Farmland Protection Suitability Analysis Methodology (April 1, 2022)

The analysis relies on a base dataset of "agricultural parcels". This dataset was created using the following methodology:

1. Select all parcels in the County that have a Real Property land use class in the 100's (agricultural), 241 (primarily residential, also used in agricultural production), or 321 (abandoned agricultural land). This resulted in a dataset of 3,162 parcels.
   Source: Onondaga County parcel boundary data (2021) and Real Property data (April 2021 – County; December 2020 – City of Syracuse). For information on Real Property land use classes, please visit https://www.tax.ny.gov/research/property/assess/manuals/prclas.htm.

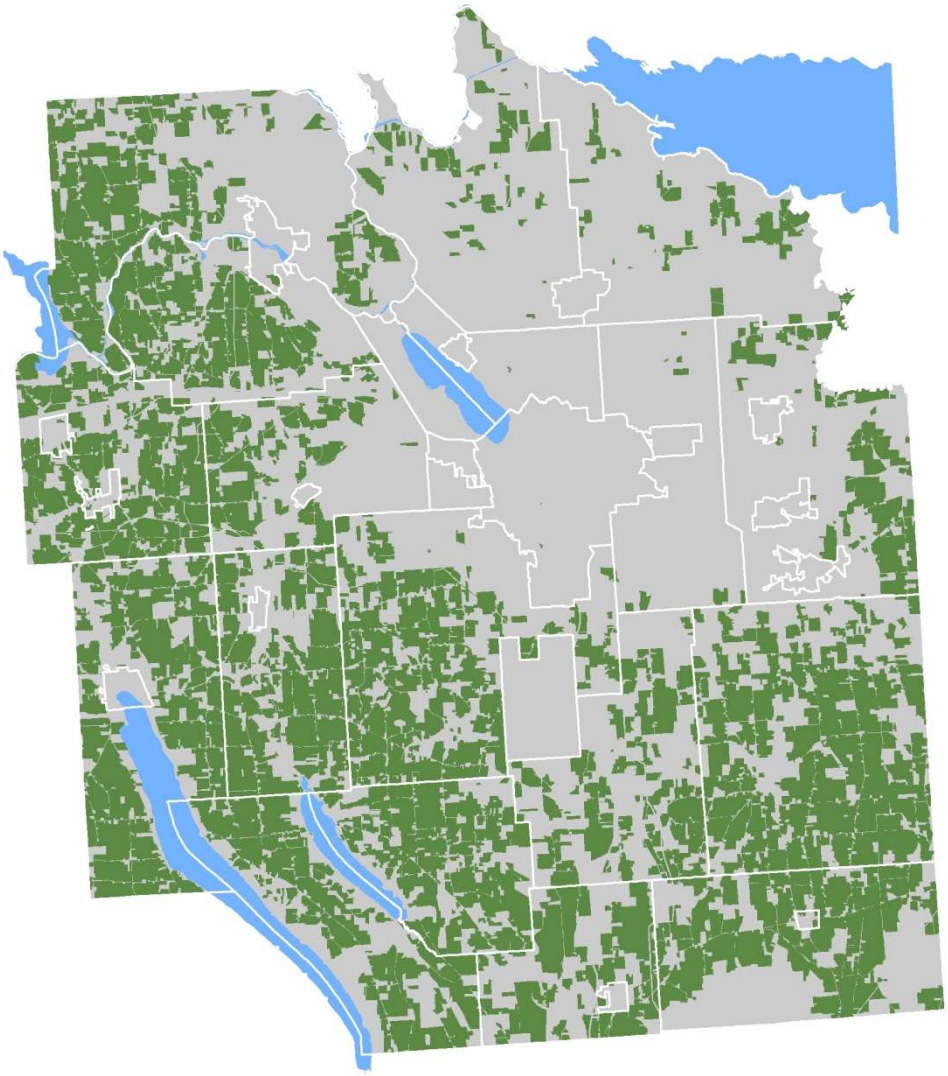
2. SOCPA GIS staff reviewed the 3,162 parcels and removed 540 that did not appear to be used for agriculture based on aerial photography.
   Aerial Photography Source: Pictometry, Spring 2021

3. SOCPA GIS staff then compared the resulting dataset with Real Property data identifying parcels receiving an agricultural assessment. There were 894 parcels that were not in the dataset that were receiving an agricultural assessment and, as a result, were added to the dataset.
   Source: Onondaga County Real Property data, April 2021. For information on agricultural assessments, please visit https://www.tax.ny.gov/research/property/assess/valuation/agindex.htm.

4. SOCPA GIS staff then overlaid the parcels in the County not in the agricultural parcels dataset with cultivated land data and visually inspected each parcel containing cultivated land to try to determine if it was being used for agriculture. This resulted in an additional 1,229 parcels being added to the dataset. Please note that due to time constraints, this review was largely limited to parcels larger than 5 acres. As a result, there may be parcels smaller than 5 acres that are contributing to agricultural operations that are missing from the dataset.
   Cultivated Land Data Source: USDA, NASS, 2020 Cultivated Layer
   Aerial Photography Source: Pictometry, Spring 2021

5. SOCPA GIS staff then compared the resulting dataset to a dataset of protected farmland and added 11 parcels that were part of a conservation easement.
   Protected Farmland Data Source: SOCPA, City of Syracuse Department of Water

While the resulting agricultural parcels dataset is a fairly comprehensive inventory of agricultural land in the County, there are undoubtedly agricultural lands missing. This dataset should be updated and continually improved over time.



Agricultural parcels in Onondaga County

Farmland protection suitability for each parcel was rated based on four categories: soils, agricultural density or proximity, natural resources, and development pressure. The methodology for determining a score for each category and an overall score is as follows:

Soils

The agricultural parcels dataset was overlaid with soils data and the acreage of Prime Soils, Prime Soils if Drained, and Farmland of Statewide Importance was calculated for each parcel. The soils score for each parcel was then calculated as follows:

(Acres of Prime Soils / Total Parcel Acres * 6) +
(Acres of Prime Soils if Drained / Total Parcel Acres * 2) +
(Acres of Farmland of Statewide Importance / Total Parcel Acres * 4)

This methodology prioritizes Prime Soils, then Farmland of Statewide Importance, then Prime Soils if Drained over other, less productive soil types in the County. The maximum soils score a parcel can receive is 6 and the actual range of values in the data is 0 – 6, with an average score of 3.92.

Soils Data Source: USDA, NRCS, SSURGO Soils, 2016



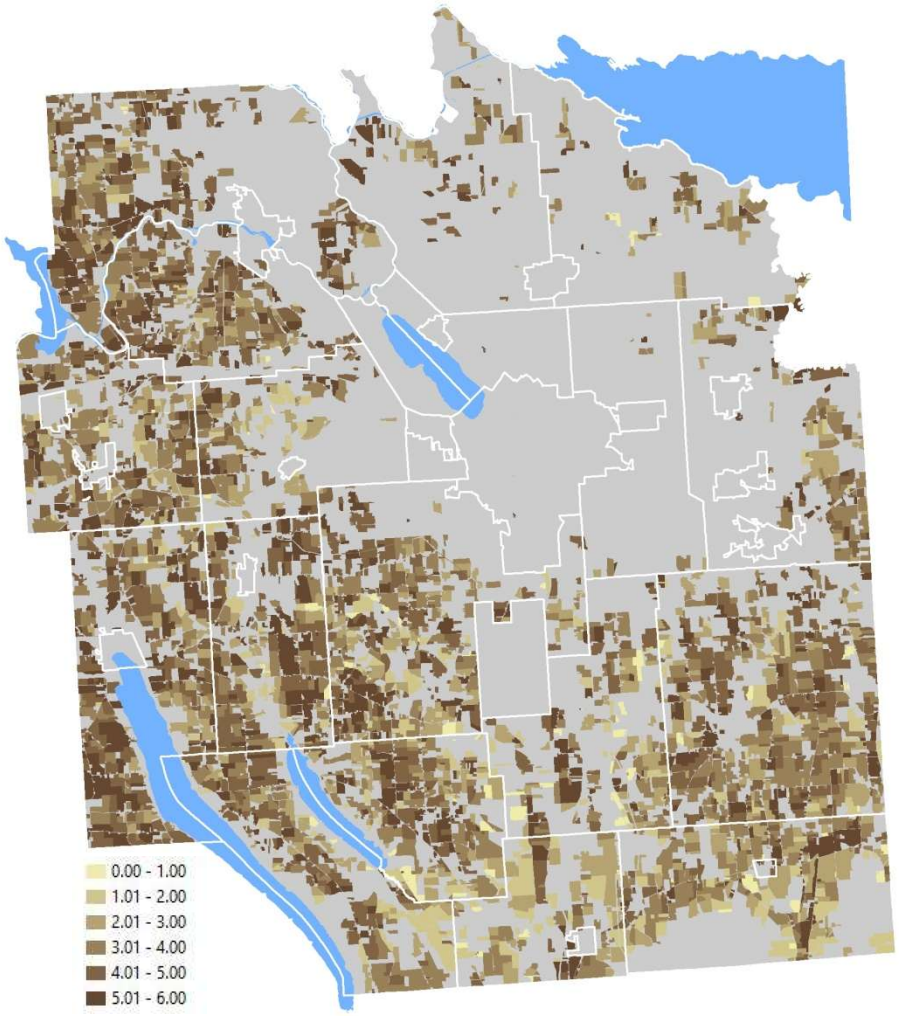
Prime Soils



Prime Soils if Drained



Farmland of Statewide Importance



Total Soils Score

Agricultural Density

There are four criteria that were used to evaluate the extent to which parcels are contributing to agricultural density or are proximate to other agricultural lands: parcel size; proximity to permanently protected farmland; if the parcel is receiving an agricultural assessment; and the amount of cultivated land on the parcel.

1. Parcel size was scored by dividing the acreage of the parcel (as calculated based on the parcel boundary data in the County's GIS) by the maximum parcel acreage in the agricultural parcels dataset (the largest parcel is 615 acres) and multiplying the result by 2.

   (Parcel Acres / Max Parcel Acres) * 2

This methodology prioritizes larger parcels over smaller parcels. Parcel sizes in the agricultural parcels database range from less than 1 acre to 615 acres. The maximum size score a parcel can receive is 2 and the actual range of values in the data is 0 – 2.
Parcel Acreage Data Source: Onondaga County Parcel Data, 2021

2. Proximity to permanently protected farmland was determined by measuring the distance of each parcel to the nearest farmland that is protected through a perpetual conservation easement. Parcels **within 500'** of protected farmland received a **2**; parcels greater than 500' from protected farmland but **within ½ mile** received a **1**; parcels greater than ½ mile but **within 1 mile** received a **0.5**; and parcels **greater than 1 mile** from protected farmland received a **0**.

   This methodology prioritizes parcels that are closer to previously protected farmland. The maximum score a parcel can receive is 2 and the actual range of values in the data is 0 – 2.
   Protected Farmland Data Sources: Syracuse-Onondaga County Planning Agency, 2022; City of Syracuse Department of Water
   Note: The protected farmland dataset is only approximate and may not reflect the final, surveyed easements. The data is intended for general planning purposes only. The dataset includes completed and in progress projects.

3. Parcels receiving an agricultural assessment were determined using Real Property data. Parcels **receiving an agricultural assessment** were scored a **1** and those **not receiving an agricultural assessment** were scored a **0**.

   This methodology prioritizes parcels that are receiving an agricultural assessment and have therefore been documented to be contributing to a farm operation. The maximum score a parcel can receive is 1 and the actual range of values in the data is 0 – 1.
   Agricultural Assessment Data Source: Onondaga County Real Property Data, April 2021

4. The amount of cultivated land on each parcel was determined by overlaying the agricultural parcels dataset with USDA cultivated land data. The cultivated land score for each parcel was then calculated as follows:

   Cultivated Acres / Total Parcel Acres

   This methodology prioritizes parcels where a larger percentage of the land appears to be in agricultural production. It is worth noting, however, that not all agriculture requires cultivated land. The maximum score a parcel can receive is 1 and the actual range of values in the data is 0 – 1.

Cultivated Land Data Source: USDA, NASS, 2020 Cultivated Layer

The total agricultural density score was then calculated as follows:

Size Score + Proximity to Protected Farmland Score + Agricultural Assessment Score + Cultivated Land Score

The maximum score a parcel can receive is 6 and the actual range of values in the data is 0 – 4.98, with an average score of 1.72.



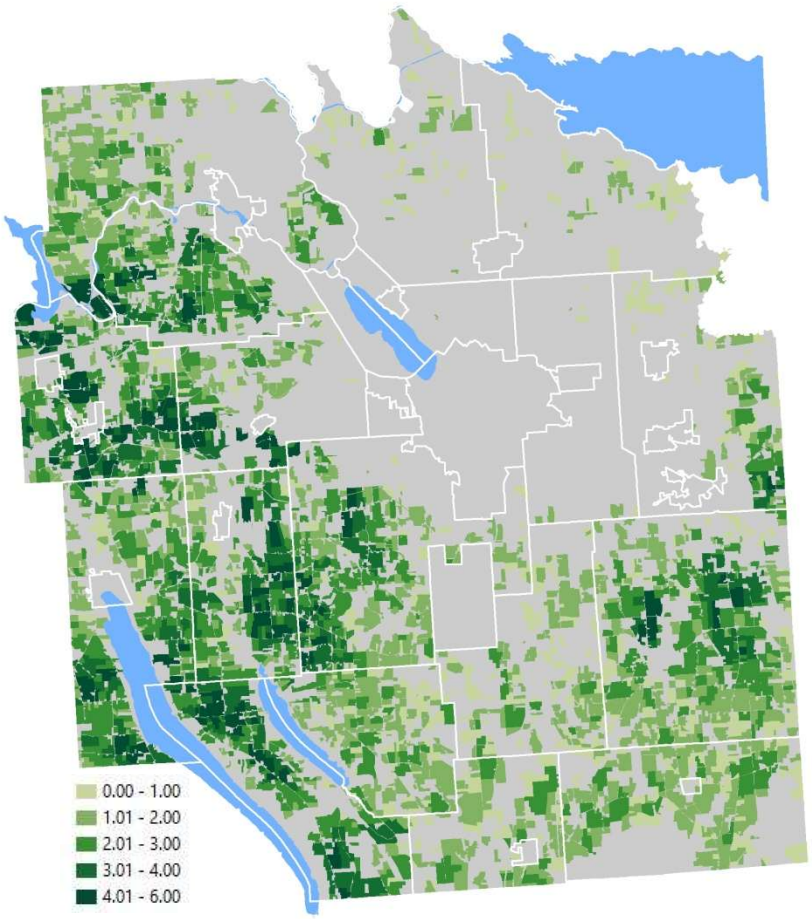
Protected Farmland



Parcels Receiving an Agricultural Assessment



Cultivated Land



Total Agricultural Density Score

Natural Resources

There are six criteria that were used to evaluate the extent to which parcels would serve to protect or buffer valuable natural resources and assets: within a drinking water supply watershed; proximity to wetlands; presence of floodplains; proximity to a protected stream or waterbody or other major lakes or ponds; proximity to a public park, land trust owned, or other protected property; and within a scenic viewshed.

1. Parcels **within a drinking water supply watershed** (Otisco Lake and Skaneateles Lake) **or aquifer** (Baldwinsville and Cortland-Homer-Preble) received a score of **1** while parcels **outside** of those areas received a **0**.

   This methodology prioritizes parcels that can play a role in drinking water quality protection. The maximum score a parcel can receive is 1 and the actual range of values in the data is 0 – 1.

   Watershed Data Source: USGS, 2021

   Aquifer Data Source: USGS, NYSDEC, 2008

2. Parcels that **contain a State or Federal wetland** received a score of **0.5**; parcels **within 100'** of a State or Federal wetland received a score of **0.25**; parcels more than 100' from a State or Federal wetland but **within 500'** received a score of **0.1**; and parcels **further than 500'** from a State or Federal wetland received a score of **0**.

   This methodology prioritizes parcels that contain or are proximate to State or Federal wetlands. The maximum score a parcel can receive is 0.5 and the actual range of values in the data is 0 – 0.5.
   Federal Wetlands Data Source: USFWS, 2021
   State Wetlands Data Source: NYSDEC, 2010

3. Parcels that **contain a FEMA designated floodplain** received a score of **0.5** and parcels that **do not contain a floodplain** received a score of **0**.

   This methodology prioritizes parcels that contain FEMA designated floodplains. The maximum score a parcel can receive is 0.5 and the actual range of values in the data is 0 – 0.5.
   Floodplains Data Source: FEMA, 2016

4. Parcels that **contain a protected stream or waterbody or other major lake or pond** received a score of **1**; parcels **within 100'** of a protected stream or waterbody or other major lake or pond received a score of **0.5**; and parcels **more than 100'** from a protected stream or waterbody or other major lake or pond received a score of **0**.

   This methodology prioritizes parcels that contain or are proximate to protected streams or waterbodies or other major lakes or ponds. The maximum score a parcel can receive is 1 and the actual range of values in the data is 0 – 1.
   Protected Streams and Waterbodies Data Source: NYSDEC, 2019
   Major Lakes and Ponds Data Source: SOCPA, 2022

5. The distance to the nearest public park, land trust owned, or other protected property was calculated for each parcel. For parcels **within 1 mile** of a park, land trust, or other protected property, the proximity to parkland score for the parcel was calculated as follows:

   (5,280 – Distance to Park) / 5,280 * 0.5

   Parcels **more than 1 mile** from a park, land trust owned, or other protected property received a score of **0**.

This methodology prioritizes parcels that are proximate to public parks, land trust owned, or other protected properties. The maximum score a parcel can receive is 0.5 and the actual range of values in the data is 0 – 0.5.

Parks Data Source: SOCPA, 2022
Land Trust Property Data Source: SOCPA, 2022
City of Syracuse Protected Properties Data Source: City of Syracuse Department of Water

6. Parcels **within the first mile of the viewsheds of Routes 20 and 80** received a score of **0.5** while parcels **not in the viewsheds** received a score of **0**.

   This methodology prioritizes parcels within the first mile of the viewsheds of scenic Routes 20 and 80. The maximum score a parcel can receive is 0.5 and the actual range of values in the data is 0 – 0.5.

   Viewshed Data Source: Derived from USGS DEMs

The total natural resources score was then calculated as follows:

Drinking Watershed Score + Wetlands Score + Floodplains Score + Protected Waterways Score + Parks Score + Viewshed Score

The maximum score a parcel can receive is 4 and the actual range of values in the data is 0 – 4, with an average score of 1.18.



Drinking Water Supply Watersheds and Aquifers



State and Federal Wetlands



Floodplains



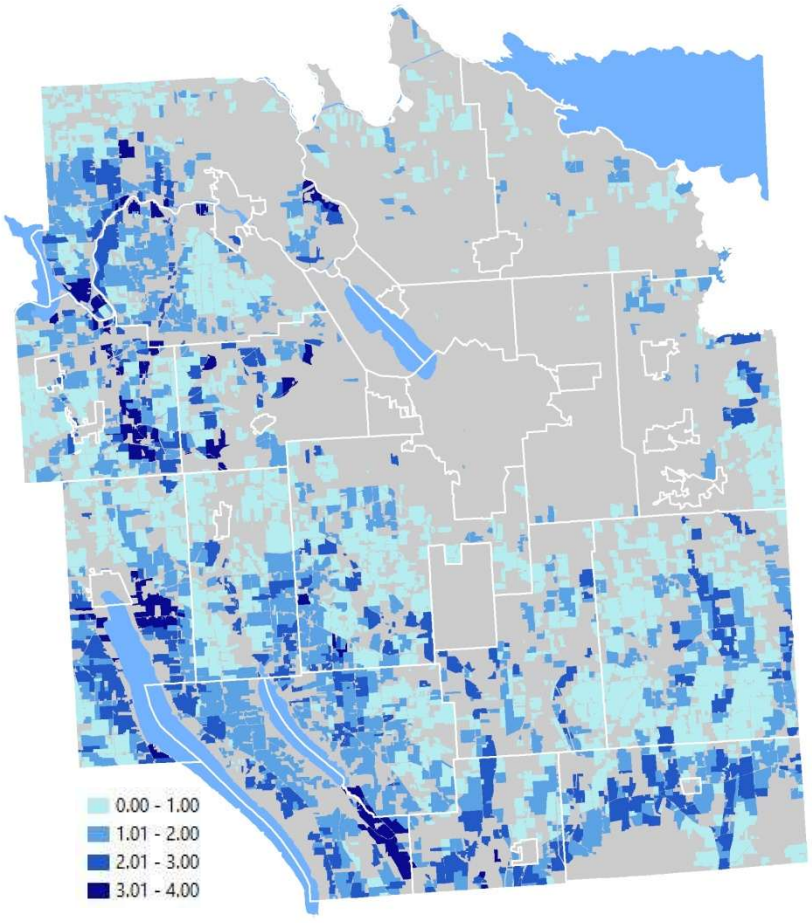
Protected Streams and Waterbodies and other Major Lakes and Ponds



Public Parks, Land Trust Owned, and Other Protected Properties



Routes 20 and 80 One Mile Viewshed



Total Natural Resources Score

Development Pressure

There are five criteria that were used to evaluate the extent to which each parcel faces development pressure: proximity to major electric transmission lines; proximity to public water service; proximity to public wastewater service; proximity to recently developed properties; and proximity to an interstate interchange.

1. The distance to the nearest major electric transmission line was calculated for each parcel. For parcels **within 1 mile** of a transmission line, the proximity to electric score for the parcel was calculated as follows:

   (1 mile – Distance to Transmission Line)

   Parcels **more than 1 mile** from a transmission line received a score of **0**.

   This methodology prioritizes parcels that are proximate to major electric transmission lines. The maximum score a parcel can receive is 1 and the actual range of values in the data is 0 – 1.
   Major Electric Transmission Line Data Source: SOCPA

2. Parcels that **have public water service** available on site received a score of **1**; parcels **within 500'** of parcels that have public water service received a score of **0.5**; parcels more than 500' but **within ¼ mile** of parcels that have public water service received a score of **0.25**; and parcels **further than ¼ mile** from public water service received a score of **0**.

   This methodology prioritizes parcels that have or are proximate to public water service. The maximum score a parcel can receive is 1 and the actual range of values in the data is 0 – 1.
   Public Water Service Data Source: Onondaga County and City of Syracuse Real Property Data, July 2021

3. Parcels that **have public wastewater service** available on site received a score of **1**; parcels **within 500'** of parcels that have public wastewater service received a score of **0.5**; parcels more than 500' but **within ¼ mile** of parcels that have public wastewater service received a score of **0.25**; and parcels **further than ¼ mile** from public wastewater service received a score of **0**.

   This methodology prioritizes parcels that have or are proximate to public wastewater service. The maximum score a parcel can receive is 1 and the actual range of values in the data is 0 – 1.

Public Wastewater Service Data Source: Onondaga County and City of Syracuse Real Property Data, July 2021

4. Nearby development was determined by counting the number of residential or commercial properties developed since 2016 within 1 mile of each parcel. The development score was then calculated by dividing the number of developed properties within 1 mile of each parcel by the maximum number of properties developed within 1 mile of any parcel in the agricultural parcels dataset (210) and multiplying the result by 2.

   (# of Developed Properties / 210) * 2

   This methodology prioritizes parcels with development occurring nearby. The number of properties developed within 1 mile in the last 5 years in the agricultural parcels database ranges from 0 to 210. The maximum nearby development score a parcel can receive is 2 and the actual range of values in the data is 0 – 2.
   Residential and Commercial Development Data Source: Onondaga County and City of Syracuse Real Property Data, November 2021

5. Parcels that **are within a 3 minute drive** of an interstate highway interchange received a score of **1**; parcels further than a 3 minute drive but **within a 5 minute drive** of an interstate highway interchange received a score of **0.5**; parcels further than a 5 minute drive but **within a 10 minute drive** of an interstate highway interchange received a score of **0.25**; and parcels **further than a 10 minute drive** of an interstate highway interchange received a score of **0**.

   This methodology prioritizes parcels that are proximate to interstate highway interchanges. The maximum score a parcel can receive is 1 and the actual range of values in the data is 0 – 1.
   Streets and Interstate Highway Interchanges Data Source: SOCPA, 2022

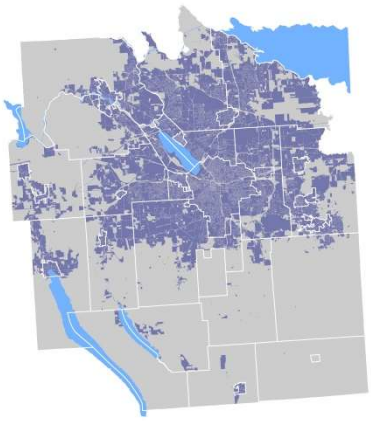
The total development pressure score was then calculated as follows:

Electric Score + Public Water Score + Public Wastewater Score + Development Score + Interstate Interchange Score

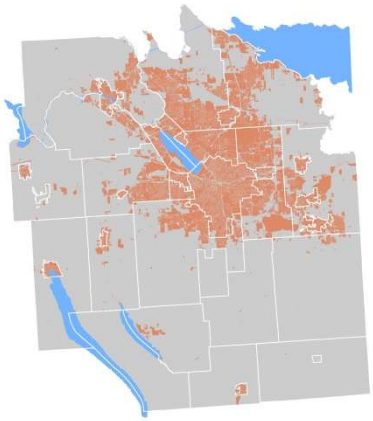
The maximum score a parcel can receive is 6 and the actual range of values in the data is 0 – 5.41, with an average score of 0.88.



Major Electric Transmission Lines



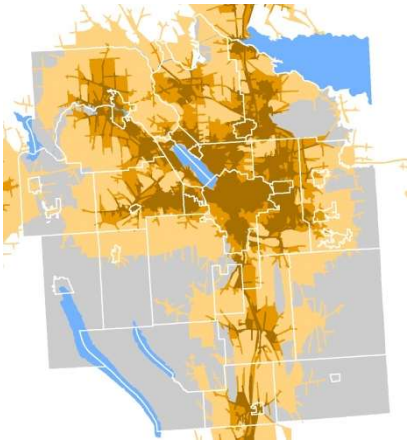
Parcels with Public Water Service



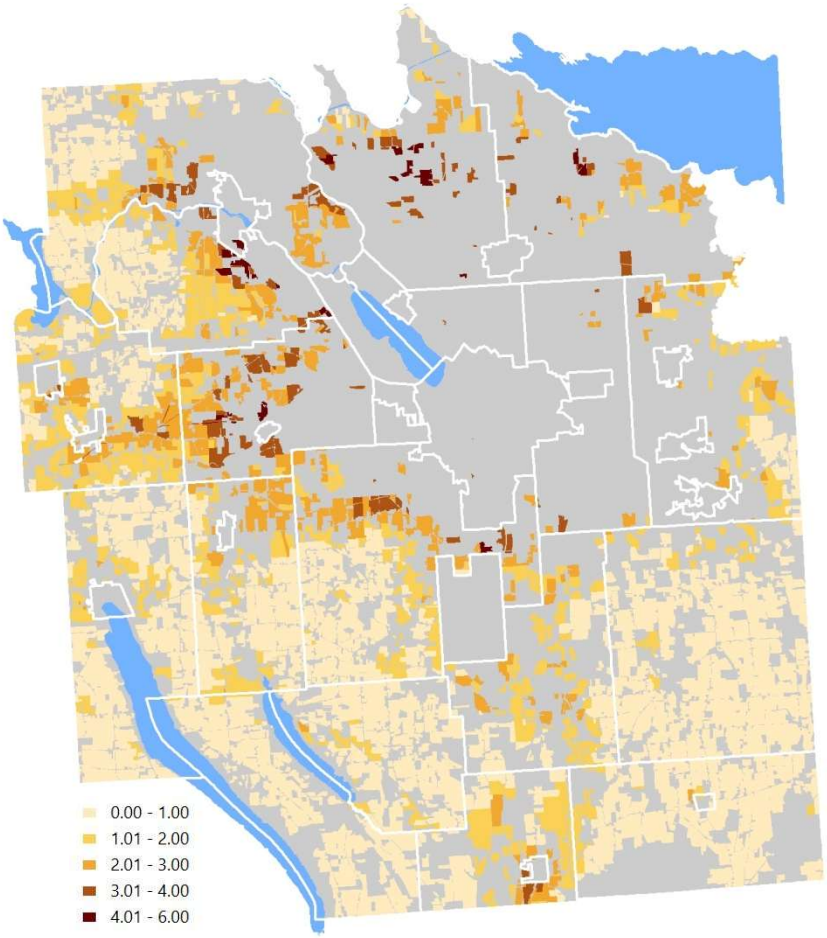
Parcels with Public Wastewater Service



Properties Developed Since 2016



3, 5, and 10 Minute Travel Times from Interstate Highway Interchanges



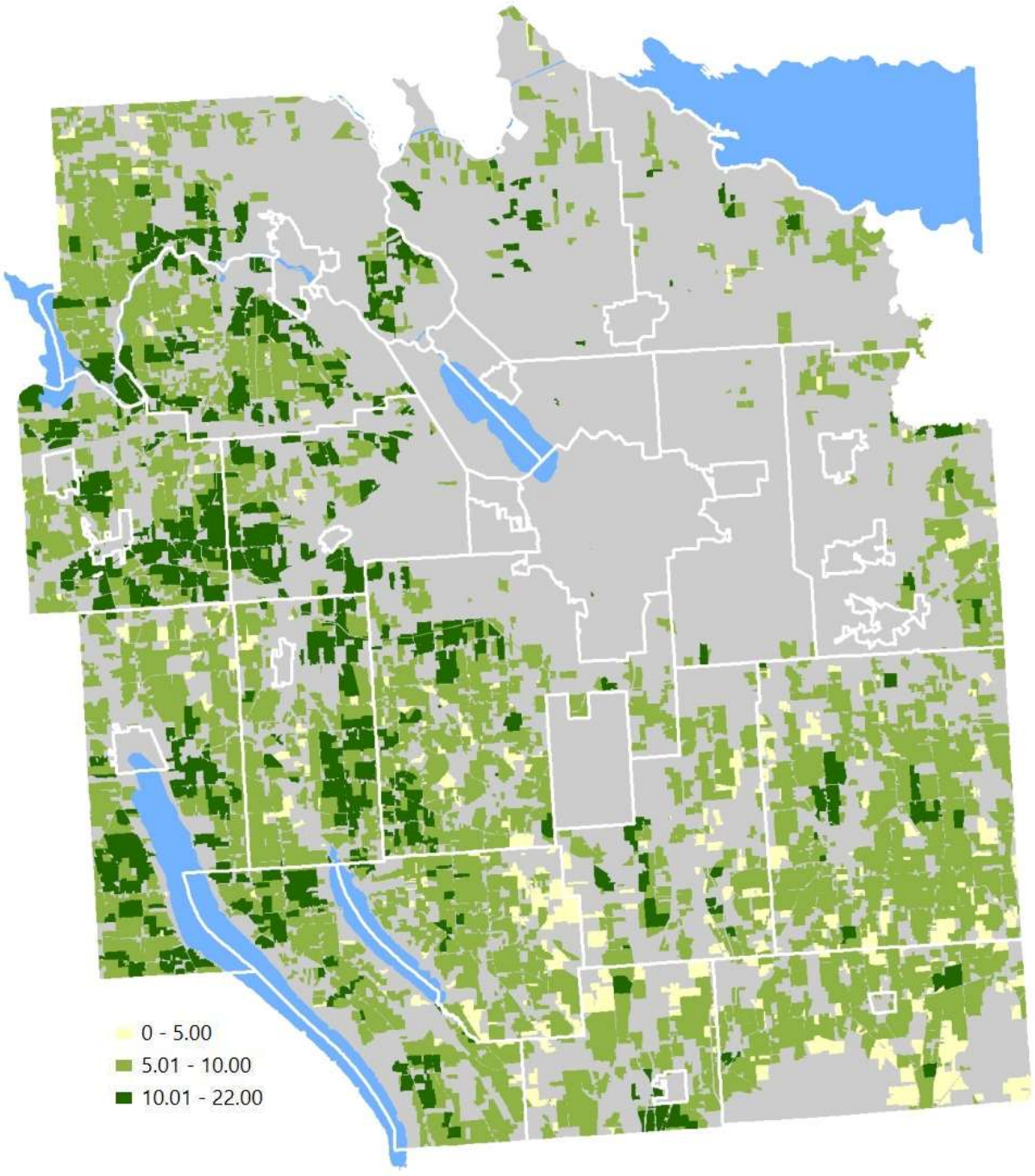
Total Development Pressure Score

Total Farmland Protection Suitability Score

The total farmland protection suitability score was then calculated as follows:

> **Soils Score + Agricultural Density Score + Natural Resources Score + Development Pressure Score**

The maximum score a parcel can receive is 22 and the actual range of values in the data is 0.94 – 14.72, with an average score of 7.71.



Total Farmland Protection Suitability Score