Minimizing Large Scale Solar Development Impacts on Prime Farmland

Interconnection: Local Planning and Review for Large Scale Solar

May 10, 2018

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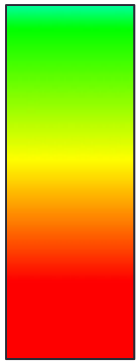
Presentation Overview

- Soil/Farmland Assessment
- Array Installation Mitigation Techniques
- Ag. and Markets Ag. District Interplay
- Agricultural Assessments
- Solar Land Leases
- Additional Resources

It's All About the Dirt!

Soil classes determine the ability to grow crops



- Class 1: Few limitations
- Class 2: Some limitations
- Class 3: Severe limitations
- Class 4: Very severe limitations

Soil Class Distribution in St. Lawrence County

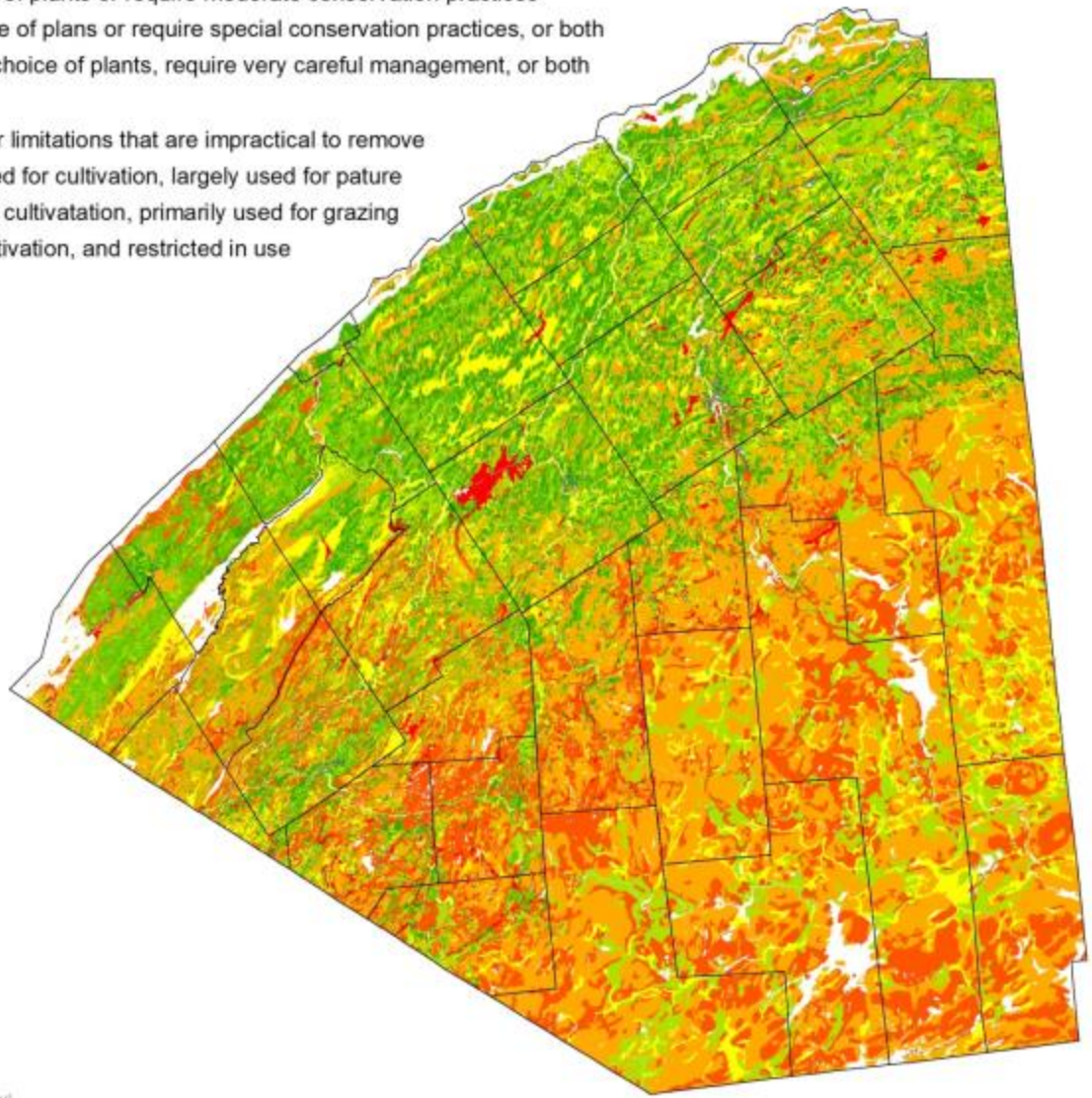
Legend

Soils Suitable for Cultivation

- Class 2: Some limitations that reduce choice of plants or require moderate conservation practices
- Class 3: Severe limitations that reduce choice of plans or require special conservation practices, or both
- Class 4: Very severe limitations that restrict choice of plants, require very careful management, or both

Unsuitable Soils

- Class 5: Little or no erosion hazard, but other limitations that are impractical to remove
- Class 6: Severe limitations; generally unsuited for cultivation, largely used for pature
- Class 7: Very severe limitations; unsuited for cultivatation, primarily used for grazing
- Class 8: Limitations that preclude use for cultivation, and restricted in use
- Town boundary



0 4 8 Miles

1:650,000

G:\ArcGIS\SLCounty\AgAtlas\Maps\SLCounty\SLC Soil Classes 2 - 8 - Landscape.mxd

Prime Soils

Best combination of physical and chemical characteristics

Adequate and dependable supply of moisture

Acceptable acidity and alkalinity

Acceptable sodium content

Permeable

Few rocks

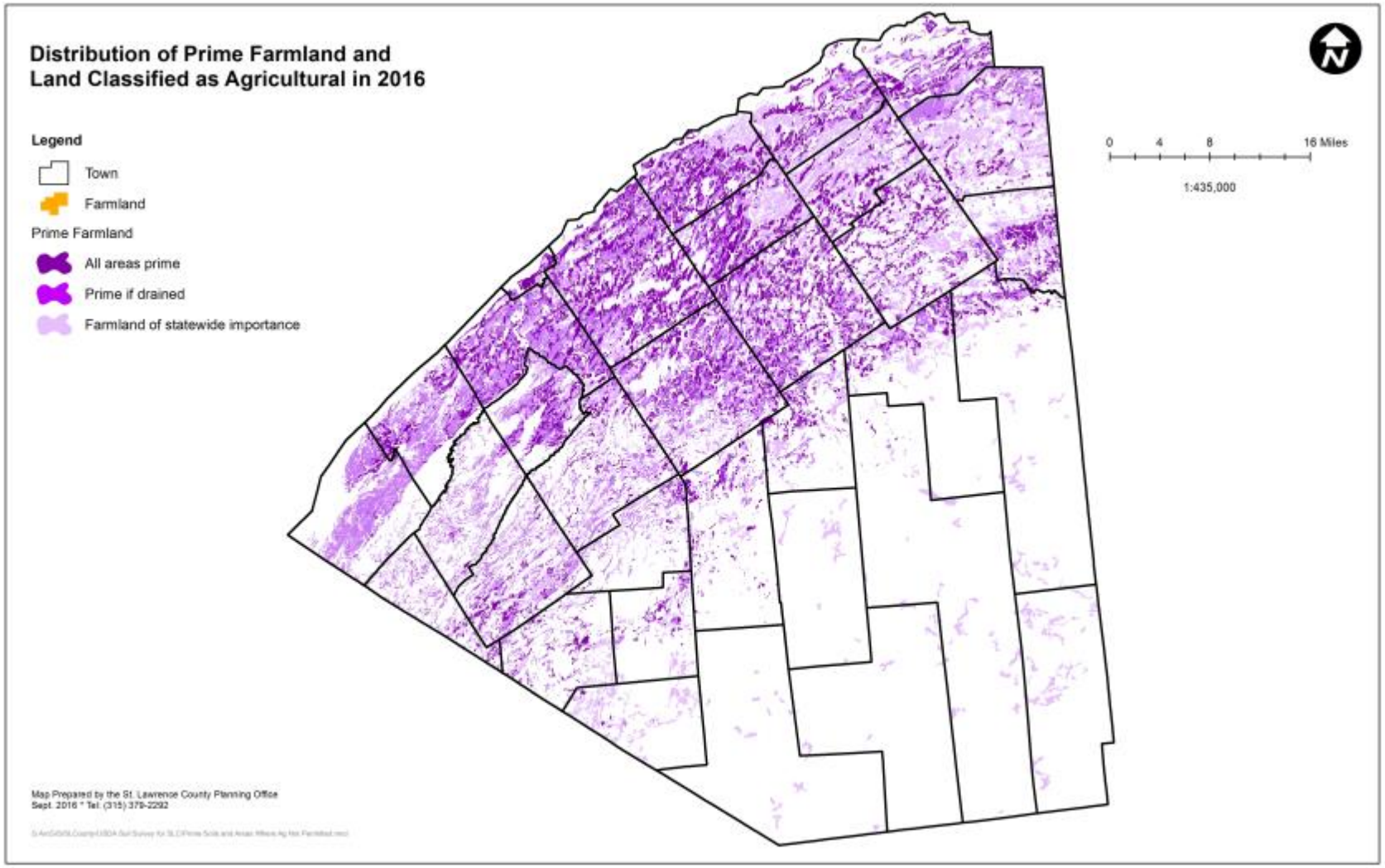
Not excessively erodible or saturated

Not frequently flooded

Slopes 0 to 6%

Prime Classifications

- Prime Farmland
- Prime Farmland if Drained
- Farmland of Statewide Importance



Prime & Prime if Drained = 19% of land in SLC

→ Less than 1 in 5 acres available

Prime Farmland Lost to Non-Ag Uses

→ Farm on less suitable soils

Increased production pressure on marginal land

→ Not easily cultivated

→ Less productive

→ More erodible and droughty

Increases production costs (time, energy, money)

Less competitive

How do you know if it's Prime?

- Mapping Software
- Soil and Water Conservation District
- Agricultural Data Statement
  - -soil types
  - -ag. assessment
  - -investment

Solar Arrays

4-6 acres of land needed for 1 MW of panels

3,000 – 4,000 panels per MW

20 – 40 year lifecycle


Figure 1 - Racking


Figure 2 - Racking

Suitable Land Characteristics

- Flat
- Cleared
- Not in floodplain
- Access to power
- Large acreage

Prioritization of Farmland

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

Avoid Dividing Large Tracts


McGarvey Rd
Townline Rd
Narrows Creek Rd
© 2018 Google
Google Earth

Other Features to Avoid

- Tile lines
- Diversions
- Fencing
- Ditches

Livestock Access

Transmission Lines

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

Decommissioning Plan

- Steps to remove system
- Outline how disposed/recycled
- Access roads
- Transmission lines
- Decommissioning funds

Decommissioning Fund

- Discontinued / abandoned / reduced generation
- Specify time period to dismantle
- Letter of credit, bond, account or trust fund with series of payments to equal estimate
- Abandoned: option or dismantle for scrap value

Task	*Cost*
Remove wire racks	$2,459
Remove panels	$2,450
Dismantle racks	$12,350
Remove electrical equipment	$1,850
Breakup and remove concrete pads or ballasts	$1,500
Remove racks	$7,800
Remove cable	$6,500
Remove ground screws and power poles	$13,850
Remove fence	$4,950
Grading	$4,000
Seeding	$250
Transport	$2,250
Total	**$60,000**
At 20 Years Inflation (2.5%)	**$98,900**

Restoration

- Clean up debris (bolts, rocks, etc.)
- Decompact soil
- Regrade
- Revegetate
- Monitor

Model Land Use Regs. To Protect Farmland

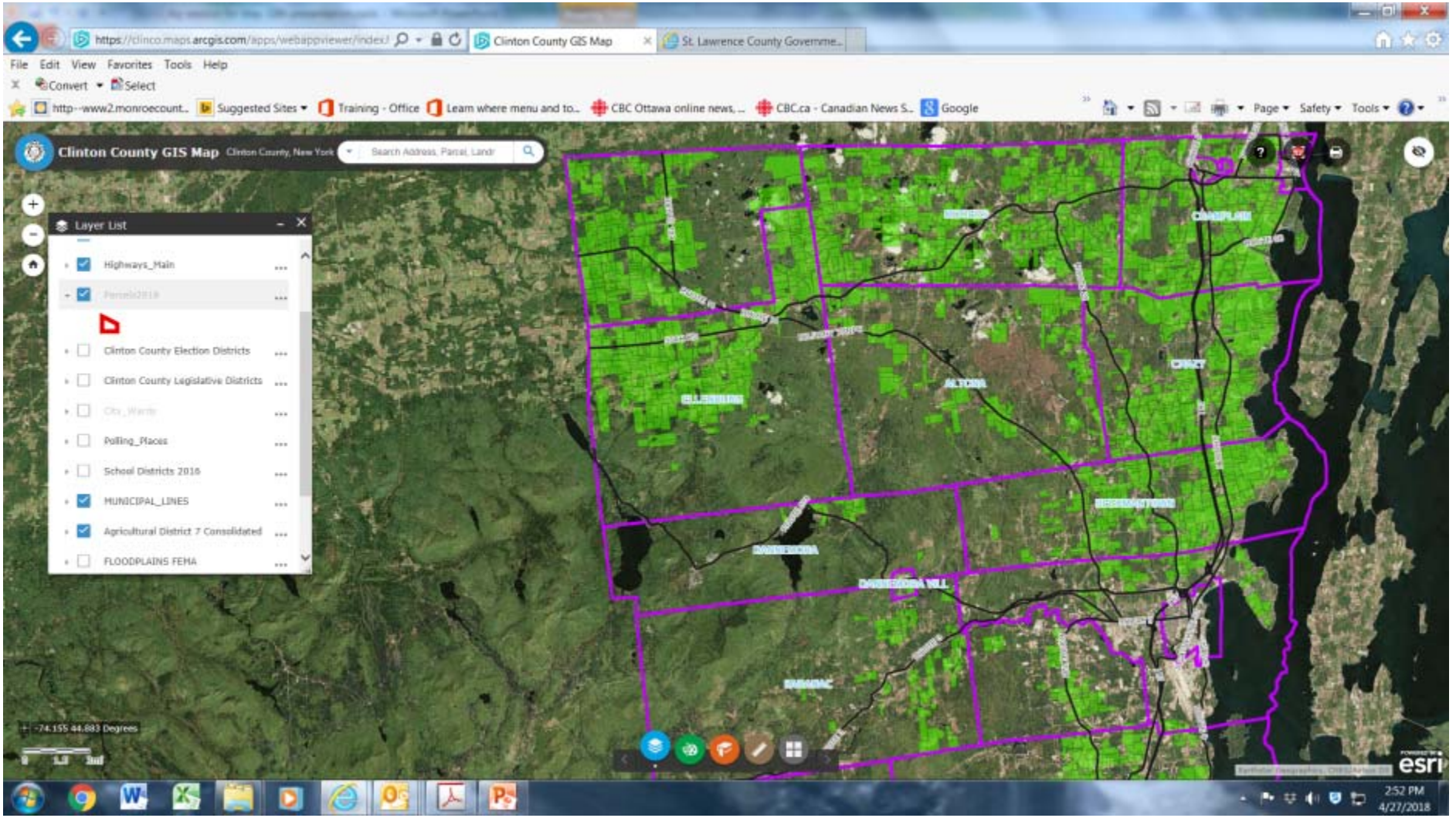
State Model Solar Energy Local Law -- 8. Permitting requirements for Tier 3 Solar Energy Systems § J. 7. 1.

Any Tier 3 Solar Energy System located on the areas that consist of Prime Farmland or Farmland of Statewide Importance shall not exceed [50]% of the entire lot.

§ C. Vehicular Paths. Vehicular paths within the site shall be designed to minimize the extent of impervious materials and soil compaction.

Agricultural Districts

- Offer protections to ag. operations
- Can you put up large solar arrays in Ag. Districts?
- Penalties for non-farm solar in Ag. Districts - elimination of ag. value assessments if converted to non farm use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Training - Office
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CBC.ca - Canadian News S...
Google
Page Safety Tools
Clinton County GIS Map
Clinton County, New York
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Layer List
Highways_Main
Clinton County Election Districts
Clinton County Legislative Districts
Polling_Places
School Districts 2016
MUNICIPAL_LINES
Agricultural District 7 Consolidated
FLOODPLAINS FEMA
-74.155 44.883 Degrees
esri
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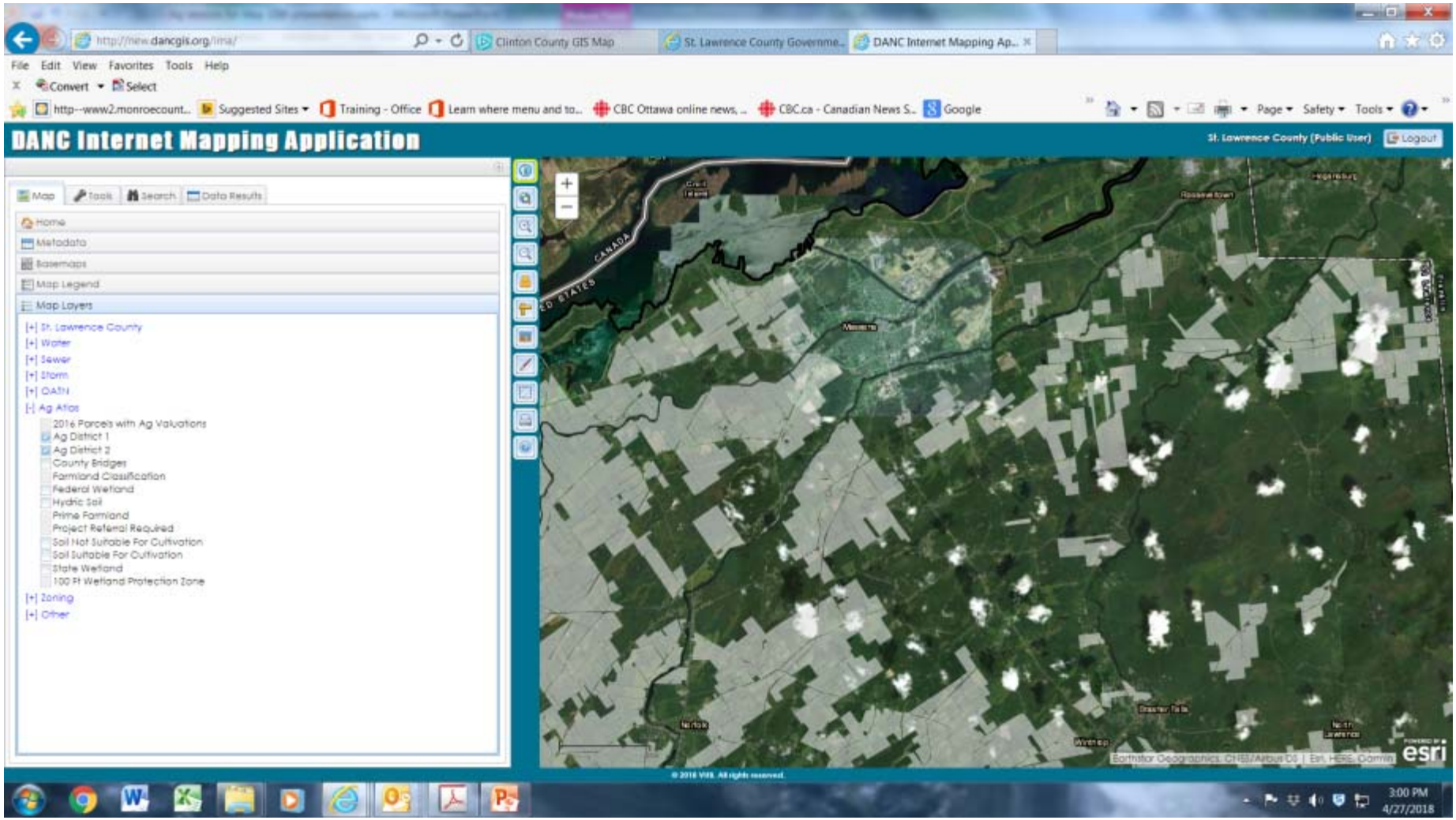
DANC Internet Mapping Application
St. Lawrence County (Public User)
Logout
Map
Tools
Search
Data Results
Home
Metadata
Basemaps
Map Legend
Map Layers
[+] St. Lawrence County
[+] Water
[+] Sewer
[+] Storm
[+] OATN
[-] Ag Atlas
2016 Parcels with Ag Valuations
Ag District 1
Ag District 2
County Bridges
Farmland Classification
Federal Wetland
Hydric Soil
Prime Farmland
Project Referral Required
Soil Not Suitable For Cultivation
Soil Suitable For Cultivation
State Wetland
100 Ft Wetland Protection Zone
[+] Zoning
[+] Other
CANADA
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Agricultural Assessments

- Based on crop production ability, size and gross annual crop sales (can be in or out of an ag. district)
- Lost when land taken out of production
- Penalty = 5 times taxes saved + interest
- Fines can be levied for failure to report a conversion

Solar Land Leases

- 10 to 30 acres parcels being sought
- Lease rates vary and are negotiable
- Land converted to solar would lose ag. assessment
- Would be taxed as real property (exemptions may apply)

3 Take-Aways

- Know where the prime farmland is and stay off of it as much as possible
- Have a Decommissioning Plan and Fund
- Solar land leases should always be reviewed by a third party

Resources:

https://www.agriculture.ny.gov/ap/agservices/Solar_Energy_Guidelines.pdf
(NYS Ag. and Markets, Guidelines for Agricultural Mitigation for Solar Energy Projects)

https://www.agriculture.ny.gov/ap/agservices/agdistricts.html
(NYS Ag. and Markets, Background on Ag. Districts)

https://www.nyserda.ny.gov/-/media/NYSun/files/solar-guidebook.pdf
(NY-Sun, NY Solar Guidebook for Local Governments, March, 2018)

https://www.nysenate.gov/legislation/laws/AGM/305-B
(Background on Ag. Data Statements)

http://www.ongov.net/planning/documents/ocpb_ag_data_statement.pdf
(Generic Ag. Data Statement)

Google: St. Lawrence County Agricultural Development Plan

Thank you!