



Designing Solar Land Use Laws that Protect Productive Farmland

June 17, 2019



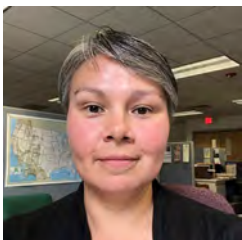
Samantha Levy, NYS Policy Manager, American Farmland Trust

Samantha Levy is New York Policy Manager for American Farmland Trust. Samantha advises state and local lawmakers, planners, and other leaders on policies and programs that save the land that sustains us by keeping land in farming, keeping farmers on the land, and helping farmers adopt sound farming practices.



George R. Frantz, AICP, ASLA , Cornell University

George Frantz, has worked as a land use and environmental planner in small town and rural communities in Upstate for 30 years, in both the public and private sector. His primary areas of expertise are in land-use planning and zoning, with particular emphasis on addressing the needs of agriculture and the protection of environmentally sensitive lands. Since 2017 he has been an associate professor of the practice in the Department of City & Regional Planning at Cornell.



Matilda Larson, Planner II, St. Lawrence County

Matilda manages the County's annual and eight-year reviews for its Agricultural District program, and was the lead on the preparation of the County's 2016 Agricultural Development Plan. Matilda assists with project reviews for the County Planning Board, and assists local governments with the preparation and revision of local land use regulations including, most recently, with the preparation of solar regulations with a focus on the preservation of prime farmland.

What is Smart Solar Siting?

Designing Solar Laws to Protect Farmland and Promote Farm Viability



Samantha Levy, New York Policy Manager, American Farmland Trust
Smart Solar Siting Webinar; June, 2019



Nonprofit Organization founded in 1980 Committed to Saving The Land That Sustains Us

- Protecting Farmland From Development
- Promoting Sound Farming Practices
- Keeping Farmers on the Land

Work From Kitchen Table to Congress



Climate Change and Agriculture

2018 IPCC report: We must cut GHG emissions as much as possible as quickly as possible (by 2040-2045) to stay below the 1.5°C warming limit

Climate Change threatens Farm Viability and Productivity

Farmers are also a Potential Key Part of the Solution

We will need to produce more food in the future to support a growing population

Agriculture in New York State

Farms provide us with food and environmental services, and are anchor businesses in rural communities

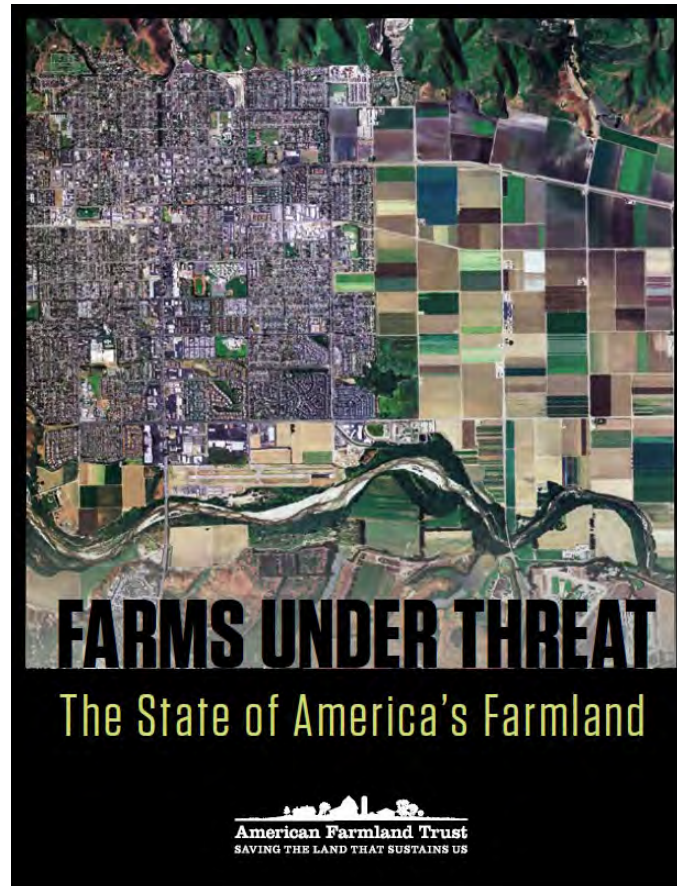
\$39 billion industry which supports 160,000 jobs

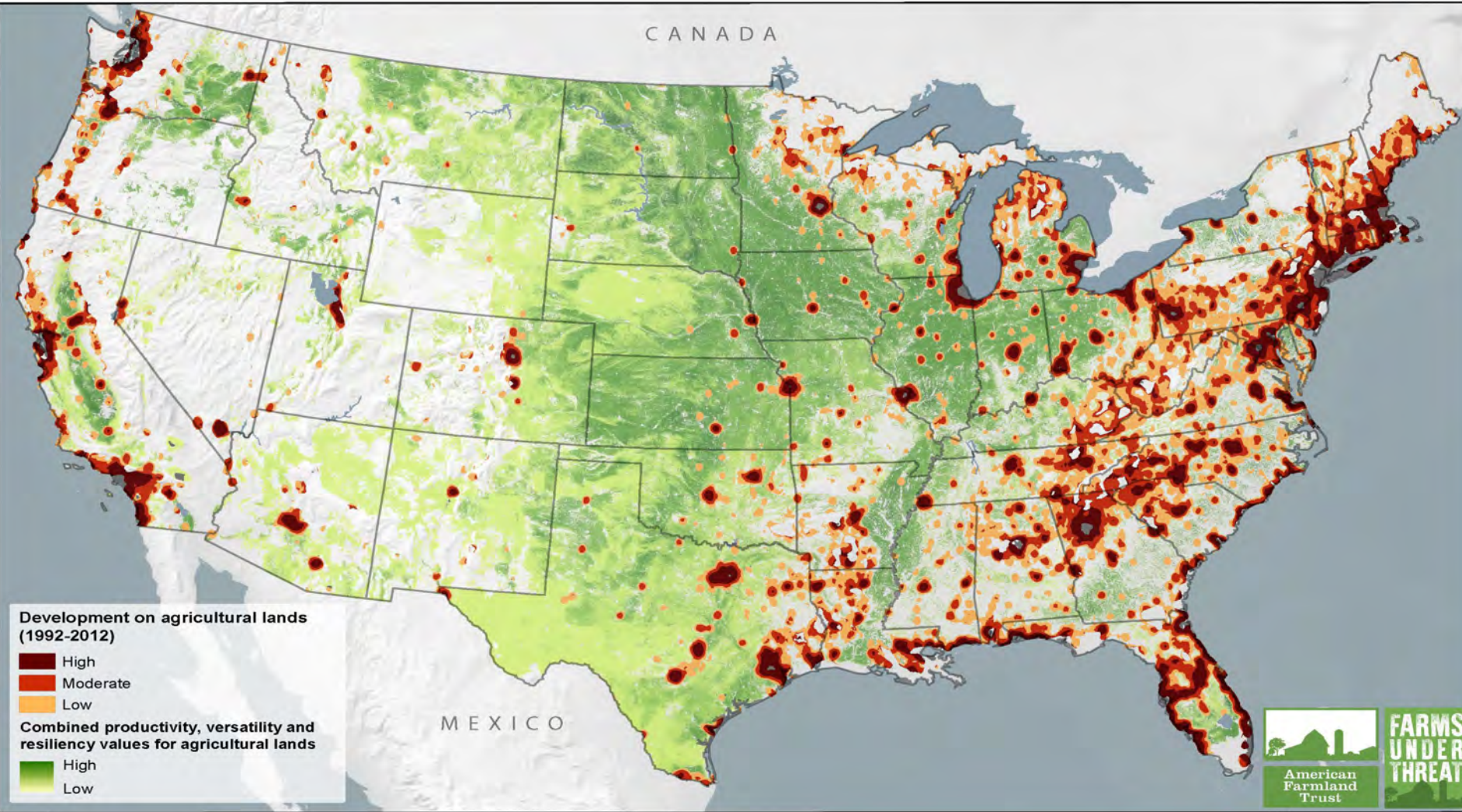
Uses 25% of the state's land

Since 1980, we've lost the equivalent of 5,000 farms to development



Climate Change and Increased Competition for Land



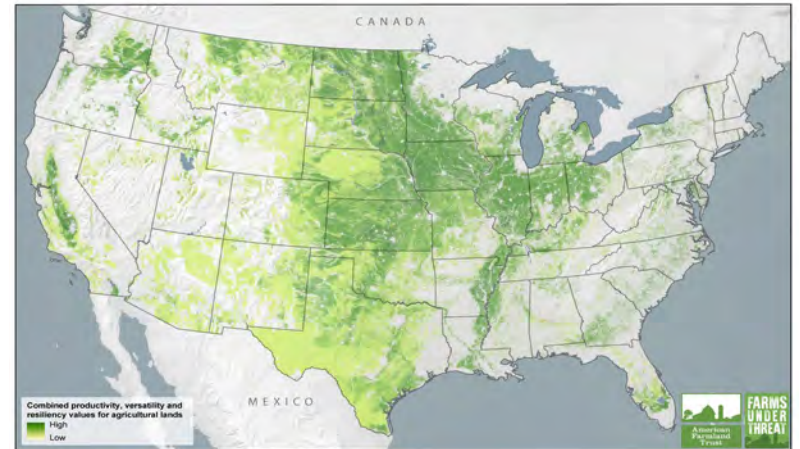


PVR Farmland

Productive – incorporates soil classifications such as prime, statewide important, and unique soils

Versatile – ability of land to be used for growing diverse types of foods

Resilient – ability of land to be farmed in the face of a changing climate



Renewable Energy in New York State

- 2015: Reforming the Energy Vision, Goal to generate 50% of our energy needs for our electric grid from Renewable Sources by 2030.
 - Now new 2019 goal: 70x30
- 2019: up to 28% of Energy Generated from Renewable Sources
- To reach 50%: One scenario identified by NREL, add 6,800 MW of utility scale solar in New York
- Solar is Land Intensive: at 5-10 acres/MW this scenario would mean between 34,000 and 68,000 acres of land converted to solar energy generation
- 2018: 3,700 MW of utility scale solar in the NYISO interconnection queue

Why Create Proactive Solar Laws that Protect Farmland?

- To Protect PVR Farmland, a Finite Irreplaceable Resource
 - Farmland near transmission is an attractive site for developers
 - Solar Leases Present an Economic Opportunity for Farmer-Owners
- New York is a Home Rule Law State
- Conflict Reduction: Define Community Values and Preferences
- Under 25 MW, Local Permitting Authority
- Over 25 MW, State Siting process takes Local Laws into Account
- Permanent Land Use?



Renewable Energy Buildout in NYS

With planning, we can both produce solar energy *and* grow food and crops



Smart Solar Siting and Agricultural Lands

- Maximizes potential for solar
- Minimizes impact on PVR farmland
- Written explicitly in policies and laws



Best Practices, Smart Solar Siting in Local Land Use Laws

1. Include a Statement of Purpose
2. Define Important Local Farmland to Protect
3. Prioritize Siting on Unproductive Land/Previously Disturbed Areas
4. Define Different Approval Processes for Different Scales/Uses:
Small vs. Large; On-farm use vs. For sale into the grid
5. Require Developers to follow NYSDAM guidelines to Protect Ability to Farm the Land for the Present and Future
6. Encourage Dual Use/Collocation of PV solar with Active Farming

Defining Important Local Farmland to Protect

How you would define your most important farmland to protect in your local laws?

Town of Marbletown: “Large Scale Solar Energy Systems **shall not be permitted to be constructed on areas of the first 4 prime farmland soil types** as designated by the US Dept. of Agriculture: Ba-Barbour loam...CnA, CnB-Chenango gravelly silt loam...Te-Teel silt loam...Un-Unadilla silt loam.”

Town of Danby: Solar Energy Facilities must not be located in the following areas, unless Otherwise approved by the Planning Board in conjunction with a Site Plan Review process as provided in Article VIII: i. **Ten (10) acres or greater extents of actively-farmed prime agricultural soils** as identified by the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) or alternative available resource.

Siting Solar on Farmland

Principles:

- Guide siting to Marginal/Less Productive Farmland within the parcel or limit impact on PVR Farmland
- Require Developers to follow NYSDAM guidelines to Construct, Operate, Maintain, and Decommission Arrays on Farmland in ways that Preserve Ability to Farm in the Future
- Consider Including Financial Surety for Decommissioning

“Installation on farms shall abide by rules, standards and regulations established by NYSDAM. The construction and installation of any energy system shall be designed to minimize any adverse impacts on the productivity of the soil and the farm operation”- Town of Goshen

NEW YORK STATE
DEPARTMENT OF AGRICULTURE AND MARKETS

Guidelines for
Agricultural Mitigation for Solar Energy Projects
(Revision 4/19/2018)

The following guidelines apply to the construction, restoration, and follow-up monitoring of solar energy projects impacting agricultural land. Depending on the size of the project, the project sponsor shall hire an Environmental Monitor to oversee the construction, restoration and follow-up monitoring in agricultural fields.

For projects involving less than 20 acres of agricultural land, the Construction Manager or some other on-site personnel could serve as the Environmental Monitor. The Environmental Monitor shall be on site whenever construction or restoration work is occurring on agricultural land.

For projects involving 20 acres or more of agricultural land, the Environmental Monitor shall be on site whenever construction or restoration work is occurring on agricultural land and shall coordinate with the New York State Department of Agriculture and Markets, Division of Land and Water Resources. The purpose would be to develop an appropriate schedule for inspections, to assure that the goals of these guidelines are being met.

In all cases, the Environmental Monitor shall contact the New York State Department of Agriculture and Markets, Division of Land and Water Resources, if farm resource concerns, management matters pertinent to the agricultural operation, and site-specific implementation conditions found in these guidelines, cannot be resolved.

Encourage Dual Use: Solar Panels and Active Agriculture



FACT SHEET

Dual-Use: Agriculture and Solar Photovoltaics



The Massachusetts Department of Energy Resources has established the Solar Massachusetts Renewable Target (SMART) program, which will regulate incentives associated with new solar photovoltaic (PV)



Common:

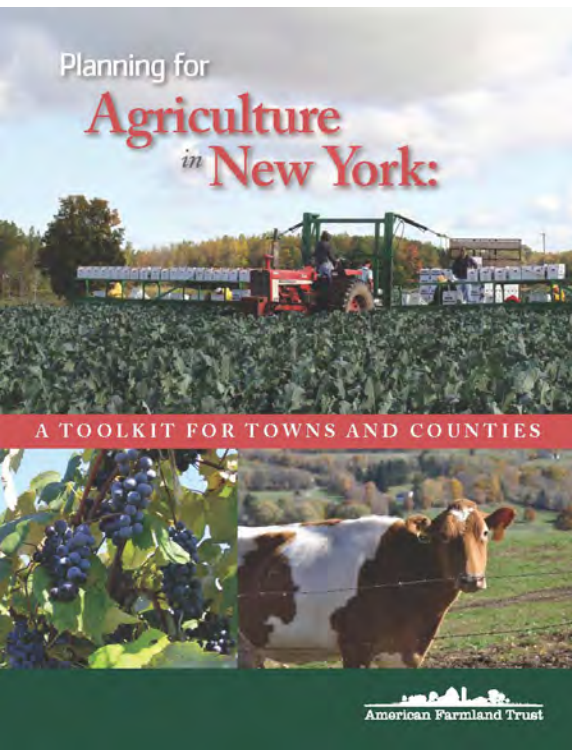
- Beekeeping, Sheep Grazing, Shade Tolerant Crops (potential)

Consider:

- Soil Type
- Prioritize *active* agricultural use to produce food
- Was a farmer actively included in the development of the plan?

Town of Red Hook: "Design of ground-mounted solar energy systems shall favor concurrent use of the land for livestock grazing or similar sustainable use."

Resources



<http://www.farmlandinfo.org>

<http://www.farmland.org>
Farms Under Threat Report,
Smart Solar Siting resources

[https://www.agriculture.ny.gov/ap/agsservices/
Solar_Energy_Guidelines.pdf](https://www.agriculture.ny.gov/ap/agsservices/Solar_Energy_Guidelines.pdf)
NYSDAM Guidelines

New Publication!

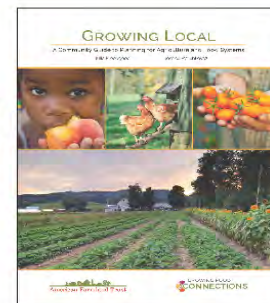
Do you want to grow your local economy and strengthen your community's food system?

Are you a planner interested in supporting agriculture and food systems in your community?

Do you want to learn more about how to make your community farm and food friendly?

Are you an advocate who wants to learn new tools for planning for farms and food?

Have you ever wondered how to protect your land and support the infrastructure needed to get food from farm to plate?



American Farmland Trust and Growing Food Connections have released a new publication to help communities remove policy barriers and advance planning solutions to strengthen community food systems. It shares principles, practices, and a comprehensive collection of available local policies to help farmers and other community members work with public and private partners to further food system planning, policy, and public investment. Download available at: <http://www.farmlandinfo.org/growing-local-community-guide-planning-agriculture-and-food-systems>.

Interested in purchasing a print copy? Single copy price \$25; multiple-copy discounts available. Please contact Peg McCabe at pmccabe@farmland.org for more information.



American Farmland Trust

GROWING FOOD CONNECTIONS

USDA
United States
Department of
Agriculture

Growing Food Connections is supported by Agriculture and Food Research Initiative Competitive Grant no. 2012-68004-9894 from the USDA National Institute of Food and Agriculture. AFT's partners include University of Buffalo, Cultivating Healthy Places and The Ohio State University. www.growingfoodconnections.org

Providing Opportunity; Protecting the Agricultural Land Resource

June 17, 2019

George R. Frantz, AICP, ASLA
Department of City & Regional Planning
Cornell University



Cornell AAP
Architecture Art Planning

Renewable Energy & Agriculture



Potential large economic benefits for farmers;

- Cut energy costs;
- Generate revenues;
- Recycle wastes.



Purpose

Agricultural zoning should:

- Protect the agricultural land resource;
- Promote the wise stewardship of the soil and water resources;
- Promote the long term economic viability of the agricultural sector.



Definitions

- Make sure each definition is concise, and clear as to what your community means/desires;
- Define any term that has a meaning that is specific to your zoning code, & your municipality;
- Let Webster's take care of commonly utilized words, with generally accepted meanings.



Definitions

Examples:

- Solar;
- Wind;
- Commercial solar/
wind;
- Non-commercial
solar/wind;
- Biogas



Definitions - Town of Geneva

Solar Energy System, Non-Commercial

A solar photovoltaic cell, panel, or array, or solar hot air or water collector device, which relies upon solar radiation as an energy source for collection, inversion, storage, and distribution of solar energy for electricity generation or transfer of stored heat, primarily for use on the premises.



Photo courtesy Renovus Energy, Ithaca, NY



Definitions

Non-commercial systems:

- Permitted use in agricultural zoning districts;
- Scaled to fit farm operation;
- Reasonable setbacks, height limitations;
- Avoid high quality soils.



Definitions - Town of Geneva

Solar Energy System - Commercial

An area of land or other area used for a solar collection system principally used to capture solar energy and convert it to electrical energy to transfer to the public electric grid in order to sell electricity to or receive a credit from a public utility entity, but also may be for on-site use...



Renewable Energy

Commercial Systems

- Wind generally compatible;
- Relatively small footprint;
- Access road design important;
- Soil/site restoration provisions in zoning;
- Decommissioning provisions.



Renewable Energy

Commercial Systems

- Commercial solar – not so compatible w/ agriculture:
 - Permanence of the systems;
 - Acreage requirements;
- Site plan review appropriate:
 - Size & scale of development;
 - Environmental impact review;
 - Ensure compliance w/ standards.



Zoning & Renewable Energy

Commercial Systems

- Permit in appropriate locations within community;
- Site plan approval (maybe special use permit);



Zoning & Renewable Energy



Minimum Standards:

- Setbacks (property lines, roads, streams, wetlands);
- Height and bulk limits;
- Protect prime soils & farmland of statewide importance;
- Decommissioning/site restoration plan;
- Surety posting.



Zoning & Renewable Energy

Design Standards

- Avoid/reduce visual impacts (including glare);
- Landscape buffers;
- Underground utility/transmission lines;
- Fencing;
- All-weather roadways within site.



Zoning & Renewable Energy

Decommissioning

- Time frame for completion of site restoration;
- Site to be restored to a useful condition:
 - Removal of aboveground and below-ground equipment, structures and foundations;
 - Restoration of the surface grade and soil after removal of equipment;
 - Revegetation of restored areas;



Thank You



George R. Frantz, AICP
212 Sibley Hall, Cornell
University, Ithaca, N.Y. 14850
607-227-4652 grf4@cornell.edu

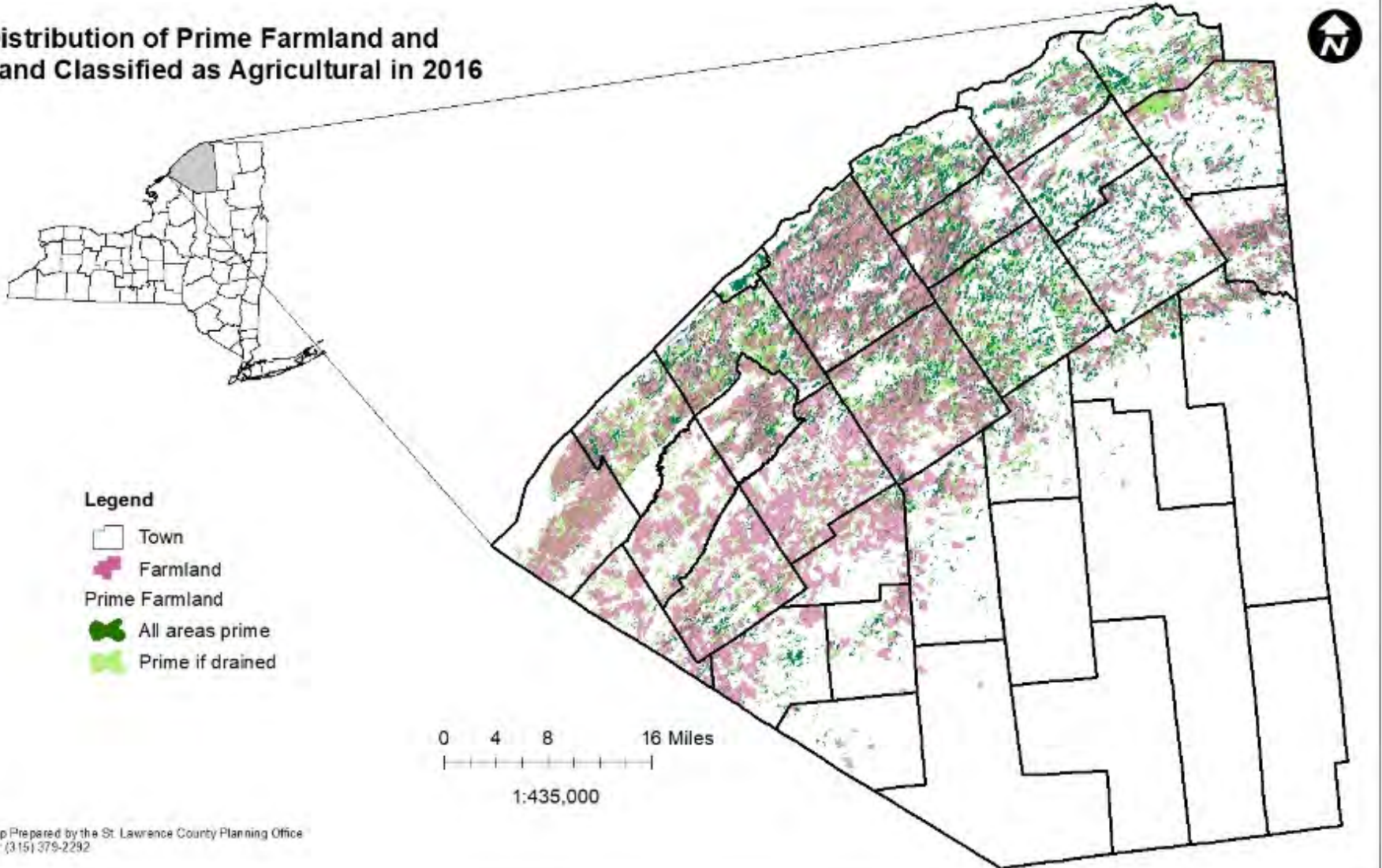


Cornell AAP
Architecture Art Planning

Minimizing Solar Impacts on Prime Farmland



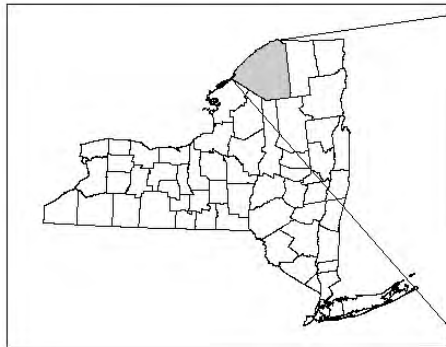
Distribution of Prime Farmland and Land Classified as Agricultural in 2016



Prime & Prime if Drained = 19% of land in SLC
→ Less than 1 in 5 acres available

Soils and High Voltage Transmission Map

Distribution of Prime Farmland and Land Classified as Agricultural in 2016



Legend

- Town
- Farmland
- Prime Farmland
 - All areas prime
 - Prime if drained

High Voltage Transmission Lines

- 100-161 kV
- 220-287 kV
- 735 kV and higher
- Not Available

0 4 8 16 Miles

1:435,000

Map Prepared by the St. Lawrence County Planning Office
Tel: (315) 379-2292

SLC's Ag Industry

- Market Value = \$191 million in 2017
- Dairy = \$139 million or 73%
- Top 10 in NE Milk Market Order Area
- Ranks 53rd in the US
- 2nd in NYS for hay

Prioritize Farmland

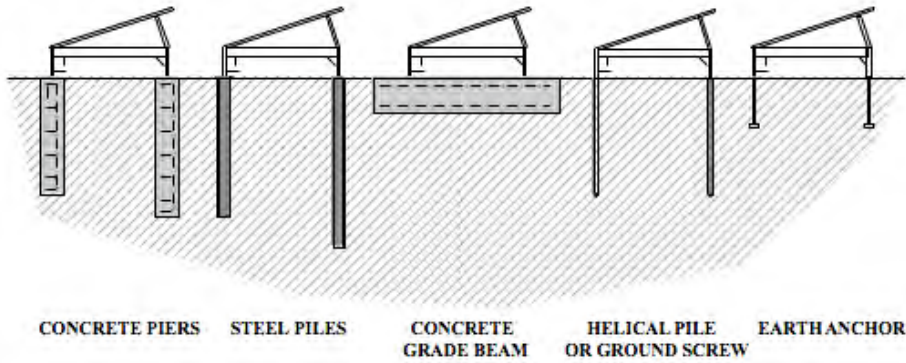
- Active rotational farmland
- Permanent hayland
- Improved pasture
- Unimproved pasture
- Other support lands
- Fallow/inactive farmland



Concentrate on Single Lot



Stockpile Topsoil



Use Ballast Footers Instead



Features to Avoid

- Drain Tile
- Diversions
- Ditches
- Fencing



Access Along Field Edges



Path Construction



- Timbermats
- 16' wide
- Geotextile fabric
- At grade

Transmission Lines



- Underground
- 2' – 4' deep
- Taller utility poles
- Larger spans
- No guy wires

Restoration



- Decompaction
- Rocks
- Debris
- 4' depth
- Regraded
- Seeded
- Revegetated
- Monitoring

Decommissioning

ARCO

5.2 MW, 177 acres

Outside Bakersfield, CA



- Depth to 4'
- Decompaction 18" – 24"
- Access
- Transmission Lines
- Decommissioning funds

Alternatives to Prime Farmland

- Former landfills with baseload of methane
- Former quarries
- Remediated brownfields



Repurpose Former Uses



2 MW on 11 acres
Dennings Point Landfill, Beacon, NY

Energy \approx 1,000 homes
\$2 million PILOT over 20 years

= 60% of public's power usage (\approx 1,600 homes)
= \$2 million savings through Power Purchase Agreement



6 MW on 22 acres
Former Brownfield (Palmer Airfield, MA)

Community Solar: Town of Enfield, Tompkins County

- Subscriptions for users who don't have land or buildings ideal for solar panels
- 10% discount in year 1, with 2% increase in costs each year
- Community can lease site
- 20-Year PILOT



Upcoming Events



American Farmland Trust



Cornell University
Community & Regional
Development Institute (CaRDI)



NEW YORK STATE
Agriculture
and Markets

New York Farmland Protection Forum

Acquire Tools to Permit Solar Development while Protecting Local Farmland

- Presentations and Discussion about how to Design Zoning Laws to Permit Large-Scale Solar Development while Protecting Local Farmland
- Networking with other town and county leaders, farmers and your local community



November 15th
St. Lawrence County
9:00 am - 12:00 pm
Gouverneur Community Center
4673 State Hwy 58, Gouverneur, NY 13642

Free to attend - but space is limited! *Lunch will be provided.
Please RSVP by November 1st at:
www.farmland.org/farmlandforum

Land Use Training Credits will be offered to Local Officials

Future Smart Solar Siting Webinars

Farms Under Threat State-Level Maps Coming Soon

Greener Fields: a forum on Smart Solar Siting and Collocation

November 2019, Long Island



Cornell AAP
Department of
City and Regional Planning




American Farmland Trust

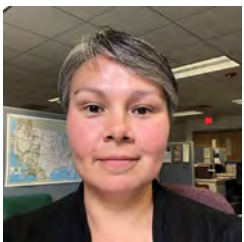
Thank you! Questions?



Samantha Levy, NYS Policy Manager, American Farmland Trust
slevy@farmland.org



George R. Frantz, AICP, ASLA , Cornell University
frantz@cornell.edu



Matilda Larson, Planner II, St. Lawrence County
mlarson@stlawco.org