



Department of
Environmental
Conservation

East Greenbush Natural Resources Inventory Project

November 1, 2018

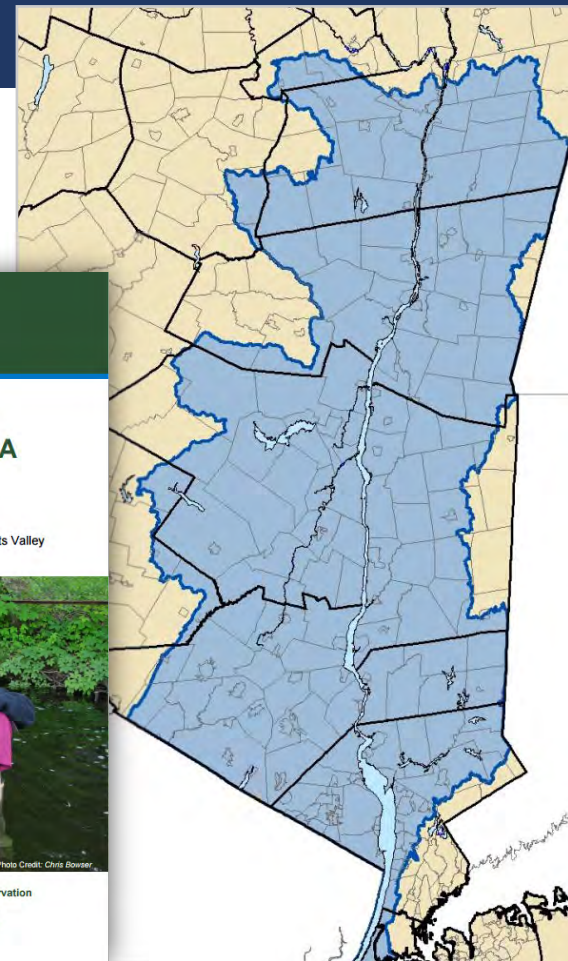
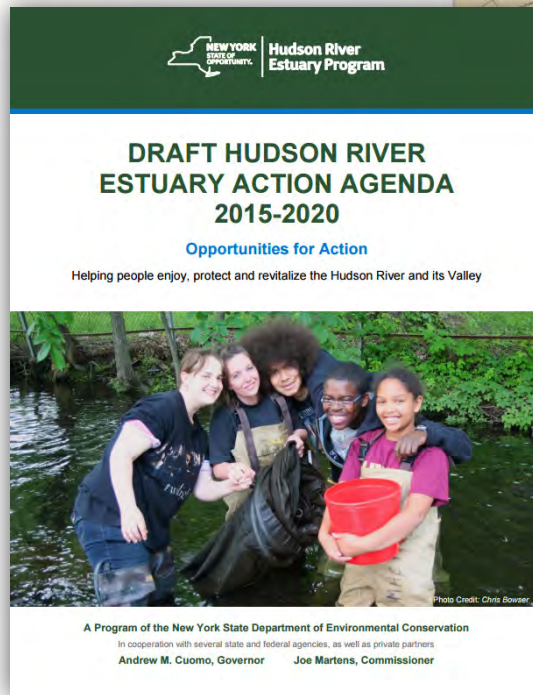


Photo: hudsonriverland.com

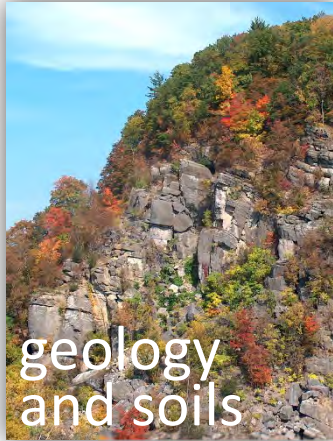
Hudson River Estuary Program

Working to achieve key benefits:

- clean water
- resilient communities
- vital estuary ecosystem
- fish, wildlife, and habitat
- natural scenery
- education, access, recreation, and inspiration



What is a Natural Resources Inventory (NRI)?



Why inventory natural resources?



- educate landowners and developers
- valuable reference for land use planning and decision-making
- keep track of the “big picture”
- foundation for comprehensive plan and zoning updates

What's at Stake?



natural areas

water quality and quantity
flood control
temperature moderation
carbon storage
clean air
human health
recreation and education
scenery
fisheries and forest products
natural pollinators

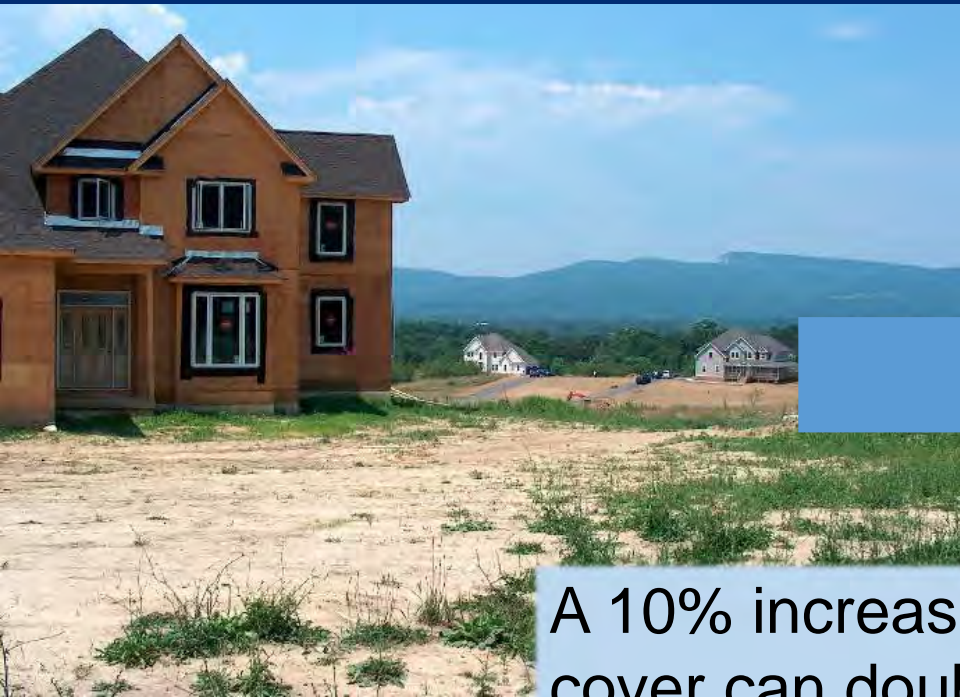


**ecosystem
services**



Photo by Laura Heady

What's at Stake? FLOOD CONTROL



A 10% increase in impervious cover can double runoff and increase flood risk by 28%

(United States EPA)



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What's at Stake? CLEAN WATER

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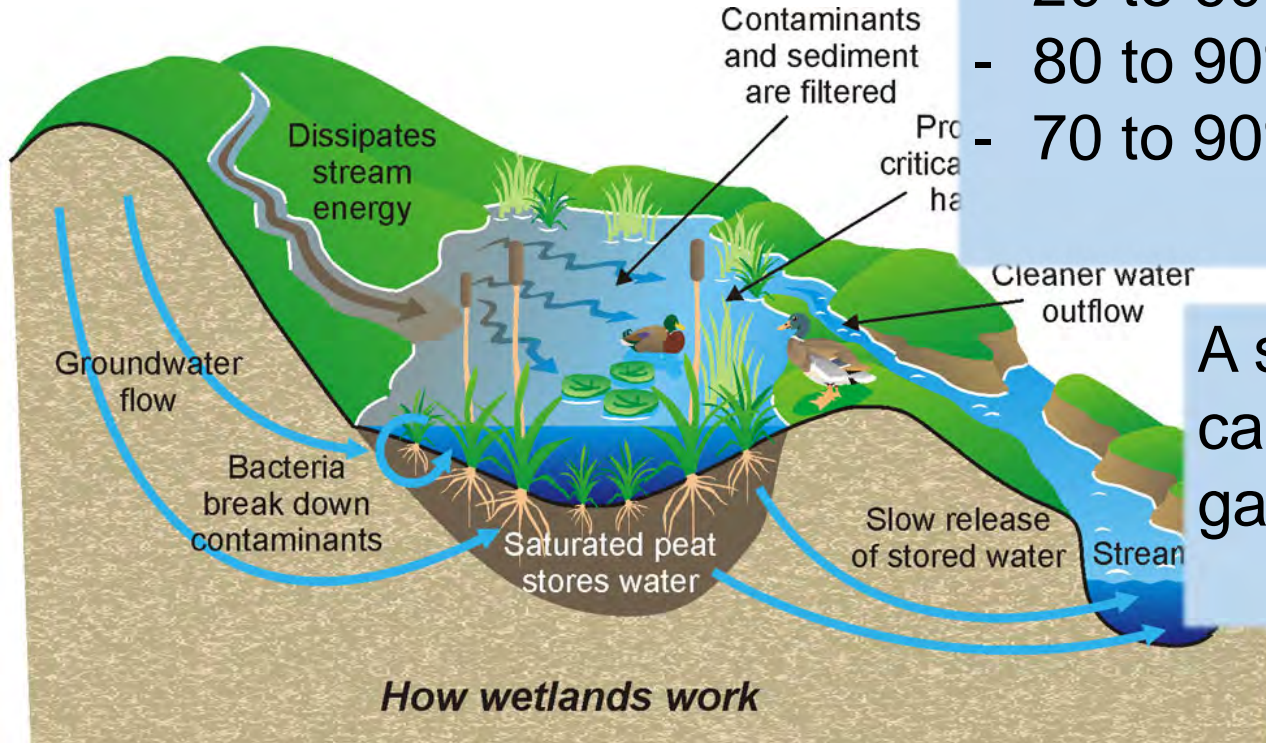
Wetlands can remove or trap:

- 20 to 60% of metals
- 80 to 90% of sediment
- 70 to 90% of entering nitrogen

(Ecological Society of America)

A single acre of wetland
can store 1-1.5 million
gallons of floodwater

(United States EPA)



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What's at stake? ECONOMIC BENEFITS

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“In many instances, it is less expensive for a community to maintain open space that naturally maintains water quality, reduces runoff, or controls flooding than to use tax dollars for costly engineered infrastructure projects such as water filtration plants and storm sewers.”



OFFICE OF THE STATE COMPTROLLER

Thomas P. DiNapoli, State Comptroller

Economic Benefits of Open Space Preservation

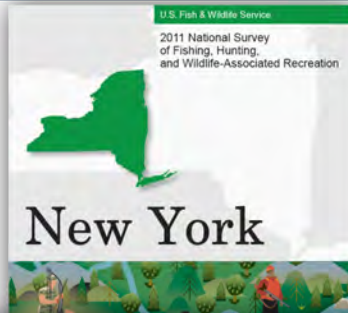
March 2010

What's at Stake? RECREATION & TOURISM

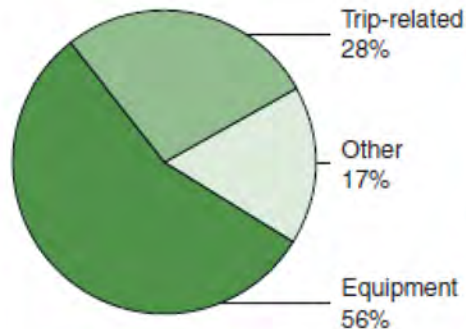
9

In 2011, residents and nonresidents spent \$9.2 billion on wildlife-related recreation (hunting, fishing, and wildlife-watching) in New York.

(USFWS 2014)



**Wildlife-Related
Recreation Expenditures in
New York**
(Total: \$9.2 billion)



What's at Stake? HUMAN HEALTH

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Forbidding forecast for Lyme Disease in the Northeast

National Public Radio, March 6, 2017

White-footed mouse

In forest patches less than 5 acres, risk of human exposure to Lyme disease was almost 5 times greater than in larger forested areas.

(Allan et al., 2003)

... but these benefits are vulnerable.

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Individual land-use decisions can lead to death by 1000 cuts to natural systems.



identify what
you have



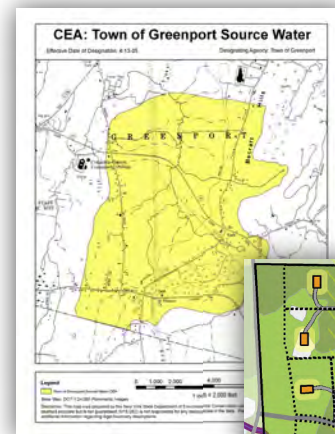
prioritize



plan, protect,
manage



Photo by Ingrid Haeckel



Natural Resource Inventories

identify what
you have

Creating a Natural Resources Inventory

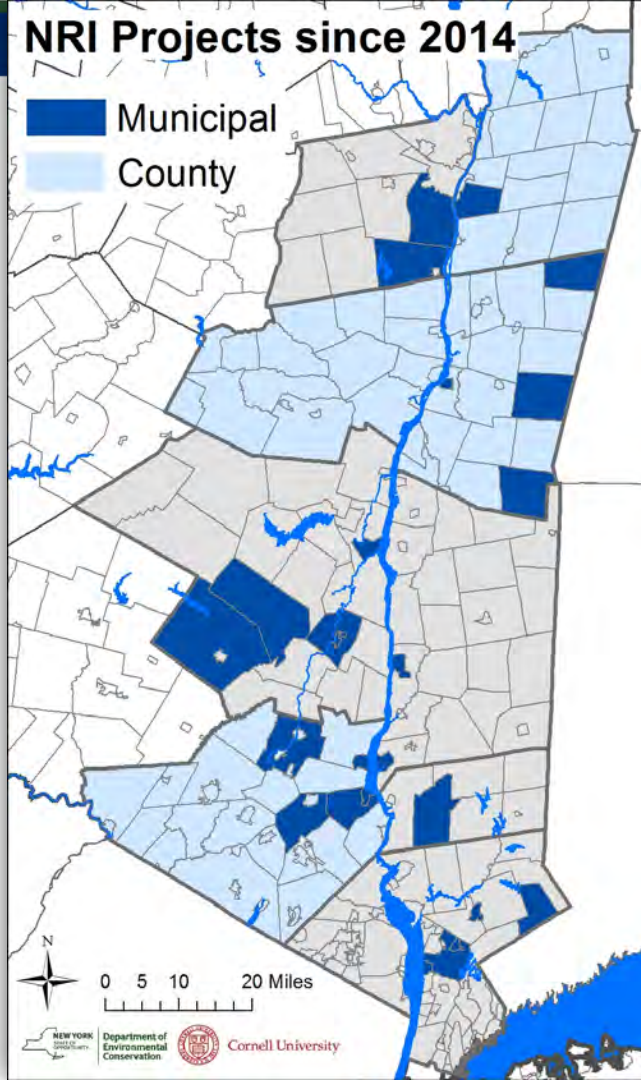
A Guide for Communities in the Hudson River Estuary Watershed



Cornell University



Hudson River Estuary Program
A Program of the New York State
Department of Environmental Conservation



NRWG Volunteers:

Victoria Manieri (Chair)

Jennifer Dean

Jennifer Hixon

Nancy Kupiec (Planning Bd)

Andrew Poitras

Bob Wood

Adam Yagelski (Town Planner)

Guy Warner (Town Board)

With support from:

Ingrid Haeckel (DEC Hudson
River Estuary Program)

Andrew Varuzzo (Cornell
GIS Intern)

Nick Conrad and David Hunt
(Rensselaer Land Trust)

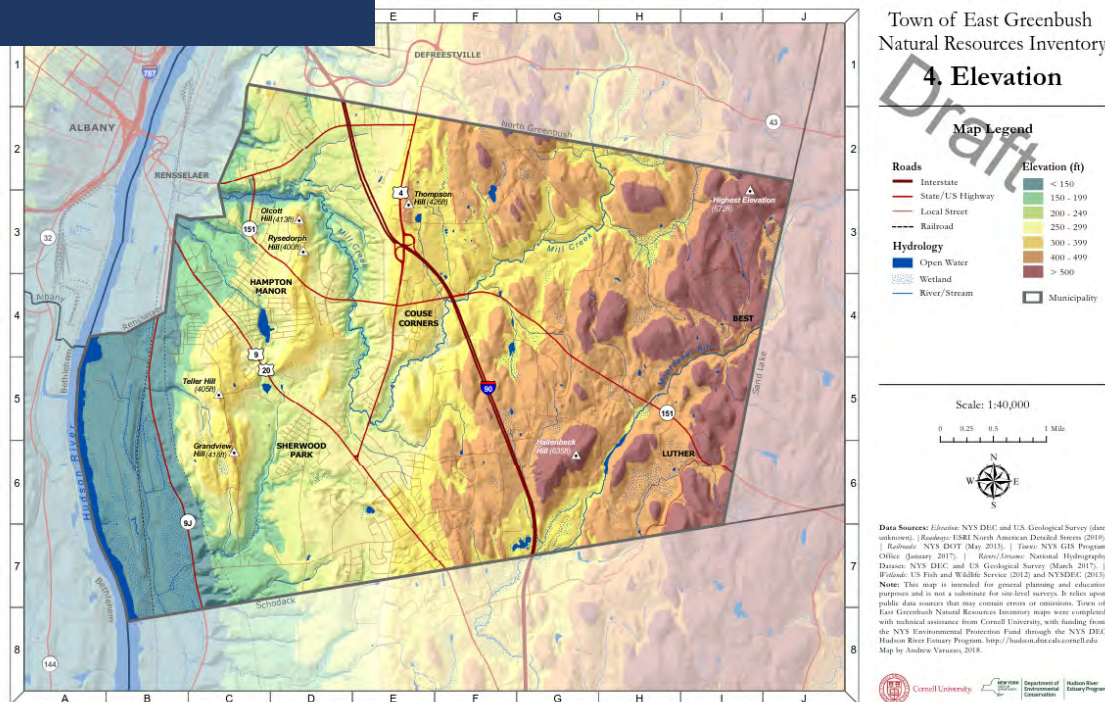
East Greenbush Natural Resources Inventory Goals



East Greenbush Town Park

- inform comprehensive plan and zoning update
- reference for planning, designing, and reviewing new development
- cultivate stewardship of resources

Physical Setting

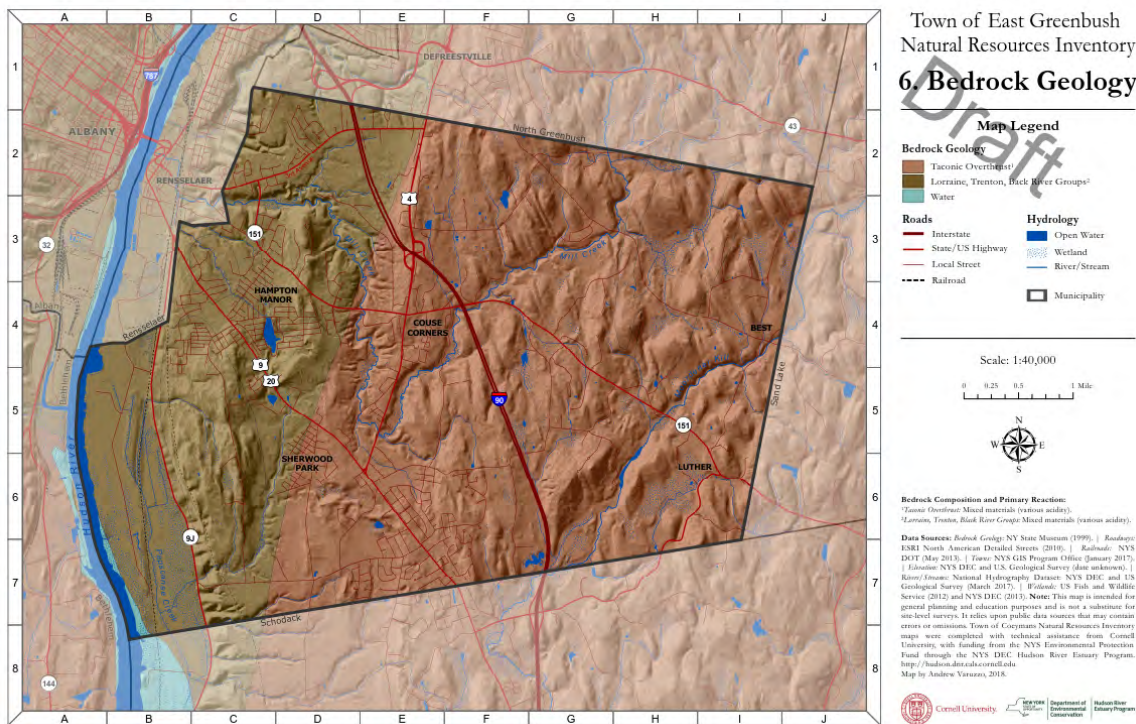


Elevation

Plateau and Plain

The elevation of East Greenbush varies from just a few feet above sea level at the Hudson River to 672 feet above sea level on a hill in the northeast corner of town. The east rests on mountain remnants; the west on an old sea floor.

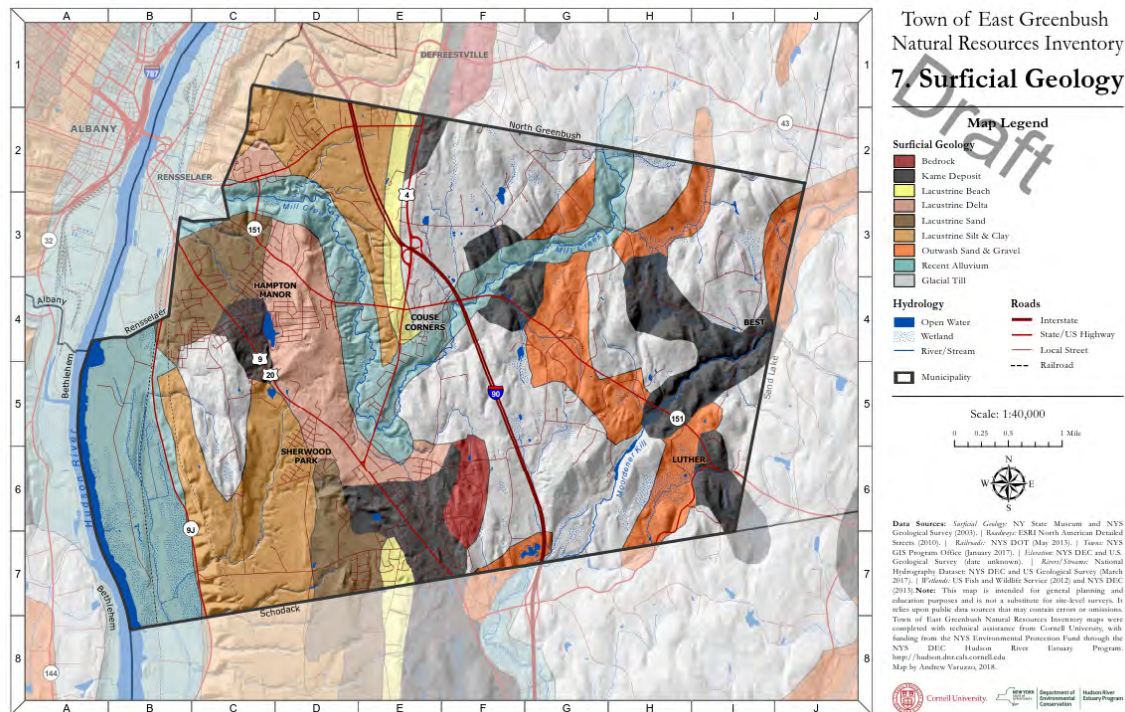
Bedrock Geology



Mountains and Sea

The bedrock under East Greenbush formed about 450 million years ago. East of Route 4 and Phillips Road are the eroded remnants of the once towering Taconic Mts. To the west are sedimentary rocks formed on a tropical sea bed.

Surficial Geology



Dirty, melting ice

21,000 years ago, East Greenbush was covered by 5,000 feet of ice. As the ice melted, it left behind rolling hills of sand and gravel in the east, and a giant lake in the west, with sand beaches, flat-topped deltas, and bottom layers of silt and clay.

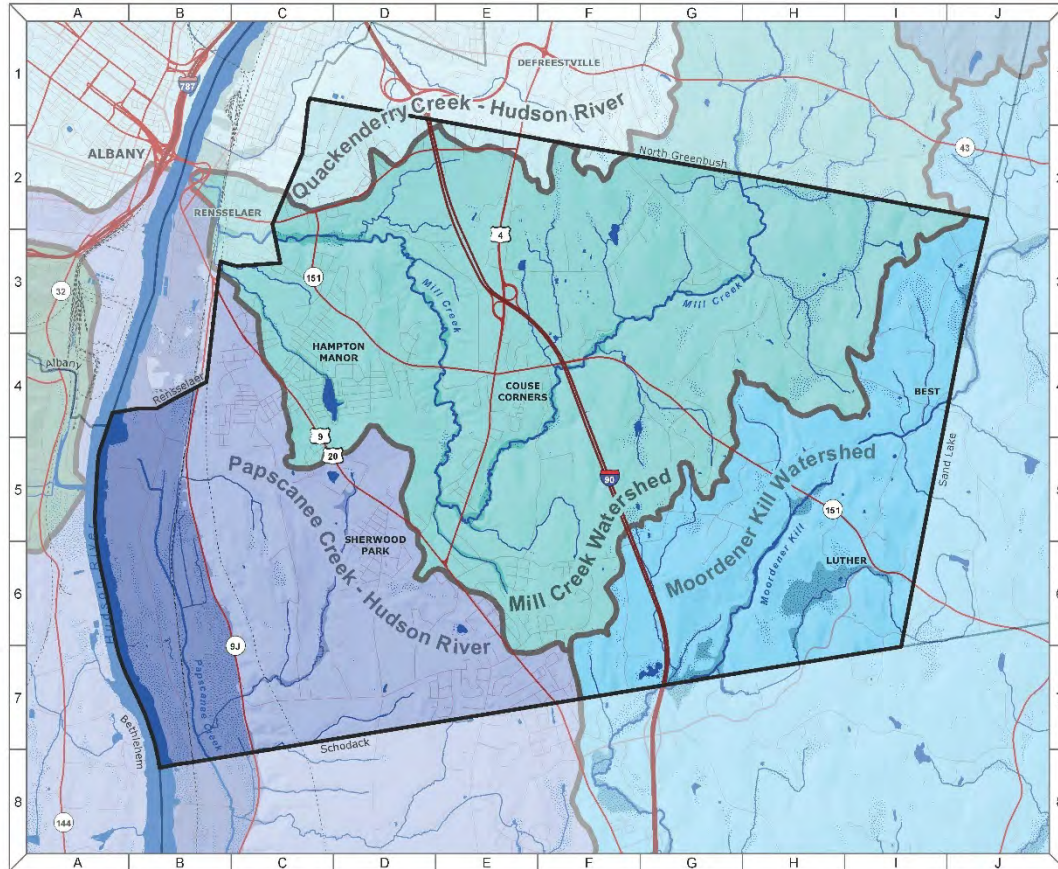
Water Resources

- Aquifers
- Water Quality Classifications
- Floodplains
- Riparian Buffers
- Dams and Culverts
- Wetlands
- (Stream Habitats)



Streams and Watersheds

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- Mill Creek
- Moordener Kill
- Papscanee Creek



Photo: NYSDEC

Floodplains and Riparian Buffers

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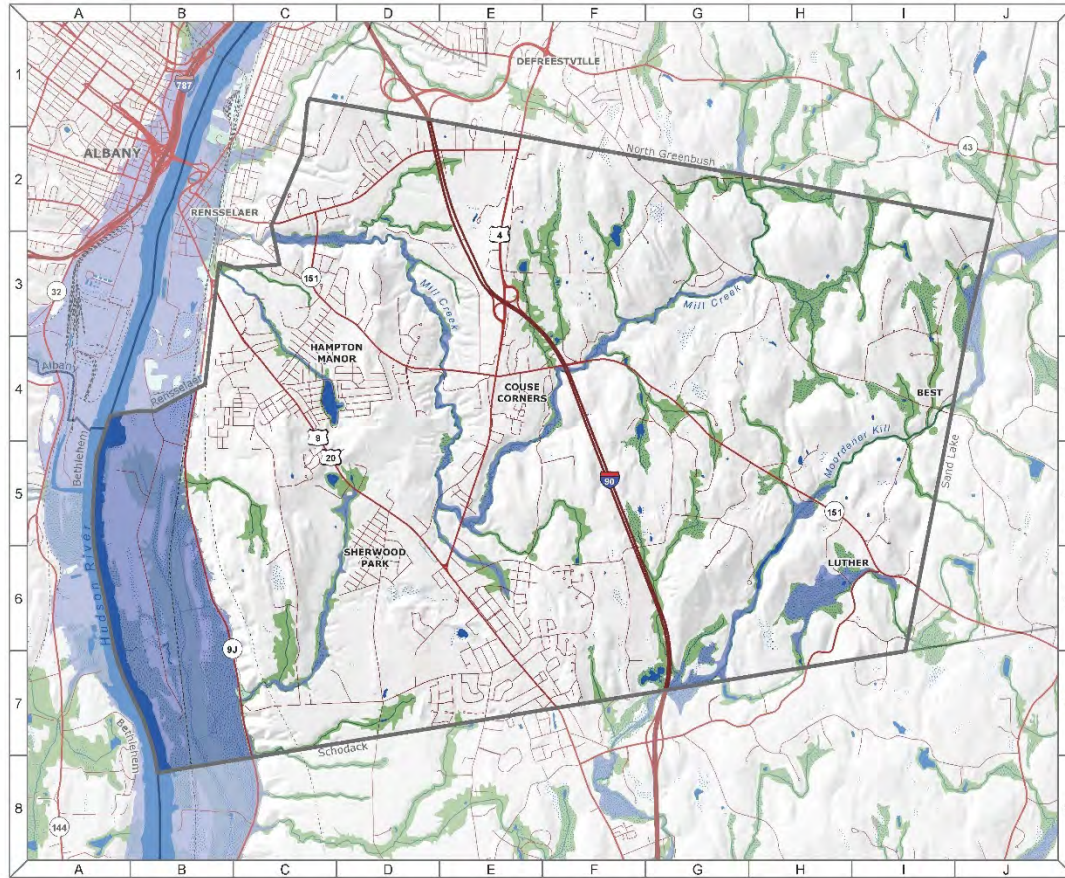


Photo: J. Haeckel

Habitats & Wildlife

Town of East Greenbush contains **diverse habitats** that support unique wildlife and plants

Habitats:

- Coastal/ Hudson River Estuary (tidal wetlands and shoreline, and underwater areas)
- Streams
- Riparian and floodplain areas
- Wetlands
- Large forests
- Grassland, shrubland, and young forests



Habitats in East Greenbush support species of conservation concern

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Bald Eagle



Four-toed Salamander



Bobolink



New Jersey Tea



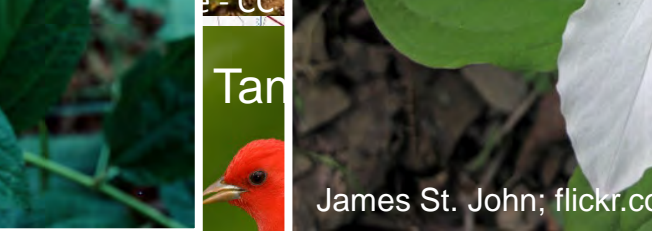
White Trillium



Shor



Tan



ter Assessment and Monitoring (May 2017). *Regional TSRI*. American Tidal Streets (2010). | *Railroads*. NYS DOT (2013). *Issue*. NYS GIS Program Office (January 2017). | *Map*. U.S. Geological Survey (Vallano), | *Wildlife*. US Fish & Wildlife Service (2012) and NYS DEC (2013). **Notes:** This map is for general planning and education purposes and is not a substitute for site-level surveys. It relies upon public data sources that contain errors or omissions. Towns of East Greenbush Natural Areas Inventory maps were completed with technical assistance from Cornell University, with funding from the NYS Environmental Conservation Fund through the NYS DEC Hudson River Fishery Assessment and Monitoring (May 2017). *Regional TSRI*. Andrew Varuzo, 2018.

Papscanee Creek and Tidal Wetlands

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Photo: hudsonriverland.com



Photo: Judd Patterson

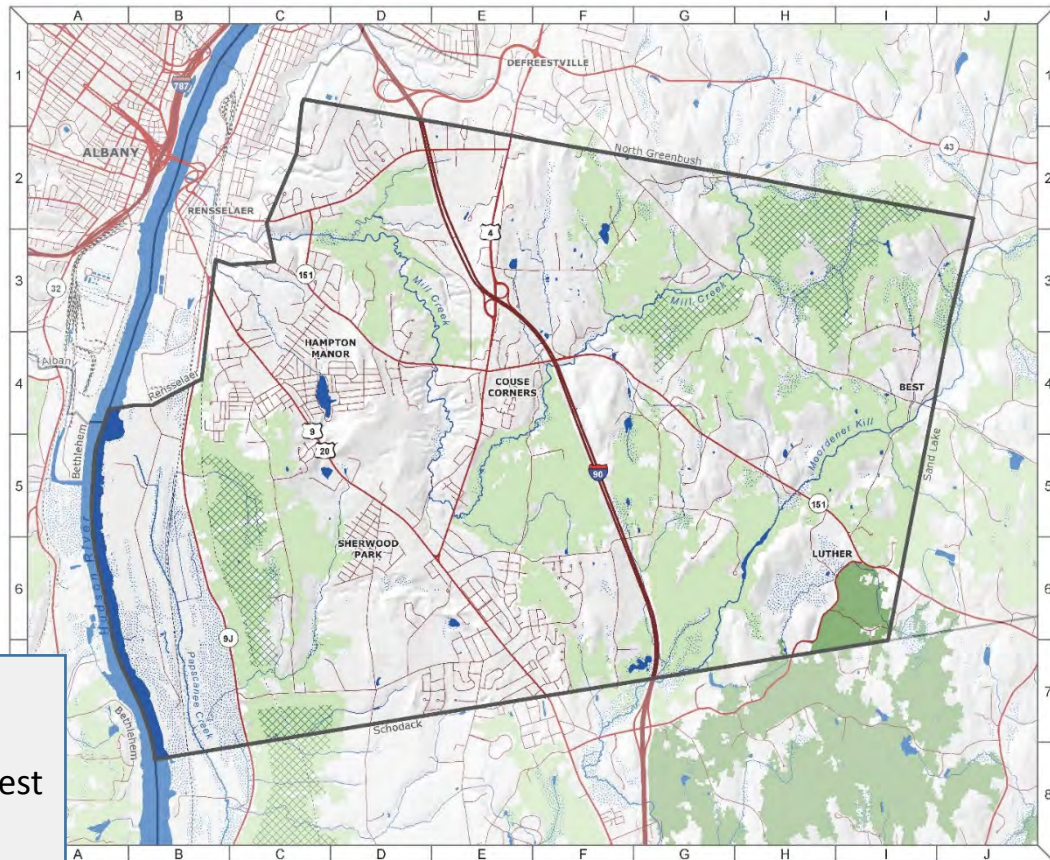


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Forest blocks provide many benefits

- Habitat for forest-interior species
- Serve as corridors for wildlife movement and plant dispersal
- Help protect water quality
- Reduced exposure to invasive species
- Increased quality of life



Climate

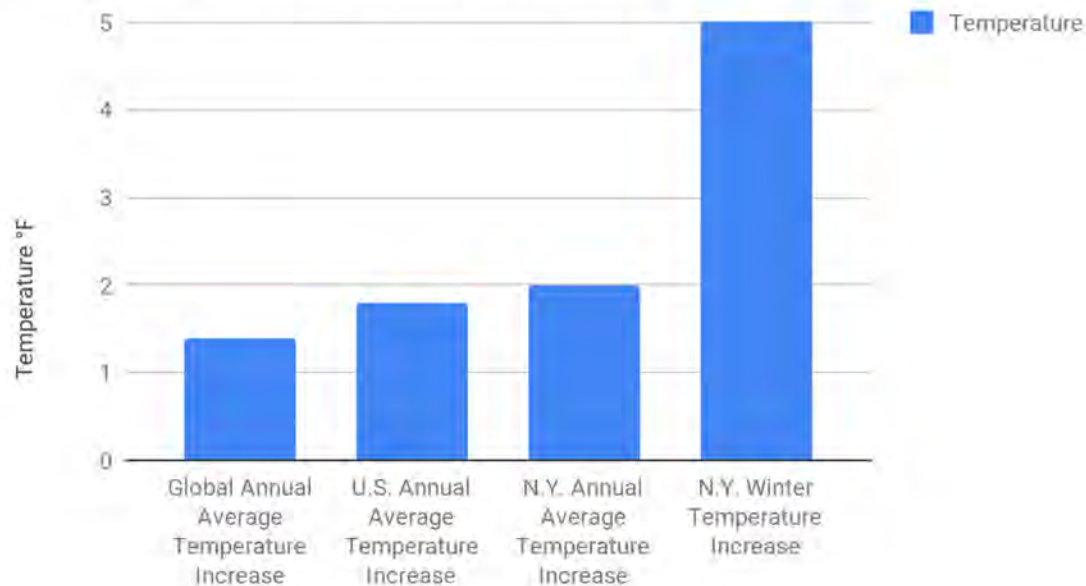
Climate Trends:

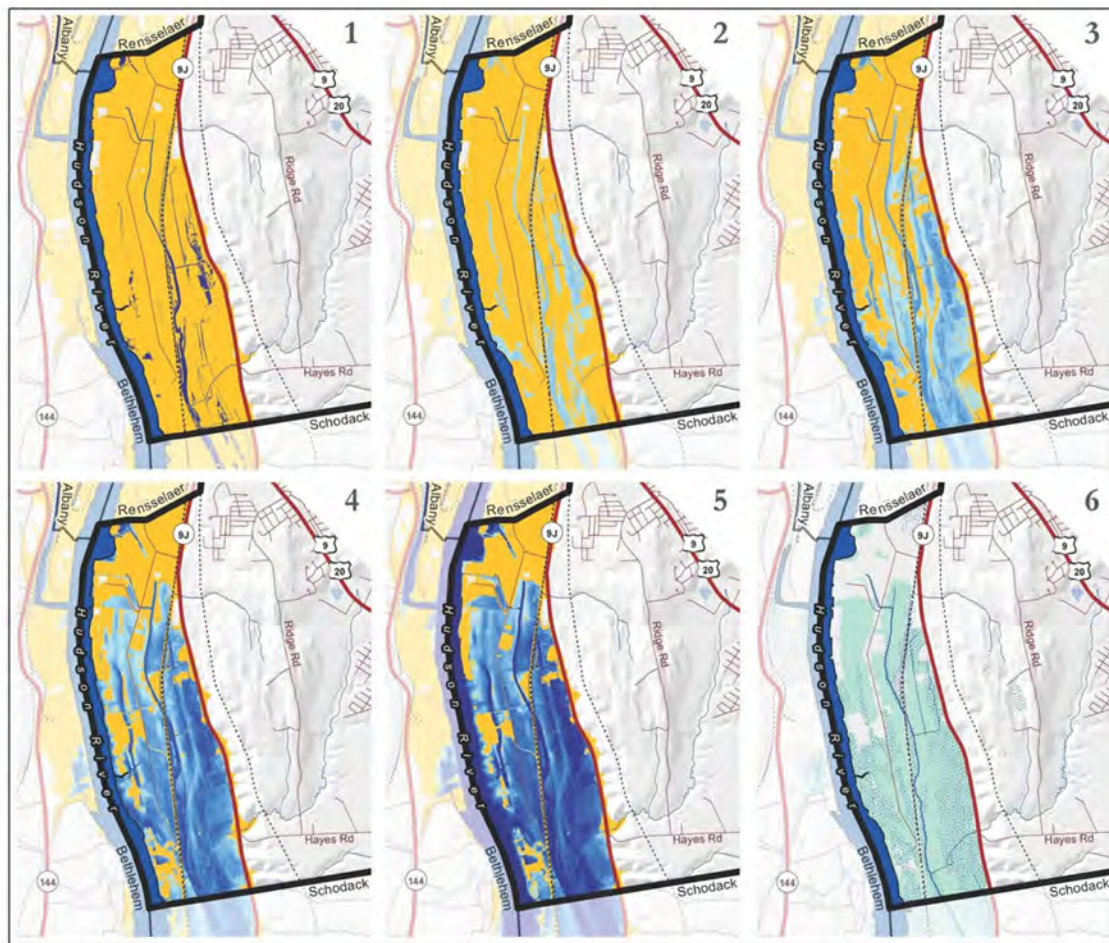
- Increasing Temperatures
- Changing Precipitation Patterns
- Rising Sea Levels



Climate Trends: Temperature Increase

Temperature Change since 1970





Town of East Greenbush Natural Resources Inventory 19A. Sea Level Rise

Map Legend

Inundation Depth (in)	Roads
≤72	State/US Highway
66	Local Street
60	Railroad
54	
48	
42	
36	
30	
24	
18	
12	
6	
>0	

Hydrology
Open Water
River/Stream
Current Wetlands (Inset Map 6)
1% Annual "100-yr" Flood Zone
Tidal Wetland Pathways
Municipality

Scale: 1:40,000

0 0.25 0.5 1 Mile



1. 0in of sea level rise: current water level and 100-year flood zone.
2. 12in of sea level rise: expected inundation and 100-year flood zone.
3. 36in of sea level rise: expected inundation and 100-year flood zone.
4. 54in of sea level rise: expected inundation and 100-year flood zone.
5. 72in of sea level rise: expected inundation and 100-year flood zone.
6. Tidal wetland pathways. These are areas where tidal wetlands are likely to move by 2100 as sea level rises.

Data Sources: *Expected Inundation as Flood Zone: Scenic Hudson Sea Level Rise Mapper (2013)*. | *Tidal Wetland Pathways: Scenic Hudson - Sea Level Affecting Marshes Model (SLAMM) (2015)*. | *Roads: ESRI North American Detailed Streets (2019)*. | *Railroads: NYS DOT (May 2013)*. | *Towns: NYS GIS Program Office (January 2017)*. | *Elevation: NYS DEC and U.S. Geological Survey (date unknown)*. | *River/Stream: National Hydrography Dataset: NYS DEC and U.S. Geological Survey (March 2017)*. | *Wetlands: US Fish and Wildlife Service (2012) and NYS DEC (2013)*. **Note:** This map is intended for general planning and education purposes and is not a substitute for site-level surveys. It relies upon public data sources that may contain errors or omissions. Town of East Greenbush Natural Resources Inventory maps were completed with technical assistance from Cornell University, with funding from the NYS Environmental Protection Fund through the NYS DEC Hudson River Estuary Program. <http://hudson.data.cornell.edu>
Maps by Andrew Varisco, 2018.



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Sea Level Rise and Changing Wetlands

Tidal Freshwater Wetlands and Rising Waters



Graphic: City Institute of Ecological Studies, L. Trachten



Land Use

Zoning, Land Use, Regulated Facilities, and Agriculture

- Illustrate patterns in human settlement and activities
- Zoning, tax parcels, and existing regulated facilities help determine future land use changes
- Overview of key ag-supportive soils and ag-promotion tools

Town of East Greenbush Natural Resources Inventory

20. Town Zoning and Tax Parcels



Scale: 1:40,000

0 0.25 0.5 1 Mile



*Zoning information is included in the Town of East Greenbush Natural Resources Inventory for illustrative purposes only. Always consult the Town's official zoning map before making any land use decision.

Data Sources: *East Greenbush Zoning* (Town of East Greenbush Planning and Zoning Department, 2008) | *Tax Parcels* (Rensselaer County Tax Services Department (March 2018)) | *Roadways* (ESRI North American Detailed Streets (2010)) | *Railroads* (NYS DOT (May 2015)) | *Islands* (NYS GIS Program Office (January 2017)) | *Elevation* (NYS DEC and U.S. Geological Survey (date unknown)) | *Rivers/Streams* (National Hydrography Dataset; NYS DEC and U.S. Geological Survey (March 2017)) | *Wetlands* (US Fish and Wildlife Service (2012) and NYS DEC (2018)). **Note:** This map is intended for general planning and education purposes and is not a substitute for site-level surveys. It relies upon public data sources that may contain errors or omissions. Town of East Greenbush Natural Resources Inventory maps were compiled with technical assistance from Cornell University, with funding from the NYS Environmental Protection Fund through the NYS DEC Hudson River Estuary Program. <http://hudson.durcals.cornell.edu>
Map by Andrew Varozzo, 2018.



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Town of East Greenbush Natural Resources Inventory

21. Tax Parcel Land Use

Map Legend

Parcel Use Class	Assessor Code Range
Agricultural	100 - 199
Residential	200 - 299
Vacant Land	300 - 399
Commercial	400 - 499
Entertainment & Rec.	500 - 599
Community Services	600 - 699
Industrial	700 - 799
Public Services	800 - 899

Hydrology

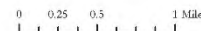
- Open Water
- Wetland
- River/Stream

Roads

- Interstate
- State/US Highway
- Local Street
- Railroad

- Municipality

Scale: 1:40,000



Data Sources: *Tax Parcel Use:* Rensselaer County Tax Services Department (March 2018). | *Roadways:* ESRI North American Detailed Streets (2010). | *Railroads:* NYS DOT (May 2013). | *Towns:* NYS GIS Program Office (January 2017). | *Elevation:* NYS DEC and U.S. Geological Survey (date unknown). | *Rivers/Streams:* National Hydrography Dataset: NYS DEC and US Geological Survey (March 2017). | *Wetlands:* US Fish and Wildlife Service (2012) and NYS DEC (2013). **Note:** This map is intended for general planning and education purposes and is not a substitute for site-level surveys. It relies upon public data sources that may contain errors or omissions. Town of East Greenbush Natural Resources Inventory maps were completed with technical assistance from Cornell University, with funding from the NYS Environmental Protection Fund through the NYS DEC Hudson River Lulatory Program. <http://hudson.dacals.cornell.edu>. Map by Andrew Vanzo, 2018.



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Town of East Greenbush Natural Resources Inventory

23. Agricultural Resources

Map Legend

Agricultural Resources

- Prime Farmland Soils
- Prime Farmland Soils of Drained
- Farmland Soils of Statewide Importance

- Agricultural Tax Exemption
- County Agricultural District Designation
- Tax Exempt Parcel in County Ag. District

Hydrology

- Open Water
- Wetland
- River/Stream

Roads

- Interstate
- State/US Highway
- Local Street
- Railroad

- Municipality

Scale: 1:40,000

0 0.25 0.5 1 Mile



Data Sources: Prime and Statewide Important Farmland Soils: USDA Natural Resources Conservation Service (December 2006). | Agricultural Tax Exemption: Rensselaer County Tax Services Department (March 2018). | County Agricultural Districts: NYS Department of Agriculture and Markets (March 2017). | Roads: ESRI North American Detailed Streets (2010). | Railroads: NYS DOT (May 2013). | Town: NYS GIS Program Office (January 2017). | Elevation: NYS DPC and U.S. Geological Survey (date unknown). | Rivers/Streams: National Hydrography Dataset: NYS DEC and US Geological Survey (March 2017). | Wetlands: US Fish and Wildlife Service (2012) and NYS DEC (2013). Note: This map is intended for general planning and education purposes and is not a substitute for site-level surveys. It relies upon public data sources that may contain errors or omissions. Town of East Greenbush Natural Resources Inventory maps were completed with technical assistance from Cornell University, with funding from the NYS Environmental Protection Fund through the NYS DPC Hudson River Estuary Program. <http://hudson.rurals.cornell.edu>. Map by Andrew Vanzoro, 2018.



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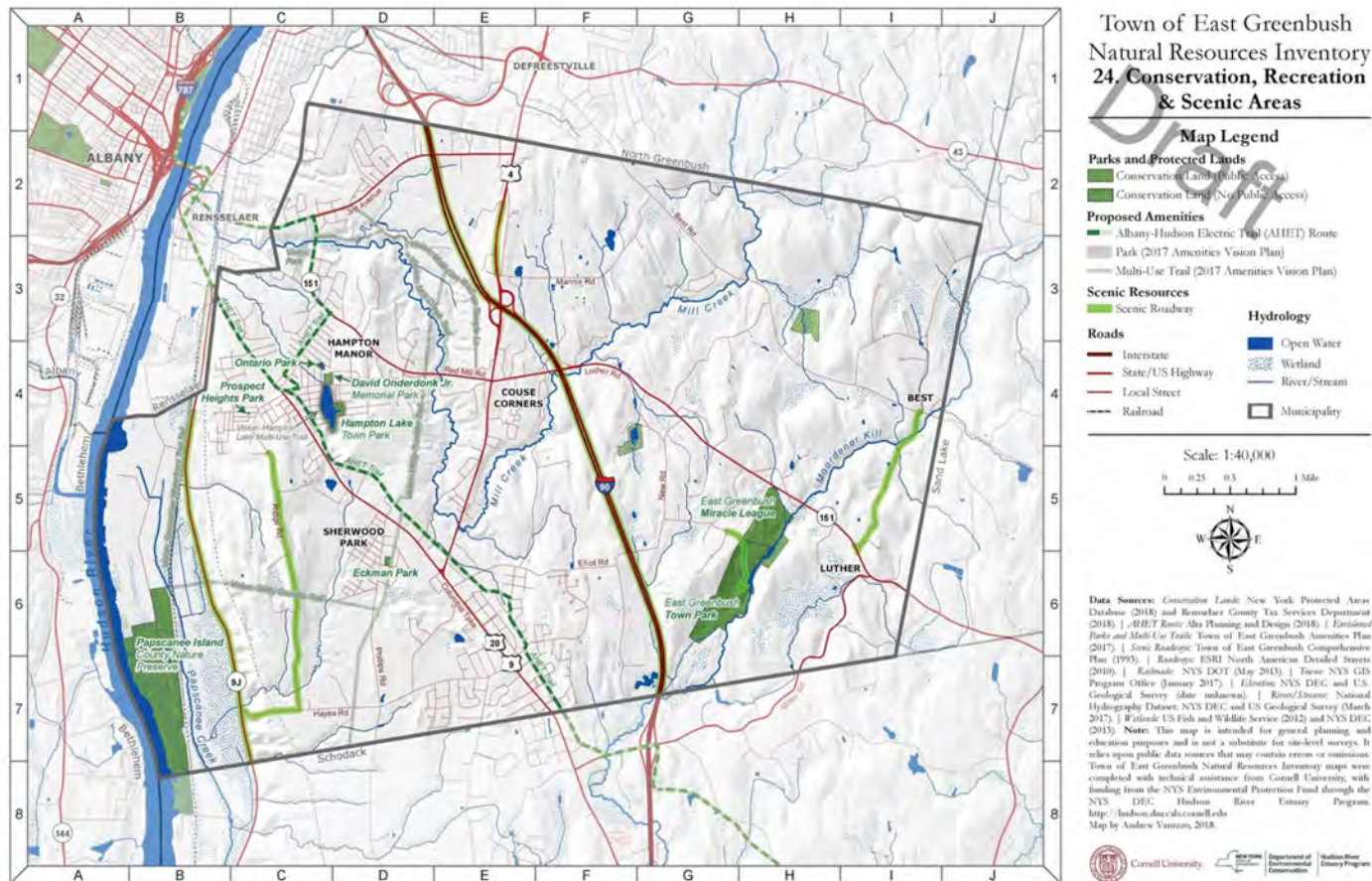


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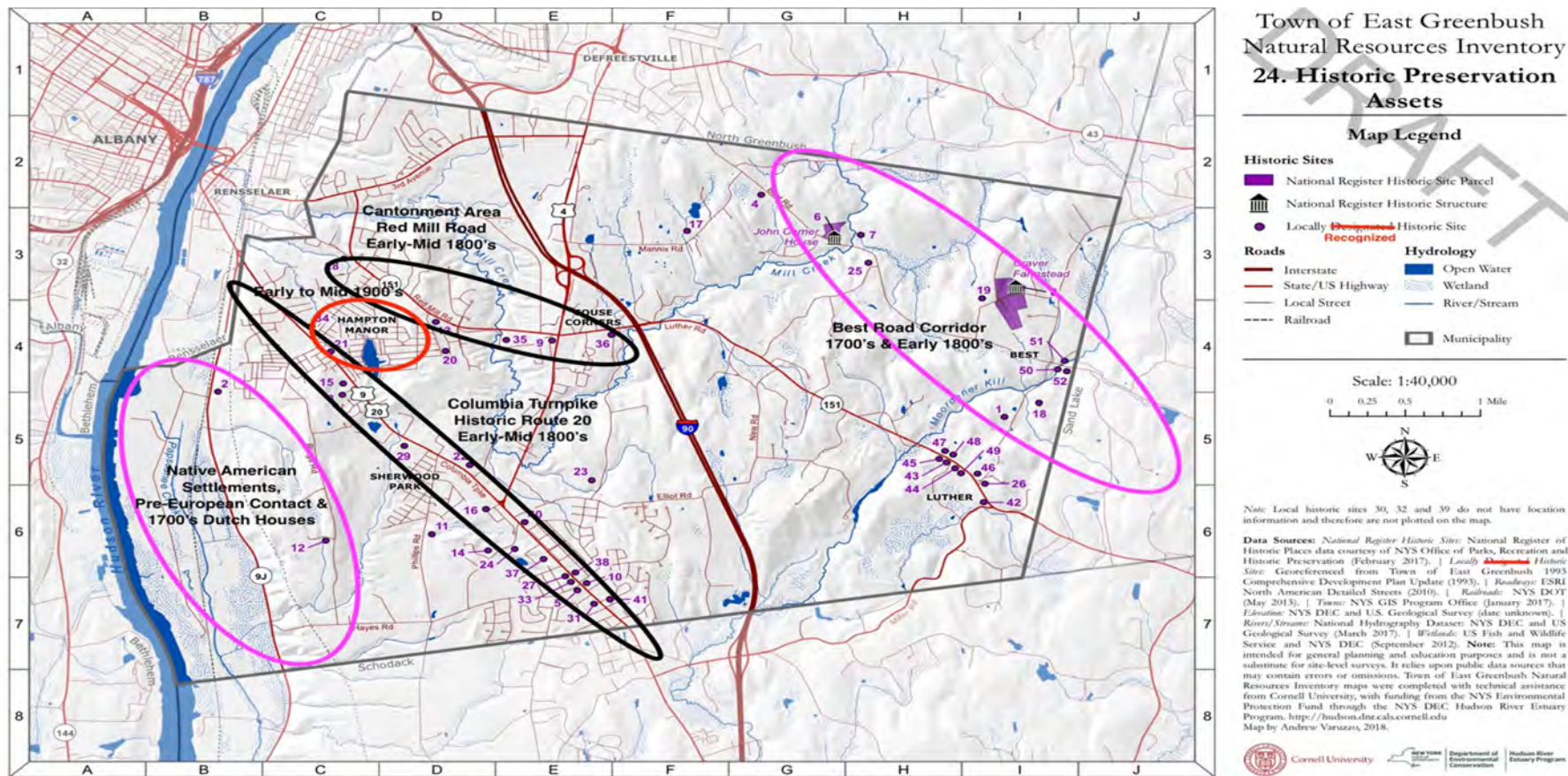
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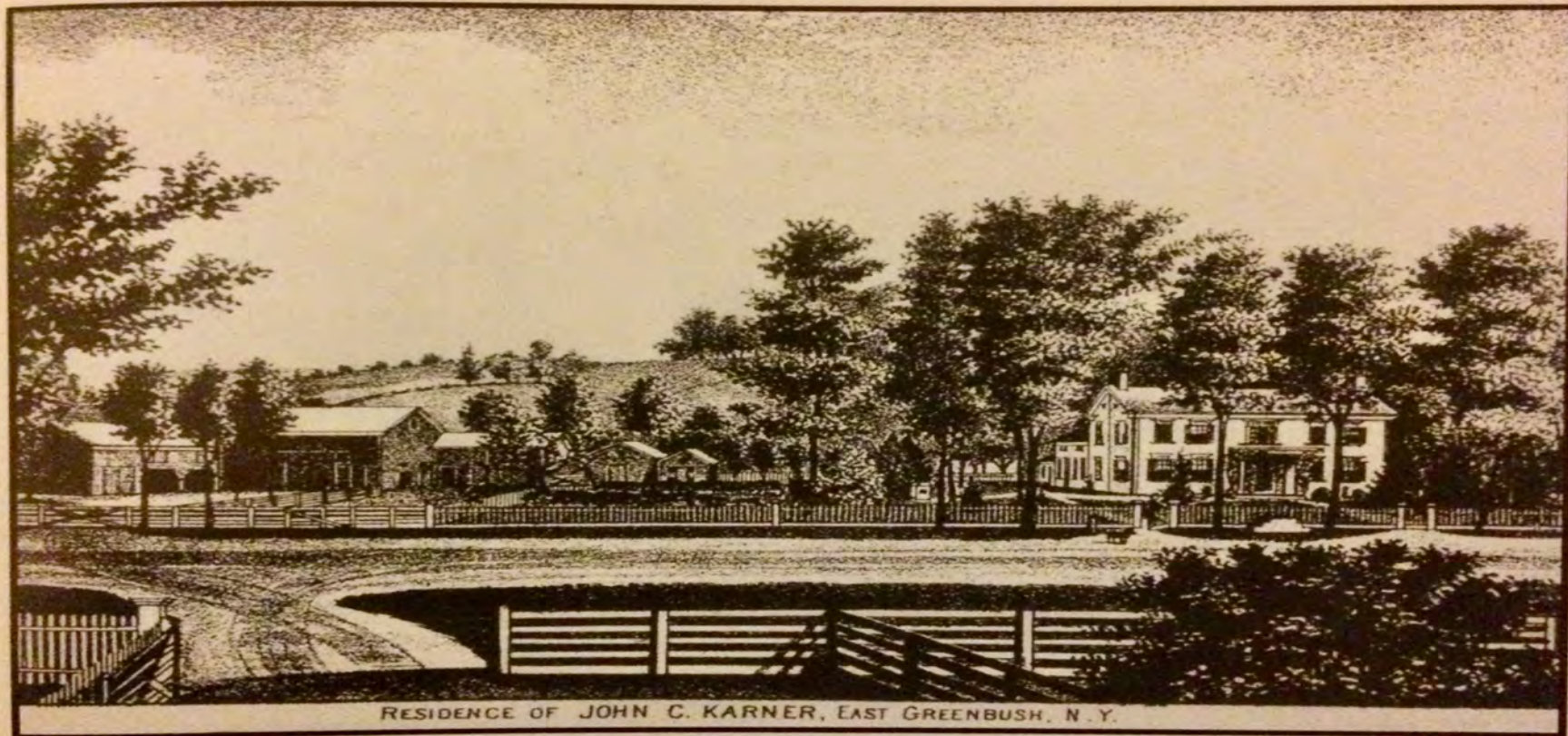
Cultural Resources



Historic Structures & Sensitive Areas



Pre 1776 Carner House Rendering



RESIDENCE OF JOHN C. KARNER, EAST GREENBUSH, N. Y.

National Register Listed Carner House





National Register 1790 Craver Farmhouse



1857 Charles Earing House (Not Listed)



1750 Vandenberg House (Not Listed)



1709 Timothy Phillips Farm (Not Listed)





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1861 Dutch Reformed Church



1914 School #2: Today's Bates Building



1830 Whitbeck House (Pockman Farm)



1802 Defreest Hotel



Defreest Hotel Today



School #6



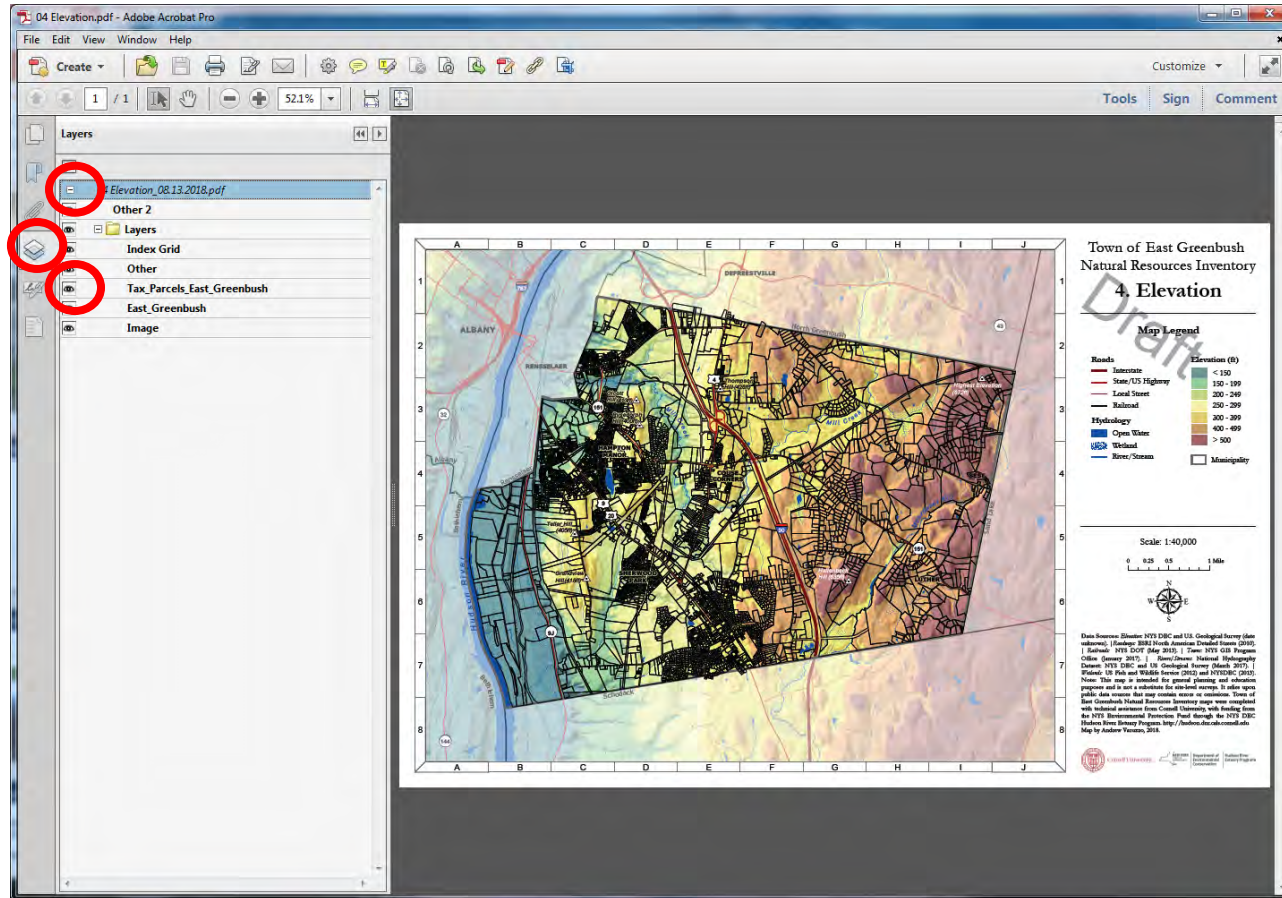
1720 Jan Breese House



Viewing tax parcel boundaries

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- Open PDF in Adobe Acrobat
- Expand layers
- Click “+” to expand all layer groupings
- Click on parcels



East Greenbush NRI Project Timeline

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April 2018
NRWG
established

Summer 2018
Maps and analysis

Fall 2018
Work on report

Winter 2018/19
Present NRI to
local boards



Questions?

Natural Resources Work Group

nri@eastgreenbush.org

Ingrid Haeckel

Conservation & Land Use Specialist

ingrid.haeckel@dec.ny.gov

www.dec.ny.gov/lands/4920.html

Habitat Summary, NRI maps, and this presentation available on the town website under the Natural Resources Work Group

Activity:

- Visit map stations
- Help identify important natural and scenic areas! Place numbered dots on the big map.
- Fill out a comment card



**Hudson River
Estuary Program**

A Program of the New York State Department of Environmental Conservation



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