Topics Covered Include:

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Connecting to the P: Drive

- Go to http://fileserver.uconn.edu/students/faqs.html and click the How to Map the EFS Drive on Windows link (section 3)
- You will be prompted to login with your NetID.
- The next screen will include the home path which you will want to copy.

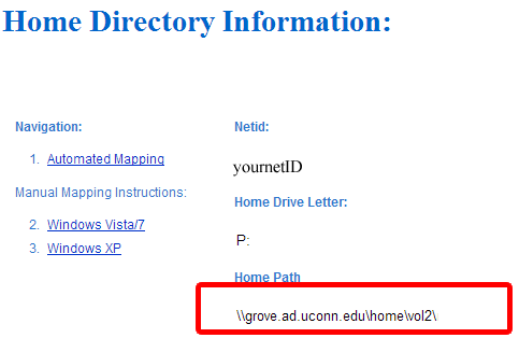

Figure 1: P: Drive lookup

- Click on Computer and then select the Map Network Drive link from the top menu

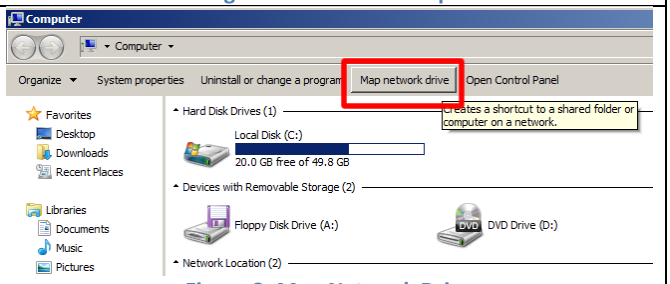

Figure 2: Map Network Drive

- For the drive select P:
- For the folder paste the home path you copied previously
- Check the box to Connect Using Different Credentials

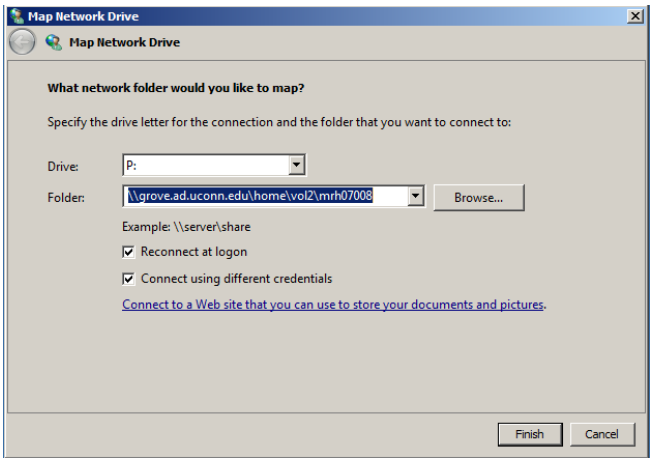

Figure 3: Map Network Drive Window

- Enter your net ID as follows **uconn**mynetID and enter your net ID password.

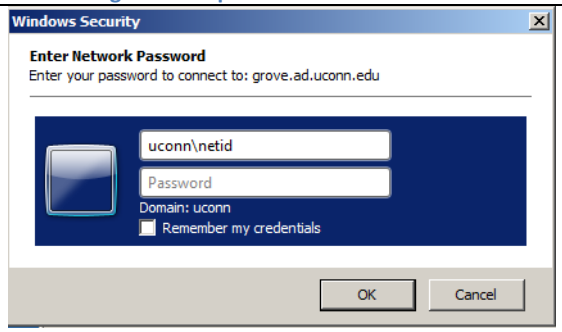

Figure 4: Login for P Drive

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Downloading and Preparing Data

- For the POLS 2998W class districting project the data you will need is available via the MAGIC website in the How Do I… section. From this page click the Workshop Links and Resources link
- From the Redistricting Using ArcGIS Section of the page download the Connecticut Data to the p:\ drive.

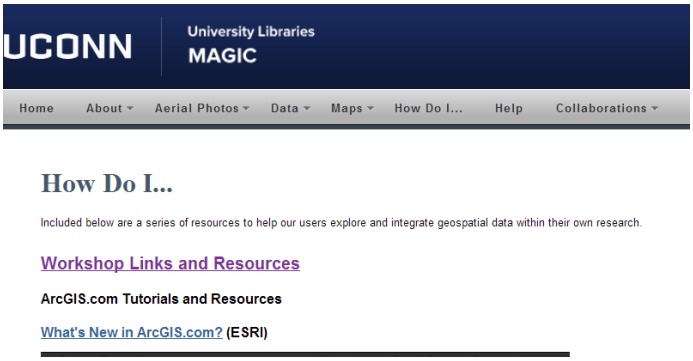

Figure 1: Download Data from MAGIC Website

- After downloading the data for this project, you will need to unzip the folder. To unzip the folder, navigate to the p:\ drive on your computer, and then right click on the POLS_2998W_Fall_2013_rev.zip file.
- Select Extract All to unzip the folder.

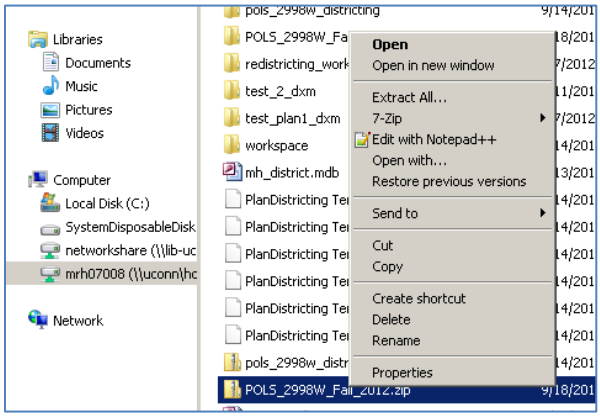

Figure 2: Unzipping Folder

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Opening ArcGIS ArcMap and Adding Data

- From the Start menu, select All Programs and then Select ArcGIS.
- From the ArcGIS folder open ArcMap.

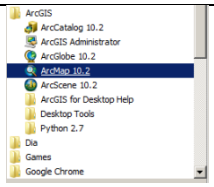

Figure 3: Select ArcGIS ArcMap Application

- Once ArcMap opens, select Blank Map and Click OK to begin

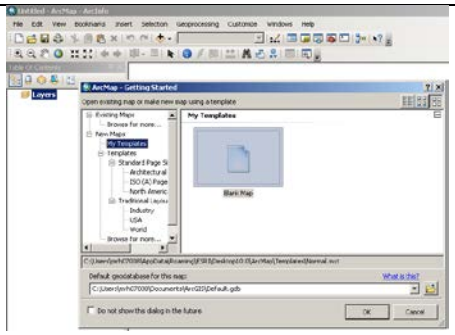
Figure 4: Create a New Map

- In ArcMap, click the Add Data button from the menu bar along the top of the program.

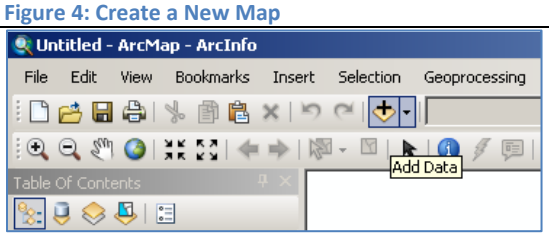

Figure 5: Activate the Districting Toolbar

- From the Add Data window, click the Connect to Folder icon (folder with a plus sign) and select the p:\ drive and Click OK.

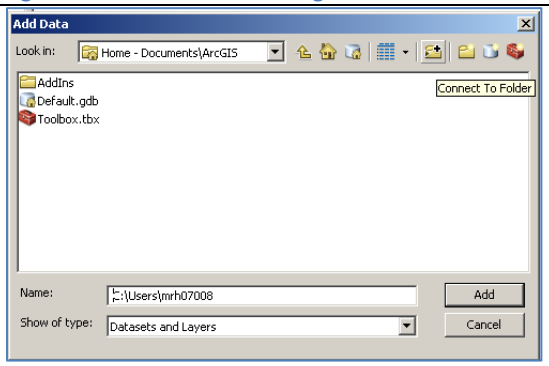

Figure 6: Add Data

- From the P:\ drive open the POLS_2998W_Fall_2013_rev folder, open the Data folder, and click on the ct_towns_w_data.shp file.
- Click Add and the shapefile will be added to the map.

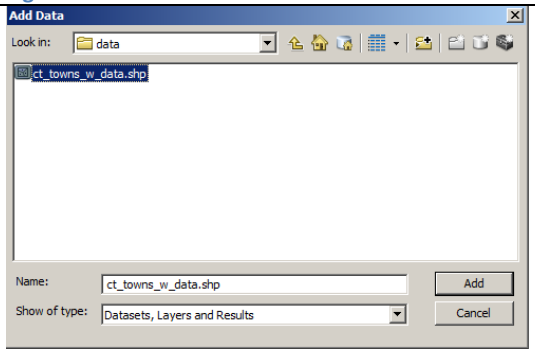

Figure 7: Add Shapefile and Data

Creating Graduated Colors (Choropleth) Maps in ArcGIS

- To create a map based on the data included in the shapefile ct_towns_w_data, right click on the ct_towns_w_data layer and select **Properties…**

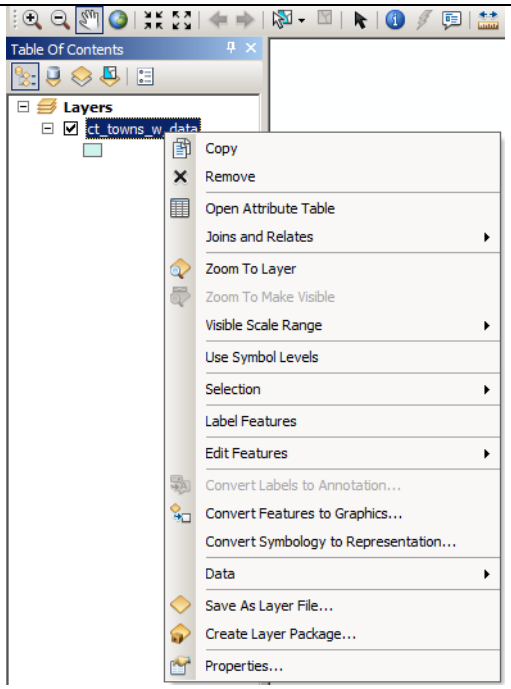

Figure 82: Layer Properties

- From the Layer Properties window, click on the Symbology tab
- From the Symbology tab select Quantities and graduated colors from the Show: menu (along the left)
- From the Fields section for the Value select the data you wish to map.
- Select a color scheme and then click OK to see the map of Connecticut Towns.

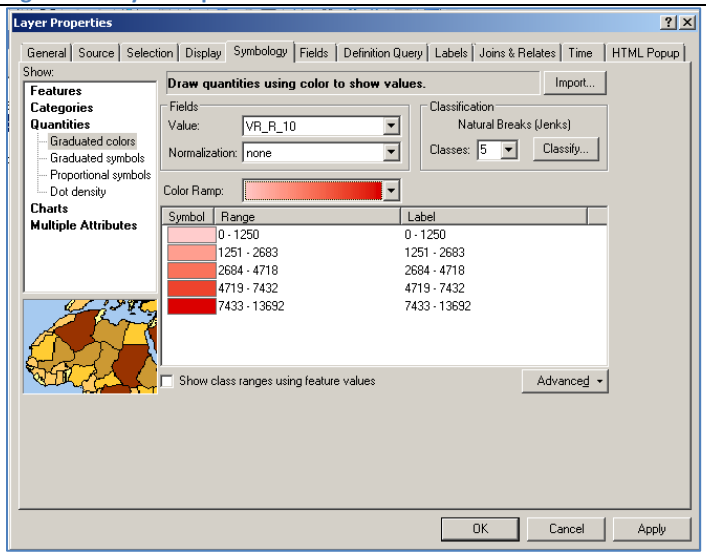

Figure 93: Layer Properties Window - Symbology

- Once you have created your map, it's a great idea to save your map. To save the map, from the File menu select Save As… and save the .mxd file to your p:\ drive.

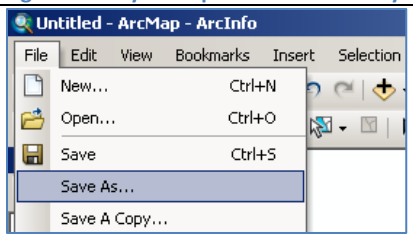

Figure 14: Save Project File (.MXD)

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Labeling Towns and Data on Your Map

- Activate the Districting Toolbar within ArcGIS ArcMap by clicking on the Customize menu (along the top menu bar) and select Extensions

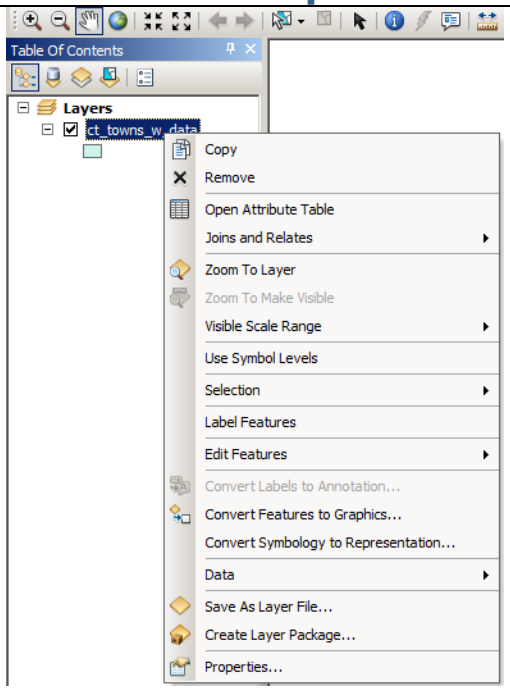

Figure 10: Layer Properties

- From the Layer Properties window select the Labels tab
- Check the Label features in this layer to add turn on/off labels.
- In the Text String Label Field: from the drop down menu select the variable you want to label (Name10 – includes the name of all towns in Connecticut)
- Then Click OK.

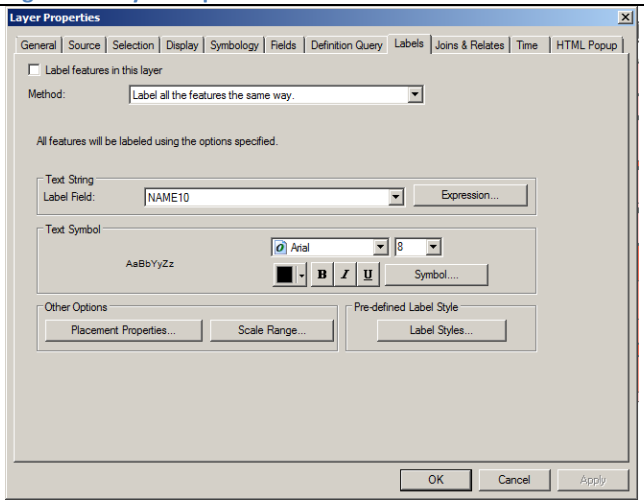

Figure 16: Layer Properties Window – Labels Tab

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- OPTIONAL: If you want to label the town name plus a data variable, from the Layer Properties Window Select the Labels tab and then click the Expression… button.
- From the Label Expression window you can add multiple fields to a label. For example to add a label which includes the town name and the total population value of each town do the following:
  - From the Fields list double-click [Name10]
  - Then double-click on Total_pop
  - Now let's add a line break between these labels by adding the following to the Expression window **&vbnewline&**
  - In the expression window your expression should look like the following: [NAME10] &vbnewline& [Total_pop]
  - To make sure there are no typos in the expression by click **Verify**
  - Once the expression is Verified as being correct (no errors) Click OK.

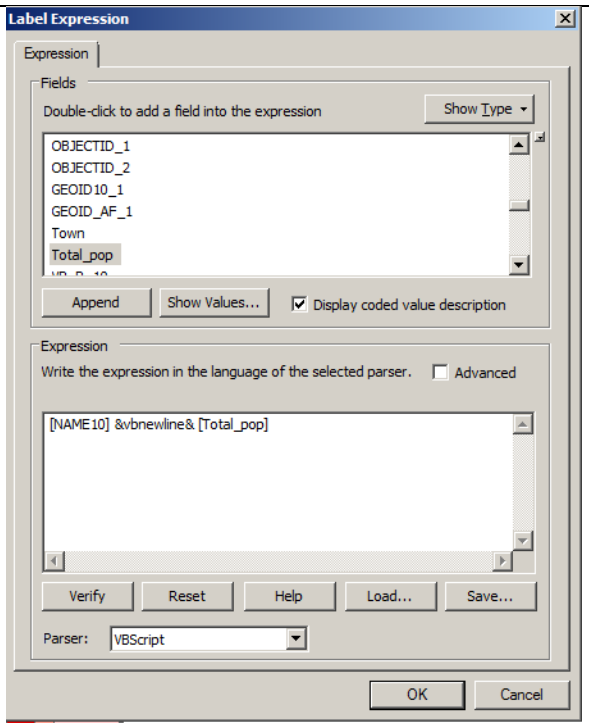

Figure 117: Adding the Districting Toolbar

- Now your map will include the town name and population value as one label. You can change the variable you are labeling by editing the expression.

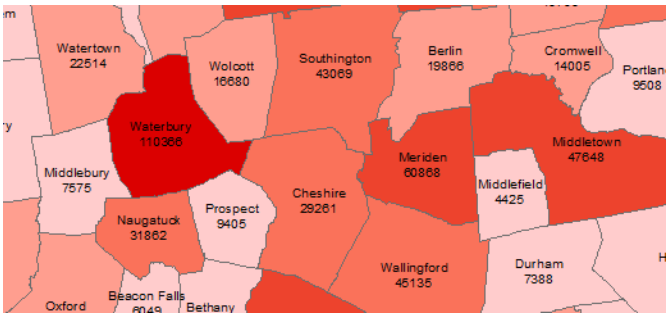

Figure 18: Stacked Labels for Town Name and Population Values

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Using Districting Toolbar in ArcGIS ArcMap

- Activate the Districting Toolbar within ArcGIS ArcMap by clicking on the Customize menu (along the top menu bar) and select Extensions

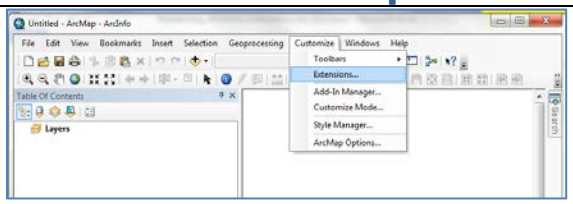

Figure 12: Customize Menu in ArcGIS

- Verify that the Districting Extension is active (check box is clicked) and click Close

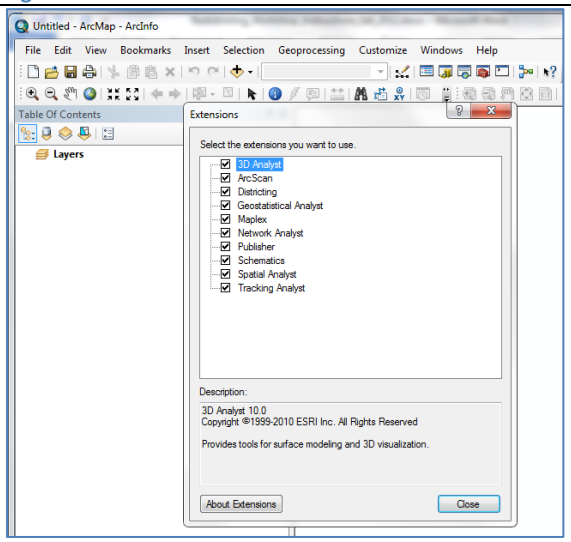

Figure 20: Activate the Districting Toolbar

- To activate the Districting toolbar within ArcGIS ArcMap, from the Customize menu select Toolbars and the click Districting. The toolbar should now display within ArcGIS ArcMap.

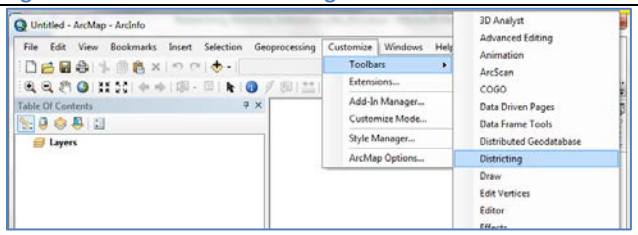

Figure 21: Adding the Districting Toolbar

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Developing a Districting Plan – Opening Files

- From the Districting toolbar, select Districting -> Districting Admin -> and then Open Plan…

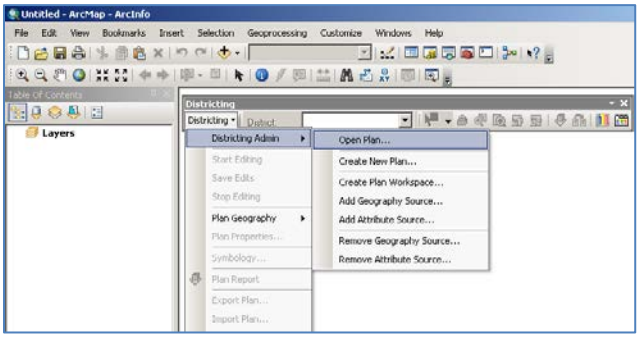

Figure 22: Open Plan from Districting Toolbar

- From the Open Plan Window, click the folder icon to navigate to a plan workspace. For this plan, you will navigate to the p:\ drive to the POLS_2998W_Spring_2013 folder

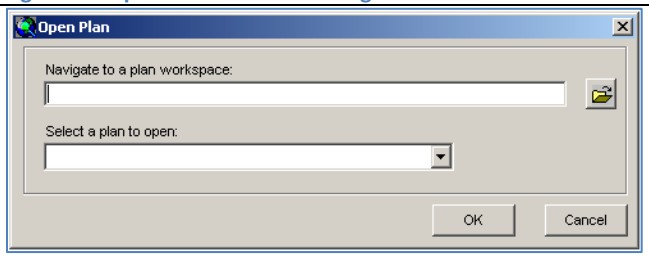

Figure 23: Open Plan Window

- From the POLS_2998W_Spring_2013 folder, select plan_templates folder and select Plan_1(Plan Database) and click Add.

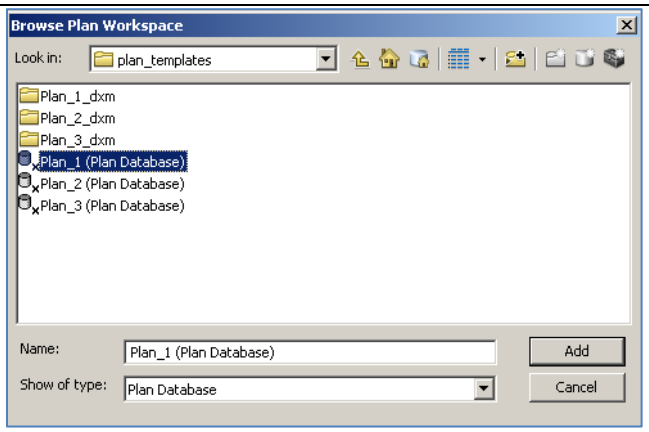

Figure 24: Select Plan

- From the Open Plan window you will click OK to begin developing your districting plan.

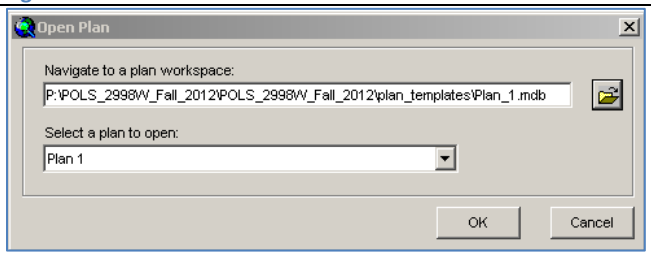

Figure 25: Open Plan Window Settings

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Developing a Districting Plan – Statistics

- To provide details on the data you will be using to help construct your districts, the districting tool can be customized by selecting Districting and the Selecting Plan Properties…

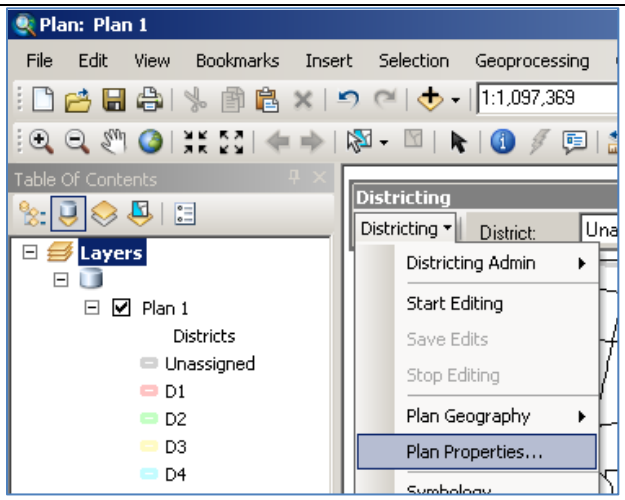

Figure 26: Plan Properties - For Statistics Options

- From the Plan Properties window you can select the variables from your data for statistics which will be updated as you add towns to your districts.
- Once you have selected your variables click OK

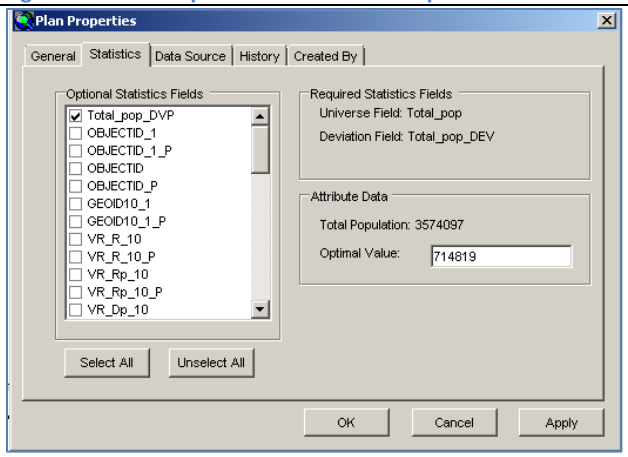

Figure 27: Selecting Statistics for Districting

- You may also want to view statistics as you begin to create your districts to help identify how close you are to your target for each district. From the Districting toolbar, select Districting and click Statistics Window and/or Chart Window.

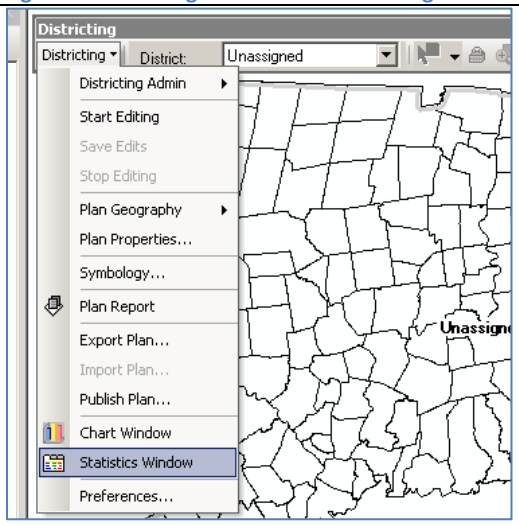

Figure 28: Display Statistics Window

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Developing a Districting Plan – Assigning Districts

- To begin creating your districts, from the Districting Toolbar click Districting and then Start Editing

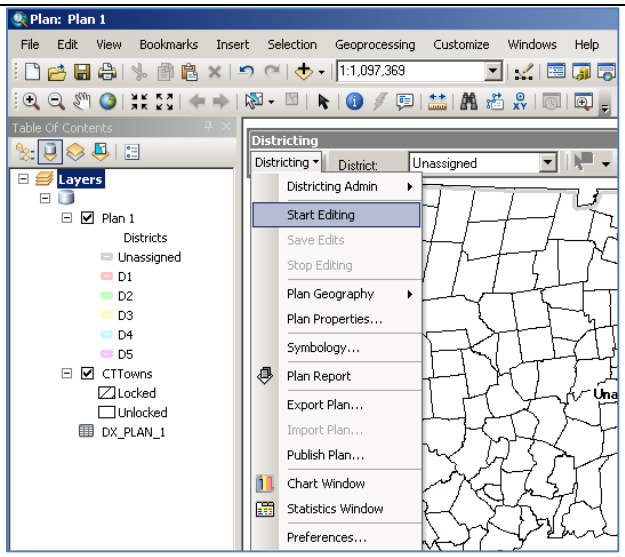

Figure 29: Start Editing Districts

- Next select the district you want to create from the District drop-down menu in the Districting toolbar

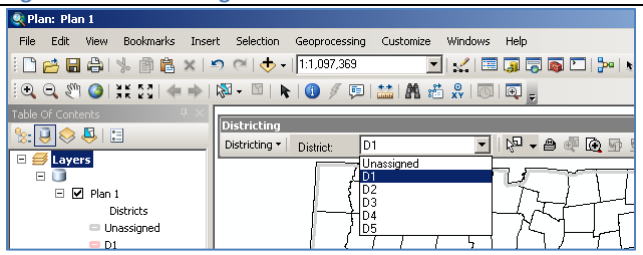

Figure 30: Select District Menu

- To select your towns, click the Selection tool (next to the drop down menu for your districts) and click on the towns you want to add to the district
- Once you have selected the towns you want to include in your district, from the Districting toolbar select Districting -> Plan Geography -> Assign Selection.

TIP: To select more than one town, hold your shift key and then click on the towns you want to include in your selection.

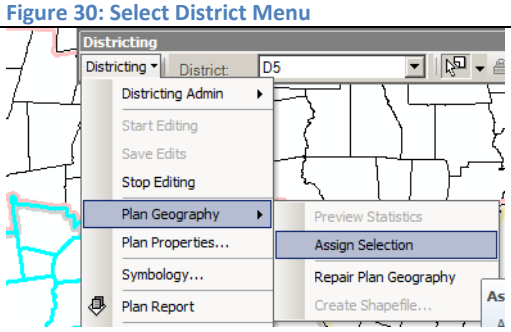

Figure 31: Assign Selection

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- To create the next district, change the district from the drop down menu, select your towns, and then from the Districting toolbar select Districting -> Plan Geography -> Assign Selection to add the towns to the district.

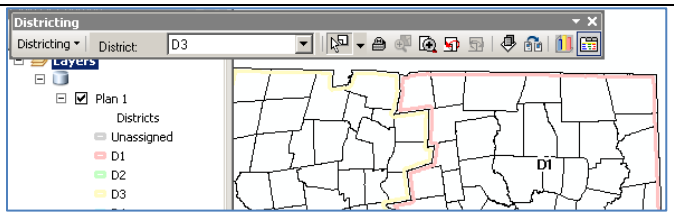

Figure 32: Select District Menu

- Once you have created your districts you will want to save your edits. From the Districting toolbar, click Districting -> Save Edits.
- Once you have finished all your edits, from the Districticting toolbar, click Districting -> Stop Editing.

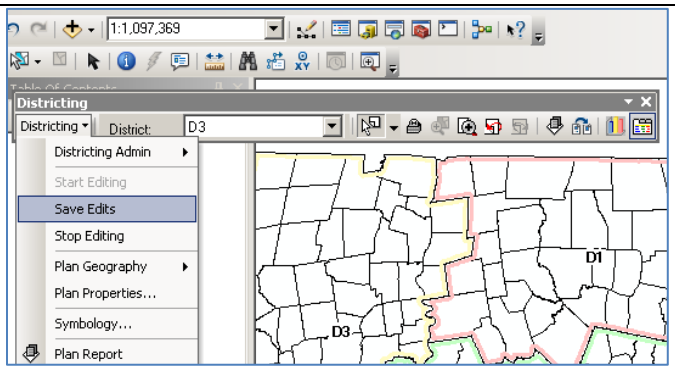

Figure 33: Save Edits to District

- You will also want to save the project file for your Districting Plan.
- To save from the File Menu Select Save.

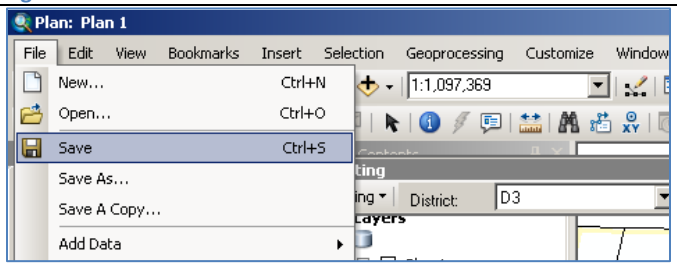

Figure 34: Save District Plan

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Visualizing District Compactness

- To analyze the compactness of your district visually we can use the draw tool in ArcGIS. To add this toolbar from the main menu select Customize -> Toolbars -> Draw. This will add the draw toolbar.

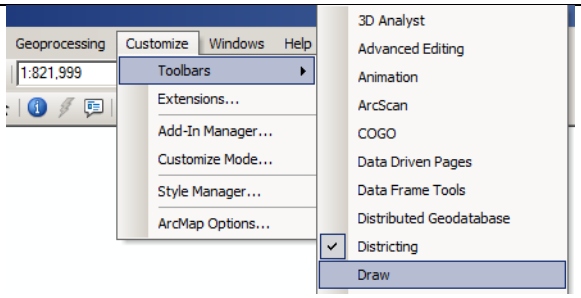

Figure 35: Adding Draw Toolbar

- From the Draw toolbar click on the drop down arrow next to the square icon to select Circle

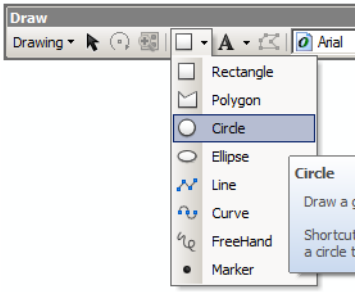

Figure 36: Selecting Circle Tool from Draw Toolbar

- To draw a circle click in the center for your district and hold down your left mouse button as you drag the mouse to expand the size of the circle.

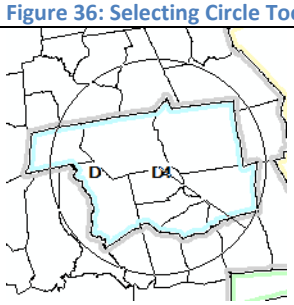

Figure 37: Display Statistics Window

- To change the properties of the circle right click on the circle, select Properties and then from the Symbol tab you can change the outline color and make the fill color transparent.
- The Properties window also includes details on the area of the circle which may be useful for your analysis.

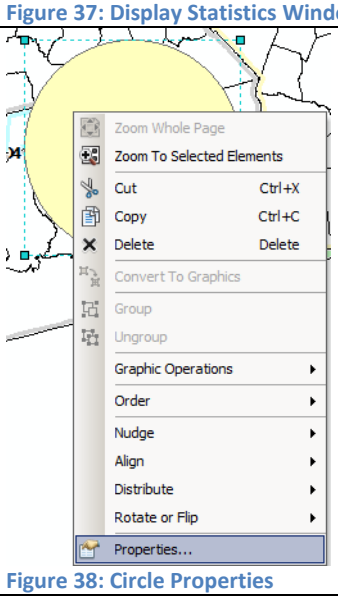

Figure 38: Circle Properties

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Creating your Final District Map

- The final step for your districts is to create a Shapefile which will allow you to create a custom map of your districts.
- From the Districting Toolbar, select Districting -> Plan Geography -> Create Shapefile… and save this file to your p:\ drive.

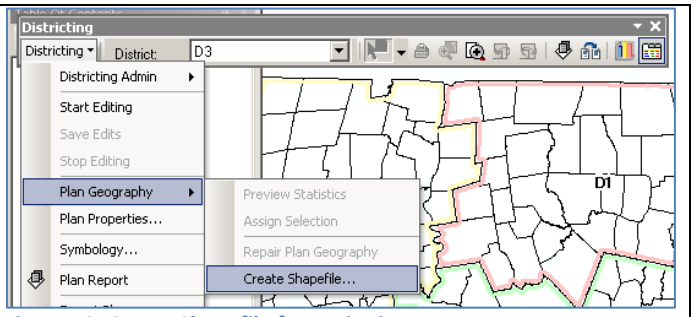

Figure 13: Create Shapefile from Districts

- Open ArcGIS ArcMap as a new instance by going to the Start menu in vPC, select All Programs and then Select ArcGIS.
- From the ArcGIS folder open ArcMap.

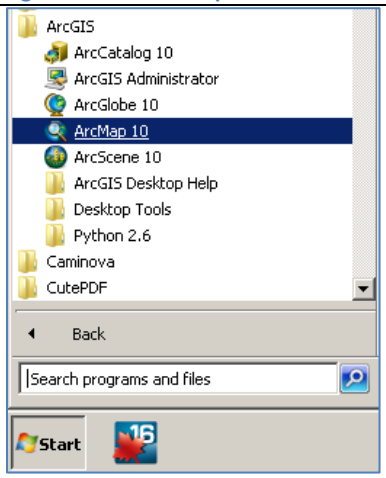

Figure 40: Select ArcGIS ArcMap from Start Menu

- Once ArcMap opens, Select a Blank Map (if that's an option) or click Cancel to continue.

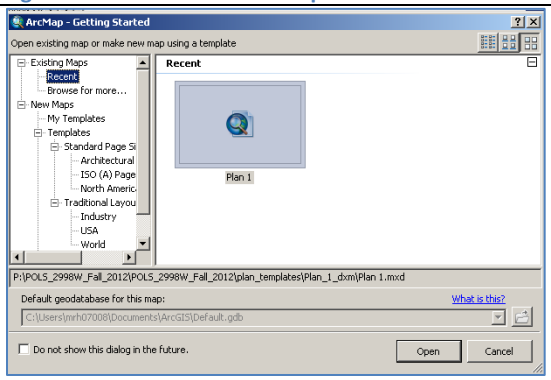

Figure 41: Create Blank Map in ArcMap

- In ArcMap, click the Add Data button from the menu bar along the top of the program.
- Navigate to the shapefile you created from the Districting Toolbar for your districts

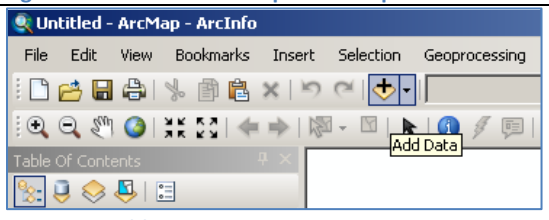

Figure 42: Add Data in ArcMap

- Right-click on your district shapefile, and select Properties. This will let you change the Symbology for the districts to allow for different colors than the default settings.
- You can also enable Labeling from the Labels tab.
- You may wish to add the towns to the map, to add these navigate to the data folder in the POLS_2998W_Fall_2013_rev folder.

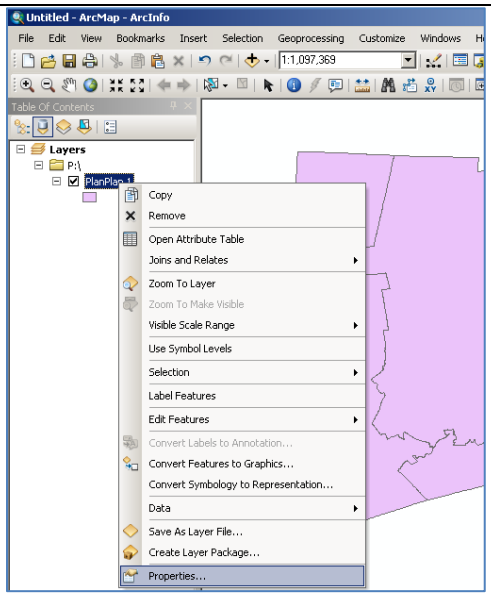

Figure 43: Change Symbology of Districts

- Once your map is complete, from the File Menu select Export Map. From the Export Map option you can select PDF, JPEG or other formats and adjust the settings based on your needs.
- Once you have completed your map, from the File menu select Save and save this project file to your p:\ drive.

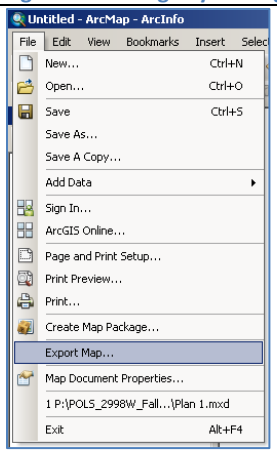

Figure 44: Create JPEG Map

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