# Utilizing Data from American FactFinder with TIGER/Line Shapefiles in ArcGIS

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# What We Do

- Decennial Census
  - Every 10 years, Counts Residents
- American Community Survey (ACS)
  - Annual Social, Economic and Housing data
- Other Surveys and Censuses
  - Population Estimates
  - Economic Census

# 2010 Census vs. ACS

2010 Census

100 % Data

How many people live in the U.S.?

Point in time April 1, 2010

**Count** - People, Housing units

American
Community
Survey



2000 Long Form SF3 & SF4

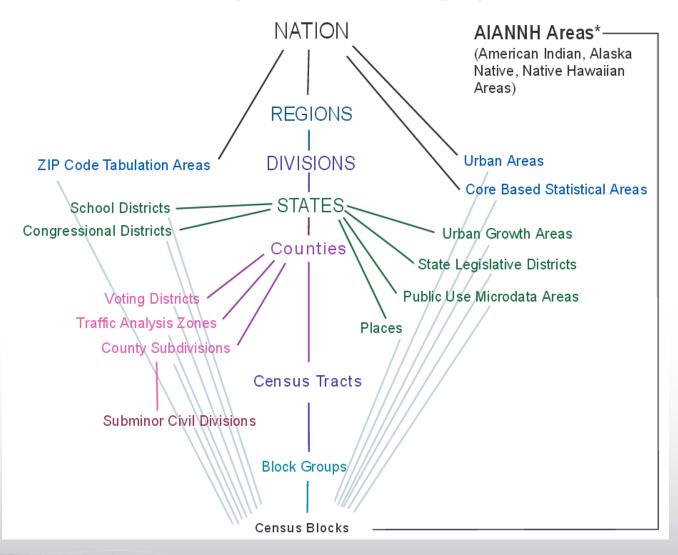
Sample Data

How do people live in the U.S.?

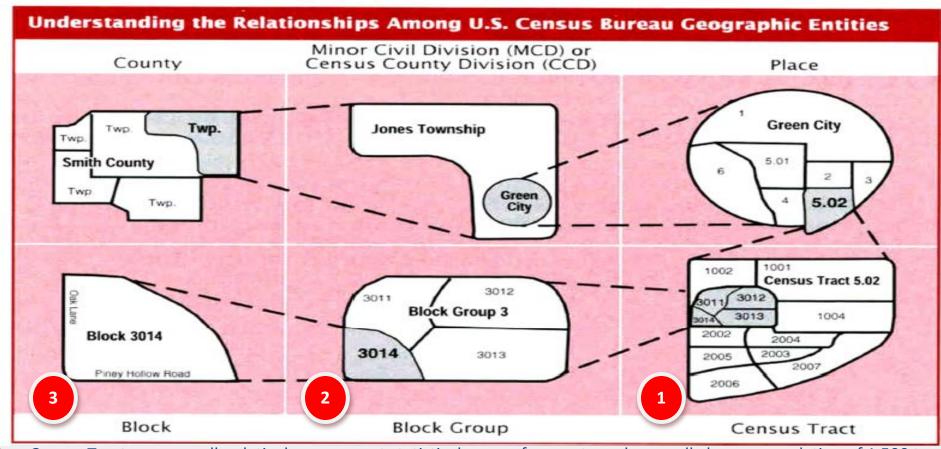
Period in Time 1yr, 3yr, 5yr

Characteristics
Income, Poverty,
Education

### Standard Hierarchy of Census Geographic Entities



### Census Small-Area Geography



- 1. <u>Census Tracts</u> are small, relatively permanent statistical areas of a county and generally have a population of 1,500 to 8,000 (optimum **4,000**)
- 2. <u>Block Groups</u> are statistical areas of a census tract and generally have a population of 600 to 3,000 (optimum 1,500)
- 3. <u>Blocks</u> are the smallest area within a census tract for which 100% data is tabulated Many blocks correspond to individual city blocks bounded by streets, but blocks especially in rural areas may include many square miles and may have some boundaries that are not streets.

# 3 Methods of Acquiring TIGER GIS Files

- Via American Fact Finder
  - Flexible, user may select the geographies of immediate interest
  - Only a single data field per downloaded shapefile
- Via TIGER website
  - Contains index field (GEOID) to join with all downloaded Census Bureau data tables
  - Less flexible, may only download by state or county
- TIGER Geodatabase

### www.census.gov Select 'Data Tools and Apps' then 'American FactFinder'



### 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.

"New Trends in Farming" Live on C-SPAN's "America by the Numbers"

### Stat of the Day

### **Asians**

The Asian alone or in combination population in California in 2012 was 6.0 million. The state had the largest Asian population, followed by New York (1.7 million).

Read More



# AFF Homepage



Community Facts

Find popular facts (population, income, etc.) and frequently requested data about your community.

Enter a state, county, city, town, or zip code:

e.g., Atlanta, GA

GO

- Guided Search
  - **Advanced Search**
- Download Options

American FactFinder provides access to data about the United States, Puerto Rico and the Island Areas. The data in American FactFinder come from several censuses and surveys. For more information see Using FactFinder and What We Provide.



### News and Notes

GET EMAIL UPDATES

4



Jan 29, 2013

The Demographic Profile for American Samoa is available...





**COMMUNITY FACTS** 

**GUIDED SEARCH** 

**ADVANCED SEARCH** 

**DOWNLOAD CENTER** 

### **Community Facts**

### **Guided Search**

### **Advanced Search**

Search all data in American FactFinder, with access to all geographic types and datasets

SHOW ME ALL

### **Download Center**



American FactFinder provides access to data about the United States, Puerto Rico and the Island Areas. The data in American FactFinder come from several censuses and surveys. For more information see Using FactFinder and What We Provide.

### **Using American FactFinder**

Learn about American FactFinder's functions and features.

### What We Provide

The following data are available on American FactFinder: American Community Current mars ... Last data

### **News and Notes**





Data from the 2012 Census of Governments: Finance - Survey of Public Pensions: State- and Locally-Administered Defined Benefit Data...



view all news, release schedules, and more »

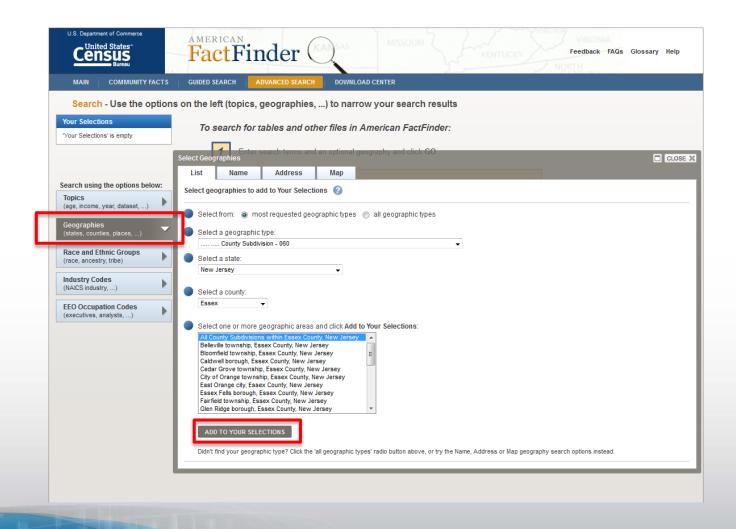
### Address Search

Find Census data by entering a street address.

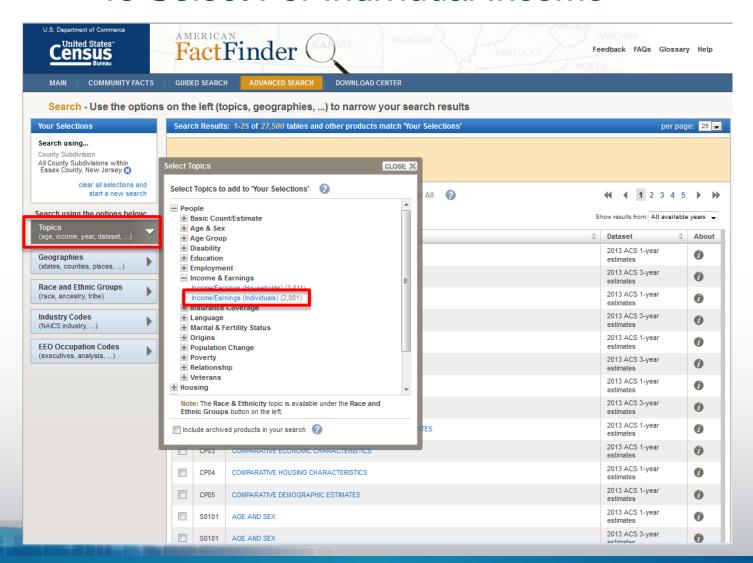




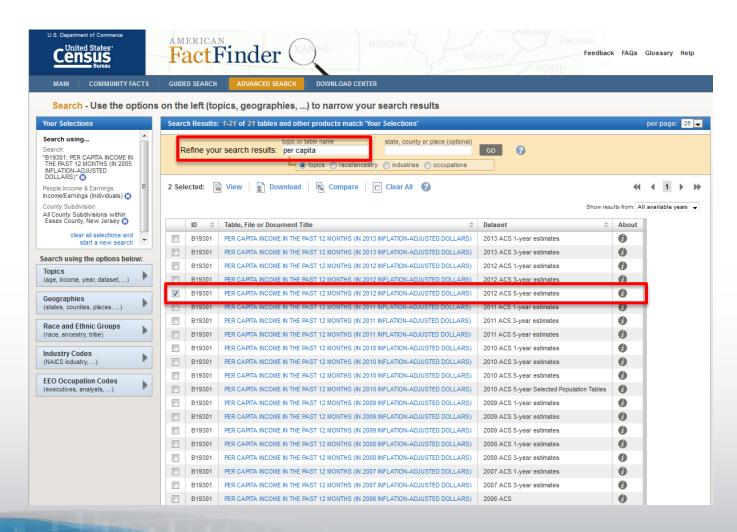
# To Select All Municipalities in Essex Co., NJ



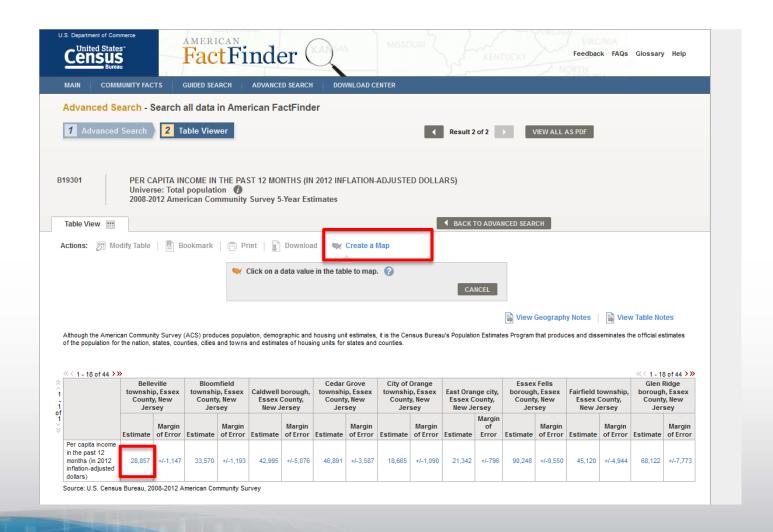
### To Select For Individual Income



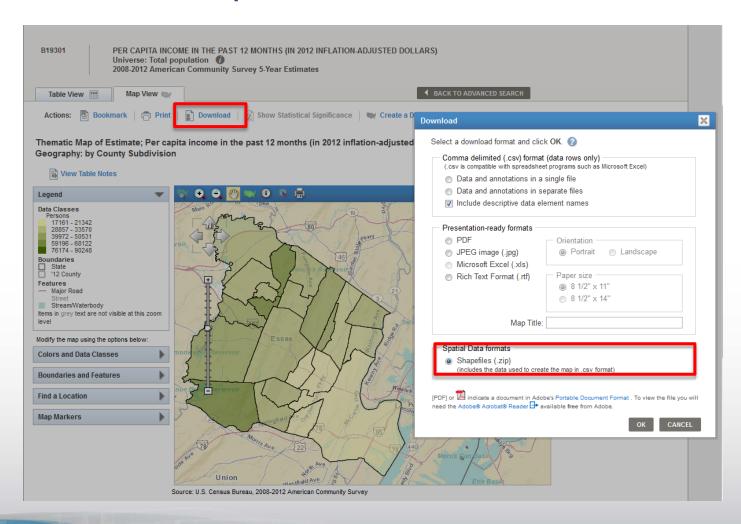
# To Select For Per Capita Income



### The Data Table



# The Map & Download Interface

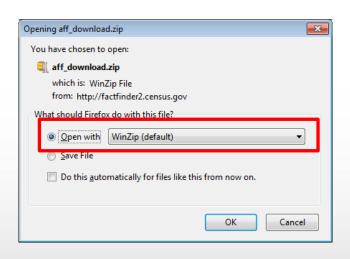




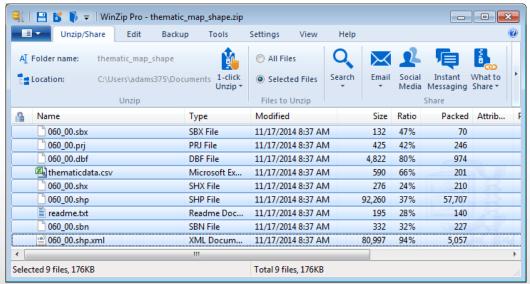
Click OK.



Click Download.

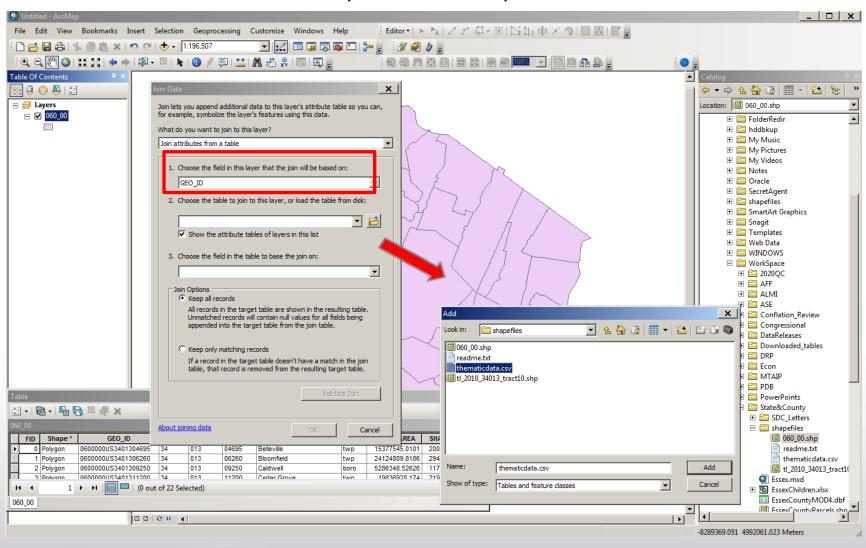


Open with WinZip

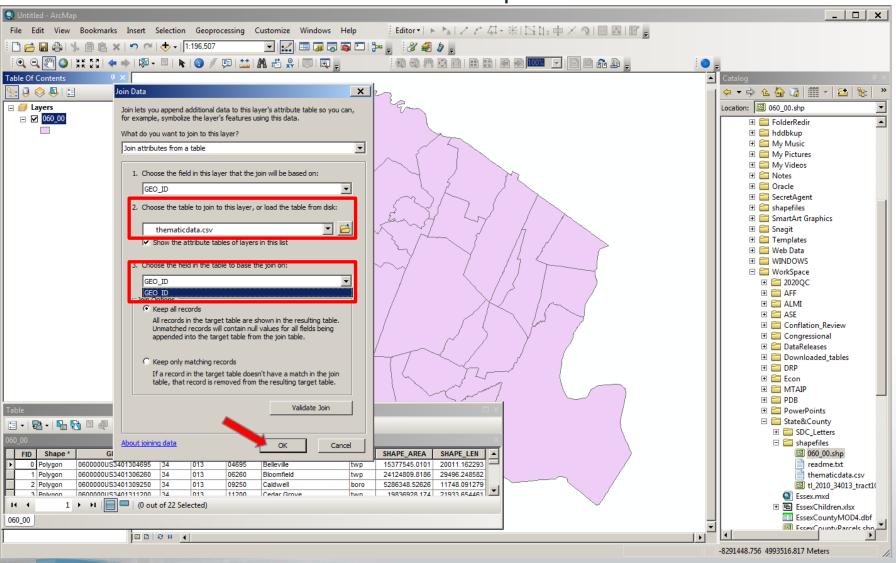


Select All & Drag & Drop Into Local Folder

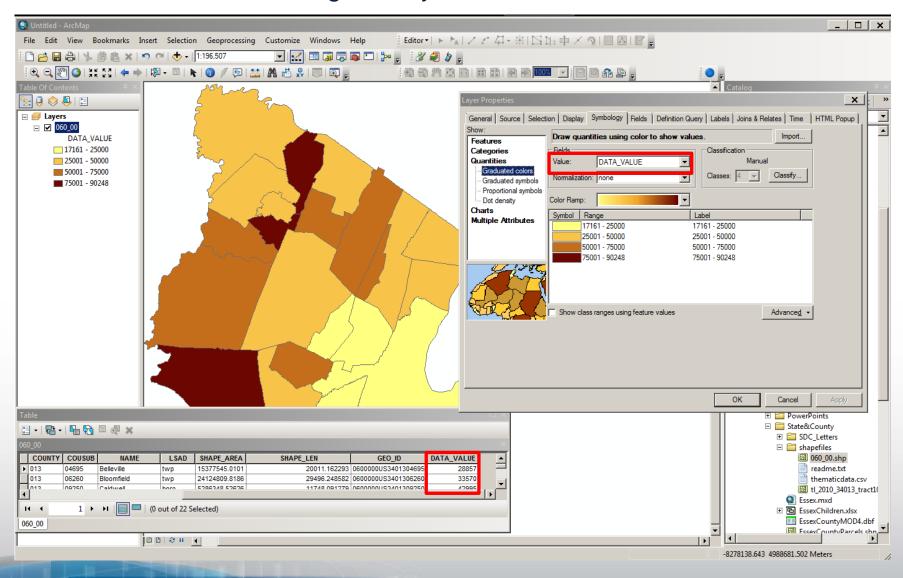
### Open In ArcMap



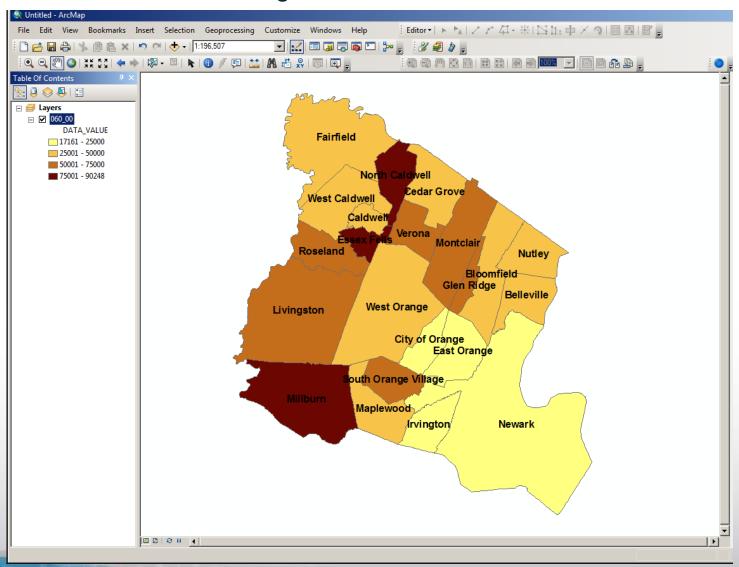
### Join In ArcMap

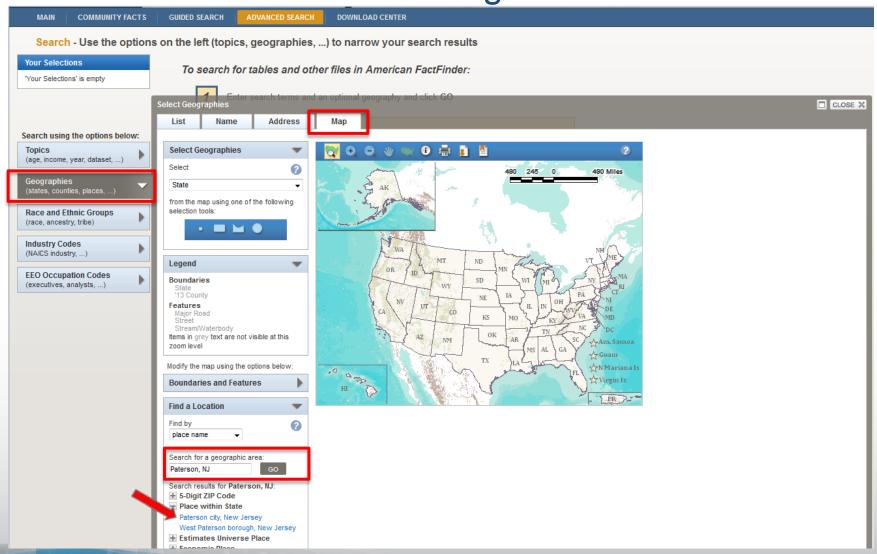


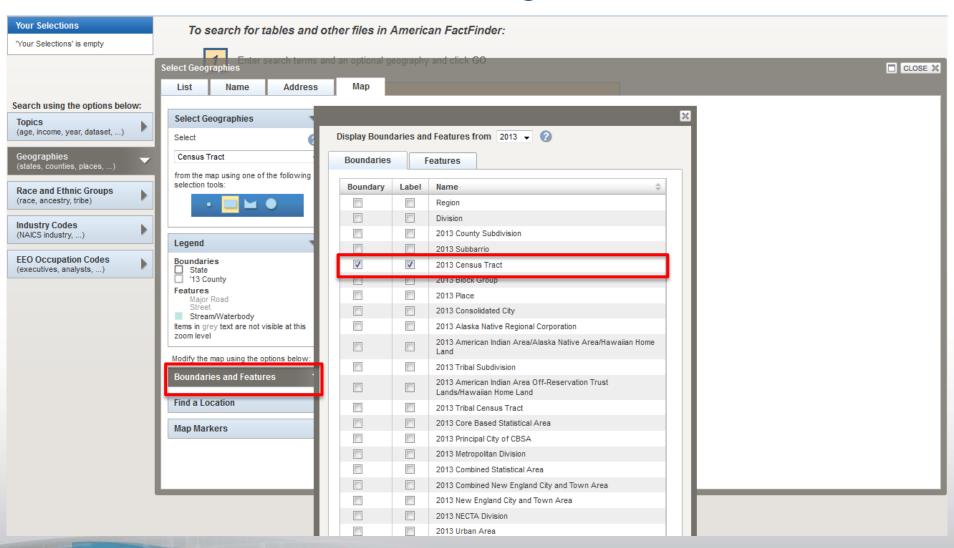
### Categorize by 'DATA\_VALUE'

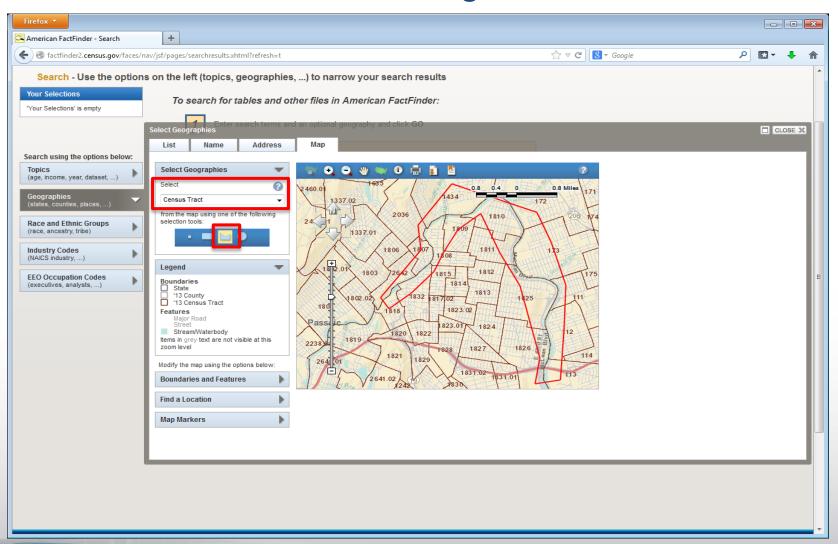


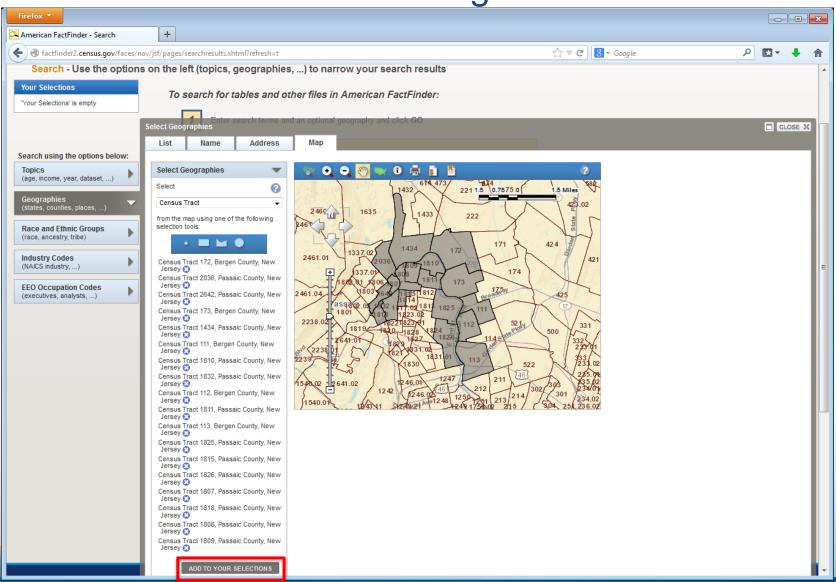
### **Categorized With Labels**



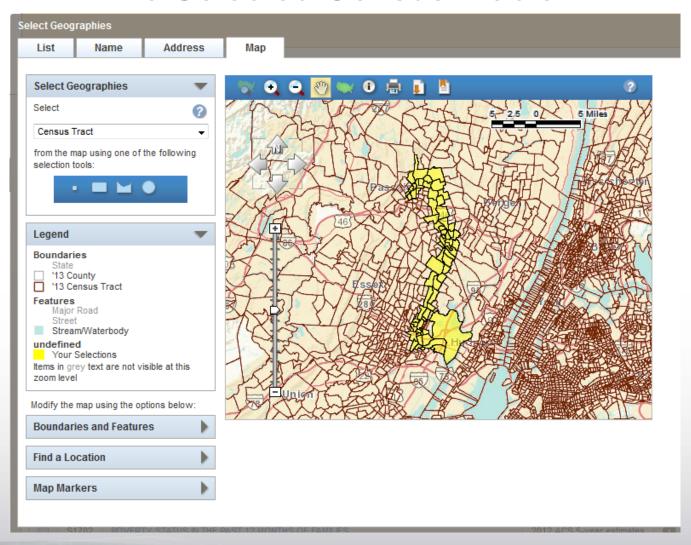




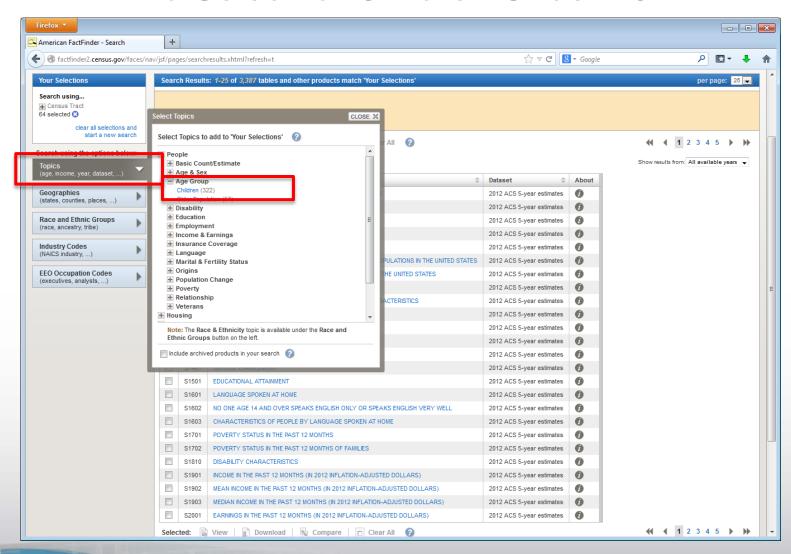




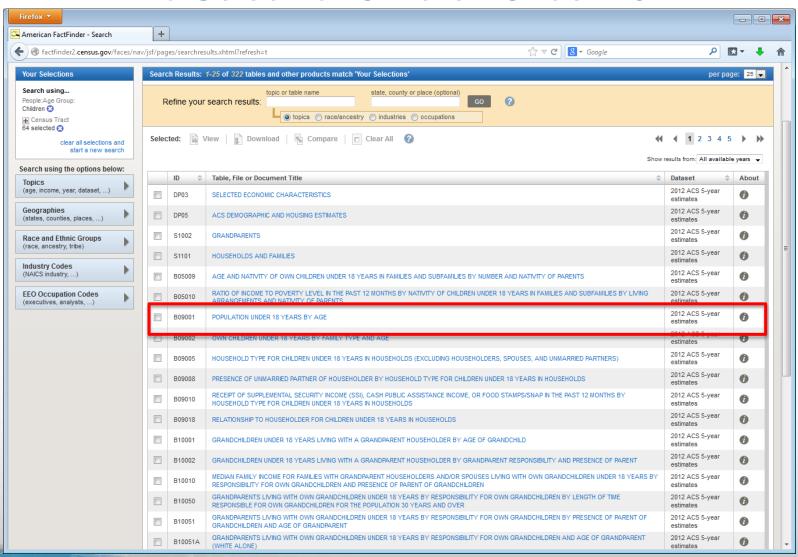
## The Selected Census Tracts



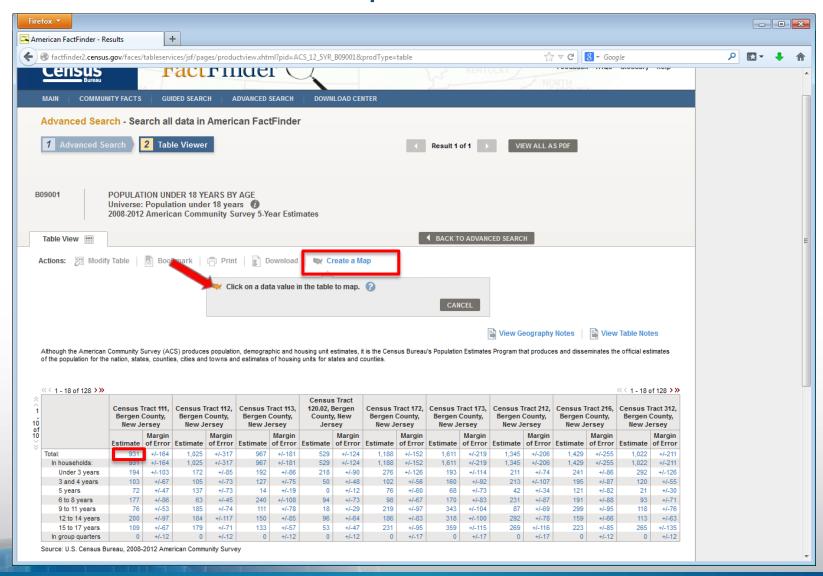
### To Select for Children Under 18



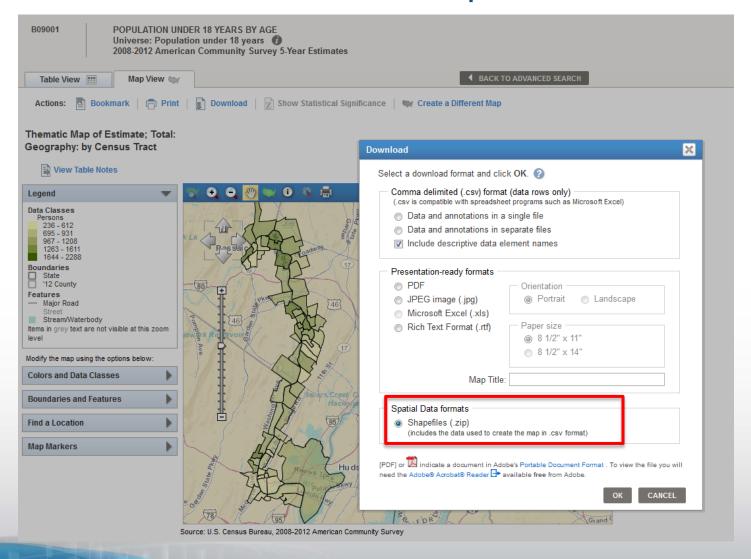
### To Select for Children Under 18



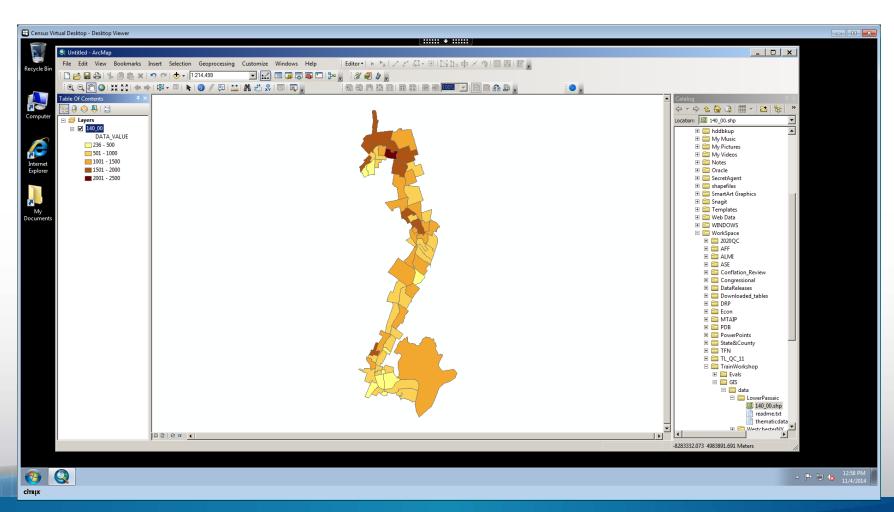
# Create A Map of the Selection



# Download A Shapefile

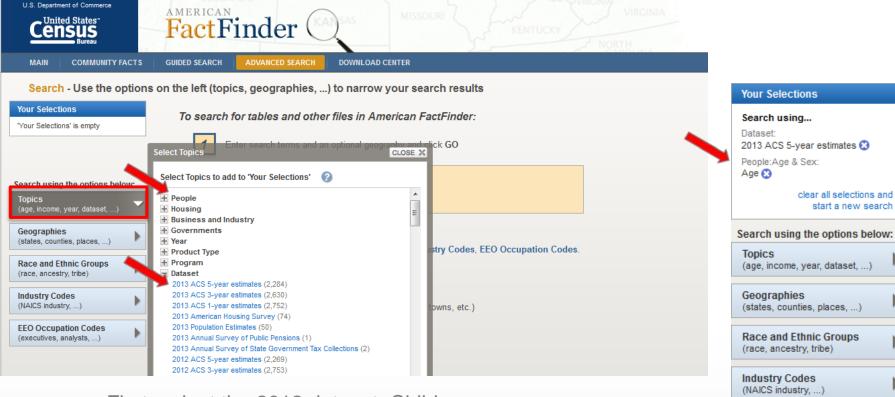


# Census Tracts of the Lower Passaic River Valley In ArcGIS



# **Downloading TIGER Shapefiles**

- You will need the following to use these instructions:
  - An Internet browser Internet Explorer or Mozilla Firefox.
  - A utility to unzip files, such as WinZip.
  - Data processing software, such as Microsoft Excel
  - Esri's ArcGIS, version 10.x
- In these instructions, we will map the 2013 median age by census tract for New Jersey.
- First, we will download the table from American FactFinder.
- Then, we will download the TIGER/Line Shapefile.
- Finally, we will join the two in ArcGIS.

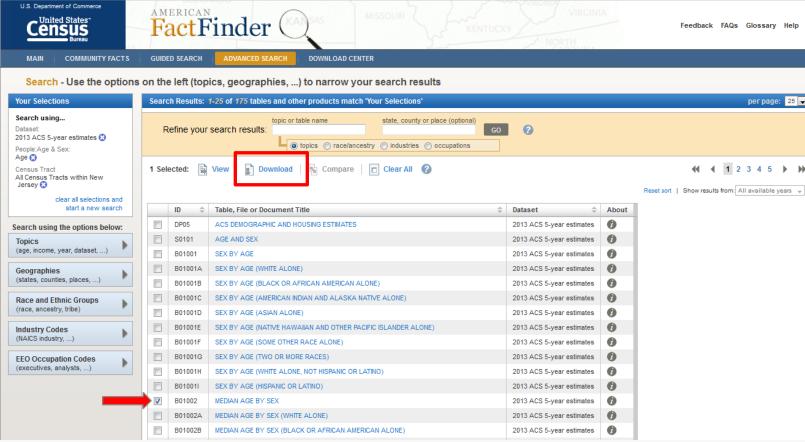


- First, select the 2012 dataset: Children
  - Click Topics, Dataset.
  - Click the 2013 ACS 5-year estimates and AFF adds the dataset to the Your Selections box.
  - Within the same **Select Topics** window, click on **People** (at the top), then **Age Group.**
  - Click on **Children** and AFF adds the data to the **Your Selections** box.
    - Close the Select Topics window using the Close X button.

**EEO Occupation Codes** (executives, analysts, ...)

- Now select the geography: all census tracts in New Jersey
  - Click Geographies.
  - There are four search method options: List (choose between most requested geographic types or all geographic types), Name (contains all geographic types), Address, and Map.
    - Using the **List** search method, select **Census Tract 140** in the dropdown.
    - Select New Jersey as the state, and then All Census Tracts within New Jersey.
    - Click Add to Your Selections.
      - Close the Geographies Window using the Close X button.

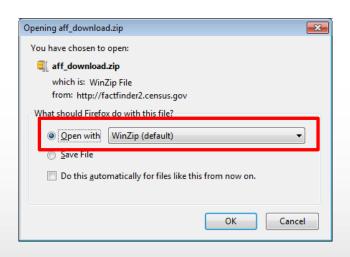
EEO Occupation Codes (executives, analysts, ...)



- All available data tables are shown in the Search Results section.
- In this example, we will view the Median Age by Sex (B01002) table.
  - Check the box next to P13 Median Age by Sex and click Download.



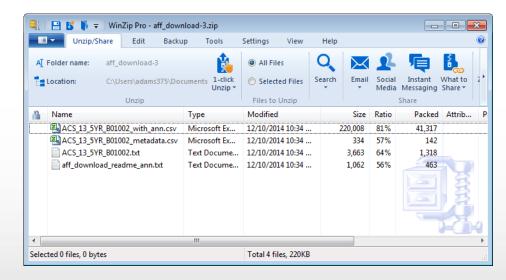
Click OK.



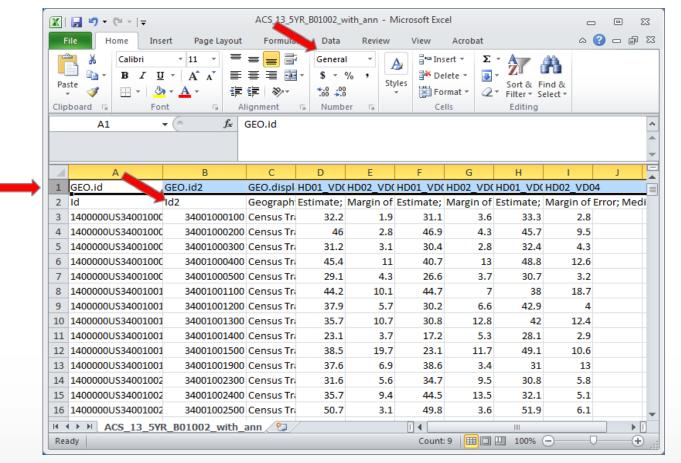
Open with WinZip



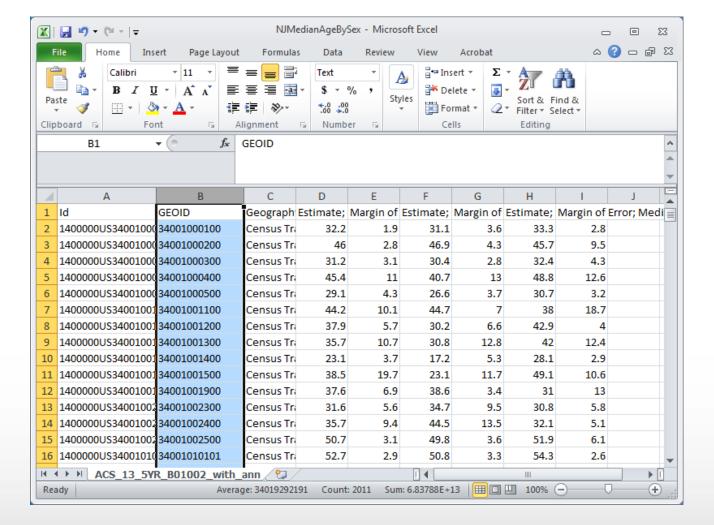
Click Download.



 Save the zipped file to your computer and unzip it.



- Open ACS\_13\_5YR\_B01002-with\_ann
- Delete Row 1.
- Change the column B header from Id2 to GEOID
- Change the format of the GEOID column from General to Text and File
   Save As Save as type as Excel Workbook.



Save your work (we'll call this NJMedianAgeBySex) and close the Excel Workbook.

## TIGER/Line Shapefiles and TIGER/Line Files

- TIGER/Line products are free spatial extracts from the Census Bureau's MAF/TIGER database, containing features such as roads, railroads, rivers, as well as legal and statistical boundaries.
  - Since 2007, the files are in shapefile format.
  - They are available for download here:
     <a href="http://www.census.gov/geo/maps-data/data/tiger-line.html">http://www.census.gov/geo/maps-data/data/tiger-line.html</a>

# Downloading TIGER/Line Shapefiles

- There are four methods for downloading TIGER/Line Shapefiles:
  - Website Interface
  - Direct from the FTP site
  - Connect via FTP client
  - Direct from Data.gov
- This example will utilize the Website Interface method.
- For additional information about downloading and unzipping TIGER/Line Shapefiles, see the brochure "Downloading TIGER/Line Shapefiles", available on our "How To" webpage: <a href="http://www.census.gov/geo/education/howtos.html">http://www.census.gov/geo/education/howtos.html</a>.



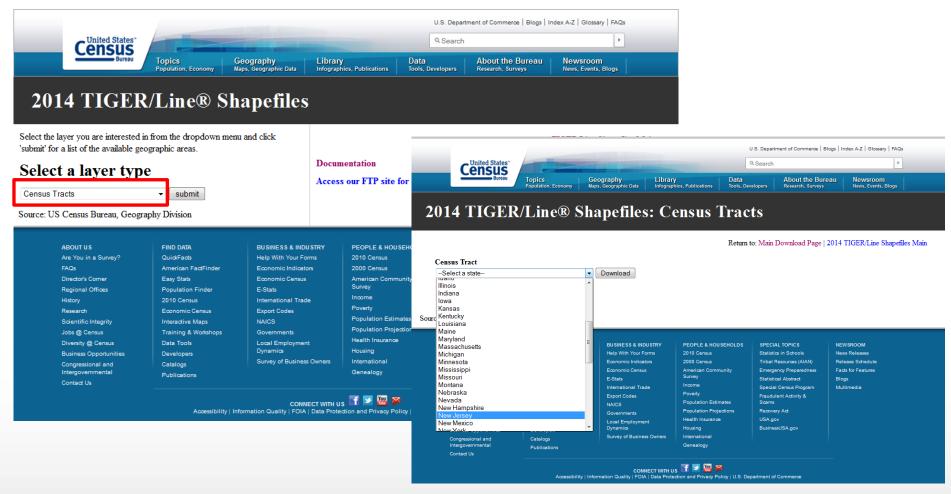
Visit <a href="http://www.census.gov/geo/maps-data/data/tiger-line.html">http://www.census.gov/geo/maps-data/data/tiger-line.html</a>.

designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or

- Click on the **2014** Tab.
- Click Download.

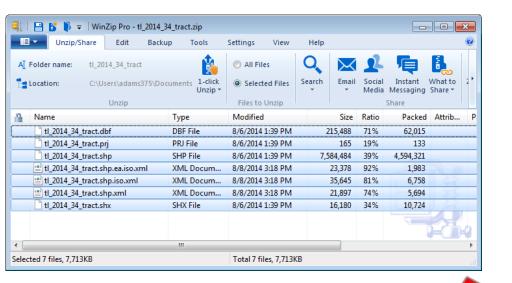
entitlement.

• Under **Download by File Type**, Click **Web Interface**.



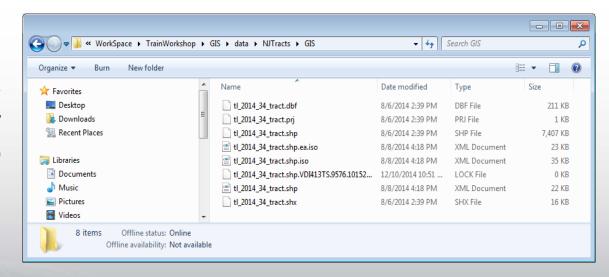
- Select Census Tracts in the dropdown menu and click submit.
- Under Census Tract, Select New Jersey, click Download.

Open with WinZip



From the WinZip Window.....

Drag & Drop
To Your Local Folder
(Or Wherever You'd Like To
Keep It)

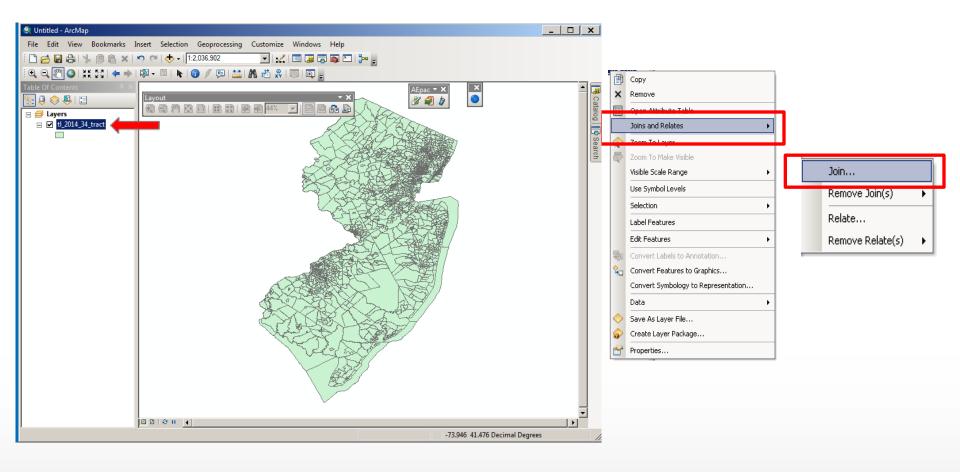


## Joining the AFF Table to the TIGER/Line Shapefiles

- Open ArcMap
- Add the census tract shapefile you previously downloaded using the Add Data icon or File – Add Data – Add Data.

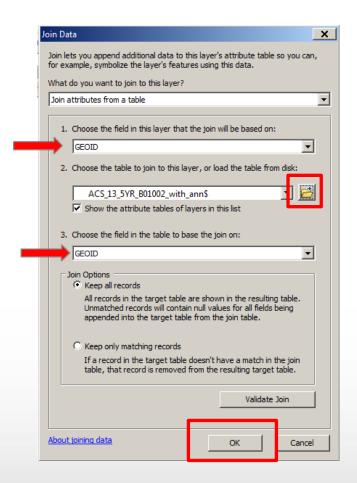


 Both the data file and the TIGER/Line Shapefile contain fields that uniquely identify a geographic entity necessary for creating a join.

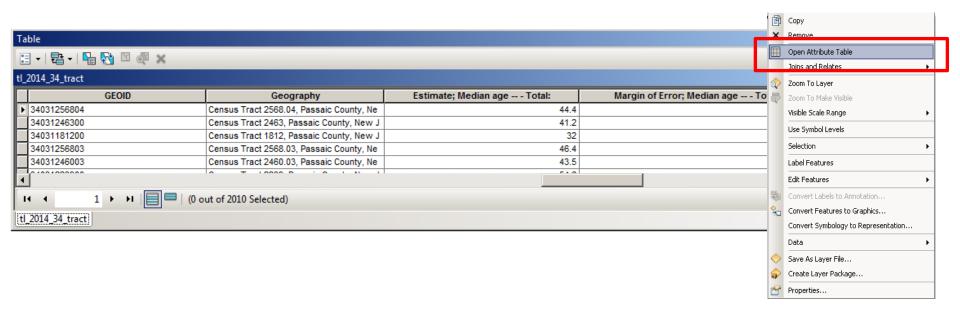


- Right-click on the TIGER/Line Shapefile name.
- Select Joins and Relates.
- Select Join.

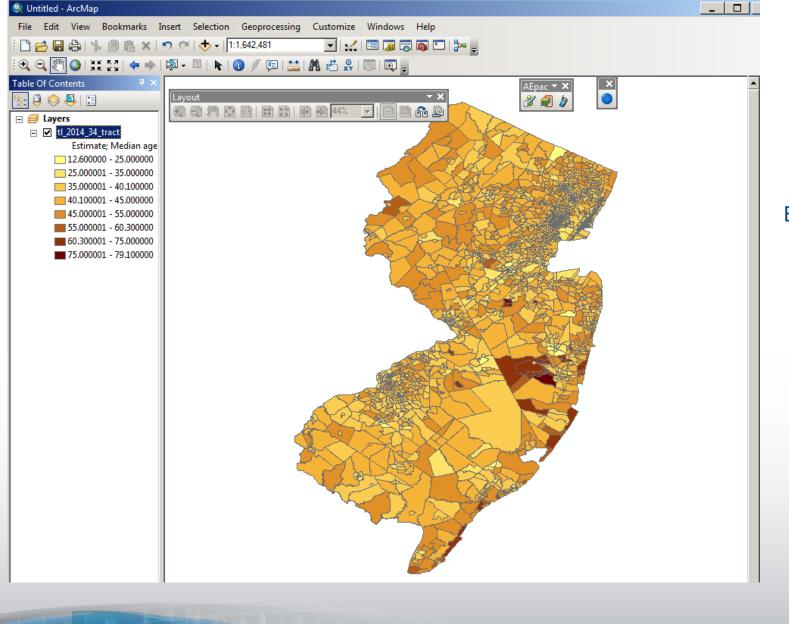
- A new screen appears for you to select the field from the shapefile that will be used to join the data.
  - You want the fully qualified geographic code. It is
     GEOID in the 2010 TIGER/Line Shapefiles.
  - The TIGER/Line Shapefiles technical documentation has more information on the record layouts and definition of each field.
- Next, select the data file you saved as an Excel Workbook, using the browse (open folder icon).
- Finally, choose the field from the data table to base the join on.
  - Since we edited the field name in the Excel Workbook to GEOID, ArcGIS automatically selects this field for the join.



Click OK.

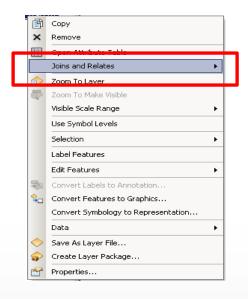


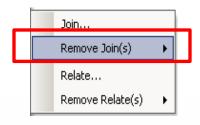
- To see the results, right-click on the TIGER/Line Shapefile name and select Open Attribute Table.
  - ArcMap builds a relationship between the shapefile and the data table.
  - The table now has the attributes from both the shapefile and the data table.
- The data can be used to create a thematic map or for other analysis.
- Multiple files can be joined to the shapefile.



New Jersey Median Age By Census Tract 2013 American Community Survey (ACS) Estimate

### Removing the Join





- Right-click on the TIGER/Line Shapefile name and select
   Joins and Relates.
- Select Remove Joins.
- Select the join to be removed or select Remove All Joins.

### Questions

#### **Regarding TIGER/Line Products:**

Visit: www.census.gov/geo

Email: geo.tiger@census.gov

Call: (301) 763-1128 - Geographic Products Branch

### Regarding American FactFinder – Data Questions:

Visit:

http://factfinder2.census.gov/faces/nav/jsf/pages/using\_factfinder.xhtml

Email: <a href="mailto:nyro.pds@census.gov">nyro.pds@census.gov</a>

Call: (212) 584- 3440 - NYRO PDD Program

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