Land Conversion Metrics

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Land Use Work Group
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Land Use Methods and Metrics Outcome

1. *Measure the:*
   - *rate of farmland, forest, and wetland conversion to development.*
   - *extent and rate of change in impervious surface coverage.*
2. *Quantify the potential impacts of land conversion to water quality, healthy watersheds and communities.*
3. *Launch a public awareness campaign to share this information with citizens, local governments, elected officials and stakeholders.*

Complete

In Progress

Measuring Land Conversion Ratios

Challenges

- The 1-meter resolution data currently only represent a 4 or 5-year period, which could be reflective of long-term trends or an anomalous period.
- Recent historical context was not taken into account when initially mapping 2013/14 (T1) conditions. Some recently cleared forests (2006-2013) were classed as agriculture in 2013/14.

Solutions

- Continue mapping efforts into the future (2024 ed. and beyond) and revisit the ratios of land conversion through time.
- For agriculture to development transitions, reclassify as forest to development if forest in 2006 or 2011. **Long term context and trends will be derived from back-cast (1985-2013) to be completed in 2025.**

Methods: Measuring Rates of Land Conversion to Development

1

Use 54x54 class LULC matrices to calculate agriculture, forest, and wetland conversion to development

2

For all agriculture to development transitions, use National Land Cover Database (NLCD) 2006 and 2011 to calculate forested acres

3

Move false agriculture to development acres to forest to development acres

2008 Imagery: Pre-T1 Landscape

2014 Imagery: T1 Landscape

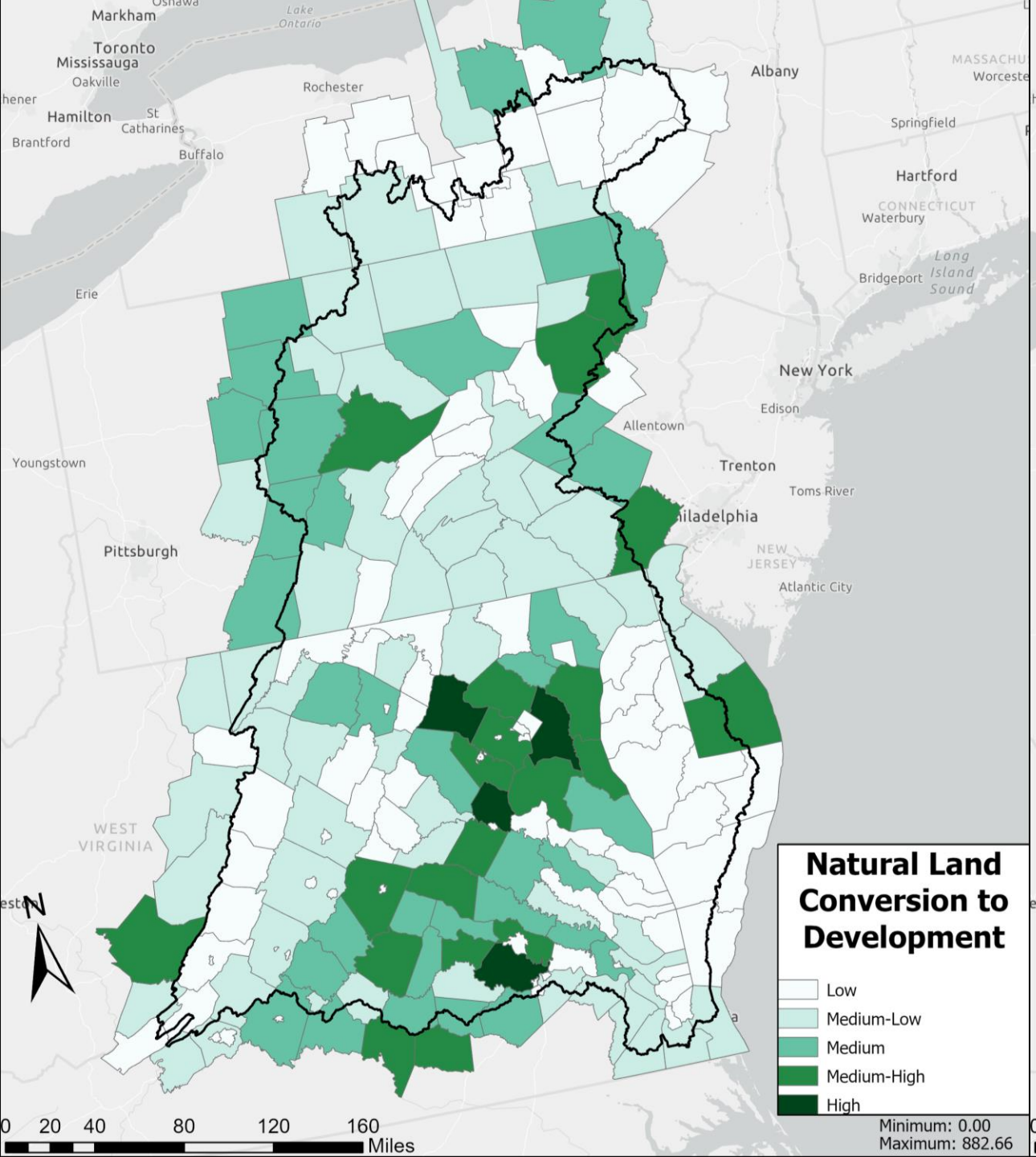
2018 Imagery: T2 Landscape

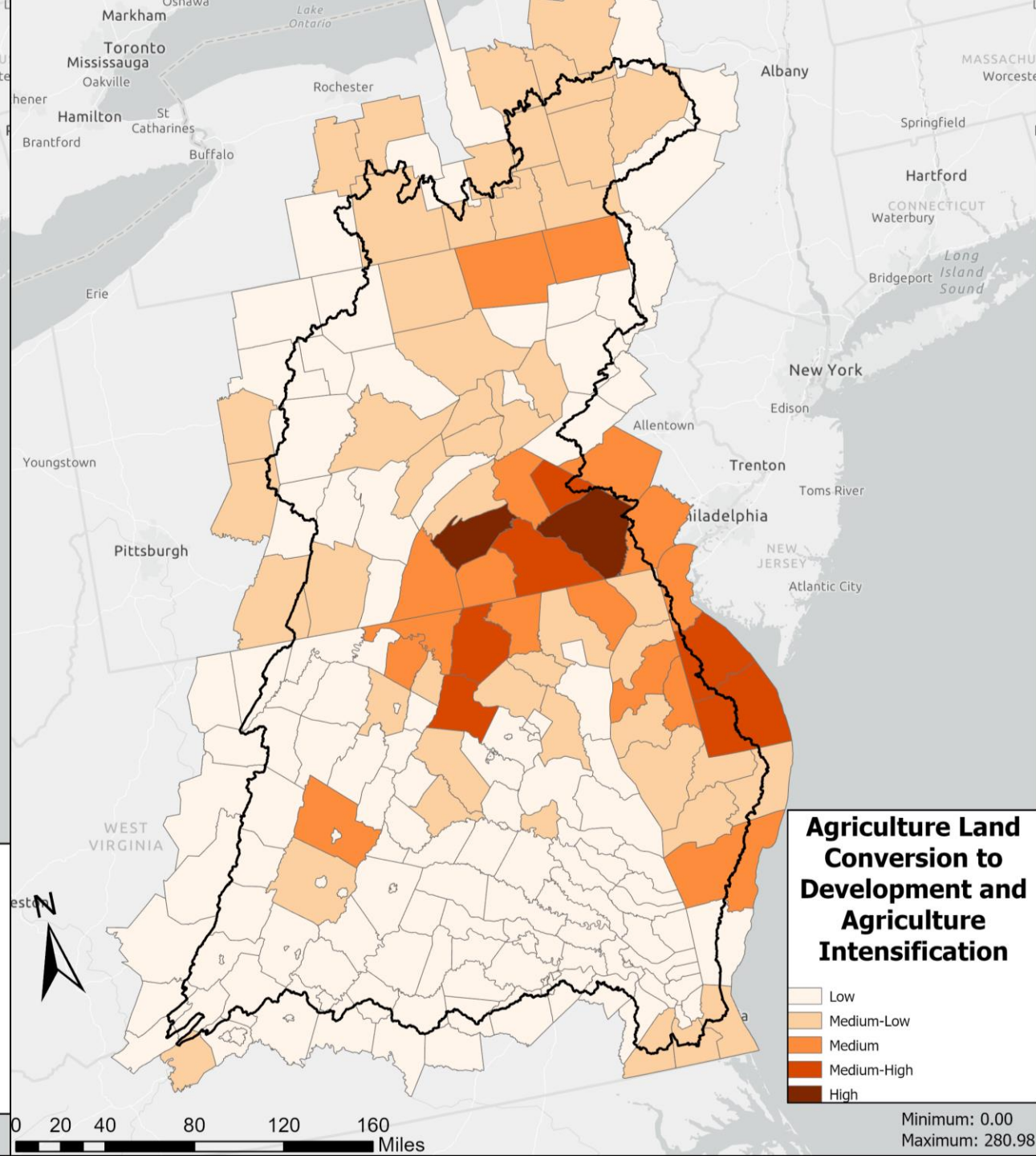
2014-2018 LULC Change


NLCD Forest classes in 2006 and 2011
Cropland to Development in HR-LULC Change

ST	Natural to Development	Agriculture to Development	Nat:Ag Ratio	Ag to Dev Moved to Nat to Dev
DE	1,043	1,554	0.67 : 1	55
DC	107	10	10.45 : 1	0
MD	23,251	8,848	2.63 : 1	972
NY	2,326	1,555	1.5 : 1	307
PA	23,588	13,079	1.8 : 1	1,670
VA	50,306	9,519	5.28 : 1	2,425
WV	3,821	1,115	3.43 : 1	253

Acres of Land Conversion to Development for Bay Portion of States


Natural Land Conversion to Development
Low
Medium-Low
Medium
Medium-High
High
Minimum: 0.00
Maximum: 882.66
0 20 40 80 120 160
Miles
N
Toronto
Mississauga
Markham
Oakville
Hamilton
St Catharines
Brantford
Buffalo
Rochester
Albany
Springfield
Hartford
CONNECTICUT
Waterbury
Bridgeport
Long Island Sound
Erie
New York
Edison
Allentown
Youngstown
Trenton
Toms River
Pittsburgh
NEW JERSEY
Atlantic City
WEST VIRGINIA


Agriculture Land Conversion to Development and Agriculture Intensification
Low
Medium-Low
Medium
Medium-High
High
Minimum: 0.00
Maximum: 280.98
0 20 40 80 120 160
Miles
N
Toronto
Mississauga
Markham
Oakville
Hamilton
St Catharines
Brantford
Buffalo
Rochester
Albany
Springfield
Hartford
CONNECTICUT
Waterbury
Bridgeport
Long Island Sound
Erie
New York
Edison
Allentown
Youngstown
Trenton
Toms River
Pittsburgh
NEW JERSEY
Atlantic City
WEST VIRGINIA

ST	Non-Wetlands Forest	Wetlands Forest	Wetlands Non-Forest	Cropland	Pasture
DE	1,026	10	7	1,444	110
DC	107	0	0	-	10
MD	22,899	245	108	4,948	3,900
NY	2,289	14	23	204	1,351
PA	23,484	28	75	6,379	6,700
VA	49,511	477	318	3,462	6,058
WV	3,812	4	5	148	967

Acres of Forest, Wetlands, and Agricultural Land Conversion to Development

T1 Imagery: Agriculture Intensification

T2 Imagery: Agriculture Intensification

LULC Change: Agriculture Intensification

Contact

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