of across-the-board fiscal constraints among public agencies and the private sector, project or program financing can be very competitive and difficult to obtain. Frequent changes in the funding levels, funding priorities, eligibility conditions, and equity requirements of assistance programs can make the funding landscape difficult to navigate. The list of funding resources below is intended to highlight several potential grant, loan, and assistance programs that may be appropriate for the recommended actions identified in Table 19, or other initiatives undertaken by county agencies or local farm business owners seeking to finance development projects or related programs.

New York State funding opportunities

Department of Agriculture & Markets

- Farmland Protection Implementation Grant Program
- Southern Tier On-Farm Enhancement Program
- Agricultural Nonpoint Source Abatement and Control Program
- Good Agricultural Practices Certification Assistance Program
- Organic Certification Reimbursement Program
- Specialty Crop Block Grant

Empire State Development

- New Farmers Grant Fund
- Environmental Investment Program
- Healthy Food & Healthy Communities Fund
- Regional Council Capital Fund
- Strategic Planning and Feasibility Studies Program
- Economic Development Fund
- Economic Development Purposes Grant Program

Energy Research & Development Authority

- Innovation in Agriculture Grant Program

Regional funding opportunities

Southern Tier REDC

- Southern Tier Rural Initiative

Tioga County

- Small Business Assistance Center
- IDA Revolving Loan Program

Federal funding opportunities

USDA

- Market Access Program
- Beginning Farmers and Ranchers Development Program

USDA Natural Resource Conservation Service

- Agricultural Management Assistance Program

Conservation Reserve Program
Agricultural Conservation Easement Program
Environmental Quality Incentives Program
Healthy Forest Reserve Program
Conservation Stewardship Program
Wildlife Habitat Incentives Program
Emergency Conservation Program
Conservation Technical Assistance Program

USDA Farm Service Agency loans and other financial assistance programs

Direct Farm Ownership loans
Direct Farm Operating loans and microloans
Emergency loans
Conservation loans
Youth loans
Land Contract Guarantees
Biomass Crop Assistance Program
Farm Storage Facility Loan Program

USDA Rural Development loan programs

Rural Energy for America Program
REAP Guaranteed Loans
Farm Labor Housing Loans and Grants Program
Rural Business Investment Program

USDA Rural Development grant programs

Rural Business Enterprise Grants Program
Rural Business Opportunity Grants Program
Rural Energy for America Program
REAP Grants
Energy Audit
Renewable Energy Development Assistance
Renewable Energy Systems/ Energy Efficiency Improvement Program
Rural Cooperative Development Grant Program
Value-Added Producer Grant Program
Small Socially-Disadvantaged Producer Grant Program

USDA National Institute of Food and Agriculture

Small Business Innovation Research Program
Community Food Projects Competitive Grants Program

USDA Agricultural Marketing Service

Farmers' Market Promotion Program
Local Food Promotion Program
Organic Cost Share Program

US Small Business Administration
- 7(a) General Small Business Loan Program
- Microloan Program
- CDC/504 Real Estate & Equipment Loan Program
- Disaster Loan Program

US Environmental Protection Administration
- Environmental Education Grants
- Chesapeake Bay Stewardship Fund
  - Small Watershed Grants Program
  - Innovative Nutrient and Sediment Reduction Program
  - Technical Capacity Grants Program

Other private grant or loan programs

Farm Credit East private loans:
- FarmStart
- Young, Beginning, Small Farmer Incentive Program
- CountryFlex equity loans

New York Farm Bureau Foundation for Agricultural Education

Northeast Region Sustainable Agriculture Research and Education (SARE)
- Farmer grant program
- Partnership grant program
- Sustainable Community grant program
- Graduate Student grant program
- Professional Development grant program
- Research and Education grant program
- Agroecosystems Research grant program
- Conference and Workshop Support (technical assistance)

NY Farm Viability Institute grant programs:
- Agricultural Innovation Center
- Outreach and Applied Research

1772 Foundation Grants for Northeast Farmland Preservation

The FruitGuys Community Fund

Wells Fargo Environmental Grant Program

Monsanto Fund

Cargill Foundation

Northeast Agricultural Education Foundation

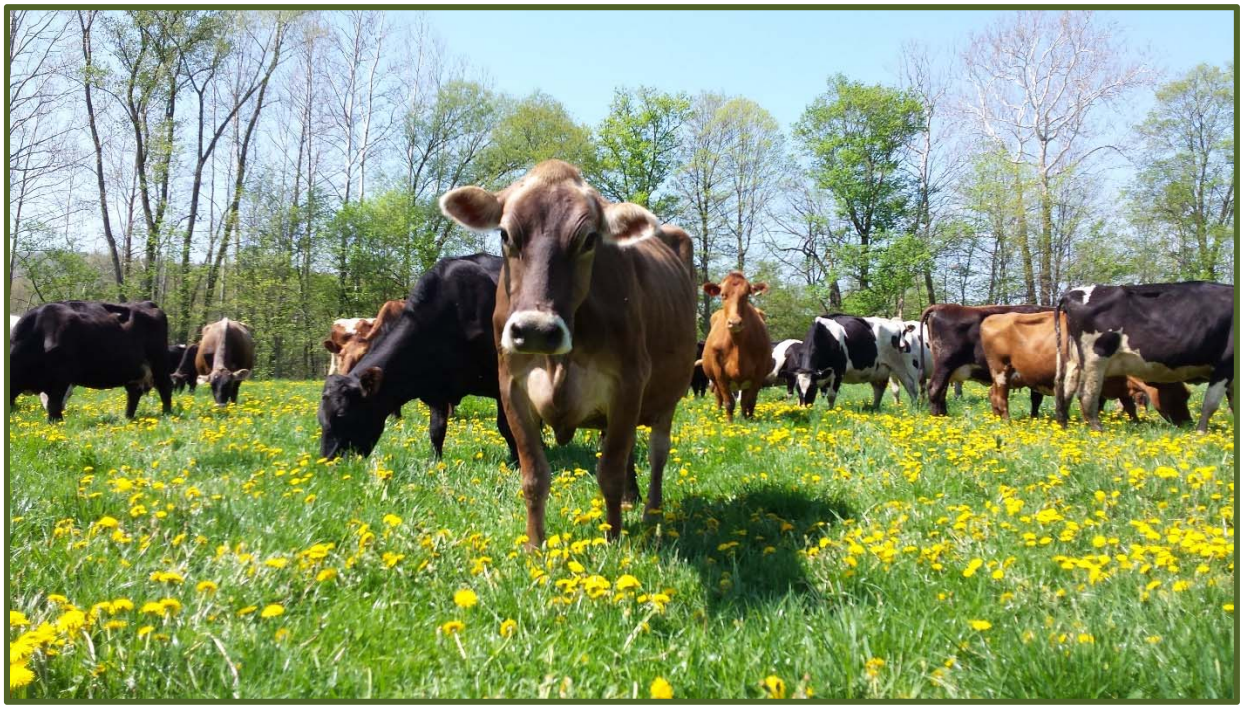
The Wallace Center at Winrock International
- Farm Assistance Grant Program

Jessie Smith Noyes Foundation Sustainable Agriculture and Food Systems Grant Program

Animal Welfare Approved Good Husbandry Grant Program

Surdna Foundation Regional Food Supply Grant Program

Whole Foods Market Local Producer Loan Program
Hannaford Charitable Foundation
Save-a-Lot community giving program
New York State Electric and Gas Corporation (NYSEG)
- Agricultural Capital Investment Incentive Program
- Capital Investment Incentive
- Business Energy Efficiency Assistance
- Power Quality/Reliability Incentive
- Economic Development Outreach Program



Appendix A: Public Participation Plan

Tioga County Agricultural & Farmland Protection Plan

Public Participation Strategy

September 2013

A. Purpose and Approach

The purpose of this public participation strategy is to ensure an open and transparent public engagement process that assures the opportunity for stakeholder involvement in all phases of the process of updating Tioga County's Agricultural & Farmland Protection Plan (AFPP). In the interest of meaningful dialogue with both the farming and non-farming communities with respect to the future of Tioga County's agricultural sector, the Department of Economic Development and Planning and the AFPP Steering Committee have identified a series of outreach events and other opportunities to engage a wide range of public perspectives. These events and opportunities, together with an initial list of critical stakeholders, will help guide the public participation component of the AFPP work plan.

B. Key Project Team Partners

The AFPP project team consists of the New York State Department of Agriculture & Markets, Tioga County Department of Economic Development and Planning, the AFPP Steering Committee, and project consultants led by EDR Companies. Each will have responsibilities with regard to public outreach, and all will work closely together to achieve the desired outcomes of their respective tasks. All public participation activities will be designed and implemented to carry out the County's contractual responsibilities per the New York State Department of Agriculture & Markets.

Contact information for each of the project team members is provided below, in addition to a brief summary of each team member's role.

<u>New York State Department of Agriculture & Markets</u>

As the sponsor of the Farmland Protection Program, the New York State Department of Agriculture & Markets will provide oversight, direction, and technical assistance throughout this project. The contact for Tioga County is:

John Brennan
New York State Department of Agriculture & Markets
Farmland Protection Program
10B Airline Drive
Albany, NY 12235

(518)-457-2713
(800)-554-4501
John.Brennan@agriculture.ny.gov

Tioga County Department of Economic Development and Planning

Tioga County is responsible for the day-to-day administration and project management of the Farmland Protection Planning Grant. The Department of Economic Development and Planning will provide project oversight and technical expertise. In addition, department staff will serve as co-facilitators throughout the public participation process. Planning Director Elaine Jardine can be reached at:

Elaine Jardine
Tioga County Department of Economic Development and Planning
56 Main Street
Owego, NY 13827
(607)-687-8257
jardinee@co.tioga.ny.us

AFPP Steering Committee

The Steering Committee will remain involved during this planning initiative and will continue to meet on a regular basis, or as needed, dependent on project progress and specific needs. The members of the Steering Committee are listed below.

Elaine Jardine, Tioga County
56 Main Street
Owego, NY 13827
(607)-687-8257
jardinee@co.tioga.ny.us

Wendy Walsh, Tioga County SWCD
183 Corporate Drive
Owego, NY 13827
(607)-687-3553 or (607)-759-7884
walshw@co.tioga.ny.us

Kat Loeck, CCE of Tioga County
56 Main St.
Owego, NY 13827
(607)-687-4020
Kal257@cornell.edu

Pam Moore, Tioga County Farm Bureau
2083 Moore Hill Rd.
Nichols, NY 13812
(607)-699-7968
cowpoke2@verizon.net

Gary Phelps, Tioga County Farmer
5603 State Route 17C

Bob Strong, Tioga County Farmer
2599 State Route 17C

Endicott, NY 13760
(607)- 341-6159

Barton, NY 13734
(607)- 699-3034 or (607)- 972-6219

Loretta Sullivan, Tioga County Legislature
933 Long Creek Rd.
Apalachin, NY 13732
(607)- 625-4543
lorettas@stny.rr.com

Brian Reaser, Tioga County SWCD
183 Corporate Drive
Owego, NY 13827
(607)-687-3553 or (570)-716-4061
reaserb@co.tioga.ny.us

Project Consultant Team

The consultant team will provide professional planning services towards the update process. In terms of public participation, the consultant team will be responsible for co-facilitation of the public meetings, and will have coordination responsibilities for additional outreach events as described in the project Scope of Services.

The consultant team is led by EDR, with assistance from George R. Frantz & Associates. Project manager and primary contact during this project is:

Jane Rice, Director of Planning
Environmental Design & Research, Landscape Architecture and Engineering, P.C. (EDR)
217 Montgomery St., Suite1000
Syracuse, NY 13202
(315)-471-0688
jrice@edrcompanies.com

Community Stakeholders

Stakeholders throughout the community will be invited to take part in the planning process, so as to achieve a breadth of perspective that is reflective of the reach and significance of the agricultural sector. Public notices will be provided through multiple outlets to notify the community of project-related events and to solicit public opinion.

The interest and support of the farming community in particular (including agricultural producers and their employees, related businesses, trade associations, advocacy organizations, and landowners) will be especially important in shaping the AFPP and ensuring its success. Some portions of the planning process may be best informed by the first-hand knowledge of the farming community; therefore, some outreach efforts will be oriented specifically toward that audience. In addition to any community-wide solicitations intended for the public at large, several specific

stakeholders or organizations will be targeted for their input on the AFPP. These include, but are not necessarily limited to, the following:

- Tioga County Farm Bureau
- Cornell Cooperative Extension (South Central New York Ag Team, Taste of Tioga)
- U.S. Department of Agriculture (Farm Service Agency, Natural Resource Conservation Service)
- Upper Susquehanna Coalition
- Farmers' market representatives (Waverly, Owego, Candor, Spencer, Newark Valley, and Otsiningo Park [Binghamton], Vestal, Ithaca)
- [OTHER SPECIFIC ENTITIES/ORGANIZATIONS?]

Other stakeholder groups may be formed based on general interest areas, including organic producers, niche operations, large or small operations, new farmers.

C. Public Engagement Principles

The public participation strategy will build upon strong working relationships between the County, Steering Committee and community stakeholders where they exist, and help to foster new relationships where they may serve the interests of agriculture in Tioga County. Through each portion of the outreach process, the project team will:

Listen to the ideas, concerns, and recommendations of community stakeholders, organizations, and interested and concerned citizens.

Educate consumers, local decision-makers, and producers themselves of the economic, environmental, and cultural impacts associated with agriculture within the County.

Communicate the implications of policy decisions and consumer behavior to the public at large.

D. Project Schedule

The AFPP update initiative will include a series of outreach events, including public meetings, focus group discussions, and an electronic survey. In addition to these events, the project team will meet as a group throughout the process to discuss progress toward project milestones. The following project schedule is provided to outline these milestones; dates, times, and venues are subject to change as the project progresses.

Public Meeting #1: Scheduled for Wednesday, 10/30/13, 12:30-2:00

Purpose: The purpose of this meeting is to gather the perspectives of the agricultural community in an analysis of the sector's strengths, weaknesses, opportunities, and threats (SWOT). Public notice will be provided through local media, although individual invitations will focus on generating turnout within the agricultural community in

particular. Public Meeting #1 will be formatted as a facilitated discussion; individual break-out groups may be utilized, depending on turnout.

Materials: Agenda and draft document s will be provided to the Steering Committee prior to the meeting. The meeting may include a formal presentation to provide participants with background knowledge of the AFPP, the NYS Farmland Protection Program, and a general project schedule. The content of handouts, boards, and/or slides will provided by the project consultant team in coordination with the AFPP project staff and Steering Committee in advance of the meeting.

Focus Group Discussions: December 2013 through January 2014

Purpose: To engage in direct dialogue with targeted stakeholders for the purpose of discussing opportunities and issues specific to individual portions of the agricultural sector within the County. This information will influence plan recommendations in more specific subject areas. These smaller, more focused discussions will help identify specific constraints faced by portions of the agricultural sector, and generate suggestions for policy decisions that could advance shared goals. There will be a series of 5 focus group discussions. These events will be facilitated by County staff, with assistance provided by members of the Steering Committee; the consultant team will provide a series of recommended topics to review with each group. Each group will include up to ten invited stakeholders with similar interests. Community members invited to focus group meetings will be determined by the project team as soon as practicable. :

1. Dairy and Field Crops
2. Livestock
3. Produce
4. Value-Added
5. Agribusiness

Materials: Focus group discussions will feature handouts with project background information, meeting agendas featuring several key topics/discussion points, and materials for participants wishing to provide written feedback. Focus group discussions should be semi-structured dialogue, with an interactive exchange of information between participants and facilitators, and therefore will not include formal presentations in the form of slideshows or similar materials.

Electronic survey: To be distributed during February and March 2014

Purpose: To provide an opportunity through which members of the public may provide structured input for the project in a manner is most accommodating of their personal schedules. The survey will balance breadth and depth, with an aim toward achieving insights that will assist in the development of responsive policies and appropriate tools to help attract, retain, and grow agricultural operations within the County. The survey will be drafted to capture relevant data from both producers and the non-farming public.

Materials: The electronic survey will be developed using Survey Monkey technology, and invitations will be distributed to potentially interested parties including agriculture-related businesses and organizations, meeting participants, and other channels as deemed appropriate by the project team. The survey is expected to feature up to 15 questions in total, with some individual questions requiring follow up responses (e.g., "If so, why?").

Public Meeting #2: Expected to occur in May 2014

Purpose: The purpose of this meeting is to apprise the general public of the progress toward the development of the AFPP, and to discuss with them the individual goals, priorities, and recommendations as proposed by stakeholders and drafted by the project team. The second public meeting will be directed toward the general public, not just the farming community. Notice will be distributed broadly among media contacts; personal invitations on behalf of the project team are expected to be made to help generate turnout for this meeting. Public Meeting #2 will be formatted as a facilitated discussion, however (unlike Public Meeting #1) it is not expected that any breakout discussions will be necessary.

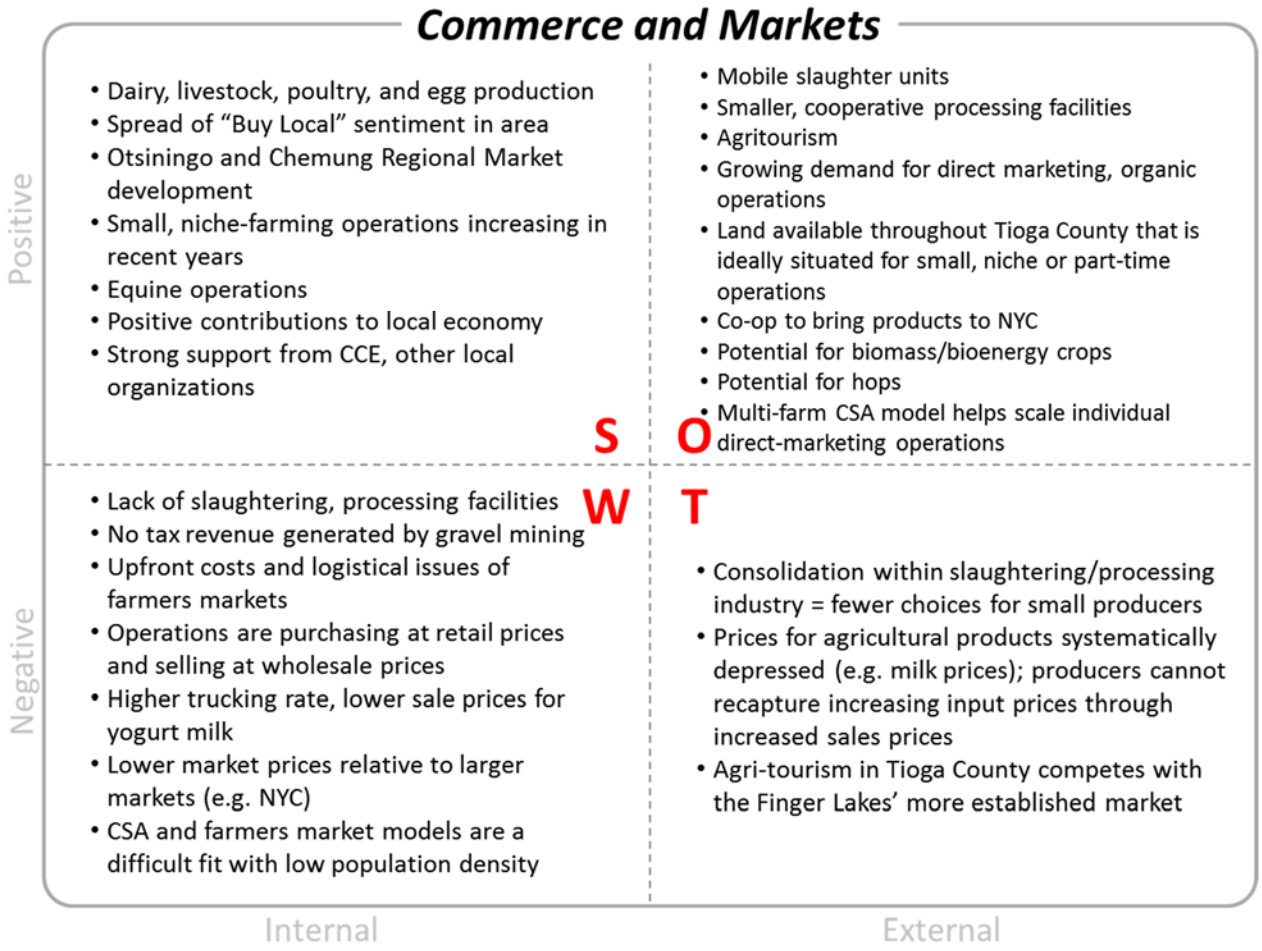
Materials: Agenda and draft document s will be provided to the Steering Committee prior to the meeting. The meeting may include a formal presentation to provide brief background information and an update on project schedules and milestones. In addition, the presentation and/or handout materials will summarize the work to date on the AFPP, including but not limited to data reflecting current agricultural conditions, outcomes related to public participation process to date, the identification of priority farmlands within the County, and draft recommendations for County policy and tool development. The content of handouts, boards, and/or slides will provided by the project consultant team in coordination with the AFPP project staff and Steering Committee in advance of the meeting.

E. Media Contacts

Notice of meeting schedules and other project updates will be provided to local media contacts for distribution. Media contacts will be provided by Tioga County, and draft materials for distribution (i.e., press releases) will be provided by EDR.

Appendix B: Public Participation Summaries

Summary of SWOT exercise (Strengths, Weaknesses, Opportunities, Threats)



Land Use and Value

Positive

S
- High proportion of land in production
- Rural character has been maintained
- Proximity to Rt 17/I-86 corridor
- Largely not competing with traditional residential or commercial development pressure
- High quality of soils for agricultural purposes

O
- New assessment cap may keep land more accessible for new producers
- Support development of "farmettes" on vacant land to support economy, character
- Develop 17/86 as an "agricultural corridor" between Southern Tier/Finger Lakes and NYC
- Separation of mineral rights may help stabilize farmland prices
- Ag land in flood hazard areas is the most suitable land use for flood mitigation
- Local farmland also valued for grazing suitability

Negative

W
- Increasing purchase prices and rental rates
- Although TC soils are good, soils in neighboring counties are better
- Mineral rights distorting the value of farmland for farming purposes
- Frozen land values- due to speculation, nobody is selling and few can afford to buy
- Low sales tax revenue in TC increases pressure on real property taxes

T
- Increasing competition with other uses (especially gravel mining) and along the 17/86 corridor
- Land speculation re: mineral rights has influenced assessments, even though it should not
- Uncertainty over the ultimate value that mineral rights will bring
- Hill farms threatened by scattered rural residential uses
- Industrial development on 17/86 corridor competing with prime agricultural land

Internal | External

Policies and Regulations

Positive

S
- High quality of surface waters, low nutrient loads
- High participation rate in TC Agricultural Districts

O
- Take advantage of supportive Governor's office (i.e. farm breweries/wineries, yogurt policies, Taste NY, etc.)
- Severance of subsurface rights creates opportunity for real property to move
- CCE expansion of Regional Ag Team

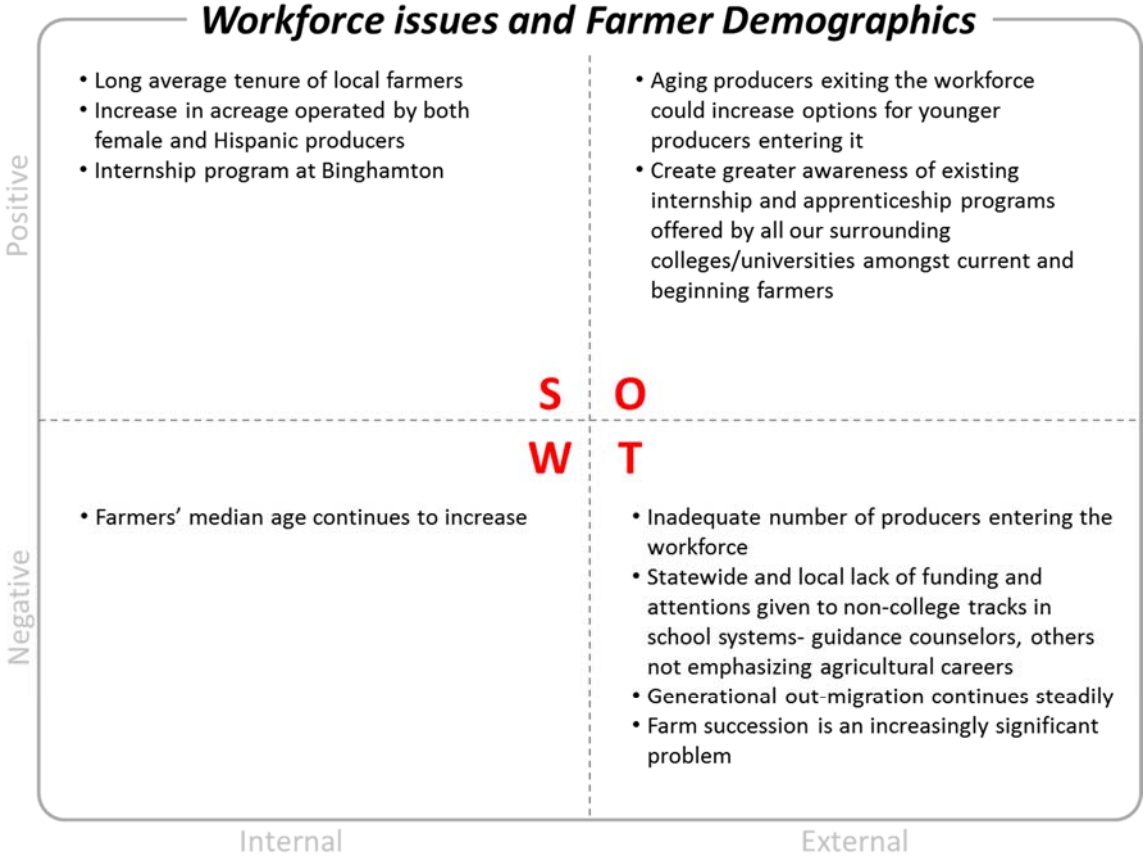
Negative

W
- Some funding resources going unused
- Too much gravel in the Susquehanna

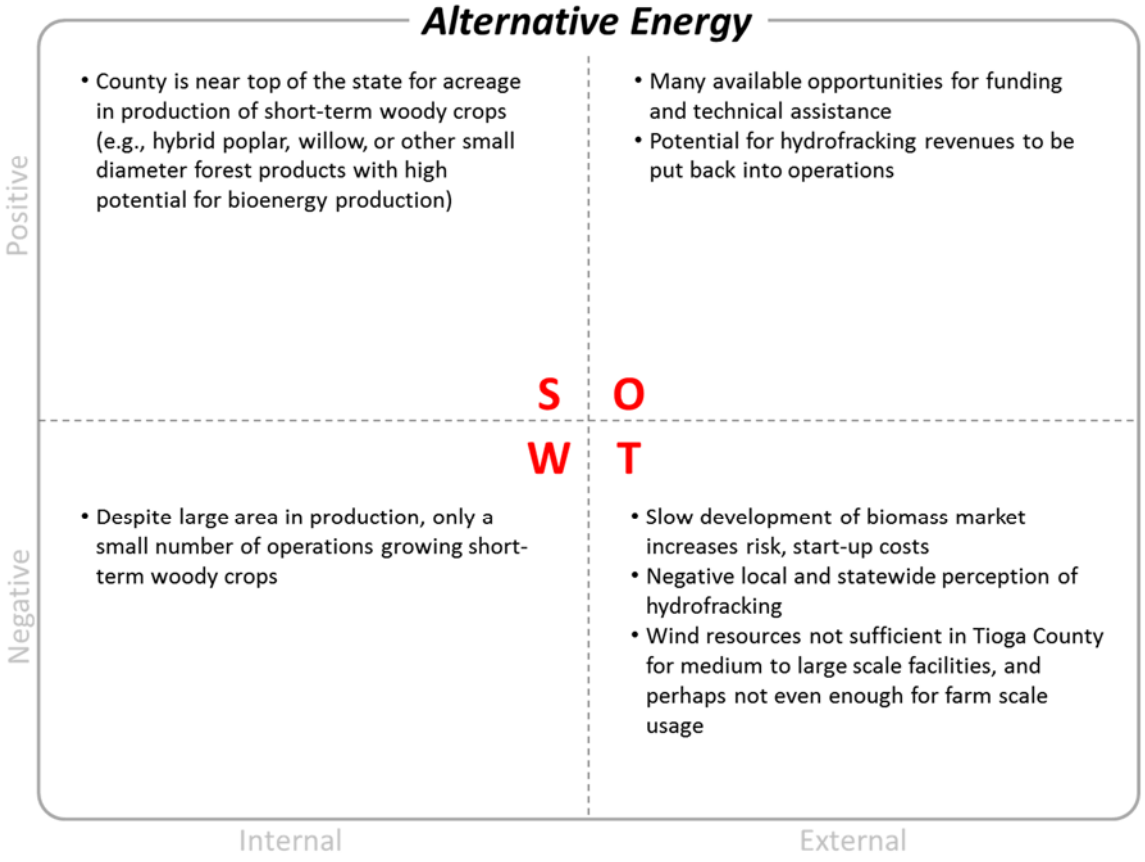
T
- Too many regulating agencies, and too much power per agency
- Political gridlock influencing the value/direction of the farm bill, state regulations, lack of political will for unpopular but necessary positions (e.g. increased food prices)
- Changes to food safety regulations could harm small direct marketing operations
- Assessments are increasing while values are frozen

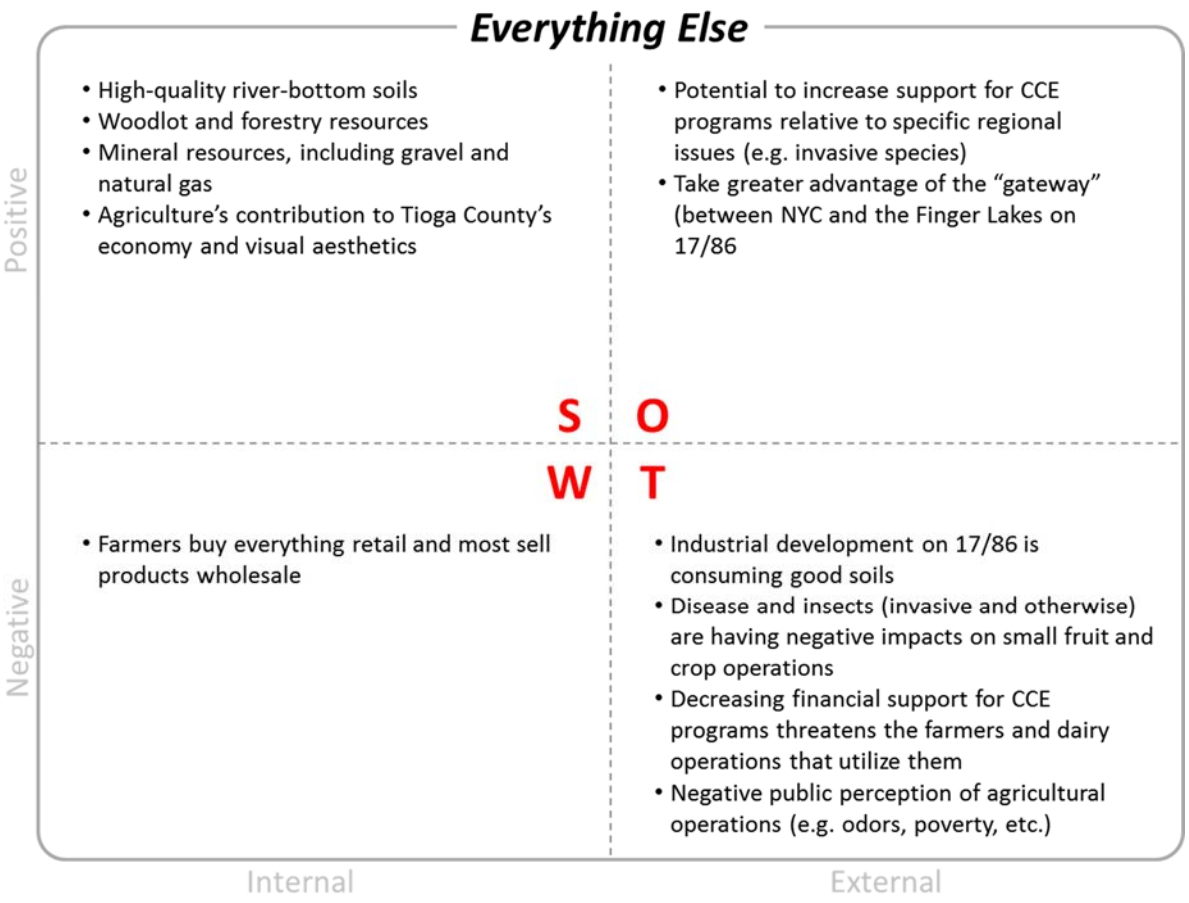
Internal | External

Workforce issues and Farmer Demographics



Alternative Energy




Everything Else
Positive
Negative
• High-quality river-bottom soils
• Woodlot and forestry resources
• Mineral resources, including gravel and natural gas
• Agriculture's contribution to Tioga County's economy and visual aesthetics
S
• Potential to increase support for CCE programs relative to specific regional issues (e.g. invasive species)
• Take greater advantage of the "gateway" (between NYC and the Finger Lakes on 17/86
O
W
• Farmers buy everything retail and most sell products wholesale
T
• Industrial development on 17/86 is consuming good soils
• Disease and insects (invasive and otherwise) are having negative impacts on small fruit and crop operations
• Decreasing financial support for CCE programs threatens the farmers and dairy operations that utilize them
• Negative public perception of agricultural operations (e.g. odors, poverty, etc.)
Internal
External

Summary of Focus Group discussions

Agribusiness Focus Group – 1/8/2014

Attendees:

Howard Stoltzfus – equine fencing
Terry Tyson – veterinarian
Charles Klett – NE Implement (forestry)
Ralph Kelsey – Tioga State Bank
Paul Cavataio – Owego Agway
Howard and William Visscher – farm auction
Kate Whittemore – Dead End Farm

Committee Members:

Bob Strong
Wendy Walsh
Brian Reaser
Elaine Jardine
Gary Phelps

- Diversification has helped sustain some businesses (Fence supply, forestry business). Diversification can help to stimulate economy in area
- Decline in dairy farms and dispersion of animals has negatively impacted other businesses (ex. Veterinary). Clients have access to medications online; input costs for business is going up (ie. Travel)
- Large dairies go directly to vendors for products; negative impact to vet and Agway; internet impacts sales negatively locally.
- No control over local and regional changes
- Marketing goods and products to diverse market helps keep business sustainable.
- Lawn and Garden center most profitable category for Agway; doesn't do much farming business anymore
- Need to encourage youth in farm businesses, hard to attract youth with long hours, low profits)
- FAA not active in schools, no incentive or outreach to youth.
- State needs to leave businesses alone; unhappy about tax free zones being developed when existing businesses need help
- Cons of Tioga County:
    - CCE losing Ag presence in County
    - Town assessors aren't ag friendly
    - Lack of promotion of Ag in NY (Ex. Happy Cows come from California)
    - Economic development impacts ag negatively by competing with prime farmland areas. (direct conflict in county)
    - Declining infrastructure condition (electrical, and phone lines)
    - Taxes
    - Climate is not as conducive to agricultural growing as it is in the Finger Lakes, where there are better growing conditions and therefore people have better agronomy experiences, get higher product yields and higher profits.
- Pros of Tioga County:
    - rural setting,
    - open land,
    - close to markets,
- Import competition is high
- Discussion on separation of surface and subsurface mineral rights

- Advertising and support of industry

Overall consensus:

Support Ag and Ag businesses by emphasizing quality of products, tax incentives, advertising at the state level and enticing youth in ag sector.

Dairy and Field Crop Focus Group – 1/15/14

Attendees:	Committee Members:
Arvo Rautine	Wendy Walsh
Bob and Craig Strong	Brian Reaser
Kevin Lloyd	Pam Moore
Rob Moore	Loretta Sullivan
David King	Elaine Jardine
Cub and Matthew Frisbie	Gary Phelps
Tim Lawton	
Jim Robinson	
Robert Howland	
Bob Aman	

- Lack of implement and milking equipment dealers locally.
- Difficult to obtain farm loans
- Yogurt summit – no impact on milk prices or sales due to current milk structure (lower price milk paid for yogurt, as demand goes up it draws down sale price for fluid milk Class 1).
- Announcements at state level impacted non-sector Ag businesses not farms
- Regulations decrease desire to be in dairy industry (paper work, record keeping, costs)
- While CAFO regulations have been somewhat relaxed from 200 to 300 animal head, and existing plan is still required to be followed.
- Right to farms laws are important – stop nuisance complaints
- County needs to recognize importance of farming in county and that it is a business and opportunity or employment
- Educate youth and have programs in high schools
- Opportunity for education and outreach to schools
- Farms at meeting stated gas money would be reinvested in businesses if it were to occur.
- Some farms have younger generations interested in farm
- Cons:
    - Cash flow concerns; lack of movement at state level with Hydrofracking regulations.
    - CCE not as present as they once were (train and lose good people) – i.e. no Diary presence in Tioga County and field crops is in Cortland County
    - State environmental regulations, CB TMDL and new OSHA requirements
    - Regulations hold farms back (expensive to keep in compliance, no extra cash to expand or reinvest in business)
    - Grant money competitive and hard to obtain

    - Lack of agriculture focus in high schools, BOCES
- Pros:
    - SWCD services and technical knowledge
    - Increase in hay sales to horse owners
    - Diversification of industry; small niche farms support field crop businesses.
    - Lack of development pressure
    - Good Land is being utilized for farming
    - Lower lease rates in county for rented land ($75/acre on the high end here, much higher in surrounding counties)
    - Proximity to markets,
    - Diversification of ag
    - Neighbors and understanding of farming
    - Enough land is available for farmers to grow all needed roughage feed

Overall consensus:

Regulation deterrent for growth in business, NY is not Ag friendly. Support Ag at the county level by recognizing importance of AG and that it's a business.

Follow up: Need to identify amount of tax revenue in county that comes from farms and rural landowners.

Livestock Focus Group – 1/22/14

Attendees:	Committee Members:
Andy Hunt	Wendy Walsh
Charles Truman	Brian Reaser
Drew Lewis	Elaine Jardine
Laura Hobbs	Bob Strong
Lesley McClelland	
Ron Bell	
Carl Fredenburg	

- Some farms use local businesses for needs others outside of county
- Pros
    - Active farms
    - CCE knowledgeable
    - NRCS and SWCD knowledgeable and pro-active in county; very user friendly
    - Number of Farmers Markets increasing
    - Ample Open land for grass based livestock
    - Proximity to markets (NYC)

    - High demand for grass fed beef (60% growth in market per year)
    - Land available for rent
    -
- Cons
    - Not a large customer base in county willing to pay for increased costs of product
    - No USDA approved butchering facility in close proximity (2 hrs closet)
    - Taxes, regulations
- Income support from other source outside of farm makes lifestyle possible (not primary income for many of those in attendance)
- Many sell direct to consumer with use of local non USDA approved butchering facilities
- Younger generations on farm are limited
- Don't feel NY and Tioga are attractive areas for farmers due to taxes, regulations and lack of support of businesses
- Can't produce value added as it is expensive and can't wait for that return on investment; regulations make it expensive
- County should focus on keeping land in ag as dairy farm numbers continue to decline.
- Farms help tourism
- Managed wood lots pay bills
- Regulation prohibits you from doing what you need to do
- Buy local helps support businesses and increasing knowledge of consumer wanting to know where there food comes from.
- Need for smaller fiber processing mills in area (non local; 2hour drive minimum)
- Need a closer USDA meat butchering/processing facility

Produce and Horticulture Focus Group – 1/17/2014

Attendees:
John Johnson, Johnson Farms
Ed Kuhlman, Tioga Gardens, Inc.
KC Mandeville, Mandeville Farm
Lisa Bloodnick, Bloodnick Farm
John Purdy, Purdy's Produce
Russ Shoultes, Maple Tree Gardens
Frank Wiles, Our Green Acres
Gary Phelps, Gary's Berries
Ken Williams, W&W Nursery
Tony Marzolino, Marz Farm via e-mail

Committee Members:
Kat Loeck
Elaine Jardine

1) What percentage of your vendors or service providers are local?

-50%
-most customers in Broome County because Vestal Farmers' Market is so well established
-Tioga County doesn't have local equivalent
-95% of CSA members in Broome
-20-25% local (the rest from 30-40 mile radius)

-60%
    -people travel farther for U-pick
-most income from farmers' markets outside of county
-10% of sales from farm stand in Tioga County
    -the rest from Ithaca Farmers' Market and Wegman's
    -farm stand on Rte. 79 has much higher sales than farm stand at farm
-25% local
-no local customers except for straw bales to Waverly
-10% local

2) What local resources are critical to your business and/or those of your peers?

-local farmers and local land

3) What services do you have difficulty obtaining locally? (feed suppliers, implement dealers, etc.)

-We are an organic farm and organic farming has not caught on in Tioga County (very small percentage of farms). Also, NY equipment dealers are not easy to deal with, hence most equipment is from PA.

4) Pros of having operation in Tioga County? NYS?

-land prices are reasonable
-in an ideal local (from a U-pick standpoint) > we have openness, land, water, highway system
    -growing land more continuous here rather than in other places
-Bradford County PA > active ag programs at high school level and FFA > numbers growing
    -Athens is really active in ag
    - working with Owego school now
-2013 local ag was viewed as trendy > it's appealing to a certain segment of the population

5) Cons of having operation in Tioga County? NYS? –

-Taxes, taxes, and more taxes. Also way tooooo much government and school districts. They need MASSIVE eliminate/consolidation. Example, in N Tioga there are 3 towns, 1 village, and 3 fire departments for about 5,000 people. Best practices would get that to one entity (see Brookings Institute data that has mapped this on a nationwide scale). Also, dramatic reduction to all types of taxes (income, property, sales, and fuel).
-infrastructure for agriculture isn't as strong as it once was > fewer feed dealers, equipment suppliers > people can't go to infrastructure and get the information they need
-expertise isn't as diversified as it once was
-declining population, employment opportunities are limited
-Tioga County farmers' markets are struggling > fragile markets
    -only two farms going to Tioga County markets
    -farmers market coupons are a plus > average income not very high
    -would be nice to use WIC at farm stands
-donating extra produce because can't sell
    -doesn't know how to market them
-taxes are killer here
-county could help with cold-storage options
-lack of local market opportunities
-flood hurt this area > people leaving
-fix flooding problem

-how do we get to younger generation of Tioga County residents interested in this stuff > labor stream?
-people don't know what they are doing
-people don't know about agriculture > cultural problems
-good bird and deer population, and turkeys
-land prices, labor pool, taxes
    -hard to find veggie and small fruit harvesters with skill
    -we are losing skilled labor
    -increase minimum wage

6) What is the most important thing to your farm operation and its success?

-Customers and markets to sell product. FYI – Most of our products do NOT stay local. The local market is very price sensitive and weak (i.e. local looking for $1 per bale hay, not realistic). Hence access to transportation is also critical.

7) Have you seen any changes in the last two years within the state that have helped your operation? (regulations, yogurt, buy local, etc).

-Absolutely not. It's actually gotten much worse with both state and federal intrusion.

8) Do you expect your business to grow in the next (2, 5, or 10) years?

-yes, hopefully …

9) What would it take to make your business grow?

-see Q5 and 7: a lot less of these
-can't blame economy … people need to work hard and have ambition
-Would be great if WIC coupons could be used at farm <u>stands</u>.

10) Do you expect agriculture as a whole to grow? What about specialized areas (dairy, equine, backyard enterprises)?

-Yes, especially with population growth and a growing middle class in Asia and India.

11) Where do you expect your growth to come from: local/regional markets or out of state?

-all of the above and I would add international

12) If you expect your local/regional market to grow, where do you see these opportunities? (i.e. direct marketing, institutional sales, transportation, agritourism, etc.)

-direct marketing

13) Do you have a succession plan?

-yes, but needs further refinement
-Yes some had succession plans
-Others starting to think about this now (too small to support two families right now)

14) Do you have a younger generation on the farm interested in continuing the operation?

-Potentially. One problem is the younger generation is turned off by NY's Downstate trying to exert itself on Upstate (ex. the safe act). There are many other areas of the country friendlier to the rural way of life with all the NYC laws.

15) What is the biggest obstacle you face on your farm? Suggestions for improvements?

-see Q5 and 7

16) Do you think Tioga County is an attractive area for young farmers?

-not sure

17) How can SWCD and CCE agencies better serve your farm operation?

-Like government, there groups are far too siloed. Consolidation is needed or at least work together. In general the farming community in the NY is very splintered and getting weaker by the year (see status of current farm bill). We need a strong rural/farm presence (see Canada as an example).
-focus on lower income people > think outside of the box
-can the county purchase extra food/surplus food from farms and redistribute?
    -this being done quite well
    -pig compost food bank guy in Berkshire (Pantry Pigs)
-community garden in Apalachin > an appetite for that sort of thing on a more professional scale
-people realize that the food system is failing > we offer an alternative
-this buy local thing is real … help from CCE perpetuating this buy local thing (publicity and support of farmers markets) > focus on buy local
-Tioga County needs to blow its own horn to make sure they are part of the local food effort
-people need constant reminders when season is coming and where to get food
        -ads in PennySaver to mention seasonality (a market forecast)? Distribute schedule of seasonality on CCE Facebook page?
-Facebook is working > farmers can help each other promote
- SWCD has been really responsive for repairing stream banks
        -really appreciative of Wendy Walsh
-more commercial development upstream > flooding issues here

Observations

-group seems to be concerned with welfare of Tioga County residents > how to help them get good food
-market and cultural issues way more important than production issues
-overall, small percentage of customers are Tioga County residents

Value-Added / Specialty Focus Group – 1/13/2014

Attendees:	Committee Members:
Marty & Natalie Mattrazzo – Farmhouse Brewery	Elaine Jardine
Glen Martin – Full Circle Farming Enterprises	Loretta Sullivan
Bill Strong – Eagle Rest Alpacas/Livestock Nutrition	
Kevin Engelbert – Engelbert Organics Farm	
Andy Fagan – CCE Tioga Director and Waverly Farmers' Market Mgr	

- The new beer licensing requires that at least 20% of the input is grown and processed in NYS. This will go up to 90%
- Last year was only the second year since the Prohibition that local sourcing is allowed
- Getting enough grain is a huge problem. Would like to source within Tioga County, but most comes from western NY

- They need 100,000 lbs of malt barley, as well as hops, honey per growing season
- They purchased 65 million barrels of malt barley NYS this past season. Very little of this was sourced in Tioga County (hops too)
- They pay $11-$12 per bushel for malting barley
- They have no problem selling, could sell 20x more as craft breweries they sell too are demanding it.

- Enterprise presses oil out of sunflower and canola seeds
- They do sunflower and some canola. No one in NYS does canola
- Market: Most goes out wholesale, some local markets like Wegman's
- In Tioga county, they're limited in what they can sell
- They're selling to a frac'ing company as lubricant. Canola is better than sunflower, but sunflower still used
- Canola is harder to grow
- They converted to and got certified in organic in 2013
- Not making a profit yet – the business, however, was doing well until the 2011 flood. The flood water destroyed their sunflower crop and set the business back.
- There is no crop insurance for sunflowers, because there's no appraisal base for sunflower yet in NYS
- He test marketed in Ithaca, and the sunflower oil still sells successfully in Ithaca.
- Says he still needs more markets

- Breeding alpacas for 8 years
- Best year in 2008, after which their business/market went downhill
- Public needs to be educated on difference in quality between pet grade and high quality alpaca animals. They'll pay cheapest price and get burned on animal quality.
- People who can't wear wool, can wear alpaca. People with cold hands (bad circulation) find that alpaca warms them, when wool won't (marketing strategy?)
- No real market in Tioga
- Has to ship fleece to a fiber mill in Bath to make yarn. But the yarn goes very slowly.
- He has 2 years of raw fleece hasn't been able to sell
- He's not a computer person, so he's missing out on that marketing avenue
- Advertising for alpaca is a lot more expensive than ad cost for other goods
- Andy Merriweather, Vestal, geneticist SUNY Bing is a great resource
- Needs assistance marketing both the alpacas and they yarn

- He's 1 of 7 dairies left in Nichols. He has the only operation in which the next generation is involved in and will carry on the farm.
- Taxes are too high. He has to sock away $50/week to pay property taxes
- Regulations are RIDICULOUS, including DOT regs. He could sell TONS of raw milk if NYS Ag & Markets did not require tracking and notice of contaminated product.
- can't find enough land…..it's not affordable
- Roads are too narrow to handle today's equipment
- NYS DOT now requires regular vehicle inspections on farming equipment that runs on the roads which greatly increases the cost of maintain that farm equipment
- No equipment dealers nearby any more. Must travel to Cortland, Auburn, Mansfield, Tunkhannock – waste a day just to get parts.

- Because of this, he must keep a lot more equipment parts on-hand
- He has grain-drying capacity
- Could expand his retail products and grain store if not for burdensome NYS regulations

Common Themes:

- Marketing research and expertise is needed for all types of value-added agricultural ventures
- More opportunities for peer-to-peer networking would be very beneficial
- More focus on animal showing needed at Tioga County Fair

Summary of survey responses

The following represents a summary of responses received through the survey. A total of 148 responses were received and tabulated. Unless noted otherwise, the "% of total" calculations are based on the total number of responses (148), not the number of valid responses specific to the individual question.

1. Please describe the type and size of your farming operation:

1a. Type	*# responses*	*% of total*
Principal farm operator	*83*	*56%*
Managed wood land owner	*64*	*43%*
Rural land owner	*111*	*75%*

1b. Size: OWNED	*# responses*	*% of total*	*Average*	*Median*
Land being farmed	*106*	*72%*	*147*	*97*
Managed wood land	*70*	*47%*	*107*	*80*
Land not in production	*88*	*59%*	*92*	*56*

1b. Size: RENTED	*# responses*	*% of total*	*Average*	*Median*
Land being farmed	*54*	*36%*	*159*	*80*
Managed wood land	*5*	*3%*	*95*	*100*
Land not in production	*4*	*3%*	*62*	*60*

*The remaining questions included in this survey are intended for respondents that are actively engaged in a farming operation. If you are not actively engaged in farming, please provide the name of the farmer who works your land _____ and do **not** proceed with the remaining questions.*

Responses: Stronghaven Farm, Mead Farm, Ken Eaton, Engelbert Farm, Jim Robinson, Carl Brink, Ralph Porter, Matthew Brast, Organic Family Farms, Melvin & Son, Frank Lyon, Dead End Farm, Terri Tyson, Dale Jewell [of] Halsey Rd. Spencer, Art Ryder, Kwiatkowski Bros, Henry Huizinga, Paul Bast Matt Donnelly and Pat Janiak, Kletts, neighbor

2. If actively engaged in farming, please describe the nature of your operation. (Check and list all that apply)

Crops	*# responses*	*% of total*	*Average*	*Median*
Field crops	*40*	*27%*	*169*	*73*

Hay/cereal grains	*58*	*39%*	*144*	*78*
Fruit/vegetable	*16*	*11%*	*16*	*5*
Timber production	*39*	*26%*	*143*	*110*
Honey or maple production	*8*	*5%*	*26*	*6*
Other crops ( )	*12*	*8%*	*27*	*9*

Other crops: pasture (most common), Greenhouse & nursery, shrubs, cover crops

Animals	*# responses*	*% of total*	*Average*	*Median*
Dairy cattle	*22*	*15%*	*221*	*117*
Beef cattle	*37*	*25%*	*37*	*22*
Hogs	*12*	*8%*	*19*	*14*
Poultry	*22*	*15%*	*88*	*35*
Sheep or goats	*14*	*9%*	*59*	*12*
Other animals ( )	*17*	*11%*	*12*	*6*

Other animals: horses (most common), ewes, turkeys, donkeys & mules, llamas, alpacas, ducks

3. Describe your operation (Please check one)
   - ☐ Conventional: *55 responses, 37%*
   - ☐ Certified organic: *4 responses, 3%*
   - ☐ Organic, not certified: *18 responses, 12%*
   - ☐ Hobby or homestead: *18 responses, 12%*

4. Where are your farm products sold? (Please check all that apply)
   - ☐ Wholesale: *49 responses, 33%*
   - ☐ Direct to retail: *15 responses, 10%*
   - ☐ Direct to consumer: *48 responses, 32%*
   - ☐ Farmers markets: *13 responses, 9%*
   - ☐ Other distribution channel - please specify: _____: *11 responses, 7%*

5. Of those you identified above, what is the *primary* market for your farm products? (Please check one)
   - ☐ Wholesale: *39 responses, 26%*
   - ☐ Direct to retail: *4 responses, 3%*
   - ☐ Direct to consumer: *36 responses, 24%*
   - ☐ Farmers markets: *7 responses, 5%*

☐ Other distribution channel - please specify: _____: *6 responses, 4%*

Other markets: co-op, on-farm consumption, cattle auction, feeders to feed lot, donate to food banks or individuals, word of mouth

6. Does your farm business process any of your products prior to selling them?
   ☐ Yes: *19 responses, 13%*
   ☐ No: *69 responses, 47%*
   If Yes, what percentage of your products are value added? %
   9 responses, 6%, average 30, median 20
   What types of value-added agriculture do you practice? (Please check <u>all</u> that apply)
   ☐ slaughter: *10 responses, 7%*
   ☐ food preservation: *2 responses, 1%*
   ☐ drying/roasting: *4 responses, 3%*
   ☐ combining of ingredients: *1 responses, 1%*
   ☐ meat cutting: *5 responses, 3%*
   ☐ Other, specify _____: *6 responses, 4%*
   Other value-added practices: processors, packaging, boiling sap, process firewood, felting, sheepskins
   ☐ cooking / baking: *0 responses, 0%*
   ☐ grinding / hulling / milling: *1 responses, 1%*
   ☐ extracting: *0 responses, 0%*
   ☐ curing/smoking: *0 responses, 0%*
   ☐ handcrafting / spinning / weaving: *1 responses, 1%*

7. Does your farm business provide custom services for other farms/farmers?
   ☐ Yes: *17 responses, 11%*
   ☐ No: 77 *responses, 52%*
   If Yes, what type of custom service?
   ☐ crop harvesting: *5 responses, 3%*
   ☐ spraying: *1 responses, 1%*
   ☐ Other, specify _____: *2 responses, 1%*
   Other custom services: "??", plowing
   ☐ hauling: *1 responses, 1%*
   ☐ haying: *11 responses, 7%*

8. Please rank the importance of the following <u>operational factors</u> on the viability of your operation from 1 to 7, 1 being most important and 7 being least important.

<u>PLEASE NOTE</u>*: Questions 8 and 9 received only 39 valid responses. The summary of rankings below shows the most common ranking value supplied for each factor from the valid responses only, as well as the number of responses that supplied the most common ranking, and the percent of responses supplying that most common ranking.*

Operational factor	*Most common ranking (MCR)*	*# responding w/ MCR*	*% responding w/ MCR*
Supply chain access	*6*	*11*	*28%*
Production (planting, growing, harvesting)	*1*	*27*	*69%*
Storage	*3*	*9*	*23%*
Marketing	*2*	*11*	*28%*
Processing	*6*	*12*	*31%*
Distribution/transportation	*4*	*13*	*33%*
Other (please specify:)	*7*	*2*	*5%*

Other operational factors: cooperative arrangements, advertising, time due to having to work off farm, gas drilling

9. Please rank the importance of the following economic factors on the viability of your operation from 1 to 7, 1 being most important and 7 being least important.

SEE NOTE ABOVE

Economic factor	*Most common ranking (MCR)*	*# responding w/ MCR*	*% responding w/ MCR*
Property taxes	*1*	*13*	*33%*
Regulation	*4*	*12*	*31%*
Availability of quality labor	*6*	*14*	*36%*
Access to credit	*6*	*18*	*46%*
Commodity prices	*2*	*10*	*26%*
Expenditure levels (e.g., fuel, insurance)	*2*	*11*	*28%*
Other (please specify:)	*1*	*3*	*8%*

Other economic factors: able to feed my farm animals, fuel for greenhouses, weather, delay of gas drilling, gas drilling

10. How long has the farm been in business?
_____ years: *88 responses, 59%, average 47, median 35*

How long has the principal operator(s) been a part of your farm business?
_____ years: *87 responses, 59%, average 29, median 30*
_____ years: *16 responses, 11%, average 25, median 22*

_____ years: *6 responses, 4%, average 20, median 16*

11. What is the age of the principal farm operator(s)?
    _____ years: *91 responses, 61%, average 59, median 59*
    _____ years: *31 responses, 21%, average 53, median 52*
    _____ years: *9 responses, 6%, average 47, median 48*

12. How many people (not including yourself) are employed by your farming business?

		# responses	*% of total responses*	*Average*	*Median*
Family members	Part-time	*44*	*30%*	*1.8*	*1.5*
	Seasonal	*6*	*4%*	*2.2*	*2.0*
	Year-round, full-time	*21*	*14%*	*1.6*	*1.0*
Non-family employees	Part-time	*20*	*14%*	*4.6*	*2.0*
	Seasonal	*8*	*5%*	*3.8*	*2.0*
	Year-round, full-time	*12*	*8%*	*2.4*	*1.5*

13. In the next five years, what changes do you anticipate for your farm operation? (Please check all that apply)

		# responses	*% of total responses*
Number of acres (owned)	*Increase*	*12*	*8%*
	Decrease	*4*	*3%*
	No changes expected	*71*	*48%*
Number of acres (rented)	*Increase*	*22*	*15%*
	Decrease	*4*	*3%*
	No changes expected	*53*	*36%*
Number of animals	*Increase*	*36*	*24%*
	Decrease	*9*	*6%*
	No changes expected	*41*	*28%*
Number of employees	*Increase*	*17*	*11%*
	Decrease	*3*	*2%*
	No changes expected	*60*	*41%*

Capital investments (e.g., equipment, buildings)	*Increase*	*51*	*34%*
	Decrease	*4*	*3%*
	No changes expected	*28*	*19%*
Diversity of products	*Increase*	*37*	*25%*
	Decrease	*3*	*2%*
	No changes expected	*42*	*28%*
Marketing channels	*Increase*	*30*	*20%*
	Decrease	*3*	*2%*
	No changes expected	*47*	*32%*

14. In five years, do you plan to remain actively engaged in your farming operation?
    - ☐ Yes: *73 responses, 49%*
    - ☐ No: *14 responses, 9%*

    If No, do you have a succession plan for your farm operation? *[NOTE: total responses below does not match total "No" responses above]*
    - ☐ Yes: 9 *responses, 6%*
    - ☐ No: 11 *responses, 7%*

    If Yes, does the succession plan keep your land in agricultural production? *[NOTE: total responses below does not match total "Yes" responses above]*
    - ☐ Yes: *42 responses, 28%*
    - ☐ No: *5 responses, 3%*

Comments from survey respondents:

1. Regulation abatement: Paperwork is getting out of hand. Too much time is spent on paperwork taking valuable time from farming operations. Education of our lawmakers (and the public) is necessary since they are the ones imposing additional regulations and taxes and laws on the farming community.

2. I am currently still working. Upon retirement and not having medical expenses out of control I intend to increase the volume of beef animals. The farm was not too active for about 35 years and many fences need repair. I applied for fence assistance but never got any. I'll have to increase more pasture as I put on more beef. The horses are show horses. I was raised on a farm next to the one I own. It belongs to my uncle. Takes time and money. I've often wondered what S&WCD can do to help me.

3. For farmers in our area it would help if there were more tax credits available. Running a farm and having to work outside the farm to make ends meet is getting harder and harder. *[NOTE: Five responses featured same comment verbatim. It is unclear if these were actually filled in as such or if this was a data entry error.]*

4. I plan to let the farm go and leave New York because of excessive taxes. Good bye New York. New York should reduce welfare and drill the natural gas to create jobs. We need new leaders who can make tough decisions. This area is in bad shape. Welfare and drugs are the norm. Taxes, taxes and more taxes. I am leaving New York in the spring and I am happy to going!

5. Used for hunting and firewood only.

6. The flood of 2011 did far more damage. Long term damage to our farm operation than thought at that time. The flood brought Phytophthora blight to our farm acreage (10 acres). I was not quick enough to realize what was happening. We then spread this disease to other parts of the farm. Since the flood we can no longer raise most of our ?? crops. We have had to increase and change the use of pesticides to control this disease in our strawberries. We lost 10 acres of prepaid hay. Did not expect that. This also impacts fall grazing (not sure phytophthora was the cause). I do believe that the buy local movement has been effective. The changing weather pattern and disease I believe has and will impact the produce industry more than other parts of agriculture.

7. Would like to see nice, flat land kept in crop land, not Lopke's gravel pits. It is nice seeing a small family farm making a living on these fields, now the land is a hole in the ground. Ugly hole at that, also unproductive forever. *[NOTE: Two responses featured same comment verbatim. It is unclear if these were actually filled in as such or if this was a data entry error.]*

8. Combine the Soil & Water Districts. There is no need for one in every county. Get serious about property tax reduction (not 1% increases)!!! This will greatly spur economic development and NYS growth.

9. The one most important event that would improve agriculture in Tioga County is for NYS to lift ban on fracking and that would pump millions of $ in to the farming community!!!

10. I would like an employee or two but refuse to do the additional paperwork. Unfortunately I feel farming is not feasible as a full-time occupation. Part-time there appears to be a beef, pork, chicken market. Vegetables are too labor intensive for working it part-time.

11. Dissipation (?) of agriculture land due to unsafe practices such as fracking and water loss should made illegal. Holders of land for future environment encouraged in tax benefits.

12. I believe that younger farmers will come back as small farms and local agriculture focus makes farming more sustainable economically. We need to support diversified farming and local food sustainability. Farm to table apprenticeships, farm to school, more farm markets where county or any organization provides required insurance and small-scale farmers can pay small premiums to participate. Pride of NY program is great, but needs to focus on getting "real food to real people". *[NOTE: Two responses featured same comment verbatim. It is unclear if these were actually filled in as such or if this was a data entry error.]*

13. The scattered "parcels in-parcels out" agricultural districts map completely violates the intent of the framers of the agricultural districts law. When Howard Conklin dreamed up this legislation and Farm Bureau lobbied hard to get it passed, and Cooperative Extension conducted endless hours educating landowners and county legislators about it, the intent and wording of the law (and still is) to create solid, contiguous blocks of Agricultural District. This unit integrity is what gave it strength to resist what Dr. Conklin described as "urban scatteration". To see what Tioga County has allowed to happen, allowing those landowners out of districts helter skelter, creating a swiss cheese piece of ag district, is, to put it mildly, unfortunate. The Tioga agricultural districts are, as a result, far less effective in achieving their goal than they were intended to be, perhaps ultimately completely ineffective in all aspects except providing lesser penalties to those with agricultural assessments when the convert to non-farm uses. I strongly encourage you to work to restore the solid-block ag districts as originally intended.

14. I have farmed in Bradford County, PA for 38 years. Driven farm equipment of all sizes on the roads. Have not had to deal with many inconsiderate drivers. I have harvested one crop on State Route 38B. The drivers on that road make me very aware of how good the drivers in Bradford County, PA. They need to slow down when approaching slow, large moving farm equipment.

15. Options such as hydrofracking need to be pursued so we can afford to continue farming. Lower taxes for active farmland.

16. Is Tioga County a "Right to Farm" county? If not, how do we become one? Concern: Property & school taxes increasing - at this point our taxes are another mortgage payment. It is getting very hard to make everything work. Concern: Natural gas development. Tioga County is a depressed county and with the recent floods even more so. We need to promote the development of natural gas - this will create jobs and put dollars back into our county which Tioga County needs. Passing natural gas development would be the best thing for agriculture in Tioga County. Future Farmers of America - FFA needs to get this back into the schools in our community. Keep Tioga County Fair and 4H growing.

17. I would like to see some (possibly government) incentives to get young people interested in farming.

18. I strongly believe that if agriculture production is to survive in Tioga County, and throughout the Southern Tier, a ban on hydraulic fracturing and pipeline conduits is in order. The County of Tioga should go on record with a resolution to support such a ban and present it to the state legislature in the form of a memorialization. My plan for the 167.5 acres I own with my siblings in the Town of Barton is to give it to the Finger Lakes Land Trust as a nature preserve. Thank you for your interest.

19. We plan on growing our maple business from 1100 taps to up to 10,000 possibly - long range. We have no real employees yet, just family helping from time to time. No one is getting paid. We are re-investing in equipment at this time.

20. Recommendation: 1) Encourage gas exploration & development in Tioga County 2) Support the development of agriculture related to middle and high schools in Tioga County 3) Reduce

(meaningfully) property tax for agricultural acreage including wood lots 4) Develop mentoring programs for young men & women interested in farming 5) Reign in ever escalating school taxes by a)Doing away with tenure for teachers, b) Provide health care coverage for retired teachers, administration, staff, etc only until the can apply for medicare!

21. Taxes are out of control - need to solve the tax problem!

22. A succession plan would be helpful, a workshop on how to develop one would be grand, especially tailored to small operations! Unclear as to whether or not I will be actively engaged in farming in next 5 years.

23. We live simple in a distressed area. We need all the help we can get - gas drilling, cheaper utilities & taxes - so industry will come back. A casino, anything. We are not coming out of the recession and it is still getting worse. The regulations are also killing business. DEC changes, lawsuits by neighbors that don't quit - it just gets old!

24. Note: I would suggest an up to date assessment of land use and agriculture in Tioga County. Definition of changing trends and their implementation would also be useful addition. Rationale: "Let us first know where we are, and then decide where we want to go."

25. My youngest daughter and her husband rent the dairy barn & pasture. I furnish the roughage for them and my herd of beef cattle. I also sell hay and some hogs. I am working on a plan to distribute the estate but am undecided. I do not want to quit until I can no longer take care of it. There needs to be lower land taxes in the town for seniors.

26. No farming done on our land.

27. Hay is used to for mulch and erosion control, and to keep fields open - not for agricultural purposes.

28. In order for agriculture to survive, property taxes must be reduced!!

29. 53 acres are rented to Lee's Hilltop Farm in adjacent Broome County. All rented land is in Tioga County. 125 acres of woodlot in Broome. 122 acres of woodlot in Tioga County. All contiguous. I have farm exemption on assessed value for the 53 acres and I brush-hog the perimeter to maintain the acreage.

30. Q 10 and 11 - 4th principal operator has been part of busines 30 years and is 47 years old

31. I am 75 1/2 years old and there is a limit to farming at my age and brother is 78 years old. Time is telling the story. Wait and see. On the land we own, it is ? separate acreage used and wood lot, pasture, homesteads on 3 farms.

32. Q6 - They don't slaughter themselves before sale, but market whole, half & quarter animals the customer arranges slaughter with USDA inspected facilities. Q14 - One grandson is very interested in farming, but is unable to spend adequate time on farm due to sports & other extra-curricular school activities. Keep government out of my business and from interfering with what I'm doing on my own land.

33. Taxes too high. Would like to see some kind of return to property owners for maintaining open space. It may be significant that he provides access to his land for snowmobile use. Feels his land supports tourism and income opportunities for others for outdoor recreation uses. He is a veteran. Some municipalities give veterans a break on property taxes, but not his. His rented 26 acres gets Ag Assessment but not remaining land because their ag revenue is well below the 10K/year level. All land is in the agricultural district. Bliven Creek runs through his property. Access for

	fishermen given. Good steward-ship of his land protects the stream. If another owned land it might be converted to other use and become a resource concern. Wife is very active in the large animal section of the Cornell Companions and their animals are used by this community service program. Owner volunteer their time, animals, and involvement is entirely paid out of their own pockets. Animals are certified for pet therapy. Weekly visits to Franziska Rackers Centers.
34.	Currently reviewing alternate uses such as farming and managed woodland.
35.	I would like information about putting and assistance about ag building regs??
36.	Taxes, taxes, taxes. Bring 100% assessment. Our taxes have increased 30%. Who seems to give a damn? The state had a 20% increase ??. Now farm bill pushed a 2% on farming. Done nothing to stop the reagg??? that the farmer and small businesses are stuck with. Most farms are already in trouble. If NY has its way the NYC boundary will reach Buffalo. Maybe we need more tax fee zones for Governor so we can suck more $ from upstate.
37.	Support natural gas drilling. Petition Governor for gas drilling. Support current lawsuits vs. DEP and Commissioner Martens. Economy is going broke. Support gas drilling.
38.	The biggest problem we face is lack of quality USDA inspected slaughter facilities. This makes it very hard to sell local meat to area retailers. Tioga County should consider developing a ""brand"" and make an effort to organize producers - especially small producers into the buy local or at least buy NYS movement.
39.	Consider impact of subsistence farming. Make this survey available on-line. Flood control to protect agricultural land important.
40.	I have no idea what the next 5 years will bring to our area except higher costs. Perhaps California farmers will decide to move to NYS. Perhaps farmland will have no taxes on it if we produce food. Perhaps the moon will turn green…… *[NOTE: Two responses featured same comment verbatim. It is unclear if these were actually filled in as such or if this was a data entry error.]*

Comments from Public Meeting #2 participants:

1. Agribusiness support and identification of existing business. For instance: Reed Brook Meats LLC, located by North Barton Grange Hall, Ellis Creek Rd. Becoming USDA meat processor, now custom meat processor, will be processing NYS farm-raised (mostly Tioga County) organic or non-organic, making available wholesale meat (mostly beef and pork).
2. Criteria fail to recognize farm history, actual productivity & profitability. Some criteria (i.e. buffer & competition) are only peripherally related to plan. Same for soils. Any soil managed properly (pH, fertilizer, compaction, etc.) will produce. I dispute & object to this classification process.
3. Goal 3: Provide outreach/assistance to new & young farmers for local/regional land link
4. Something the community is to interact with should be written in words that can be understood by most people. Some of the items, I could not understand despite my college degree.

Public Meeting #2 prioritization activity responses

Farmers	Non-farmers	Common concern (top 3 in red)
17	5	Property and other local taxes are too high
16	6	The statewide ban on natural gas hydrofracking restricts property rights and a potential revenue stream
5	3	Land speculation for natural gas drilling is impacting land availability and prices
5	5	Increasing state and federal regulations and their associated costs continue to negatively impact agricultural sustainability
9	3	Decreasing support for Cornell Cooperative Extension of Tioga County has limited their presence and agricultural program offerings
6	1	The lack of equipment and implement dealers and farm service businesses in Tioga County increases costs and causes inefficiencies
8	3	There is insufficient recognition from county and local elected officials of the economic impact of farm businesses
3	0	The available workforce within the county does not meet the needs of farm business owners
4	1	The potential growth of value-added agricultural enterprises requires more support in the form of marketing research and professional expertise
4	0	There are not enough peer-to-peer networking opportunities for agricultural professionals and businesses within the county
1	1	Only a small percentage of Tioga County's farm products are sold to customers within the county
1	0	Farm goods produced in Tioga County do not have adequate marketing opportunities at the state level
14	4	Area youth are not exposed to agriculture and agricultural career opportunities in school
9	1	Young and/or beginning farmers have few incentives to establish operations in Tioga County
2	1	County Board of Health Order 599 related to rabies, which is the only one in New York State, creates unnecessary fear of contact with farm animals

Goal - top 3 in red (farmers/non-farmers)	Strategy - top 4 in red (farmers/non-farmers)	Recommended actions - top 3 *per Goal* in red (farmers/non-farmers)
1. Achieve sustainable growth in the agricultural economy (12/6)	a. Increase the profitability of existing farm enterprises within the County (13/4)	i. Publish, distribute and educate farm and rural landowners with informational materials regarding available property tax exemptions, tax credits, and investment credits (13/6)
		ii. Examine the feasibility of a local machinery/equipment cooperative (3/3)
	b. Develop new opportunities for production, aggregation, marketing, and distribution (1/5)	i. Partner with regional initiatives such as Finger Lakes Fresh Food Hub, Broome & Chemung County Farm Market efforts (1/0)
		ii. Develop and support funding opportunities (e.g. STREDC Rural Initiative or others) for both on farm and county-based value added processing including feasibility for packing house, brick-and-mortar aggregator, or web-based aggregator (6/2)
		iii. Identify crop and livestock that can increase farm profitability (7/4)
		iv. Partner with food and health network to address food procurement policies to increase purchase of farm products by institutions (3/0)
		v. Provide information and training to local farmers to enhance their success in beginning and expanding direct farm marketing enterprises, understanding of social media and internet opportunities (4/3)
		vi. Provide education and training to support Agri-Tourism opportunities (0/1)
		vii. Encourage the development of expanded broadband infrastructure, cellular coverage, and improved rail service (1/1)
	c. Develop new opportunities for farm finance and business development (2/2)	i. Facilitate the establishment of a finance cooperative specifically oriented to agricultural lending and agricultural enterprise development (4/0)
		ii. Utilize existing or emerging funding resources (e.g. STREDC Rural Initiative) to leverage farm business expansions (2/3)

Goal - top 3 in red (farmers/non-farmers)	Strategy - top 4 in red (farmers/non-farmers)	Recommended actions - top 3 *per Goal* in red (farmers/non-farmers)
1. Achieve sustainable growth in the agricultural economy (cont'd) (12/6)	c. Develop new opportunities for farm finance and business development (cont'd) (2/2)	iii. Establish farm business development program to provide business mentorship and assist with enterprise budgeting, marketing strategies, etc. (3/2)
2. Maintain adequate access to quality farmland (6/2)	a. Increase opportunities for new farm owners and operators (1/1)	i. Publish guidance materials and informational sessions for intergenerational transfer, succession planning, and related business continuity concerns, and distribute guidance materials to farm owners and owners of large rural parcels (3/6)
		ii. Promote local participation in the NY FarmNet/ FarmLink program (2/1)
	b. Assist municipalities in the development of farm-friendly policies and ordinances (10/5)	i. Promote adoption of Right to Farm laws by the County (via resolution) and all towns in Tioga County (15/4)
		ii. Educate municipal agencies on the use of Agricultural Data Statements in decisions involving lands near or adjacent to agricultural operations (1/0)
		iii. Examine impacts on local agricultural operations for proposed actions subject to County review pursuant to Section 239-m of the General Municipal Law (e.g. issuance of special use permits; approval of site plans; granting of variances, etc. (2/2)
		iv. Review municipal ordinance and comprehensive plans for real and potential barriers to agricultural land uses and provide examples of ag friendly ordinances (10/5)
		v. Review and update guidance documents regarding purchase of development rights and develop language for leasing and transferring of development rights (6/1)
	c. Support local property owners' applications for participation in land conservation programs (2/1)	i. Publish and distribute program or process summaries for USDA Agricultural Land Easement program, NYS Purchase of Development Rights program, independent easement donation, and local/regional land trust programs (4/0)
		ii. Provide letters of support for candidate properties from County Agricultural & Farmland Protection Board for state and federal programs as requested (0/0)

Goal - top 3 in red (farmers/non-farmers)	Strategy - top 4 in red (farmers/non-farmers)	Recommended actions - top 3 *per Goal* in red (farmers/non-farmers)
2. Maintain adequate access to quality farmland (cont'd) (6/2)	d. Facilitate the transfer of agricultural property for agricultural purposes (4/0)	i. Review options and provide suggestions to legislature on fees associated for agricultural transfer of properties through farm succession plans (0/0)
3. Attract new and beginning farmers into the agricultural sector (7/7)	a. Reduce barriers to entry into farm ownership (1/0)	i. Explore incentive-based programs for beginning farmers' access to land and capital (15/8)
	b. Educate new and beginning farmers about available programs and technical assistance (3/2)	i. Publish and distribute information summarizing local, regional, state, and federal assistance programs for beginning farmers in Tioga County, including on the county website and via a mobile application (9/5)
		ii. Create a one stop shop for farmers to access program information, this would include information about NRCS, FSA, SWCD, and CCE programs at an annual event (12/5)
4. Develop and support agriculture education and technical assistance programming, and provide technical assistance (6/3)	a. Develop educational strategies and provide outreach to local youth (3/2)	i. Pursue funding for the development of new curricula in BOCES, K-12 education and after school programming (11/3)
		ii. Develop and implement an "agricultural ambassador" program for local youth (1/0)
		iii. Support broad-based youth programming (e.g., community garden programs, FFA, 4-H, etc.) (1/6)
	b. Develop educational strategies for the general public (0/1)	i. Support existing farm apprenticeship and internship programs (6/2)
		ii. Continue county support of Sundaes at the Farm and other public awareness programming (7/5)
	c. Continue support for SWCD and CCE programming (14/7)	i. Update agricultural outreach print materials (0/0)
		ii. Schedule program update meetings with legislative leaders (4/6)
		iii. Seek local, state, and federal financial support for SWCD and CCE programs (3/1)
5. Improve communication between farmers, rural landowners, and public agencies (3/0)	a. Inform elected officials of agricultural concerns, trends, and opportunities within the county (5/4)	i. Publish and distribute a periodic (e.g. semi-annual) summary of the state of agriculture within the county, tracking measurable indicators of progress and provide presentation of the information at a legislative work session (7/5)

Goal - top 3 in red (farmers/non-farmers)	Strategy - top 4 in red (farmers/non-farmers)	Recommended actions - top 3 *per Goal* in red (farmers/non-farmers)
5. Improve communication between farmers, rural landowners, and public agencies (cont'd) (3/0)	b. Serve as a conduit for communications between landowners and affiliated agencies (0/0)	i. Maintain a multi-media clearinghouse of program information (including contact information) relative to USDA/NRCS, FSA, SWCD, CCE, and Farm Bureau programs and projects (2/4)
		ii. Promote the establishment of agriculture advisory committees in Tioga County municipalities with large agricultural sectors to advise town boards and committees on matters pertaining to agriculture (9/2)
		iii. Create a structure through the Agriculture and Farmland Protection Board for mediating and resolving disputes between farmers and non-farmers over agricultural practices (9/3)
		iv. Educate and train local assessors on ag assessments, ag districts and properties with conservation easements (7/4)
		v. Educate and keep and open line of communications with law enforcement officials (County Sheriff, State Troopers, NYSDEC Environmental Officers, code enforcement) (2/2)
		vi. Partner with local assessors and agricultural organizations/agencies to create an informational session for agricultural landowners regarding agricultural assessments (12/3)
6. Assist farms in dealing with environmental challenges and opportunities (3/0)	a. Promote use of best practices on farms to provide for environmental sustainability on farms (4/2)	i. Publish and distribute summaries of available grant/loan programs within the county relative to environmental improvements (e.g. EQIP, GIGP, NY Rising, AEM), and support local project applications into these programs (7/3)
	b. Create local advisory committee to provide local input on changes and modifications to best management practice strategies (0/0)	i. Participate in Local Working Groups meetings (3/0)
	c. Promote enrollment in voluntary incentive-based agricultural programming (0/0)	i. Educate and inform farms about AEM program, including planning and implementation process (3/4)

Goal - top 3 in red (farmers/non-farmers)	Strategy - top 4 in red (farmers/non-farmers)	Recommended actions - top 3 *per Goal* in red (farmers/non-farmers)
6. Assist farms in dealing with environmental challenges and opportunities (cont'd) (3/0)	d. Prevent, minimize, and mitigate flood damage (4/4)	i. Promote the value of protecting river bottomlands and floodplains for agricultural use as a means of reducing flood damage in Tioga County (13/3)
		ii. Educate public on benefits of agriculture in floodplains (4/3)
		iii. Review local flood damage prevention ordinances and promote updated ordinance language to incorporate best practices (3/2)
		iv. Publish and distribute a model floodplain overlay ordinance to those communities with existing ordinances (0/2)
		v. Pursue funding for a cost-benefit analysis of flood impacts and mitigation relative to different floodplain land uses in the county (2/1)
		vi. Pursue funding to develop a watershed model simulating potential outcomes of developing farmland located in the floodplain and flood-prone areas, and develop maps prioritizing this flood-mitigating natural infrastructure throughout the county (12/2)
7. Increase the economic viability of agriculture through increased energy efficiency and use of local natural energy resources (8/3)	a. Work with local and State agencies to enhance farmers' access to sources of renewable energy (2/1)	i. Publicize state, federal and local programs that provide financial support for investments in measures to increase the energy efficiency of farm operations (3/1)
		ii. Promote the development of on-farm renewable energy sources such as wind, solar and biomass (12/5)
		iii. Support the efforts of public and private entities to build infrastructure for use of renewable energy resources (1/0)
	b. Support the responsible development and use of local natural energy resources (11/4)	i. Promote and educate farmers and rural landowners about best management practices relative to energy development (ex. NYSDAM Ag Mitigation for Pipeline Right of Way projects) (4/1)
		ii. Promote and educate farmers and rural landowners on wood lot management for sustainability (3/1)

Goal - top 3 in red (farmers/non-farmers)	Strategy - top 4 in red (farmers/non-farmers)	Recommended actions - top 3 *per Goal* in red (farmers/non-farmers)
7. Increase the economic viability of agriculture through increased energy efficiency and use of local natural energy resources (cont'd) (8/3)	b. Support the responsible development and use of local natural energy resources (cont'd) (11/4)	iii. Encourage town boards to update their plans to allow for oil and gas development and other energy alternatives (10/4)
		iv. Provide education to municipalities about home rule, comprehensive plans and zoning as it pertains to oil and gas development and other energy alternatives (7/4)
		v. Support the environmental restoration of land utilized for resource extraction and utility transmission utility construction corridors (e.g., pipelines and power lines) (10/6)

Appendix C: Land Prioritization Technical Documentation

Tioga County Agriculture and Farmland Preservation Plan: Analysis

The Tioga County Agriculture and Farmland Preservation Plan Steering Committee selected and weighted five criteria for prioritizing land in Tioga County to guide in efforts to preserve land in Tioga County, New York. The criteria and their maximum numerical value are listed in Table 1.

Attribute	Maximum Numerical Value
Prime agricultural soils or soils of statewide importance	30
Land in active agriculture	25
Location within floodplain	20
Land serves as a buffer for a significant natural resource	15
Level of competition by non-agricultural uses	10
Total	100

Table 1

The committee decided against using a parcel-based analysis, instead favoring an analysis of the land itself. In order to facilitate this, the GIS Division of the Tioga County Information Technology and Communication Services Department used ESRI ArcGIS for Desktop software and its Spatial Analyst extension to perform raster analysis. In this type of analysis, maps of the criteria are converted to grids. Each grid divided the county land area into squares (cells), of equal size. Each grid square was assigned criterion values as described in each section below.

Using the Raster Calculator tool, the weighted criteria were summed to generate a final raster with total values assigned to each grid cell. The size of each grid cell in the resulting grid was 98.425 feet X 98.425 feet (9687.48 square feet) in ground units.

Prime Agricultural Soils or Soils of Statewide Importance Criterion

The analysis of the soils criterion began with vector data provided by the National Resources Conservation Service. These data are from the NRCS's Soil Survey Geographic Database which includes mapped polygons representing various soil classifications as show in Figure 1.

Figure 1 - Soil Map

By joining a table of additional attributes to the attribute table of the soil polygons layer, the map can be changed to display the soil classifications that are regarded as prime soils (black), soils of statewide significance (brown), and soils that are not either (gray). For location reference, data layers representing the Susquehanna River and streams overlie the soil layer (Figure 2).

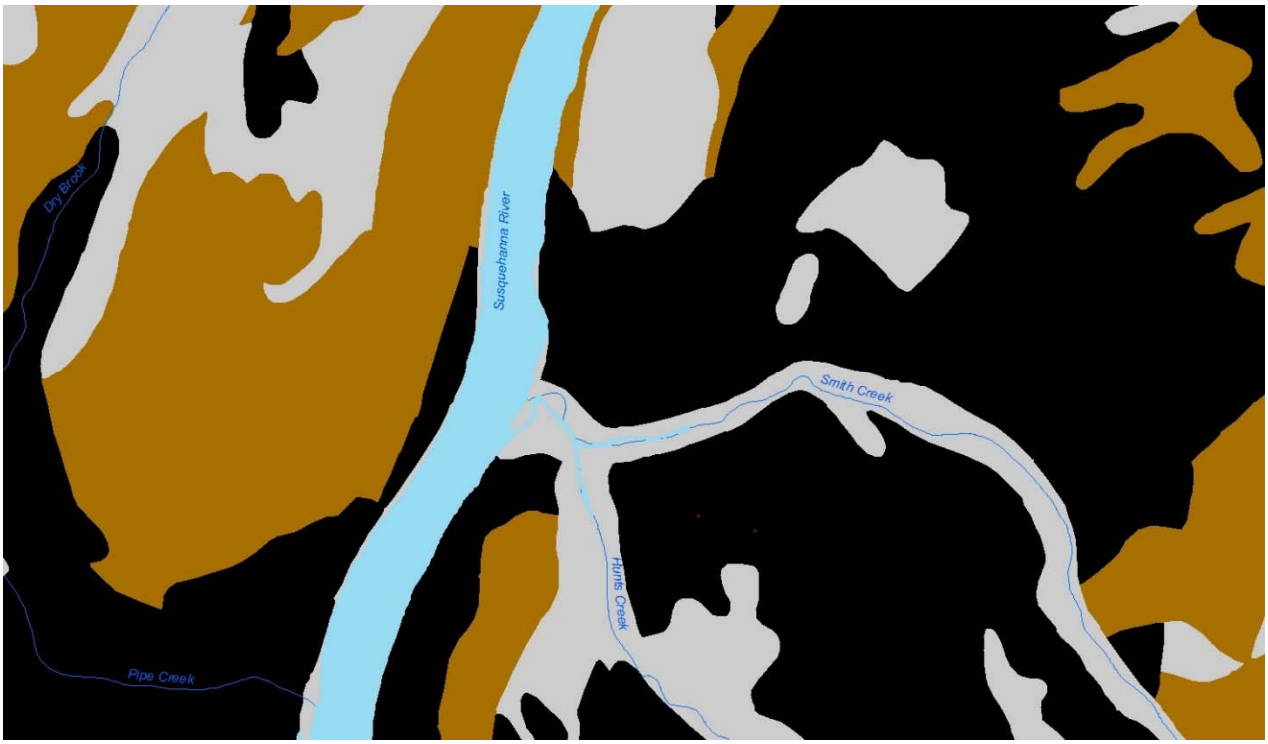


Figure 2

Using GIS tools, this vector map of soil quality was converted to a raster grid with each cell assigned to one of the categories of soil quality—prime (blue), statewide significant (green), neither (red) (Figure 3).

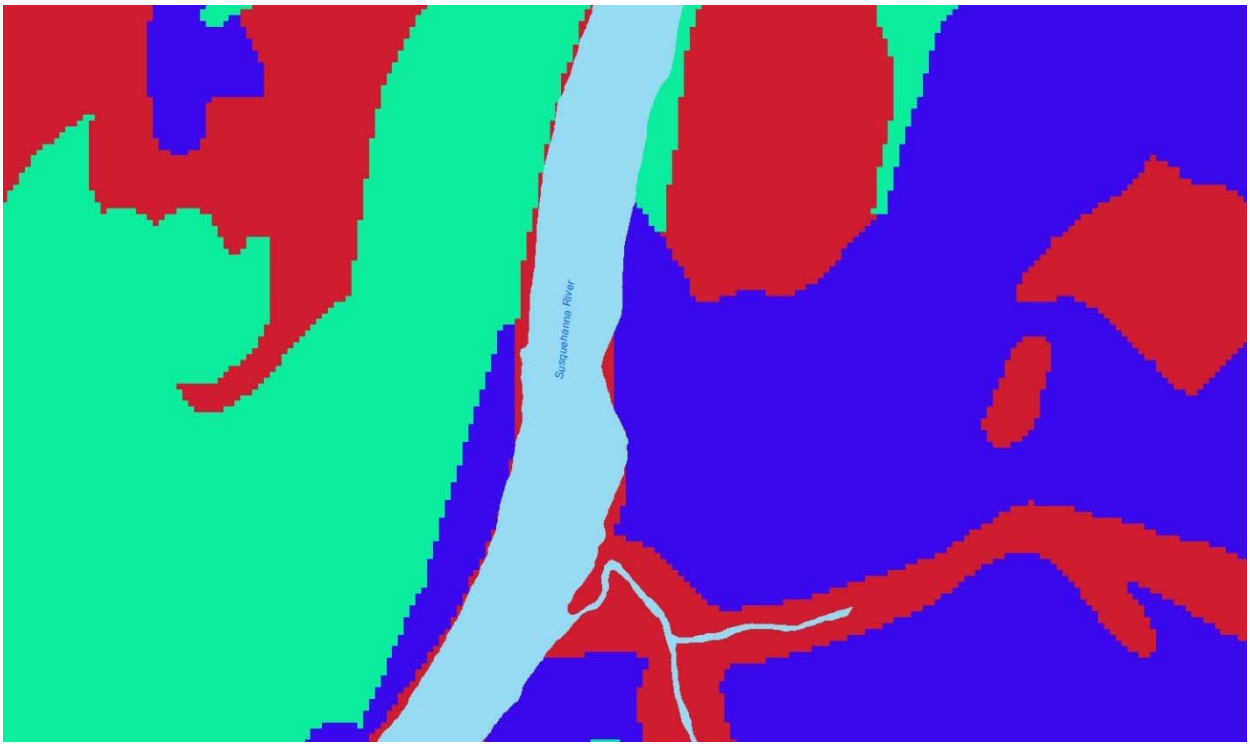


Figure 3 - Soil Quality Raster

The committee decided to assign numeric values to the soil quality values to score their relative importance in a ratio of 5:1:0. The Reclassify Tool was used to assign these values to the raster cells with prime soil cells assigned a value of 5 (black), statewide significant soil cells assigned a value of 1 (brown), and other soil cells receiving a value of 0 (gray)(Figure 4).

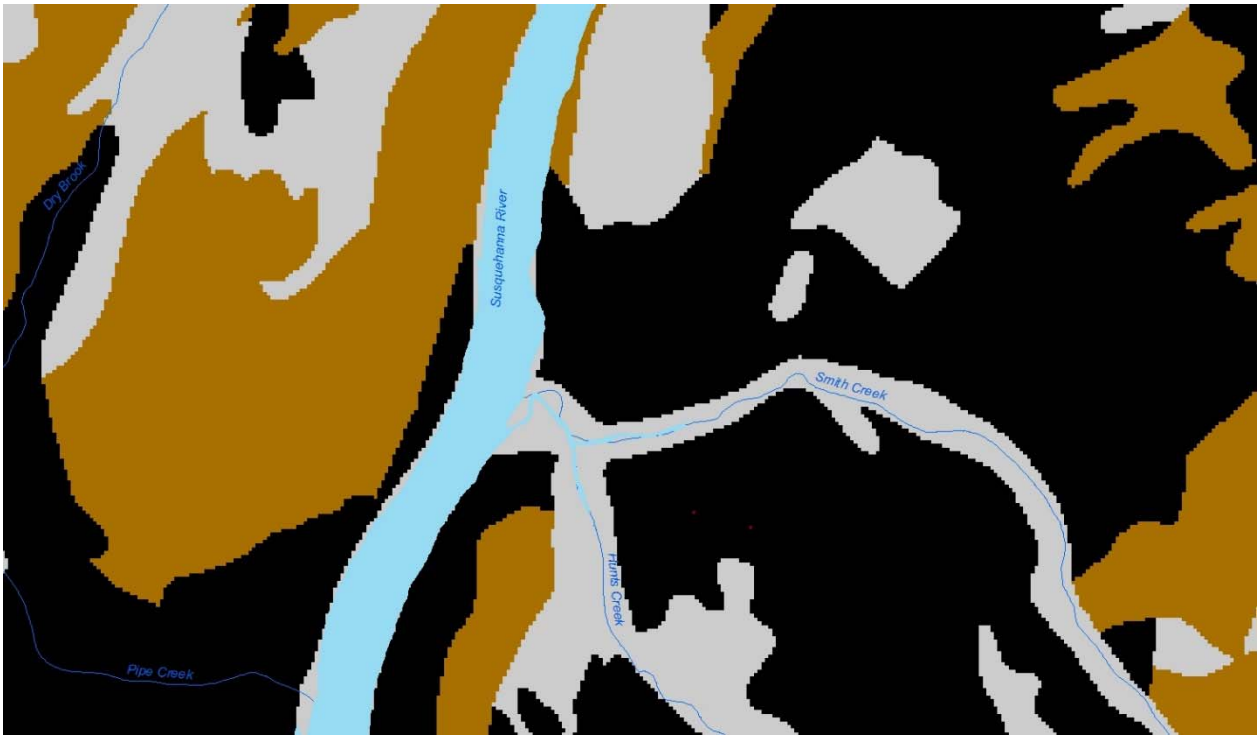


Figure 4 - Reclassified Soil Quality Raster

Result of the Prime Soil and Statewide Significant Soils Analysis

Figure 5 is the final map of Tioga County's soil quality map. Village polygons overlie the soil data to indicate that land in the villages is not being considered for agricultural and farmland protection.

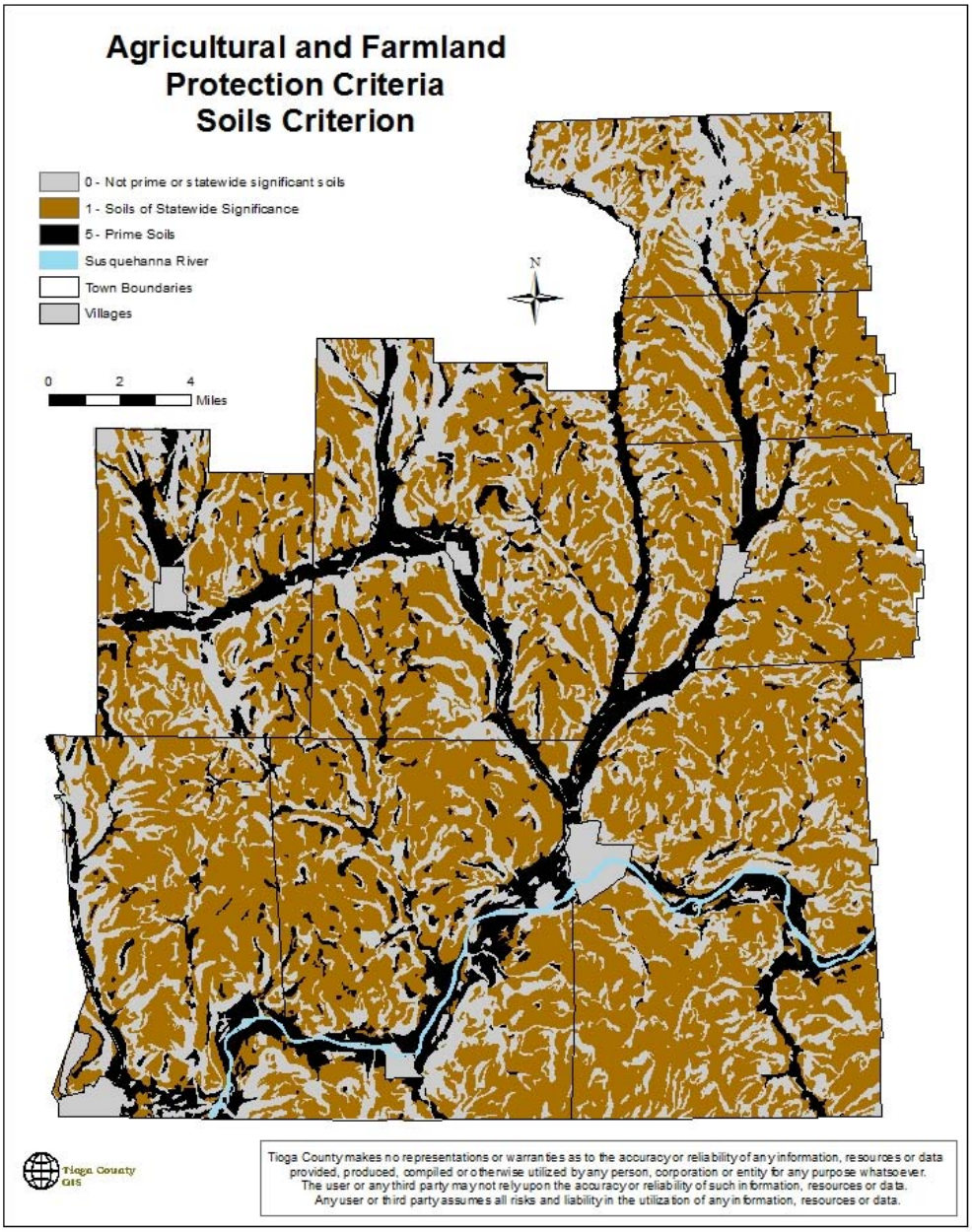


Figure 5 - Tioga County Soil Quality Map

Land in Active Agriculture Criterion

The next criterion required identifying land that is in active agriculture. For this we used the Cropland Data Layer produced by the National Agricultural Statistics Service of the U.S. Department of Agriculture in 2013. The data layer is in raster format consisting of cells representing 30 m X 30 m on the ground. Each cell is assigned a value to identify the dominant crop or other land cover in the area represented. The 2013 data used Deimos-1, UK-DMC 2, and Landsat 8 satellite imagery. Figure 6 shows a portion of the Cropland Data Layer.

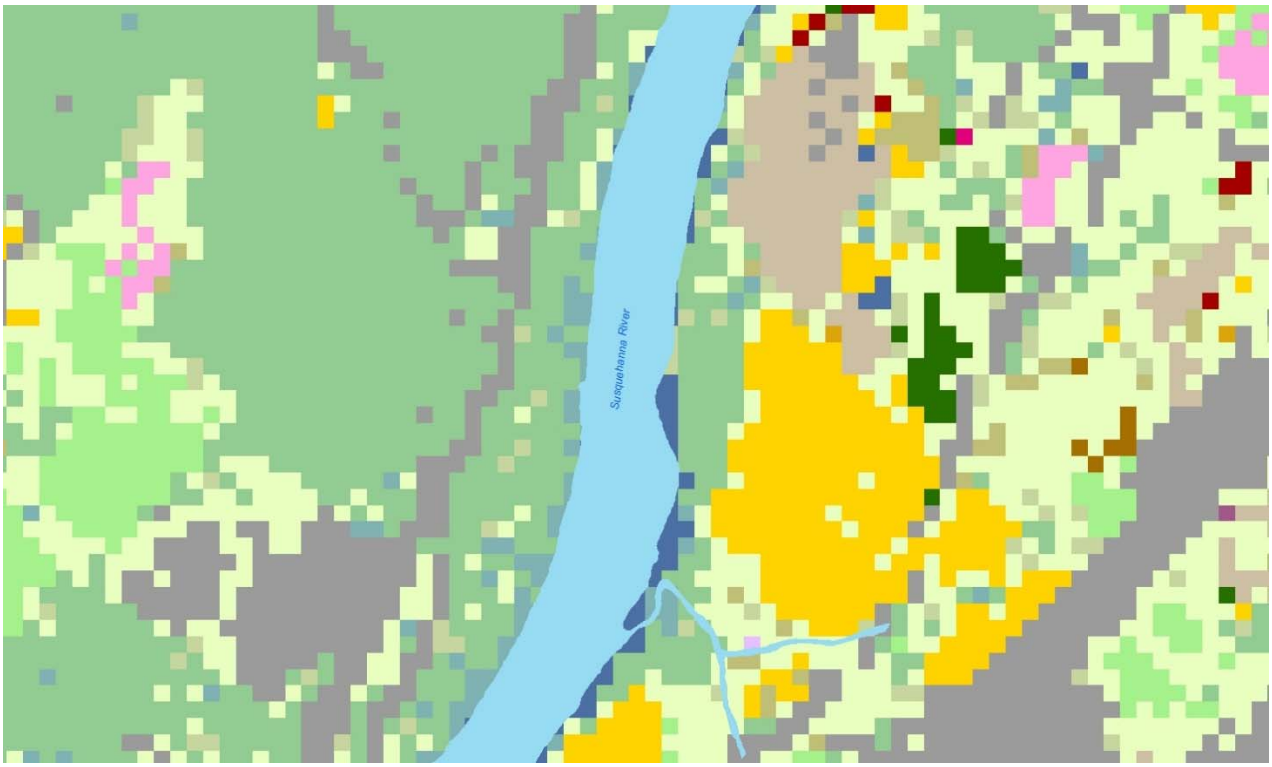


Figure 6 – USDA National Agricultural Statistics Service Cropland Data Layer

Using the Spatial Analyst Reclassification tool, the Cropland Data Layer cells were reclassified into three broad categories that were assigned numeric values: 0 - not cropped (gray), 1 - trees and forest (dark green), 5 - crops and forage (bright green) (Figure 7).

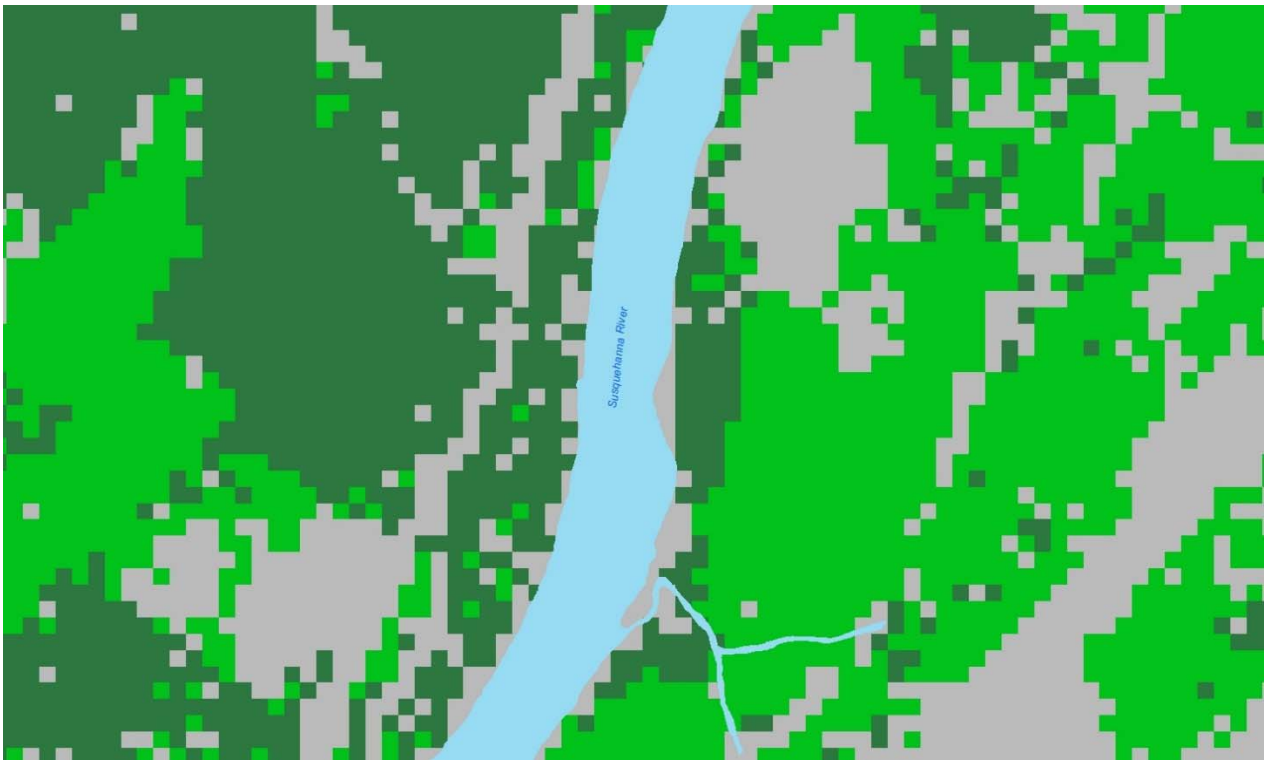


Figure 7 – Reclassification of Cropland Data Layer

Result of the Active Agriculture Analysis

Figure 8 shows the final map of agricultural activity in Tioga County based on crop cover in 2013.

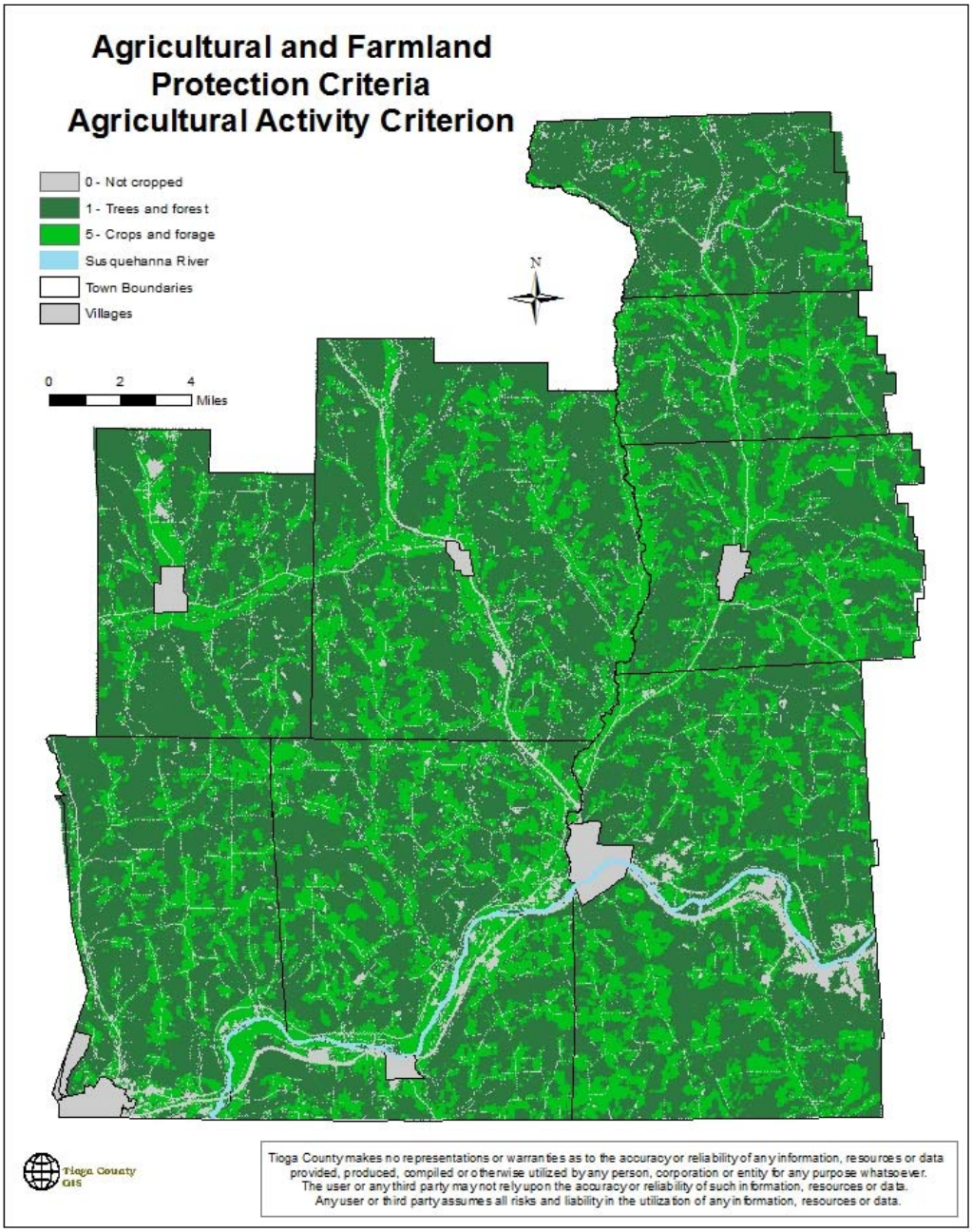


Figure 8 – Agricultural Acitivity in Tioga County in 2013

Land in Floodplains Criterion

The Federal Emergency Management Agency (FEMA) provides floodplain data in a vector polygon format. In Tioga County, land falls into one of the following categories as illustrated in Figure 9: A and AE zones have a 1.0 percent or greater annual chance of a flood hazard (darker blue); the X500 zone has an annual chance of a flood hazard less than 1.0 percent and greater than or equal to 0.2 percent (lighter blue). The X zone has an annual chance of a flood hazard of less than 0.2 percent (gray).

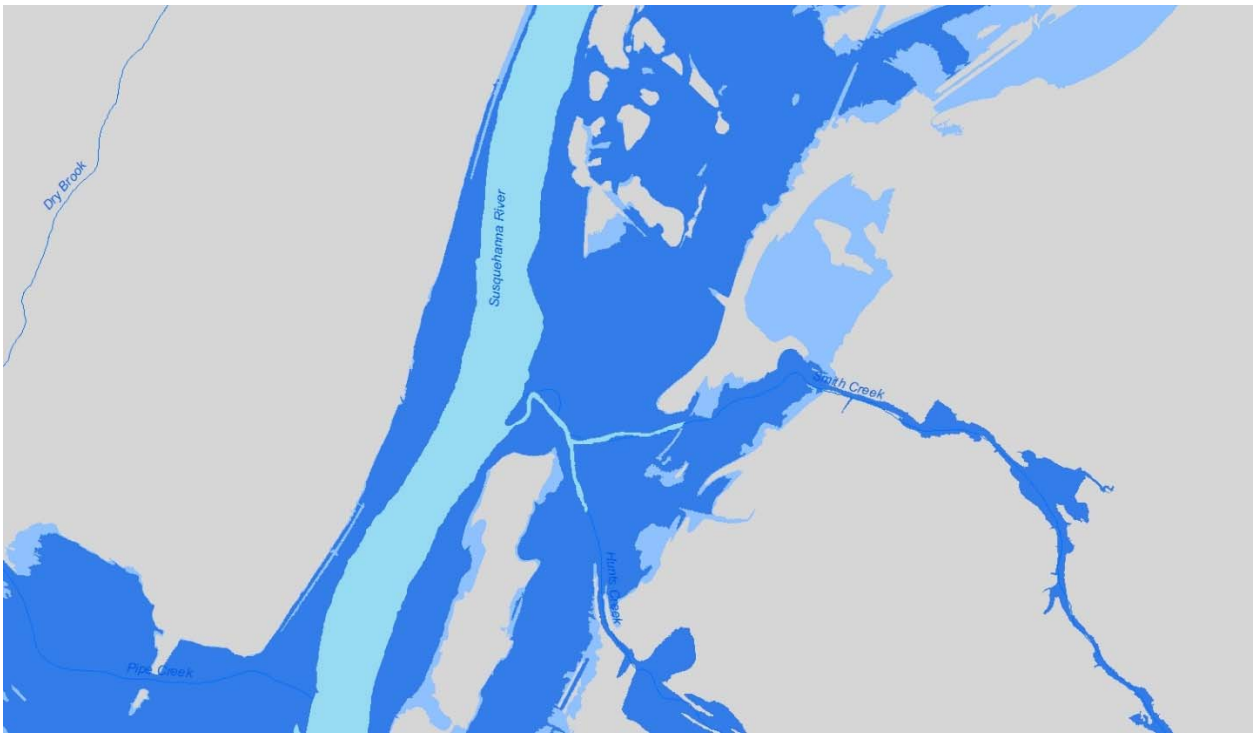


Figure 9 – FEMA Flood Zones

The first step in analyzing the flood zone criterion was to convert FEMA's vector polygon data to raster data. In Figure 10, Zone A is black, Zone AE is blue, the 0.2 PCT ANNUAL CHANCE FLOOD HAZARD Zone is magenta, and Zone X is green.

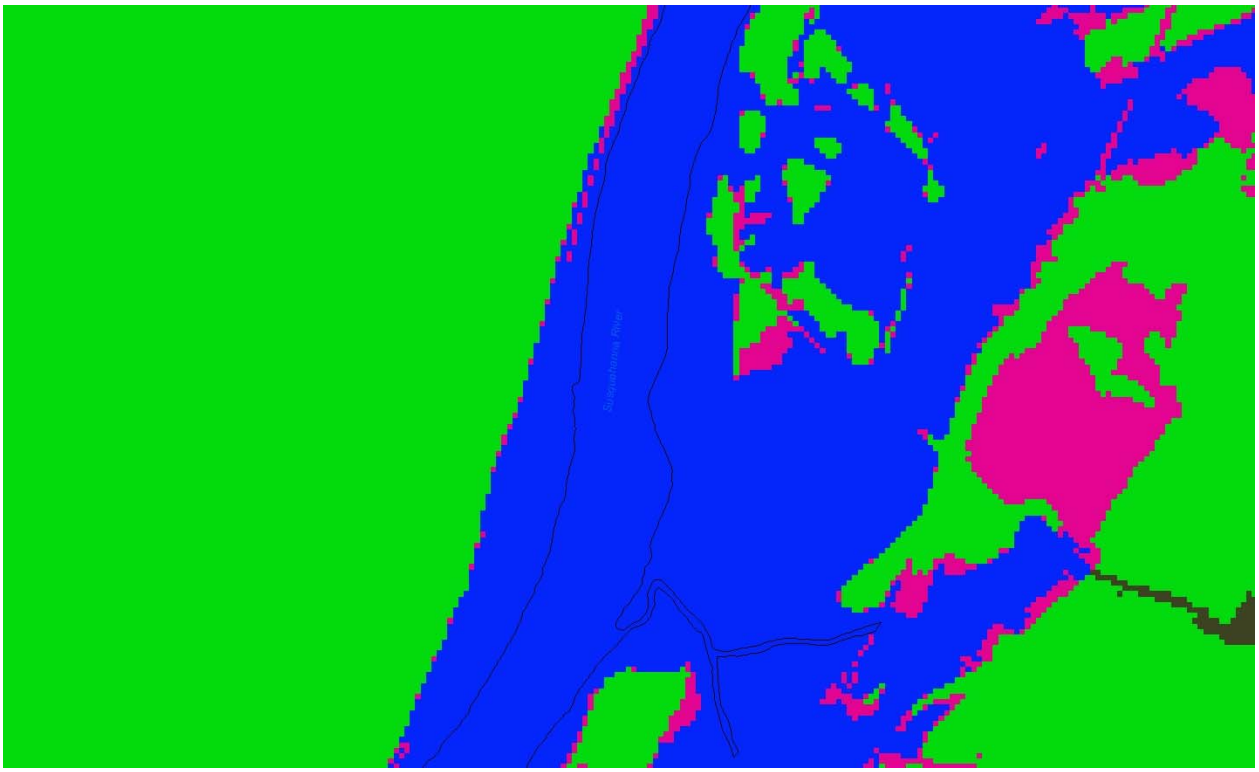


Figure 10 – Flood Zones in Raster Format

Result of the Floodplain Analysis

To produce the final floodplain analysis map (Figure 11), the raster grid squares were reclassified to lump the A and AE zones together into the 1.0 PCT ANNUAL CHANCE FLOOD HAZARD classification and to assign numeric values.

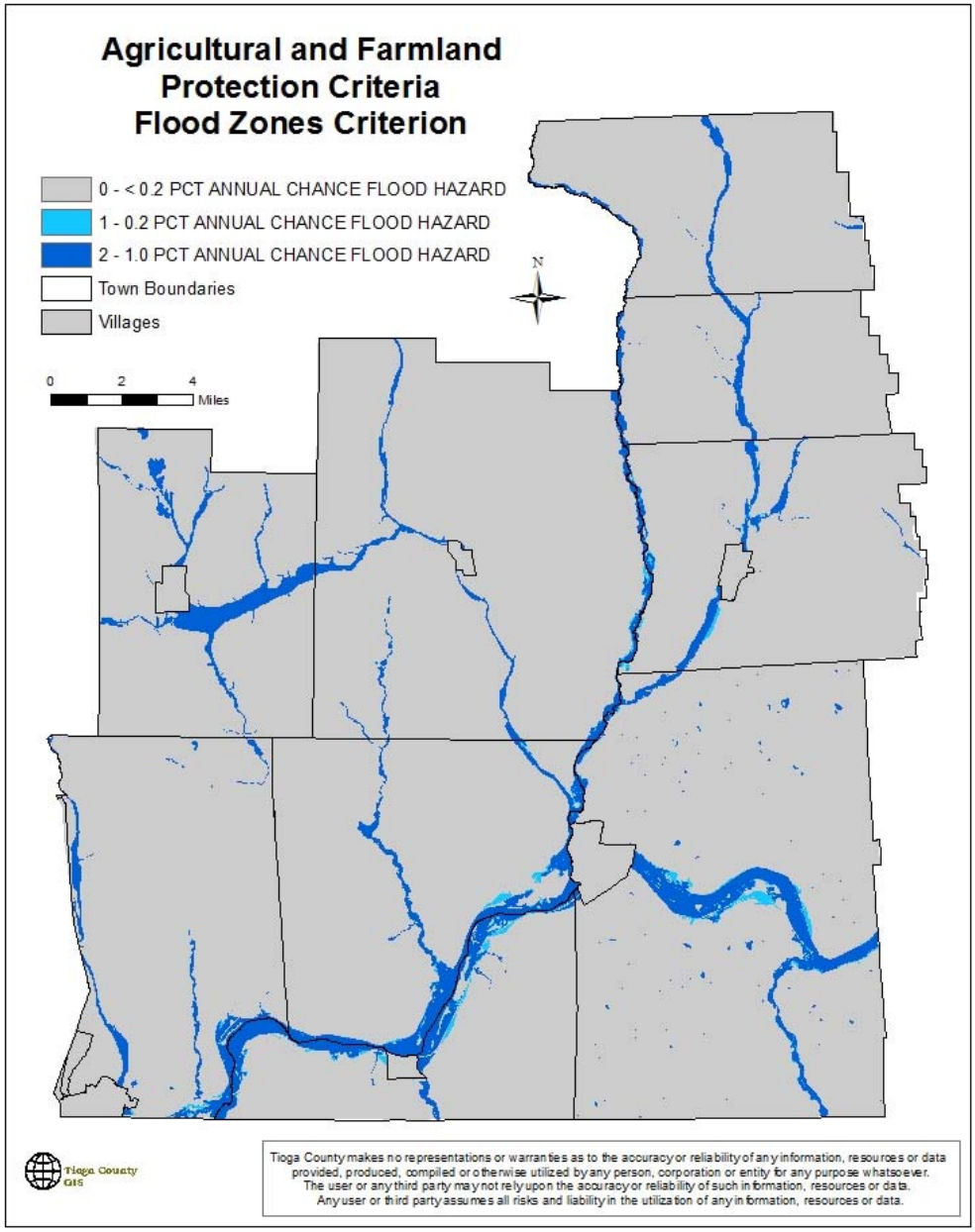


Figure 11 – FEMA Flood Zones in Tioga County as approved in April 2012

Natural Resource Buffer Criterion

This criterion considers the proximity of land to certain natural resources: aquifers, streams, the Susquehanna River, wetlands, nature preserves and parks (including public forests). The analysis steps for this criterion involved generating 200-foot buffer polygons on a polygon representing the Susquehanna River, flow lines representing streams, National Wetland Inventory polygons representing wetlands, parcel polygons representing nature preserves and parks, and polygons from the New York State Department of Environmental Conservation representing primary and principal aquifers. All land was awarded one point for each natural resource category that was within a distance of 200 feet. In Figure 12, the green cells received a value of one for being within 200 feet of the polygon representing the Susquehanna River. The gray cells received a value of 0. A similar map was generated for each of the six natural resources.

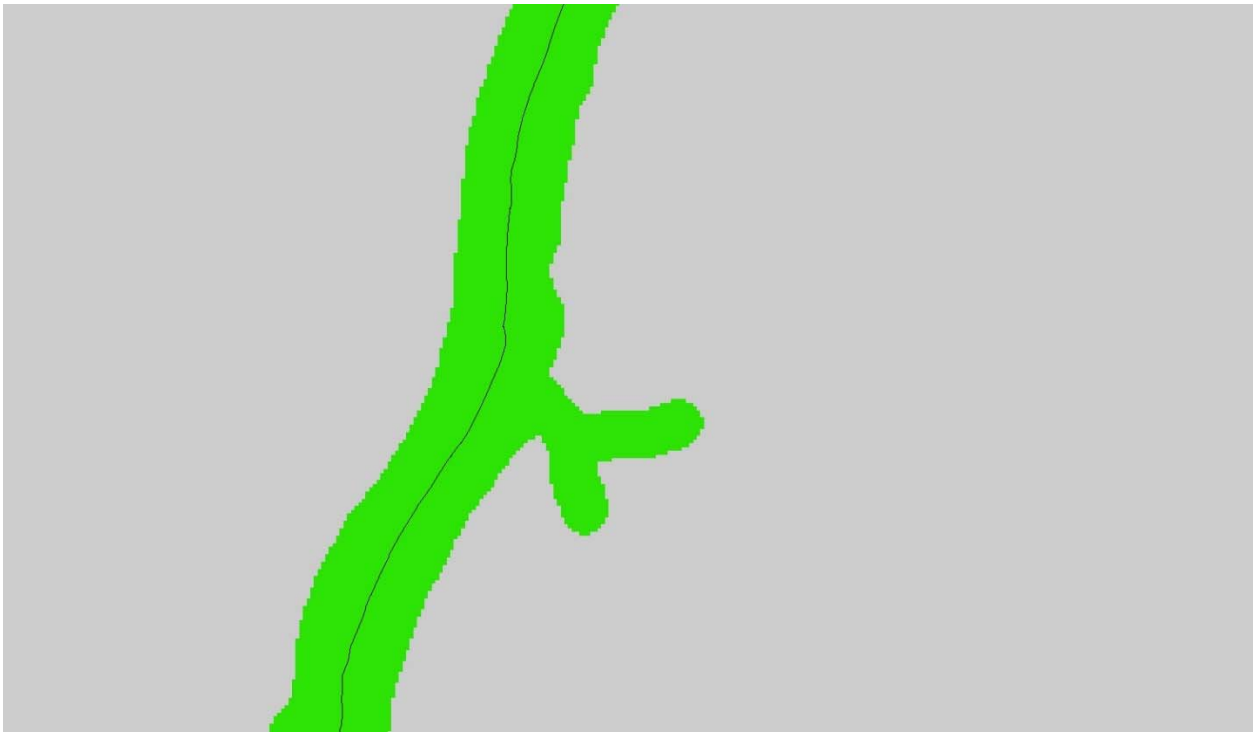


Figure 12 – Susquehanna River 200-foot Buffer

Result of the Natural Resource Analysis

In the final analysis of natural resources, the values from the six natural resource maps were summed. The top score attained was 5 meaning that the land was within 200 feet of 5 out of the 6 categories of natural resources. Figure 13 shows the countywide map with a yellow (score = 0) to dark blue (score = 5) color ramp.

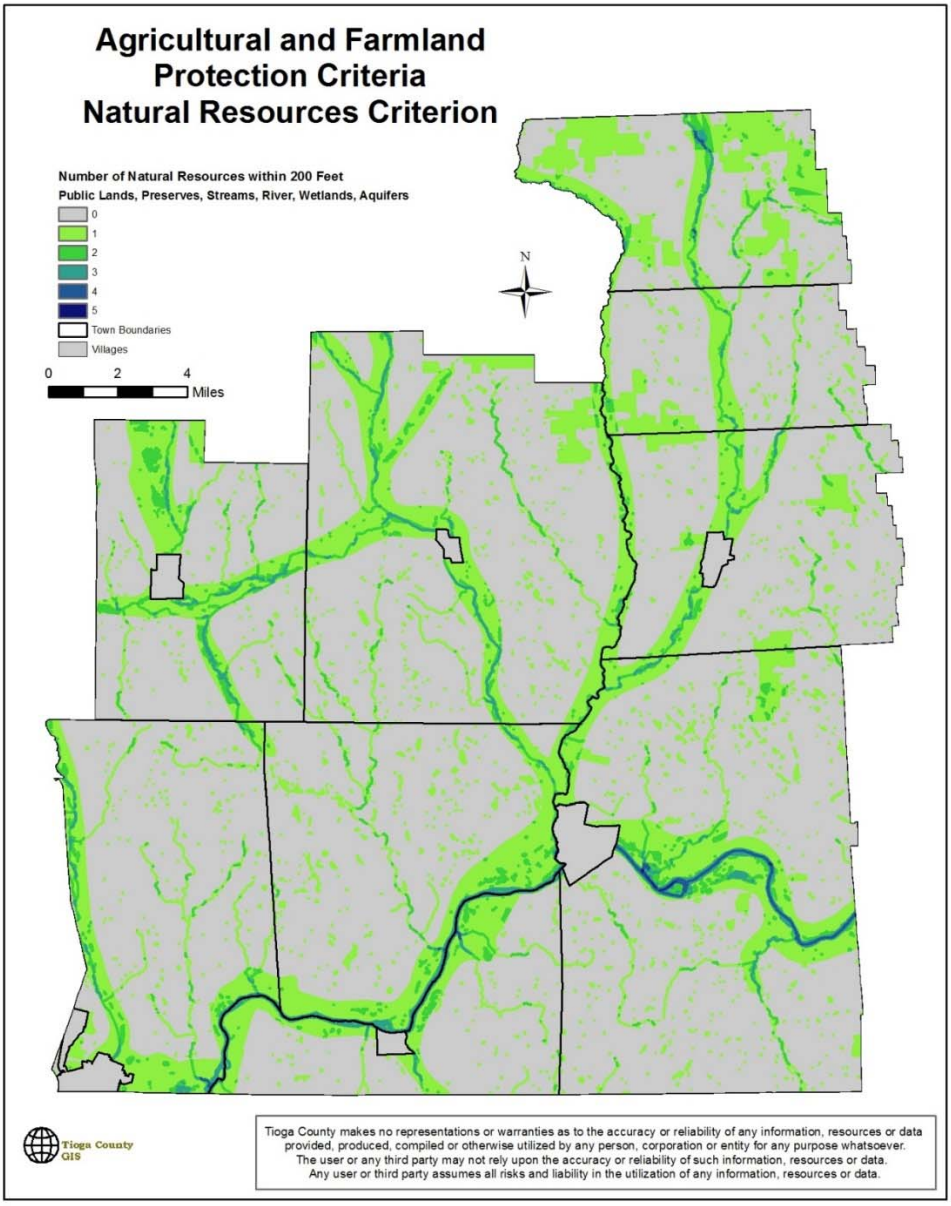


Figure 13 – The number of natural resources within 200 feet.

Development Pressure Criterion

The kinds of development pressure that threaten agriculture and farmland in Tioga County include commercial development, housing development, state routes, highway interchanges, and mining. Influences on future development include utility infrastructure – water, gas, and sanitary sewer—and state routes. Tioga County Geographic Information System (GIS) resources for identifying indicators of development pressure included Real Property data used to select parcels where new commercial or residential buildings were built in a recent 20-year period (March 1, 1994 – February 28, 2013) and to select parcels hosting mining operations. GIS data also included polylines representing state route centerlines and polygons that represented water, gas, and sanitary sewer service areas. Using ESRI's Euclidean Distance tool, we generated a raster for each type of development which identified the distance in 0.1 mile increments of all land within a mile of a development parcel. Figure 14 shows an area within a mile of parcels (pink) hosting a mining operation.

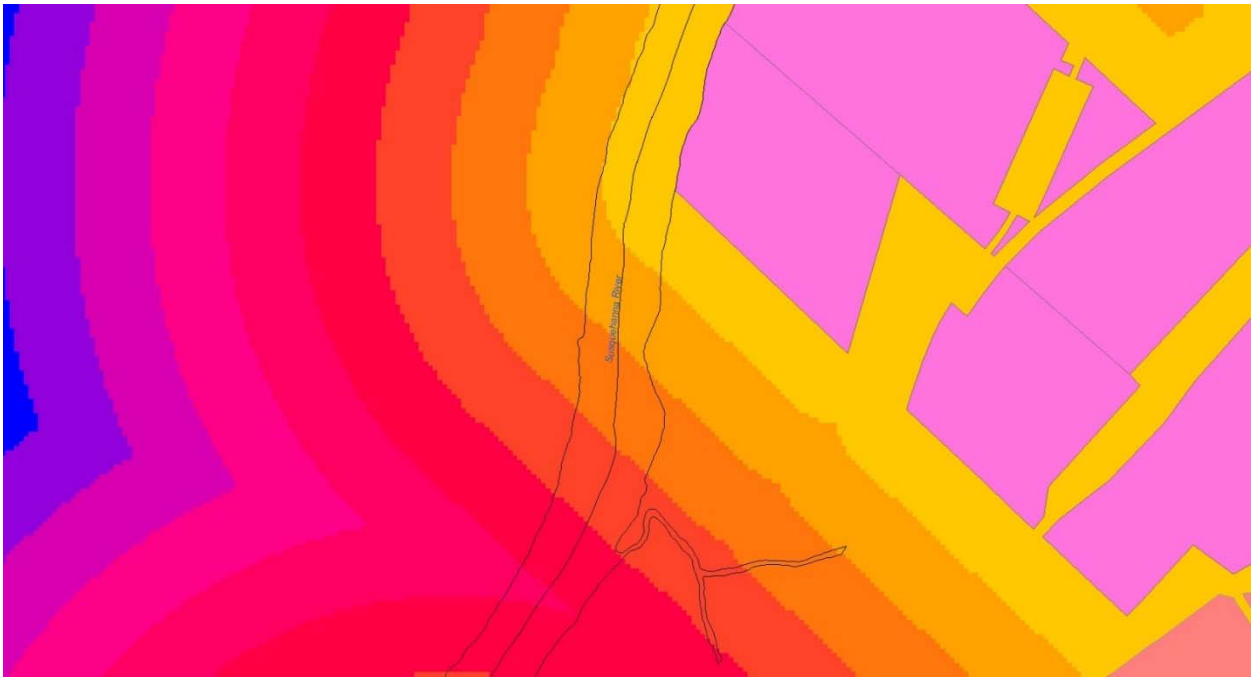


Figure 14 – Land within 1 Mile of Parcels Hosting Mining Operations Identified with 0.1 Mile-wide Bands

The Euclidean distance rasters were reclassified to assign 0 to 10 points to land according to the band in which it fell. Land more than one mile from a development parcel received a score of 0. Land less than 0.1 miles from a development parcel received a score of 10.

Result of Development Pressure Analysis

In order to derive a final score for land under development pressure, the scores from the reclassified rasters for each development pressure type were added together, so land close to several sources of development pressure received higher scores. Figure 15 shows this raster. High values were redder, low values were greener. The highest score achieved was 70. The raster used a minimum-maximum classification so that land with scores in the middle of the range of scores was yellow.

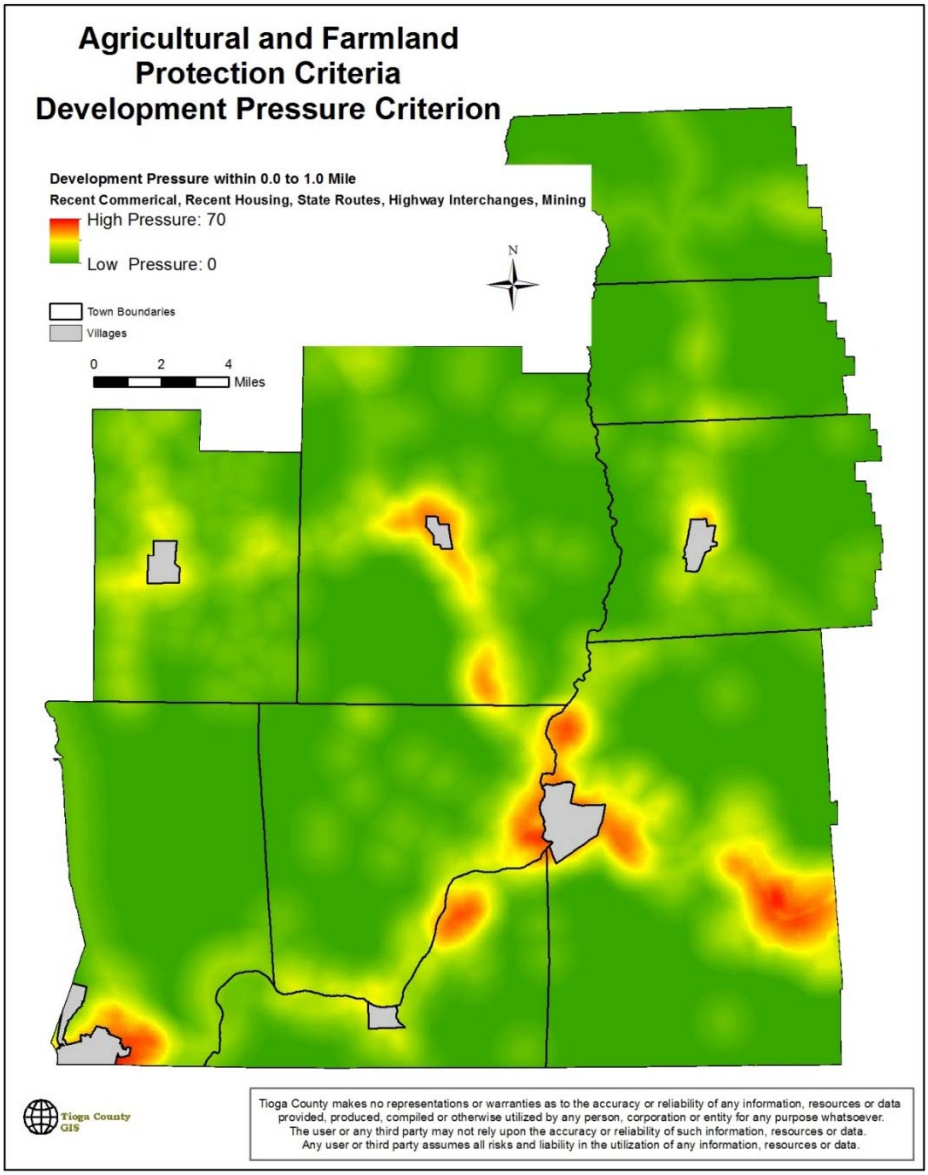


Figure 15 – Proximity to Sources of Development Pressure

Final Analysis

In order to assign the weighted values to each cell, the Raster Calculator tool was used. The value that each cell received for each criterion was multiplied by the appropriate factor that awarded full value for the criterion to the cells with the highest raw scores. Table 2 shows the multiplier for each criterion.

Criteria	Maximum Numerical Value	Maximum Raw Score	Multiplier
Prime agricultural soils or soils of statewide importance	30	5	6
Land in active agriculture	25	5	5
Location within floodplain	20	2	10
Land serves as a buffer for a significant natural resource	15	5	3
Level of competition by non-agricultural uses	10	70	10/70
Total	100		

Table 2

The Raster Calculator tool performed the multiplication of each cell's raw score for each criterion by the appropriate multiplier and then summed the five products to yield the total score for each cell. The resulting scores ranged from 0 to 95 points. Using ArcGIS software, a Jenks Natural Breaks classification was applied to the resulting raster using three classifications. The natural breaks classification looks for clusters in the range of values and groups similar values together. Figure 16 shows the result with cells scoring more than 48 placed in the category of highest preservation priority (blue), cells scoring more than 21 up to 48 placed in the category of medium preservation priority (yellow), and cells scoring 21 or less placed in the category of lowest preservation priority (gray).

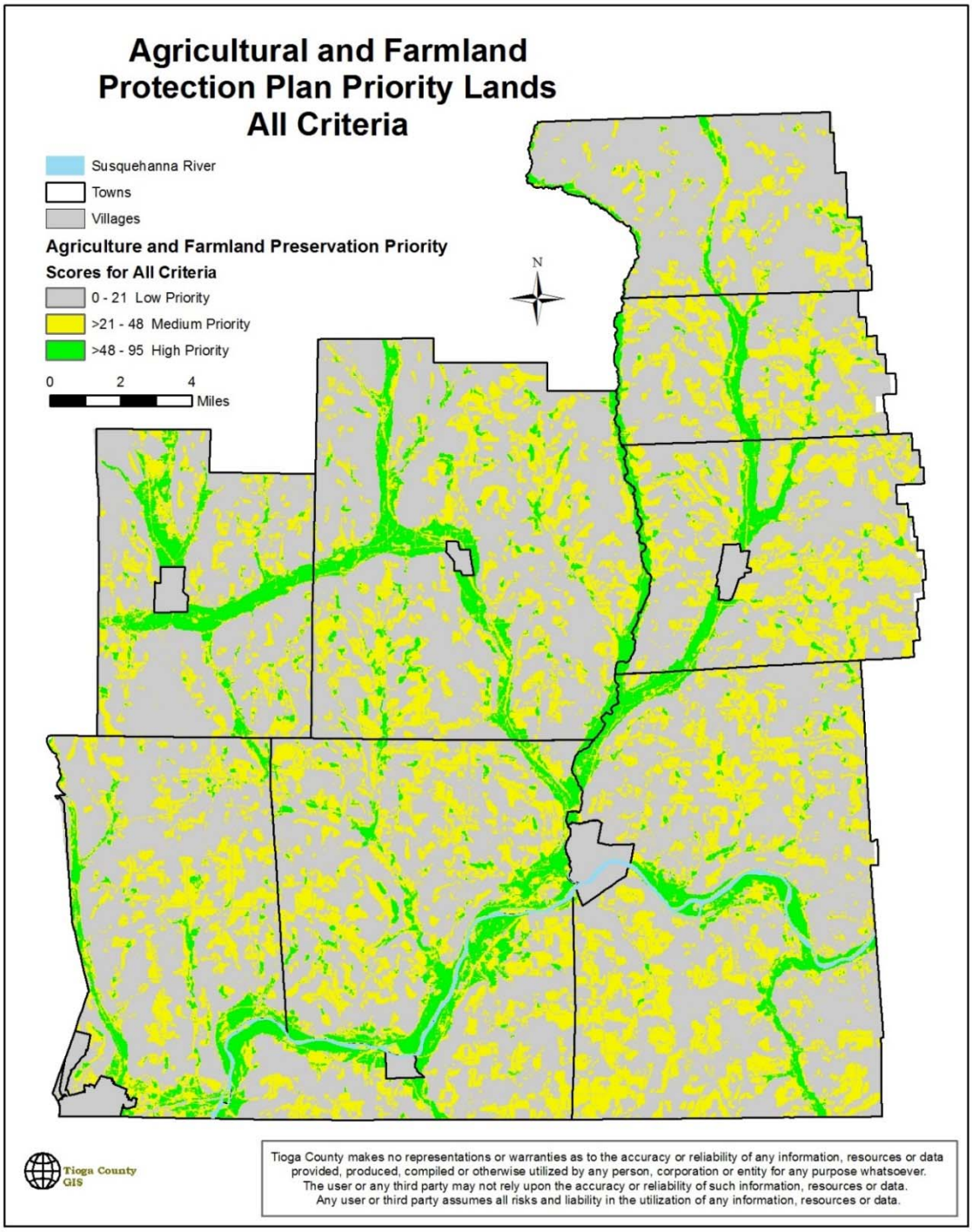


Figure 16 – Agriculture and Farmland Protection Priority