# Mapping Census Data: Status, Experience, Needs, Resources

Joe Francis, Cornell University Xiaoling Li, Cornell University Amber Tobin, NYS DOL

NY SDC Spring 2014 Meeting

Program on Applied Demographics

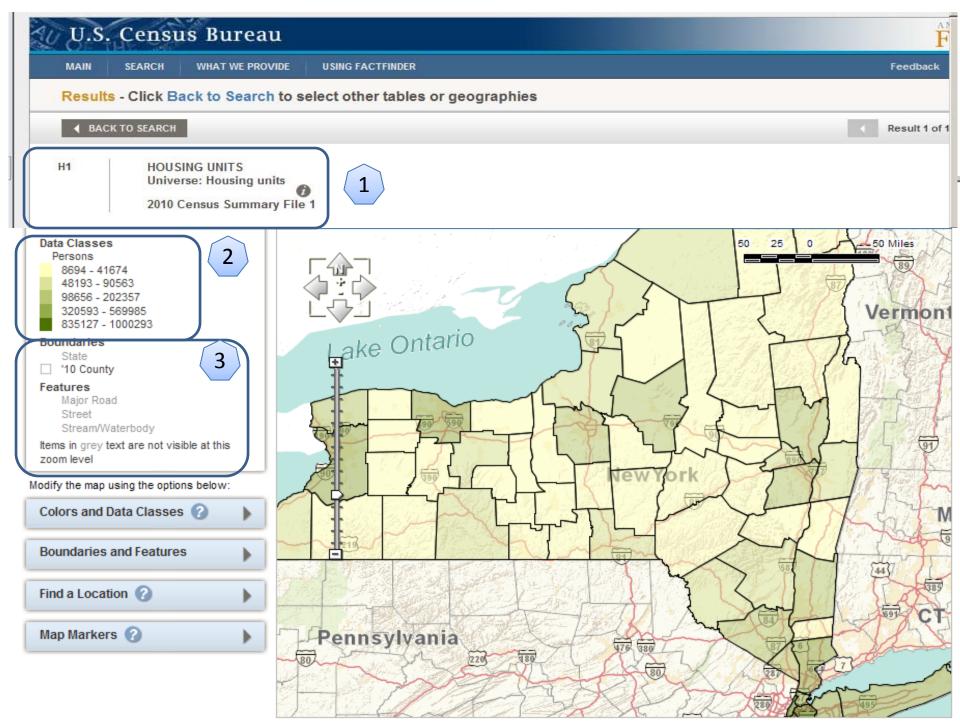


### **Session Goals**

- Assess current status of mapping and spatial analysis in applied demography
- Examine NY SDC Affiliates Use of GIS
- Mapping/GIS Resources currently available and delivery system—Web 1.0 and Web 2.0
- Future mapping/spatial analysis needs
- How to meet those needs

### Past and Current Status

- Census mapping 5 years ago—
  - Reference and thematic maps of Census data were less available, not widely used.
  - Spatial thinking/visualization were just beginning to enter Census data users set of considerations.
  - Maps were custom made for affiliates by SDCs,
     Consultants or occasionally by local GIS staff.
  - Readily available maps on Census websites were crude and often inaccurate
  - This is an example I showed at Fall 2011 Affiliate meeting.



Source: U.S. Census Bureau, 2010 Census.

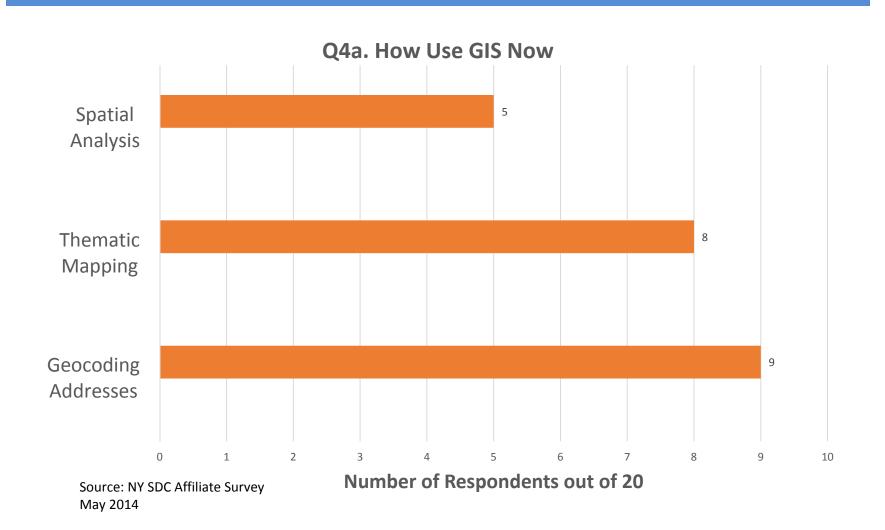
### Past and Current Status

- Census mapping today
  - Reference and thematic maps are more available, more widely used.
  - Increase in websites containing census maps.
  - Planners and demographers learning/using GIS along with other analytic tools.
  - Demographers increasingly realize advantage of examining spatial patterning of data via maps in addition to other forms of data visualization like charts and graphs.

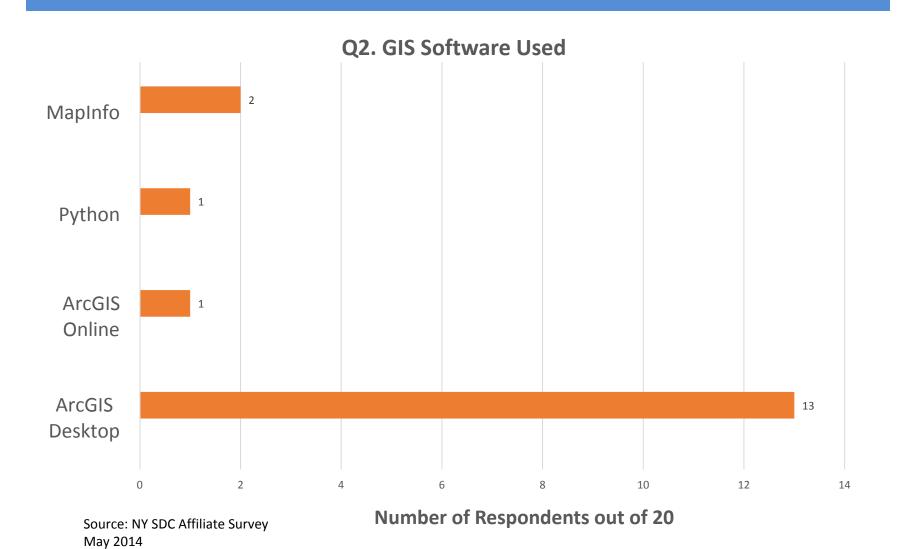
### Past and Current Status

- Commensurate with national trends, NY SDC
   Affiliates' interest and use of GIS and maps
   has increased a surprising amount, as a recent
   survey revealed, over the past 5 years.
- Time to ask questions:
  - What do you see as your future spatial visualization/mapping needs?
  - How best to fulfill those needs?
  - How can today's internet technology along with web mapping help?

# Affiliates GIS Usage

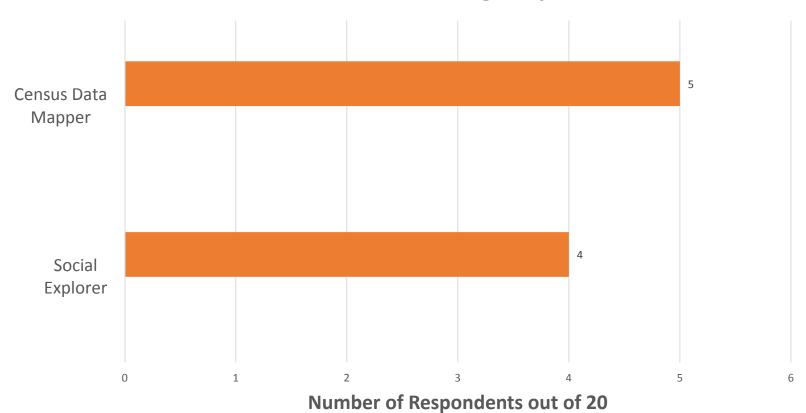


# Affiliates GIS Usage



# Affiliates GIS Usage

Q3. Web Tool Used Regularly

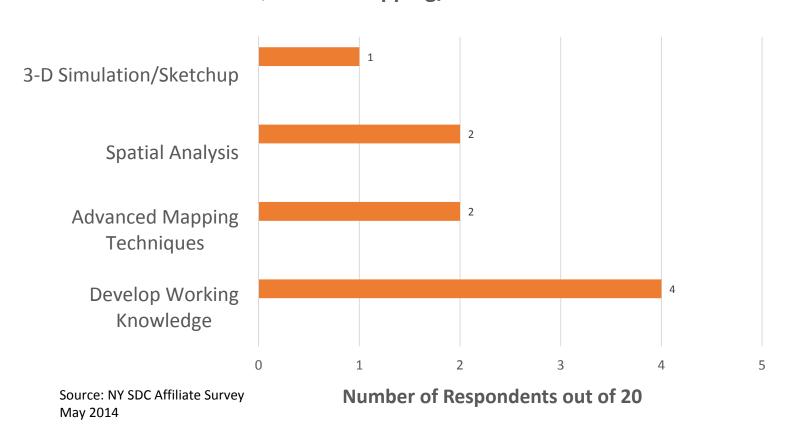


Source: NY SDC Affiliate Survey

May 2014

## Affiliates Mapping/GIS Needs

### Q5. What Mapping/GIS Needs



# Meeting Affiliates GIS Interest and Needs

- The NYS DOL and PAD have been discussing various ideas of how to address your expressed GIS Interest and Needs.
- Started experimenting with new map construction and delivery system—web 2.0 technology and interactive maps.
- First let's quickly review what's available now to make sure everyone is aware of those resources and delivery system—web 1.0 technology and static maps.

### Census Bureau Reference Maps

■ Maps & Data Main Page

### Maps

- Census Data Mapper
- Reference
- Thematic
- Maps Available for Purchase

### Data

- TIGER Products
- Census Geocoder
- Partnership Shapefiles
- Relationship Files
- Gazetteer Files
- Block Assignment Files
- Name Lookup Tables
- Tallies
- LandView

Reference Maps include a variety of map types that show the boundaries and names of geographic areas for which the Census Bureau tabulates statistical data. In some cases, the name is only in block number. Some types of reference maps include geographic features and their identifiers that are coincident with the boundary. Examples are roads and water features. Reference maps can in users in orienting themselves to the area depicted on the map.

Click on a title below to expand the section and read more information.

+ Census Reference Maps

**Reterence Maps** 

- + General Reference Maps
- + Congressional Districts
- + Metropolitan Areas
- + Public Use Microdata Areas (PUMAs)
- + State Legislative Districts
- + Urban Areas
- + Partnership Program Maps
- +2007 Economic Census

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### Census Bureau Thematic Maps

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Click on a title below to expand the section and read more information

### - Census Reference Maps

Reference Maps from the 2010 Census, Census 2000 and the 1990 Census

- Census Block Maps 2010 | 2000 | 1990
- Census Tract Maps 2010 | 2000 | 1990
- Tribal Tract Maps 2010 | 2000
- P.L.94-171 County Block Maps 2010 | 2000
- P.L.94-171 Voting/Legislative Districts 2010 | 2000
- . School District Maps 2010
- . 2010 Census Local Census Offices with Type of Enumeration Area
- + General Reference Maps
- + Congressional Districts
- + Metropolitan Areas
- + Public Use Microdata Areas (PUMAs)
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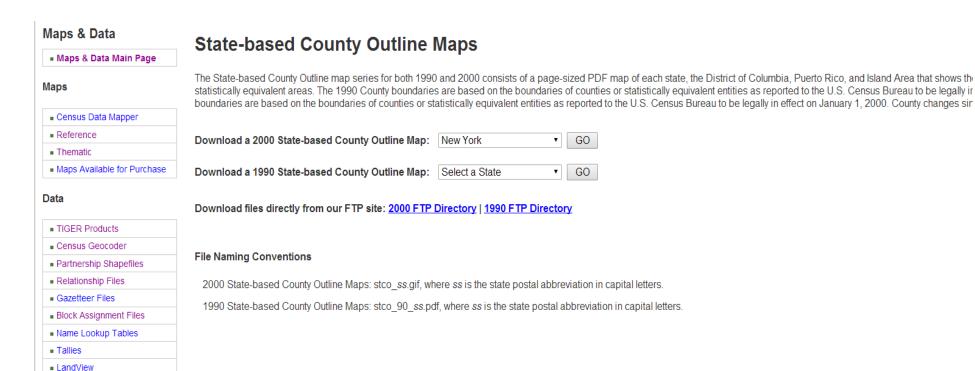
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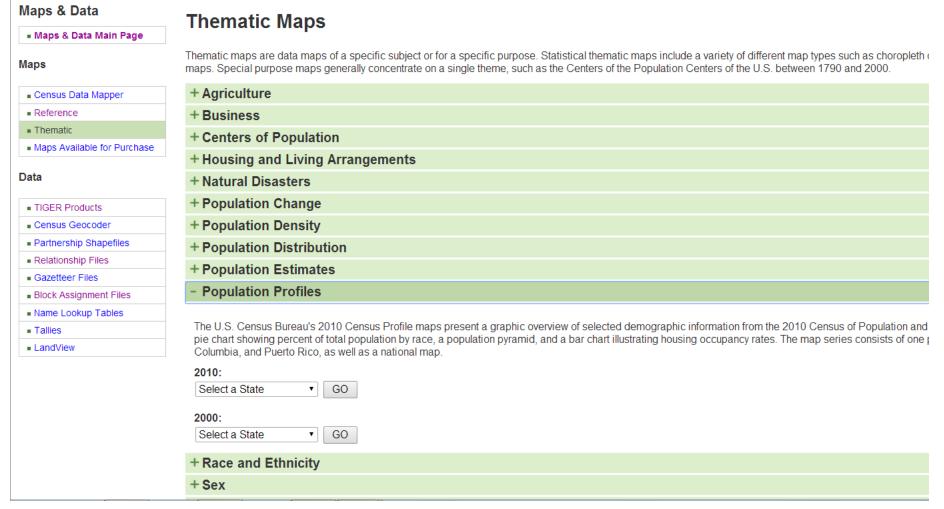
- + Census Reference Maps
- General Reference Maps
  - . State/County Wall Map of the United States
  - · State-based County Outline Maps (page-size)
  - State/Geographic Areas Reference Maps (page-size)
  - The American Indians and Alaska Natives in the United States Wall Map
  - . Census Regions and Divisions of the United States [PDF] or [Text]
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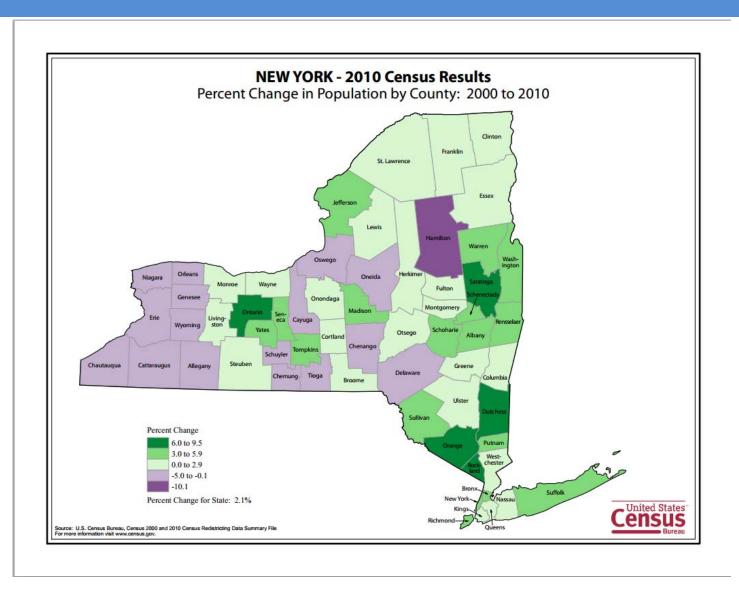
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### Census Bureau Thematic Maps



### Census Bureau Thematic Maps





### Program on Applied Demographic

**Cornell Program on Applied Demographics** Contact Home **Cornell Program on Applied Demographics** About PAD About Activities People Contact Data NY Counties School districts Census 2010 Maps About PAD Census 2010 Atlas ACS 2006-2010 Atlas Reference maps The Program on Applied Demographics (PAD) brings skills in demographics, economics, statistics, data gathering and data analysis together to provide a variety of organizations with data, information and advice. PAD works closely with the New York **Publications** State Department of Labor, the U.S. Census Bureau and other organizations to assist them in their activities. Examples of NY County profiles PAD's activities can be found here. NY Minutes PAD is part of the Cornell Population Center, a university-wide program serving 96 affiliates from 24 different departments and is Other publications housed in the College of Human Ecology at Cornell University. Resources Being part of Cornell University gives PAD easy access to a world of further expertise. It also provides an environment that can At Cornell handle different kinds of grants and other types of funding and cooperation. About NY Cornell University is home to one of the U.S. Census Research Data Centers (RDC) nationwide. The RDC, housed at CISER, Other resources provides secure access to confidential microdata from a number of administrative and survey data sources. These are invaluable resources to help understand various demographic processes. Tools ACS Calculator

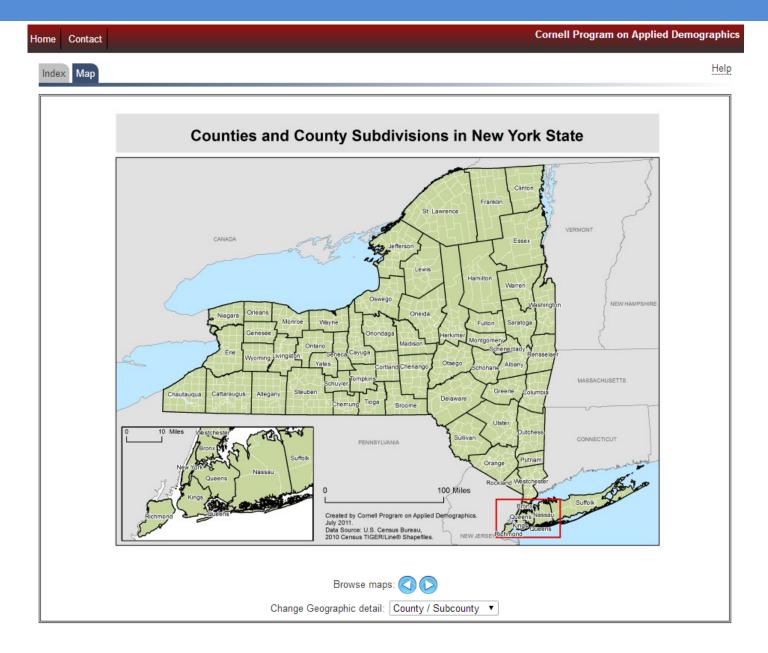
Contact us if you want to know more about the kind of work we are doing and to discuss how we can help you.

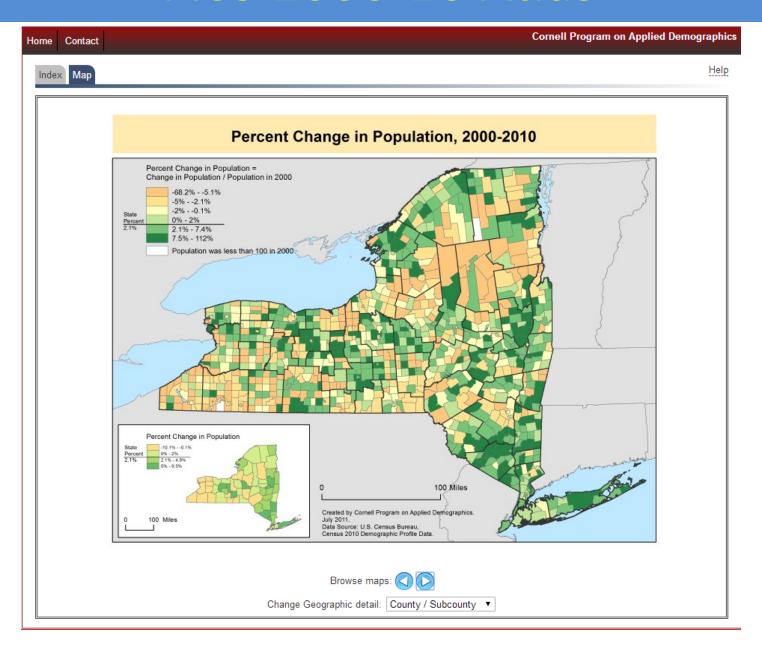
Mapper

# Census 2010 Atlas

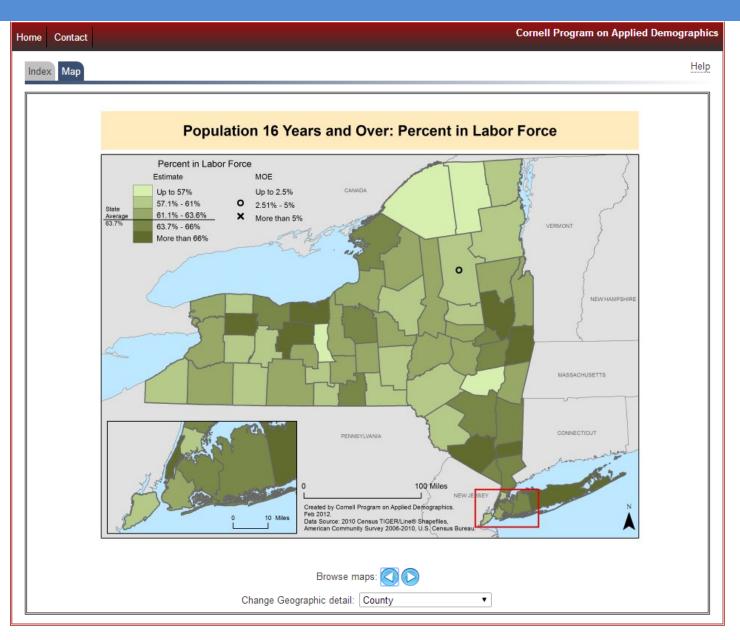
Index Map					Hel
Map subject	Geographic detail				
	Economic region	County / Subcounty	Tract in City Albany ▼		
Reference	₩	<b>V</b>	<b>V</b>	A .	
Population					
Totals					
Total Population		<b>V</b>			
Population Density	<b>V</b>	<b>*</b>			
Percent Change in Population (2000-2010)	<b>V</b>	<b></b>	<b>~</b>		
Race and Ethnicity					
Non-Hispanic White alone (% of total population)	<b>Y</b>	<b>Y</b>			
Non-Hispanic Black or African American alone (% of total population)	₩	<b>S</b>			
Non-Hispanic American Indian and Alaska Native alone (% of total population)	<b>*</b>	<b>*</b>			
Non-Hispanic Asian alone (% of total population)	<b>V</b>	<b>~</b>			
Hispanic or Latino population (% of total population)	<b>V</b>	<b>~</b>			
Age					
Median age	<b>Y</b>	<b>Y</b>			
Population under 18 (% of total population)	<b>Y</b>	<b>Y</b>			
Population age 65 and over (% of total population)	<b>Y</b>	<b>Y</b>			
Population age 85 and over (% of total population)	₩	<b>*</b>			
Living arrangements population under 18					
Living as Own Child with at Least One Parent (% of population under 18)	<b>*</b>	<b>*</b>			
Living as Own Child in Husband-Wife Family (% of population under 18)	<b>*</b>	<b>*</b>			
Living in Group Quarters (% of population under 18)	<b>~</b>	<b>~</b>			
Living arrangements population 65 and over					
Living with Family (% of population 65 and over)		<b>~</b>			
Living with Non-Family (% of population 65 and over)		<b>*</b>			
Males Living Alone (% of male population 65 and over)		<b>~</b>			
Females Living Alone (% of female population 65 and over)		<b>~</b>			
Living in Group Quarters (% of population 65 and over)		<b>*</b>			

## Census 2010 Atlas

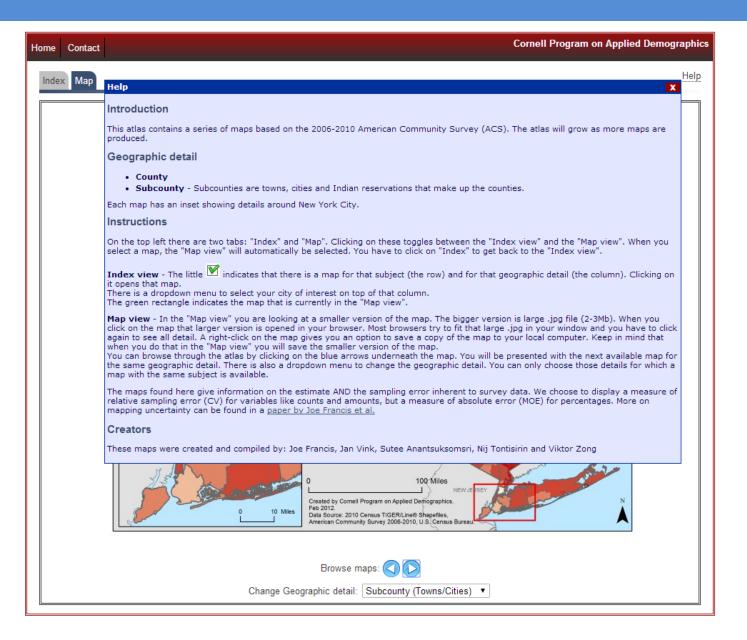




ome Contact		ornell Program on	
Index Map			<u>H</u>
Map subject	Geographic detail		
	County	Subcounty (Town/City)	
Reference	<b>*</b>	PDF	
Economic characteristics			
Employment status			
Population 16 years and over: % in Labor Force	<b>*</b>	<b>V</b>	
Civilian Labor Force: % unemployed	<b>V</b>	<b>V</b>	
Females 16 years and over: % in Labor Force	<b>*</b>	<b>V</b>	
Parents in families with children under 6: % in Labor Force	<b>V</b>	<b>V</b>	
Income and benefits			
Per Capita income	<b>V</b>	<b>V</b>	
Median household income	<b>V</b>	<b>V</b>	
Median family income	<b>V</b>	<b>V</b>	1
All households: % with earnings	<b>V</b>	<b>*</b>	
All households: % with Social Security	<b>₩</b>	<b>V</b>	
All households: % with retirement income	<b>V</b>	<b>∀</b>	
All households: % with Supplemental Security Income	<b>₩</b>	<b>*</b>	
All households: % with cash public assistance income	<b>S</b>	<b>~</b>	
All households: % with food stamp/SNAP benefits	<b>V</b>	<b>~</b>	
Poverty			
All people: % below poverty level	<b>S</b>	<b>~</b>	
All people under 18: % below poverty level	<b>₩</b>	<b>*</b>	
All people over 65: % below poverty level	<b>*</b>	<b>~</b>	
All families: % below poverty level	<b>V</b>	<b>*</b>	
Families with related children: % below poverty level	<b>*</b>	<b>~</b>	
Families with female head, no husband: % below poverty level	<b>*</b>	<b>~</b>	
Occupation			
Civilian employed: % management, busines, science, and arts	<b>*</b>	<b>~</b>	
Civilian employed: % sales and office	<b>*</b>	<b>*</b>	
Civilian employed: % service	₩	<b>V</b>	
Civilian employed: % natural resources, construction, and maintenance	<b>*</b>	<b>~</b>	
Civilian employed: % production, transportation and material moving	<b>*</b>	<b>~</b>	•







# Meeting Affiliates GIS Interest and Needs

- What typified the previous kind of maps and map delivery system:
  - Static maps, printable in pdf format
  - Accessible 24/7 on website
  - Now let's look at the new map delivery systems--web
     1.5 to 2.0
- What typifies these maps:
  - interactive selection of layers/themes
  - Zooming in/out
  - Sometimes Color selection
  - Identification and selection



### Latest News



### Online Shopping and Mail Order Businesses Jump 27 Percent

May 29, 2014

Electronic shopping is showing rapid growth compared to the rest of the retail trade sector.



### Anniversary of Americans with Disabilities Act: July 26

May 28, 2014

Disabilities Act prohibits discrimination against people with disabilities in employment, transportation, public accommodations, and government services.

### Stat of the Day

### Internet at Home

The percent of households that had Internet at home in 1997 was 18.0%. In 2012, 74.8 percent of households had Internet at home.

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### Geography

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Geography is central to the work of the Census Bureau, providing the framework for survey design, sample selection, data collection, tabulation, and dissemination. Geography provides meaning and context to statistical data.

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# Tell us what YOU think

### TIGER Products

Spatial extracts for use in GIS software from the MAF/TIGER database, containing features such as roads, rivers, and legal and statistical geographic areas.

### **TIGERweb**

A web-based application giving users a way to view geographic data, including roads, rivers, legal and statistical areas, without having to download data.

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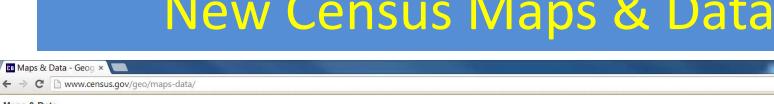
Reference maps easily show the boundaries and names of geographic areas for which statistical data is tabulated.

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### Maps & Data

Find geographic data and products such as the TIGER/Line Shapefiles, KMLs, TIGERweb, cartographic boundary files, geographic relationship files, and reference and thematic maps



### Maps

### Census Data Mapper

The Census Data Mapper is a web mapping application intended to provide users with a simple interface to view, save and print county-based demographic maps of the United States

Reference maps are designed to show the geographic locations of features and boundaries. These maps usually contain features, such as roads and rivers, and boundaries, such as county, place, census tracts, or many more. These maps do not contain demographic data and are used solely to show the location of and relationship between boundaries and features. For interactive reference maps see TIGERweb.

### Thematic Maps

Thematic maps are designed to show demographic, economic, business, or socioeconomic data about or characteristics of an area. Thematic maps tell a story spatially. They show a theme, or special topic, for a geographic area. Thematic maps may use features from reference maps as their base and then display additional data to tell a

### Maps Available for Purchase

A list of maps for purchase. Many of our maps are available to purchase in wall size format.

Demographic, Socioeconomic, Economic, and other Statistical Data

### Statistical Data Tools

Statistical data can be found by using one of our many data tools.

### Geographic Data

### **TIGER Products**

Geospatial Files and Applications from our MAF/TIGER database. Tools for use in GIS software, Web Mapping Services (WMS) to use in your applications, and browsers to view geographic data.

The Census Geocoder allows users to look up the geography an address is located within for up to 1,000 addresses at

### Partnership Shapefiles

The Partnership Shapefiles are used in our partner programs to share data with and capture data from our partners.

### Relationship Files

Relationship files help users compare different vintages of geography, such as Census 2000 blocks to 2010 Census blocks in text format

### **Gazetteer Files**

Lists of geographic entities, such as county, place, and census tracts, with information on name, geographic code, population, housing unit counts, and latitude/longitude of the internal point.

### **Block Assignment Files**

Lists of blocks that make up selected geographic entities from the 2010 Census.

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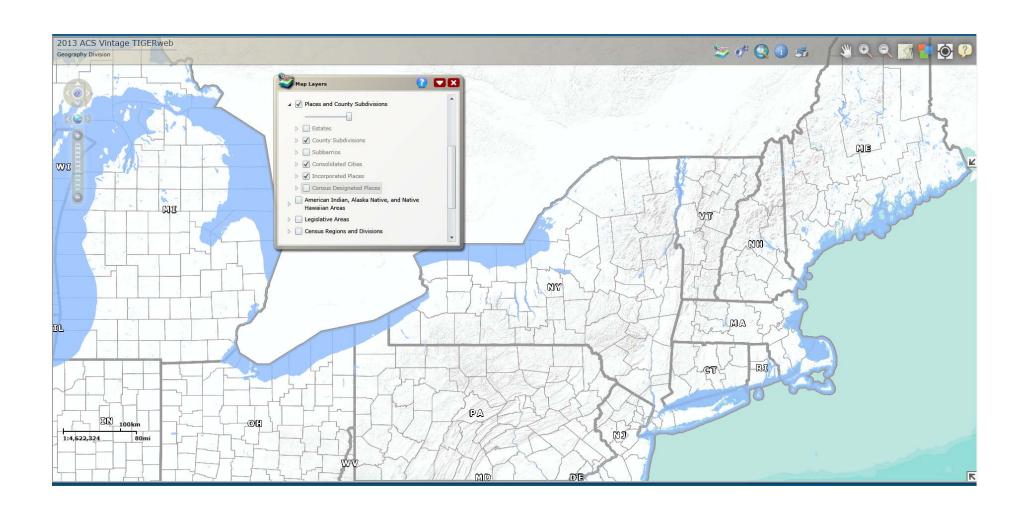
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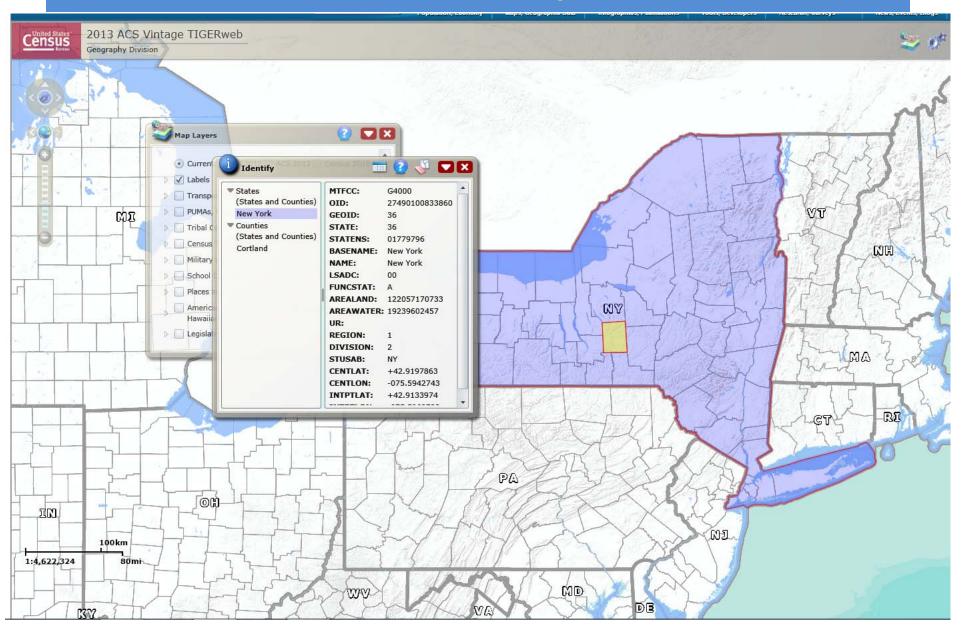
### **Tallies**

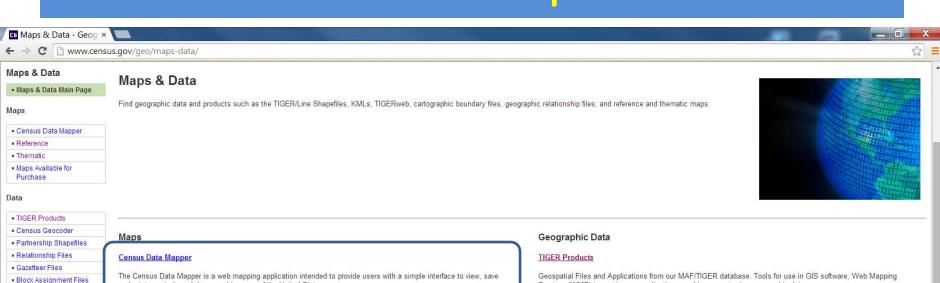
Counts of geographic entities by type.

### LandView

Mapping activers that allows were to man data from Consus 2000, the Environmental Distortion Agency's Environmental







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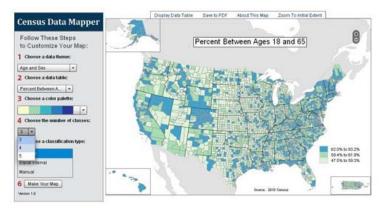
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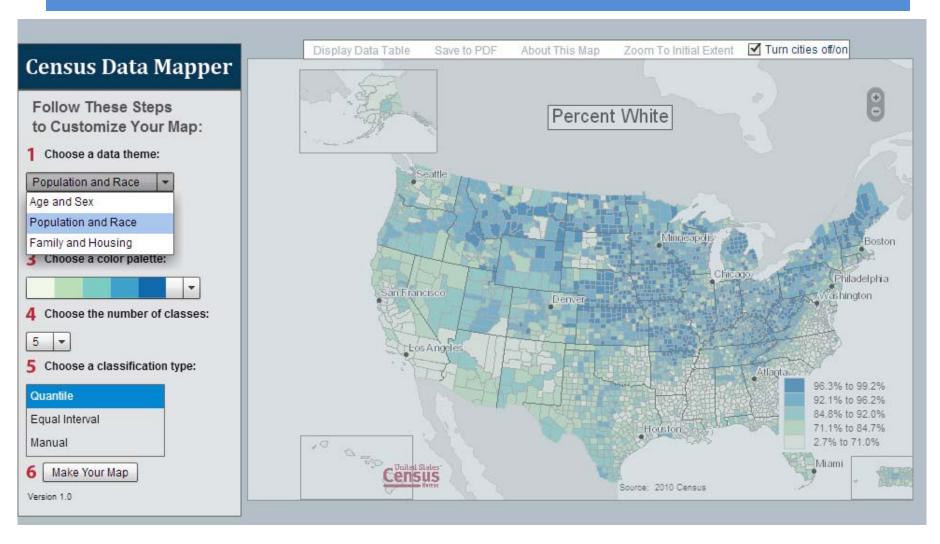


Launch the Census Data Mapper

### Application Requirements:

- . To view this application, you will need the Adobe Flash Player available for free from Adobe.
- To save tabular data, you will need Microsoft Excel or the Microsoft® Excel® Viewer □ variable for free from Microsoft®.

artable Document Format. To view the file, you will need the Adobe® Reader® Available free from Adobe. [Excel® Viewer In Indicate a document is in the Microsoft® Excel® Spreadsheet Format (XLS). To view the file, you will need the Microsoft® Excel® Viewer In Indicate a document with to anon-government web site. Our linking to these sites does not constitute an endorsement of any products, services or the information found on them. Once you link to another site you are subject to the policies of the new site.

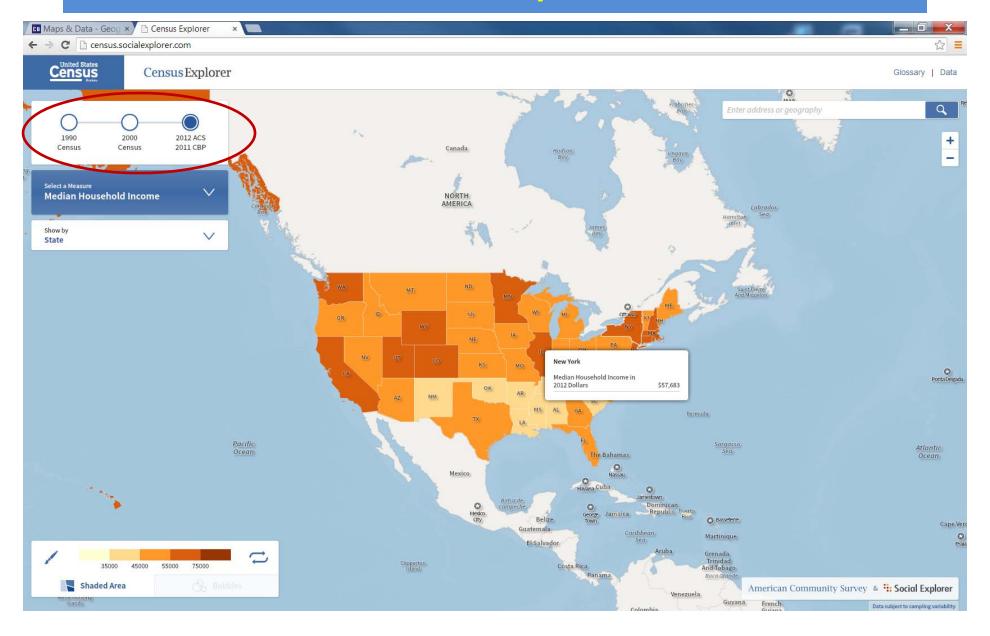


Problem: Limited Data Themes, Limited Tables, and classification

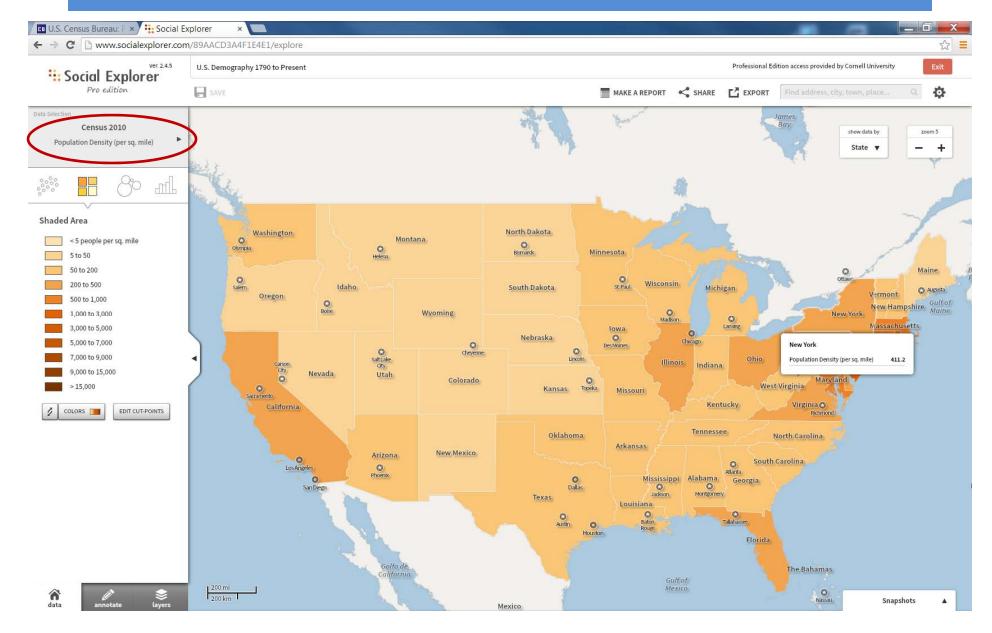
# Meeting Affiliates GIS Interest and Needs

 Finally we reach the Web 2.0 interactive mapping distribution system.

# CensusExplorer



# Social Explorer



# New Census Maps & Data

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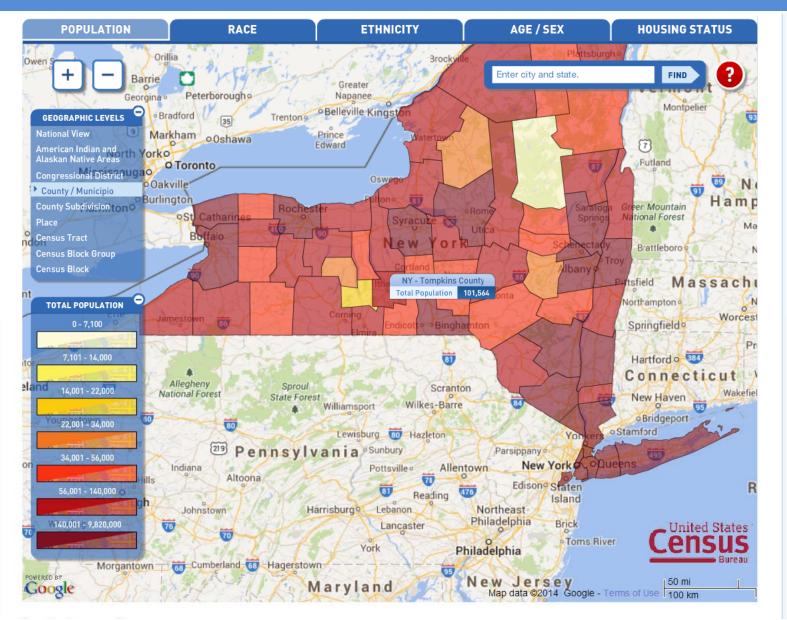
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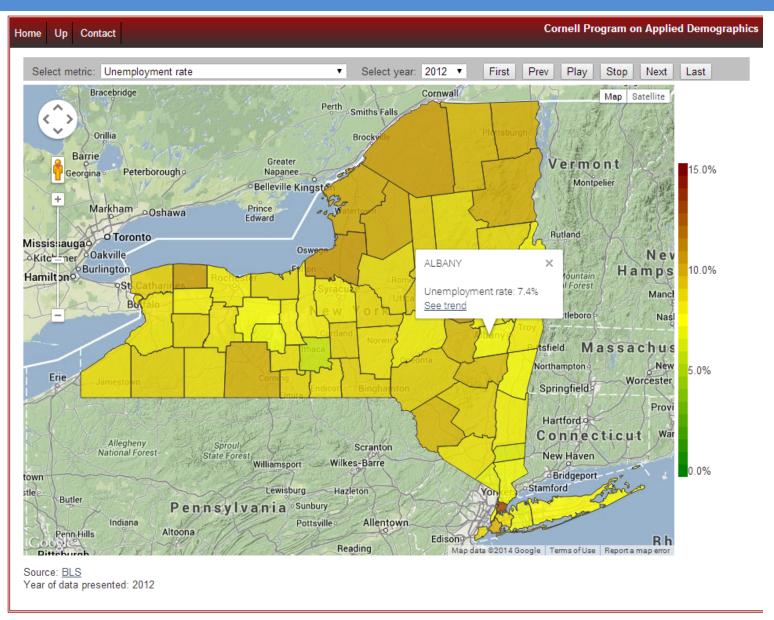
# Census Interactive Population Map



# Census Interactive Population Map



# PAD Interactive Population Map





### Purpose of this site:

The purpose of this web site is to provide an easy and powerful platform for the rapid dissemination of Cornell Cooperative Extension Program Work Team research and extension efforts. This information conduit can provide policy makers and the public access to basic spatial analysis results, polished coherent maps that show analysis results, or used to communicate research-based information in the proper context.

Research and extension programs directed toward the sustainability of New York States natural resources, agriculture, and energy often have a geographic component that can be analyzed or communicated using geographic information systems (GIS). A well-designed map can reveal geographic patterns in resource conditions, availability, and trends that clarify choices for our Stakeholders: policy and decision makers at all levels of government within New York State; educators; researchers and non-governmental organizations.

Web site and data access data is controlled and can be limited, as needed, to insure the proper security for confidential data while permitting ready access to public information for CCE Stakeholders.

A collaborative effort between the Institute for Resource Information Sciences and Cornell Cooperative Extension of Dutchess County, this site is for the use of Extenions assoicates and their collaborators. Access is by invitation. Contact either Neil Curri (neil.curri@cornell.edu, Sr. GIS Resource Educator, CCEDC, n) or Steve Smith (s.smith@cornell.edu, GIS Program Leader, IRIS) for access.



### **Program of Applied Demographics**

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Group for PAD at Cornell. ₹

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### **All Results**

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Layers

Apps Tools

Files

Show ArcGIS Desktop Content



Hudson River Tidal Wetlands 2007

Hudson River Tidal Wetland Inventory 2007 Web Mapping Application by steve.smith

Last Modified: May 13, 2014

(0 ratings, 0 comments, 173 views)



Simple map created using online map viewer

Web Map by jdf2\_CCEgeomaps Last Modified: May 22, 2014

(0 ratings, 0 comments, 13 views)



NY State Data Center Member Location

Basic Map accessing Map service

Web Map by jdf2\_CCEgeomaps Last Modified: May 22, 2014

(0 ratings, 0 comments, 19 views)



Labels for NY Counties 2010

Features by jdf2\_CCEgeomaps Last Modified: May 7, 2014

NY\_Counties\_2010\_Census\_Labeled

(0 ratings, 0 comments, 44 views)



NYS Population and Employment 3y %Change

A set of 3-year time-series maps on population and employment change, demonstrating topic change by tabs and year change by slider.

Web Mapping Application by xl227\_CCEgeomaps

Last Modified: May 22, 2014

(0 ratings, 0 comments, 66 views)

### **Group Details**

Status: private

Contributors: All members

Title A Owner Rating Views Date

pad, demograhics, new york

### 6 Members

wab4\_CCEgeomaps X

xl227\_CCEgeomaps X

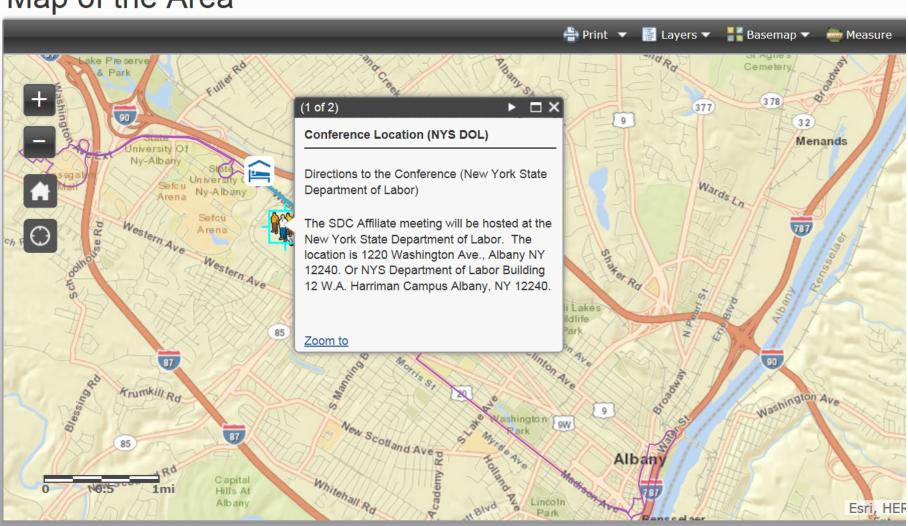


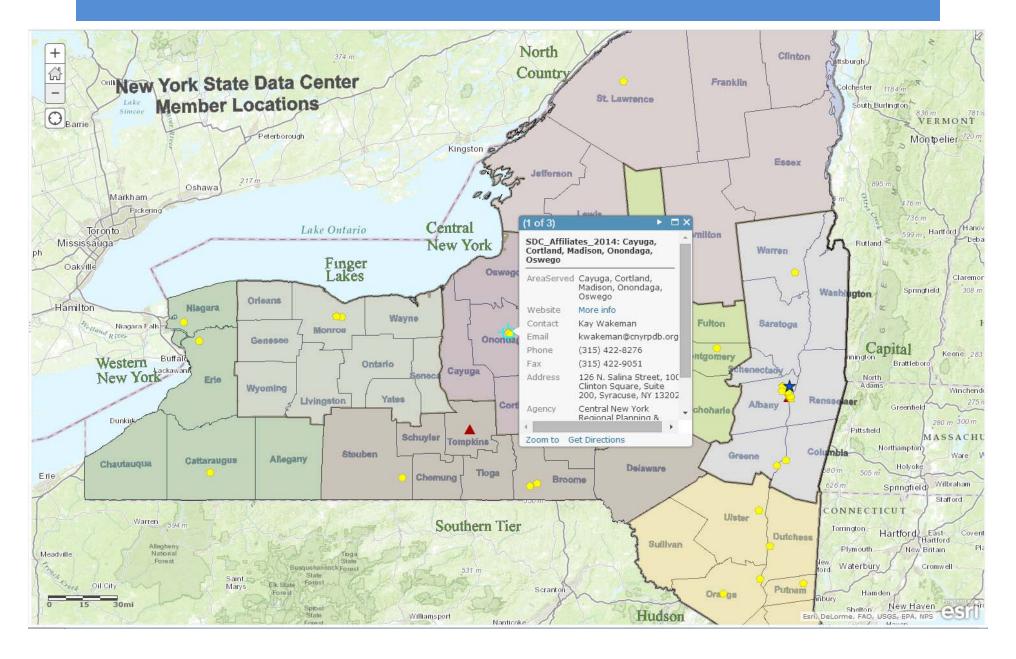
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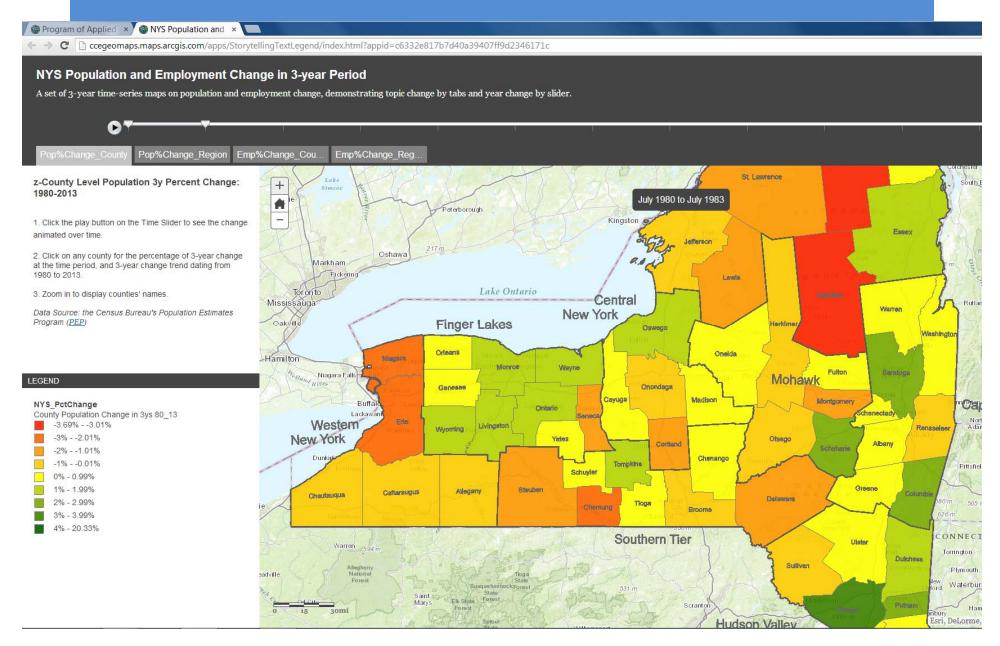
amber.tobin\_CCEgeomaps X Laura.Close\_CCEgeomaps X

steve.smith x

### Map of the Area







https://dl.dropboxusercontent.com/u/944823 8/storymaps/4-H/index.html

# Spatial Visualization/Analysis for the future

- Let's design together.
- How best to serve your needs