

Mapping Data on Residential Properties

A project for COSI 118

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The purpose of this project is to **locate residential houses** and **provide their values** using *geographic information system (GIS)* software program and *Shelby County Assessor database*. The students are expected to be able to locate information gotten from other classes, for example, Senior Capstone, after this project.

The steps of how to match a database with a reference map is followed.

I. Searching Information About Residential Properties:

- a. Search at least five addresses from friends or telephone white pages. For examples,

Street	City	State	ZIP
9405 Walnut Grove Rd	Cordova	TN	38018
703 Carpenter St.	Memphis	TN	38112
4427 Village Park Cv.	Memphis	TN	38141
1255 Marcia Rd.	Memphis	TN	38117
4450 Cottonwood Rd.	Memphis	TN	38118

- b. Open Internet Explorer and type in the URL, <http://www.assessor.shelby.tn.us/content.aspx>
- c. Enter the street number and street name and click search

Enter your search using one of these criteria:

Street Number

Street Name

Search Reset

- d. Click view.

Parcel ID	Owner Name	Property Location	
091090 00006	BAKER WILLIAM H ET AL	9405 WALNUT GROVE RD	View

- e. Extract the information about the owners, land size, and appraisal from the page as below.

Property Location and Owner Information	2005 Appraisal and Assessment Information
Parcel ID: 091090 00006	Class: RESIDENTIAL
Property Address: 9405 WALNUT GROVE RD	Land Appraisal: \$ 75,100
Municipal Jurisdiction: MEMPHIS	Building Appraisal: \$ 34,300
Neighborhood Number: 00610C00	Total Appraisal: \$ 109,400
Land Square Footage: 100188	
Acres: 2.3000	Total Assessment: \$ 27,350
Lot Dimensions:	Greenbelt Land: \$ 0
Subdivision Name:	Homesite Land: \$ 0
Subdivision Lot Number:	Homesite Building: \$ 0
Plat Book and Page:	Greenbelt Appraisal: \$ 0
Number of Improvements: 1	Greenbelt Assessment: \$ 0
Owner Name: BAKER WILLIAM H ET AL	
In Care Of:	
Owner Address: 9405 WALNUT GROVE RD	
Owner City/State/Zip: CORDOVA, TN 38018 7747	
	Click Here for 2004 Values View: GIS PARCEL MAP

II. Entering Data and Save as DBF 4 file:

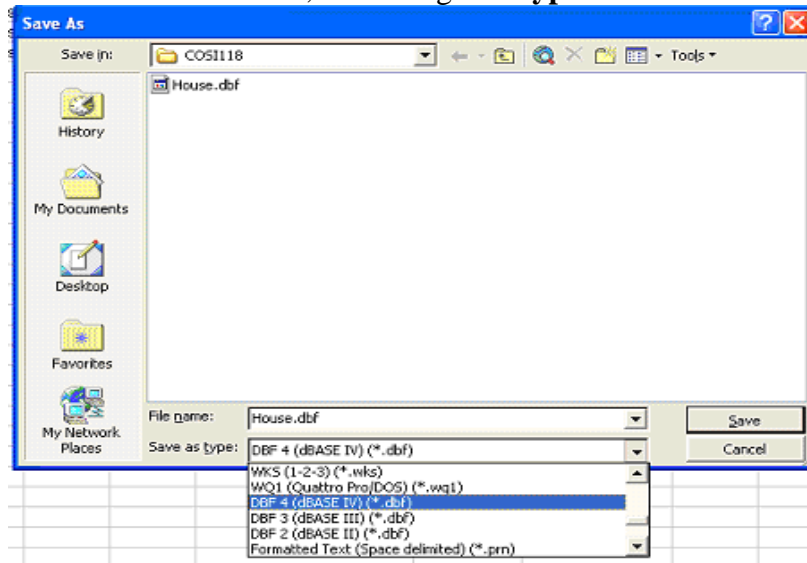
a. Type the information on the Excel Worksheet as bellow:

Street	City	State	ZIP	Owner_Name	SQ_FT	Appraisal
9405 Walnut Grove Rd	Cordova	TN	38018	Baker William	100188	\$109,400
703 Carpenter St.	Memphis	TN	38112	Baker Leo	8015	\$30,200
4427 Village Park Cv.	Memphis	TN	38141	Johnson Deleana	13982	\$90,000
1255 Marcia Rd.	Memphis	TN	38117	Thompson William	9801	\$100,600
4450 Cottonwood Rd.	Memphis	TN	38118	Wilson Lois P	10193	\$67,100

b. Delete the sheets 2 and 3. (Edit +Delete Sheet)

c. Save the Excel sheet as “House.xls” in your “GIS” folder of “I” drive.

d. Click File/ Save As, and change the **type** of file as **DBF4**.




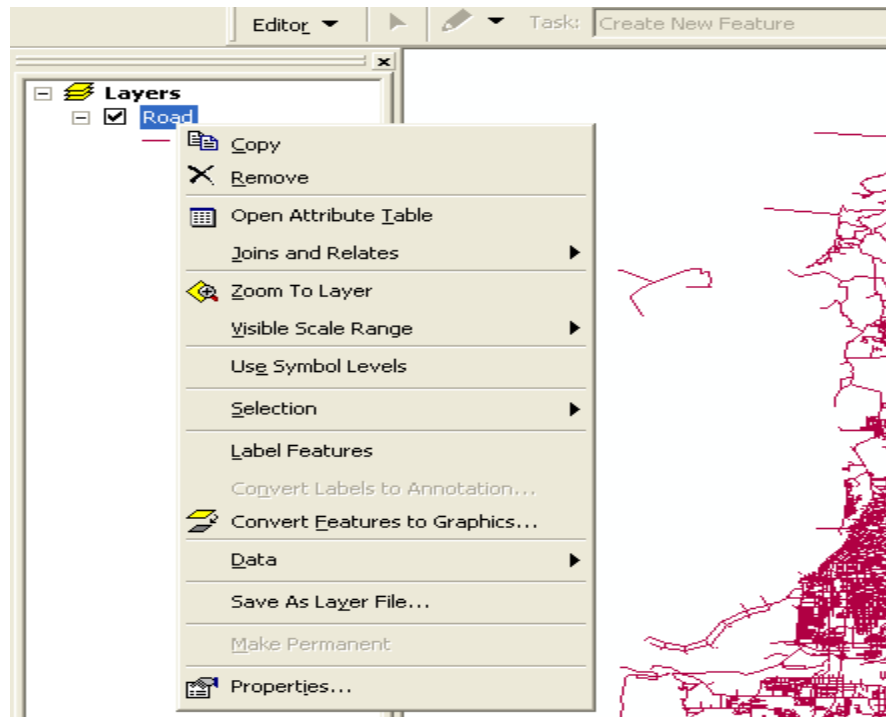
III. Download a Road Shape File for Shelby County from TIGER Data

In order to display five house addresses on a map, we need to download a road shape file to be a base then locate five house addresses onto it. The way to **download the Shelby County road shape** is followed.

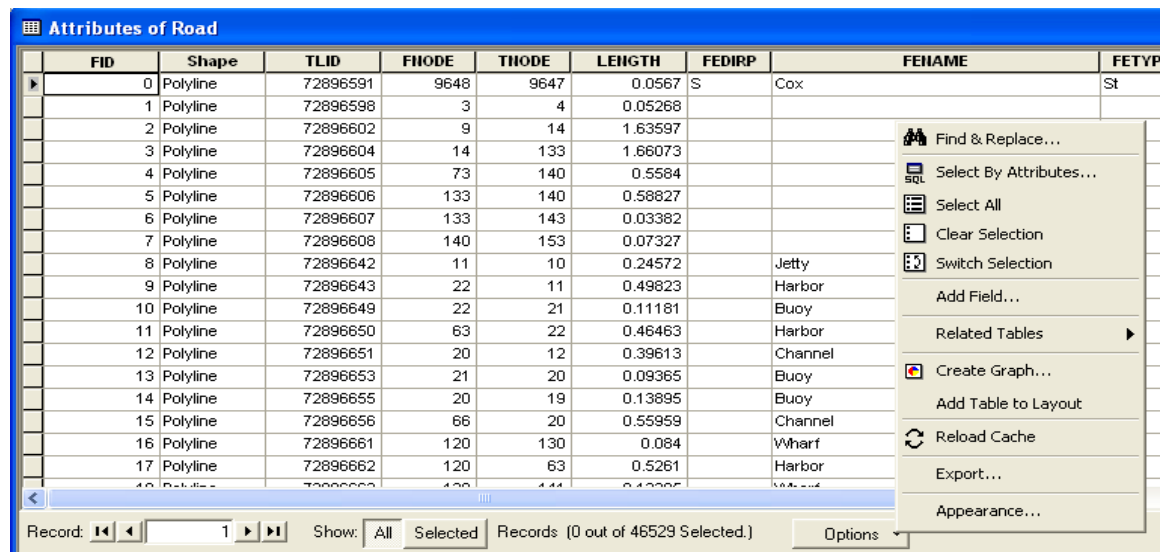
1. Go to the URL
http://www.esri.com/data/download/census2000_tigerline/index.html.
2. Click **Preview and Download**.
3. Click an arrow to select a state, **Tennessee** and click submit selection.
4. Select **Shelby** under Counties.
Note: Selecting a county is for one or more data layers for a single county.
Selecting a layer is for a single data layer.
5. Check a box, **Line Features – Roads** to select and click **Proceed to Download** at the bottom of the page. Click **Download File** again. Click **Save to Disk** and **OK**.
Save the zip file in the GIS folder of your “I” drive.
6. Close Internet Explorer.
7. **Unzipped the zip file twice.** That is, double click on the zip file that you just download then click on **Extract**. Make sure to locate the folder for the unzipped file and you can **rename the file** as easy as possible for you to recognize it.

IV. Open a Road Shape File and Display the Major Roads only

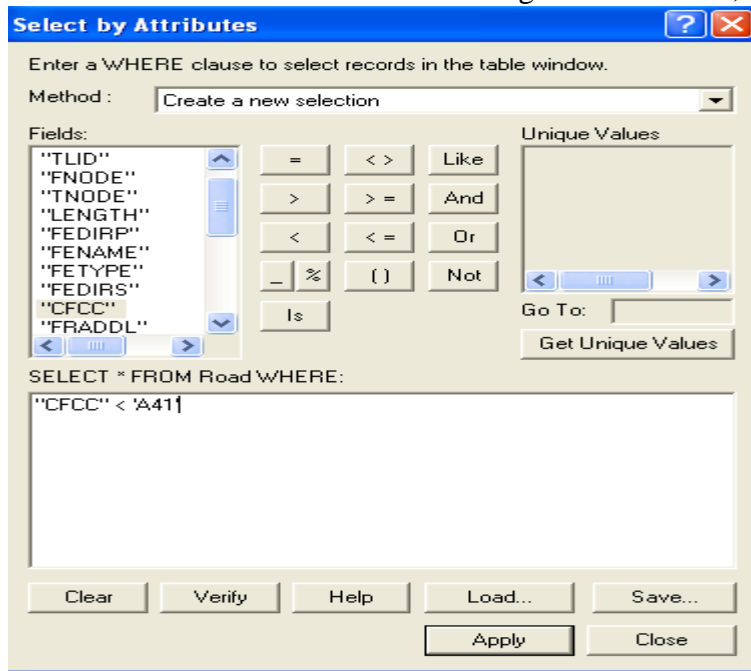
1. Open **ArcMap** by clicking on **start** button and then **Programs/ArcGIS/ArcMap**.
2. Create a new empty map.
3. Click on **Add Data** button,  to add the road shape file.
4. **Display some selected roads** by following steps:
 - a. Right click on the Road layer of **catalog tree (left box)**.



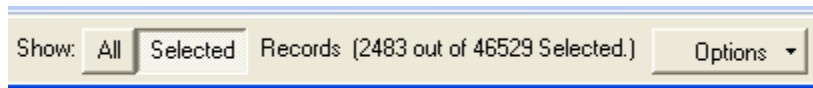
- b. Click **“Open Attribute Table”**
- c. Click on **“Options”**
- d. Click on **“Select By Attribute”**



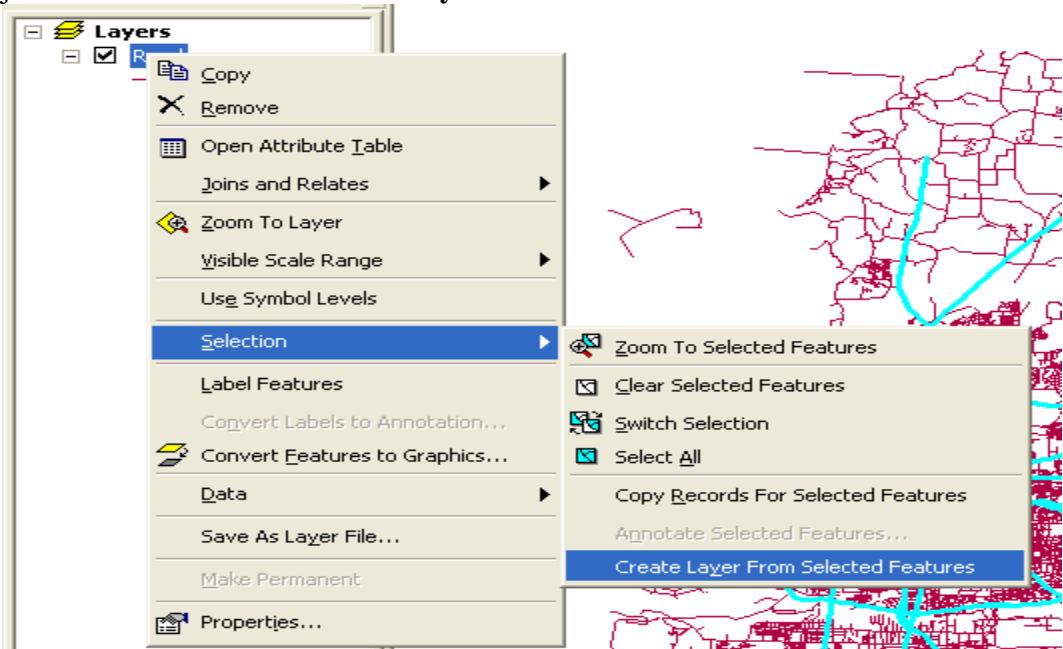
- e. Double click on “CFCC” and click < sign from window, then type ‘A41’.



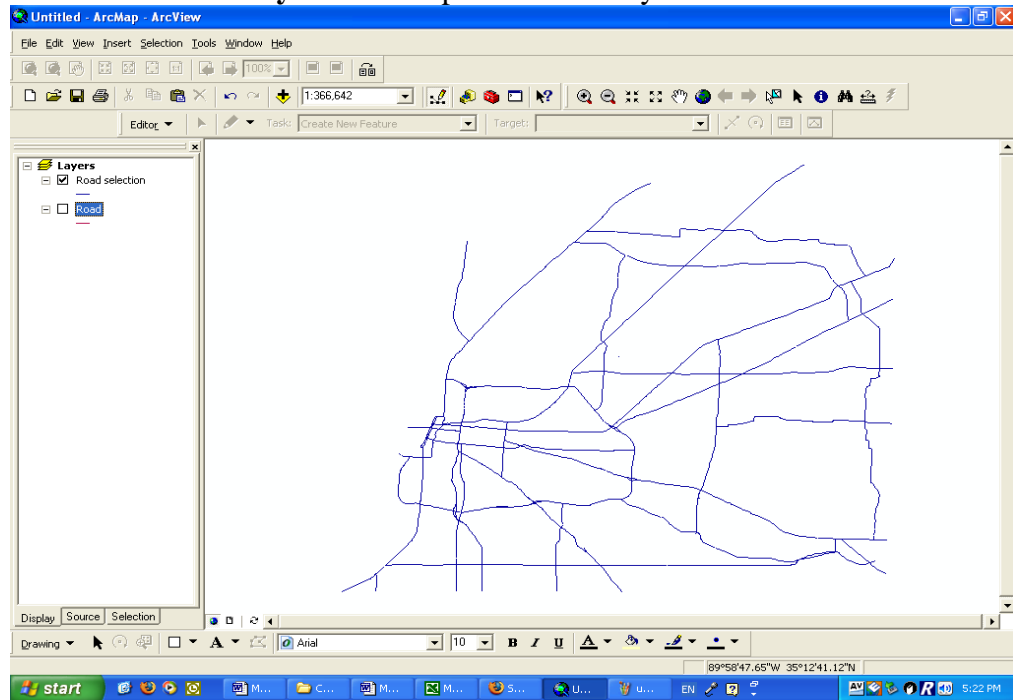
- f. Click **Apply**.
- g. Show **Selected**.



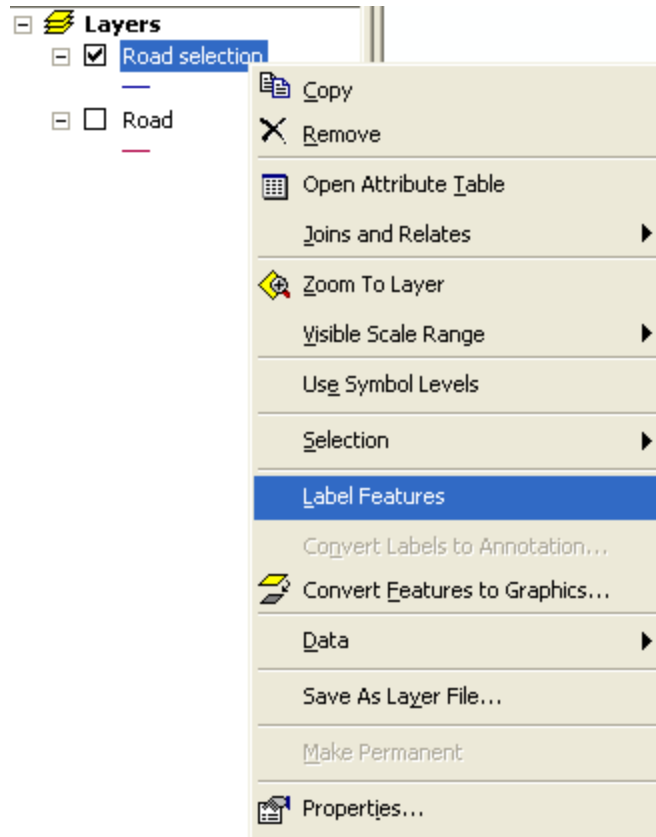
- h. Close the attribute table.
- i. Right click on Road layer again
- j. Click on **Selection / Create layer from selected feature**.



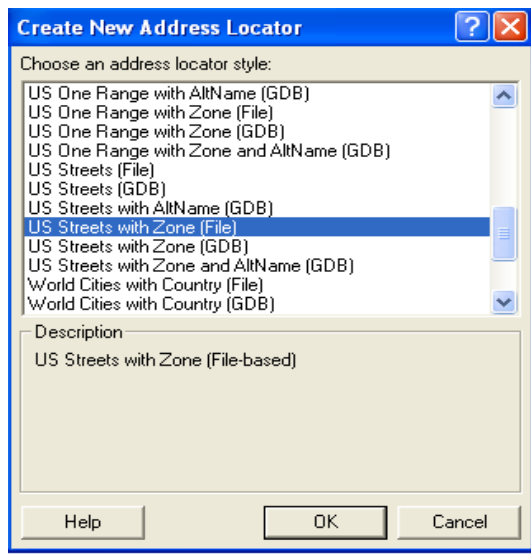
k. **Unclick Road layer.** The map will show only a few streets.



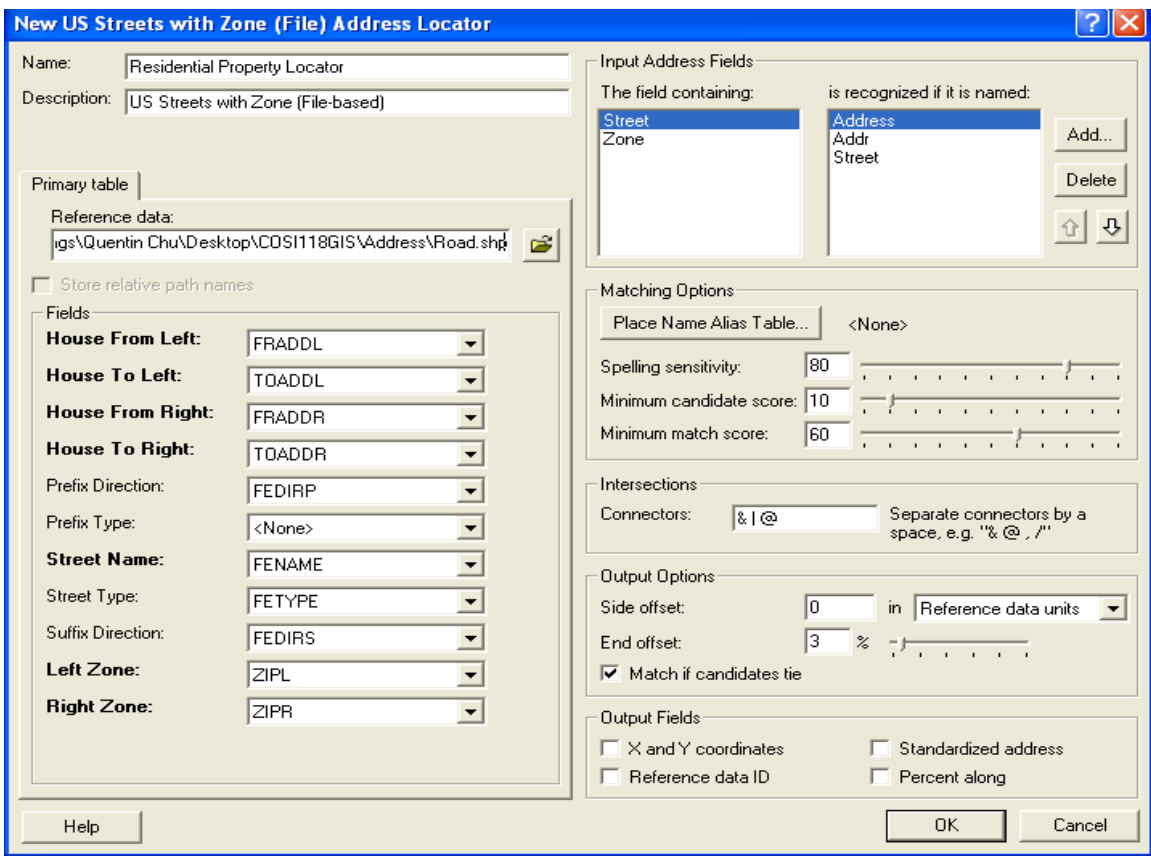
l. **Label the streets.**



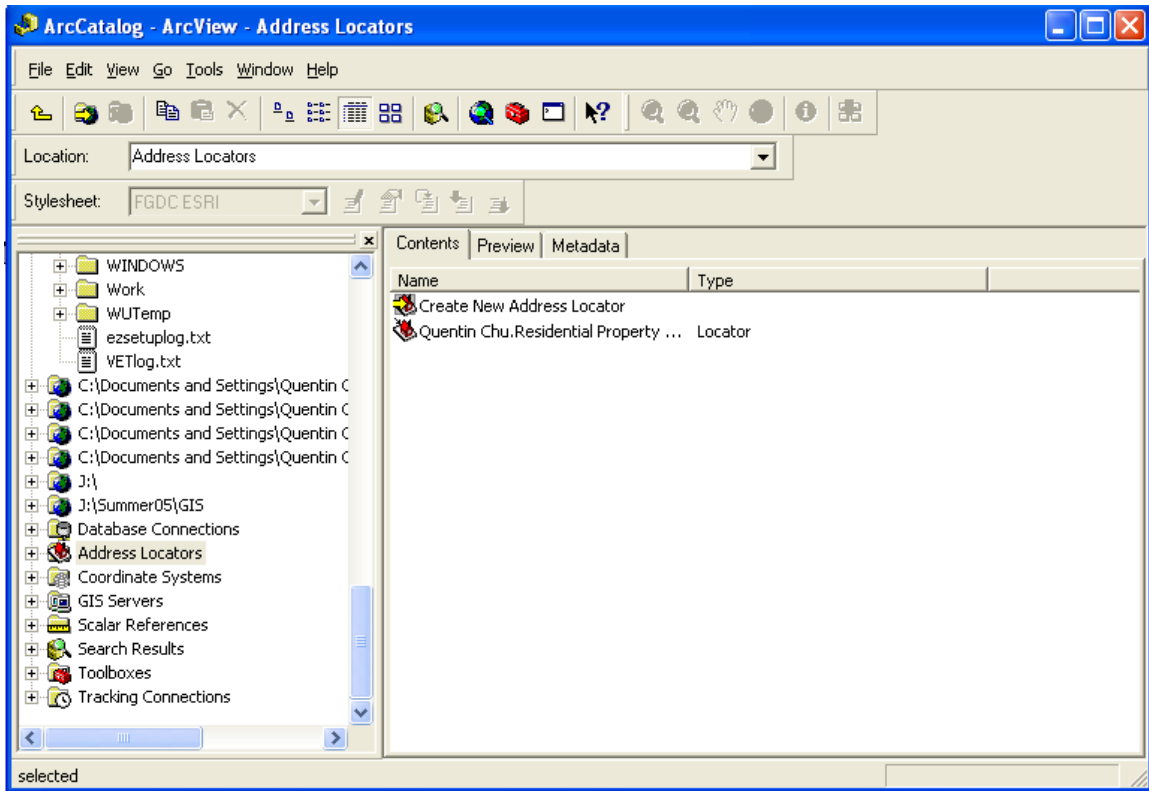
- b. On **catalog tree (left box)**, click on **Address Locators**.
On **catalog display (right box)**, click on **Create New Address Locator**.
- c. Double click on Create New Address Locator. You will get another window as below. Select **US Streets with Zone [File]** and click OK.



- d. Another window is displayed. Under the **Reference Data** box, click on open file icon to locate the road shape file and type the name of the locator then click OK.



e. The **ArcCatalog** creates a new locator to reference your shape file.

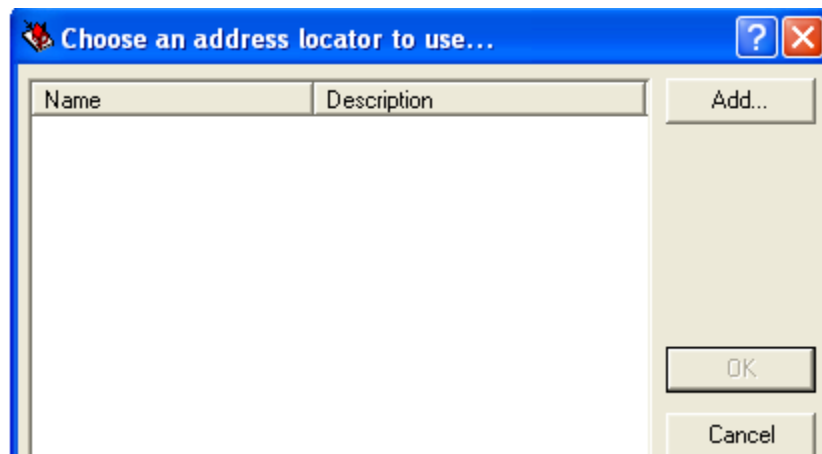



VI. Connect the House DBF File with the Road Shape File. (Geocoding Addresses)

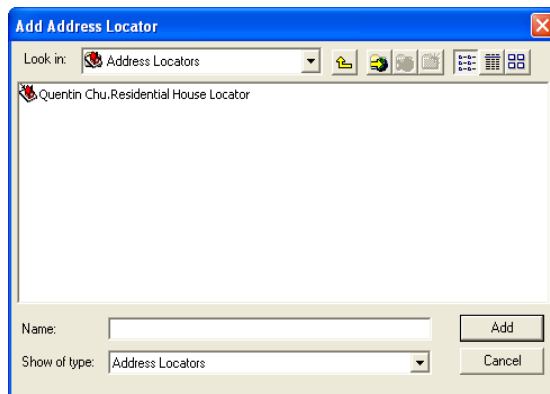
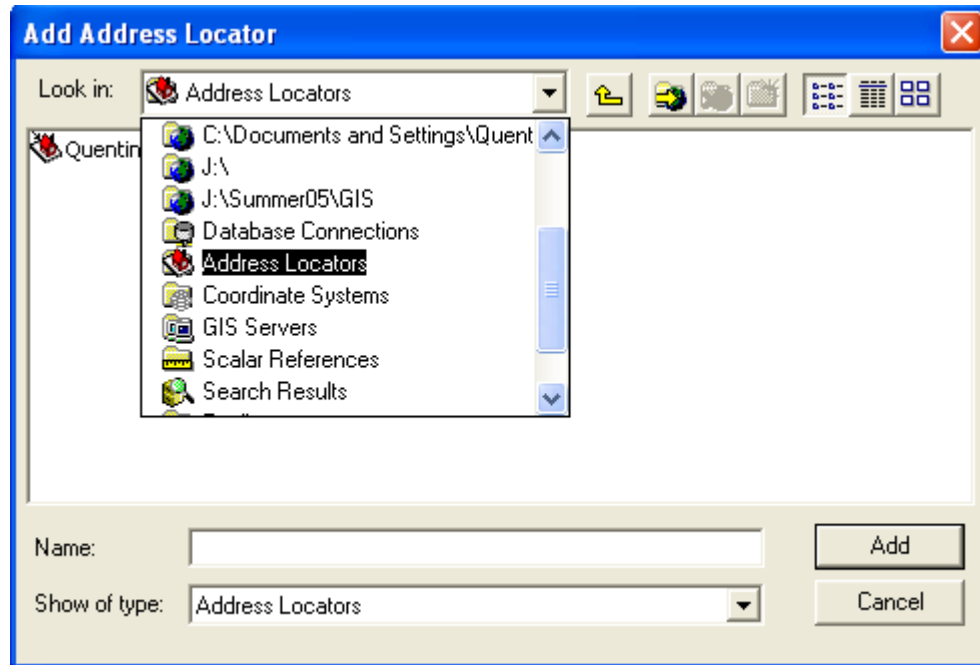
Definition: The process of creating map features from addresses, place-names, or similar information is called **geocoding**.

Now, the five residential houses will be located on the map. That is, the table of five house addresses will be compared to the reference data attributes and we will look for matches.

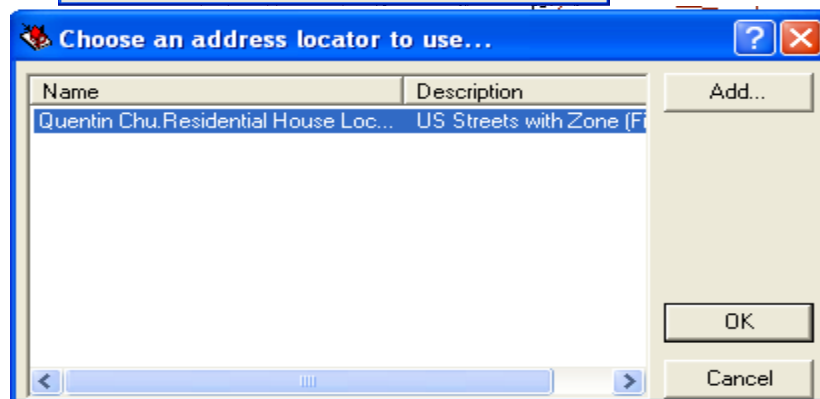
Under **ArcMap** window, click on **Tools / Geocoding / Geocode Addresses**. You will get a window to add an address locator as below. Click on **Add**.



A new window pops out. Click on up icon  to navigate up to Catalog and **double click Address Locators** as below.

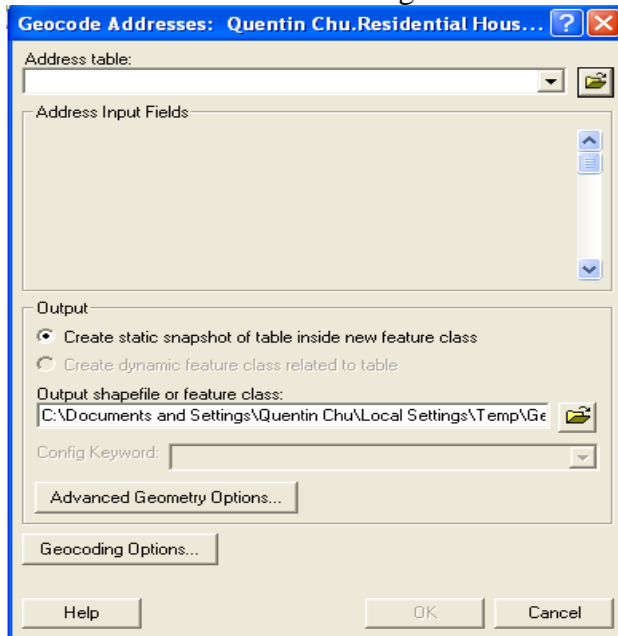


Highlight the locator and click Add.

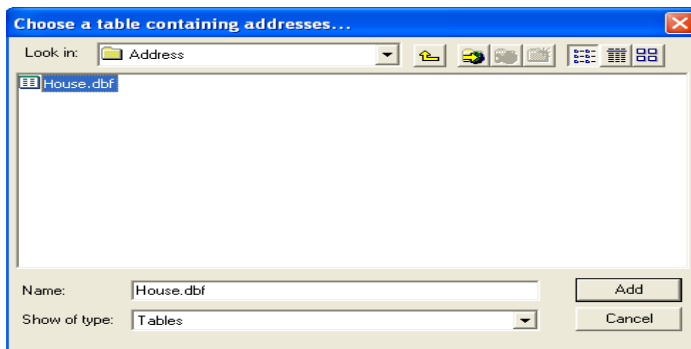



Click **OK**.

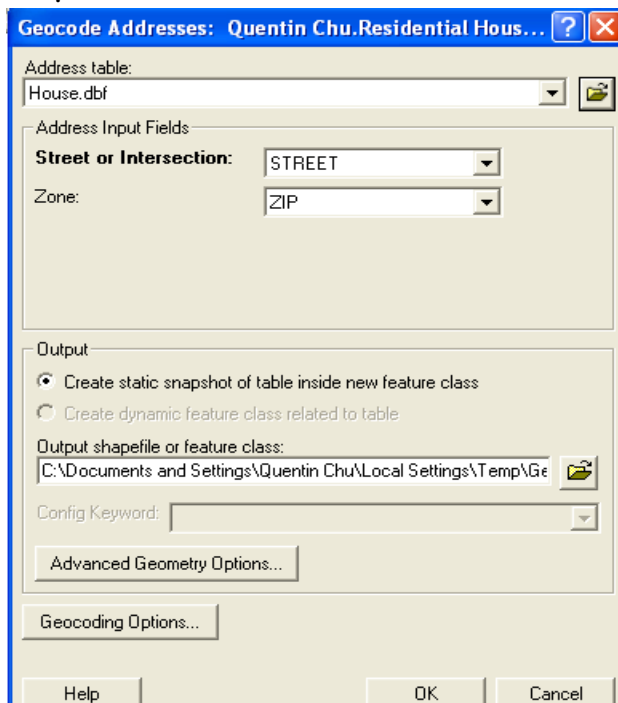
You will have the following window.



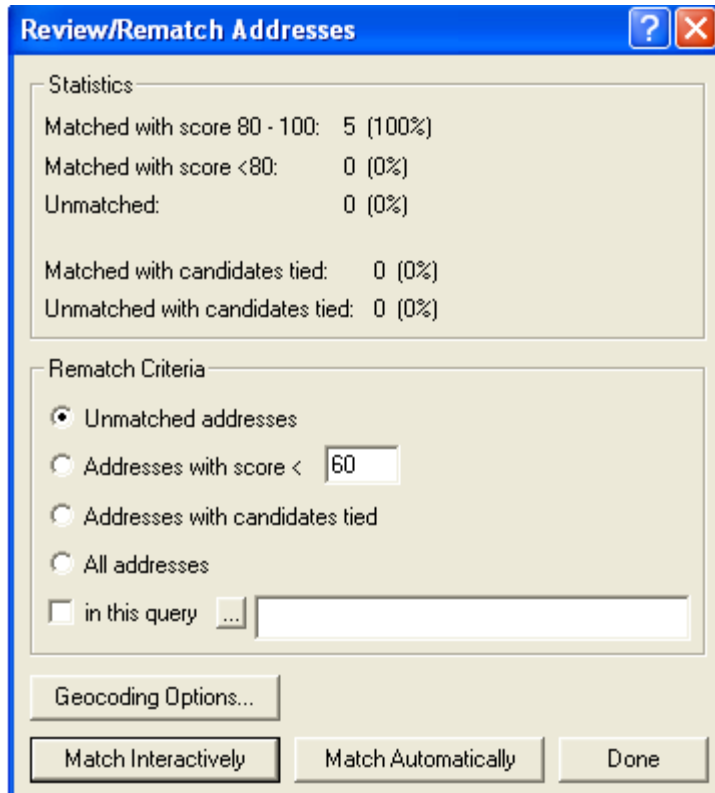
Click **open folder icon** to locate address table.



Click on up icon  to navigate the 5 house table

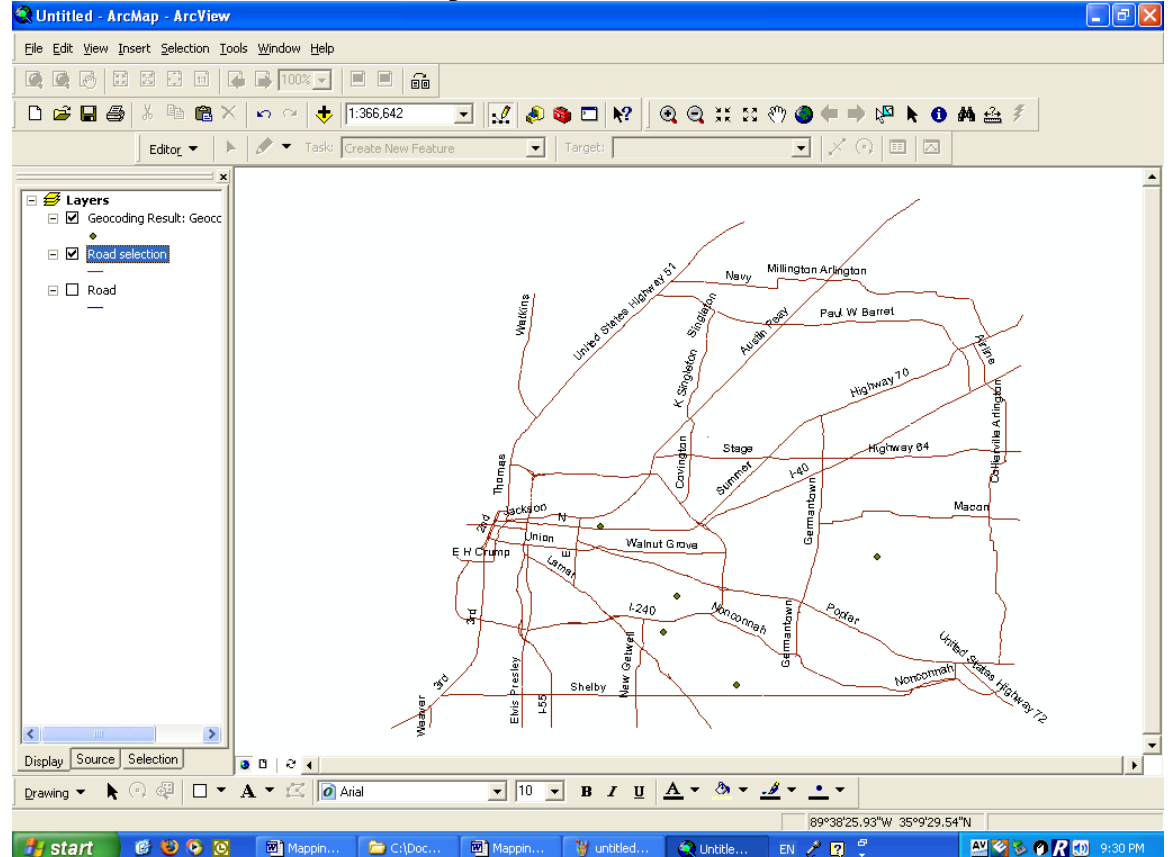


Click **OK**.



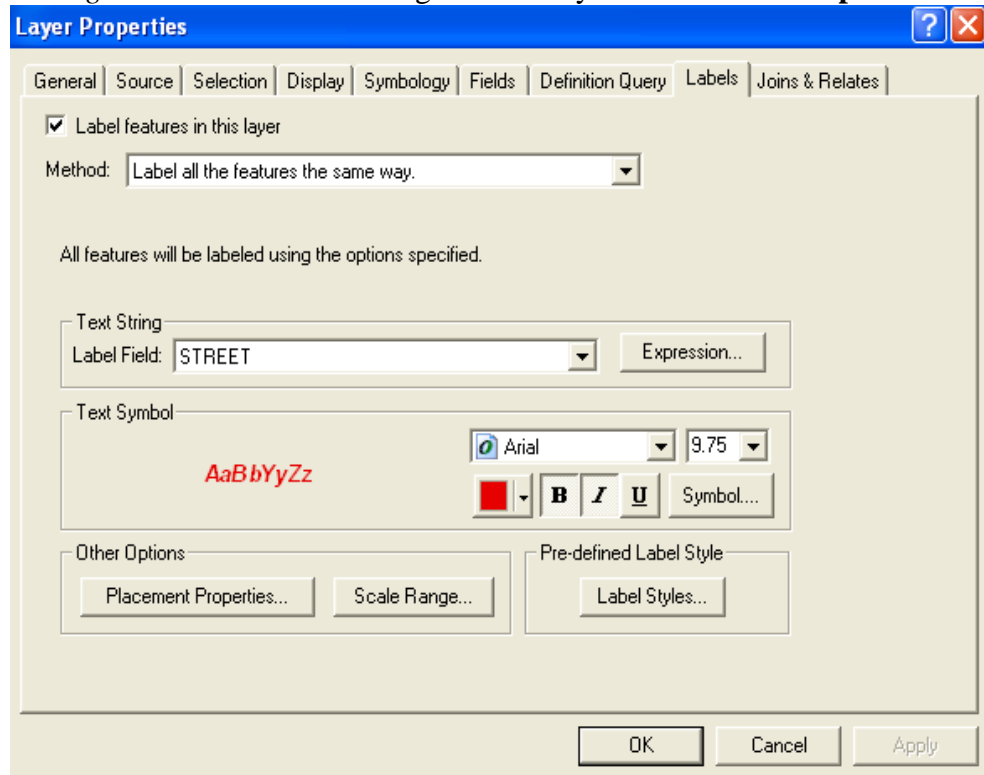
Click **Match Automatically/ Done**.

Five houses are marked on the map as below.

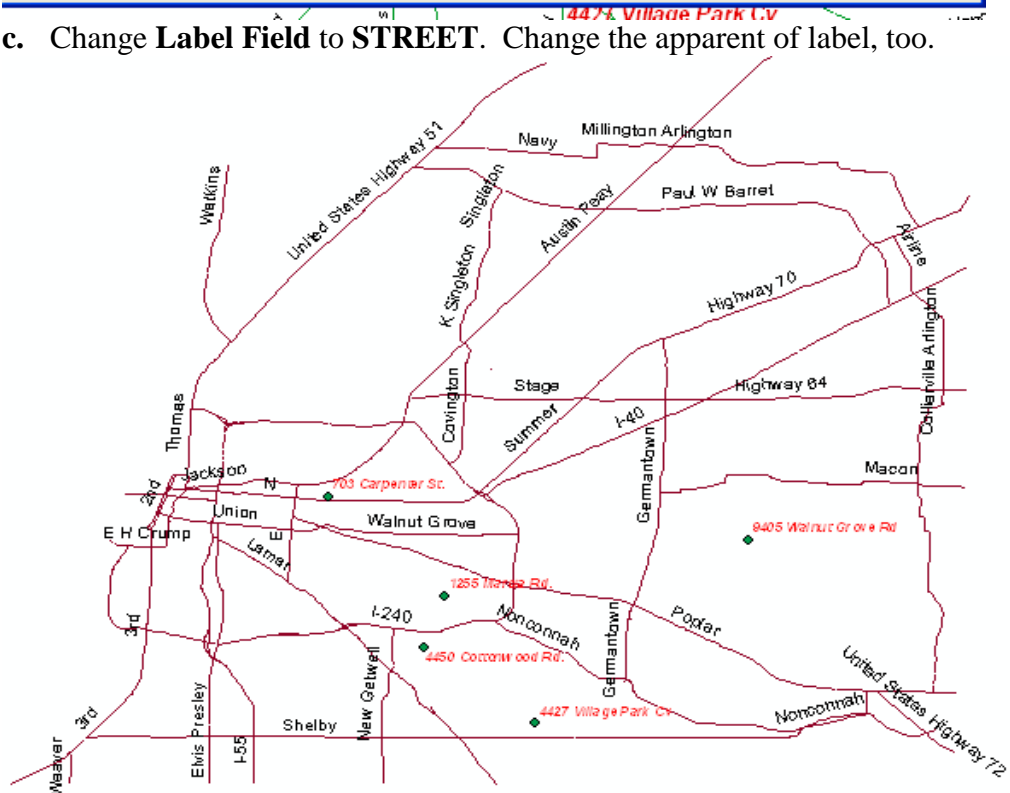


VII. Label Features of the Geocoding Results.

- a. *Right click* on the Geocoding Results Layer and click on **Label Features**.
The house owners' names are shown on the map.
- b. *Right click* on the Geocoding Results Layer and click on **Properties**.

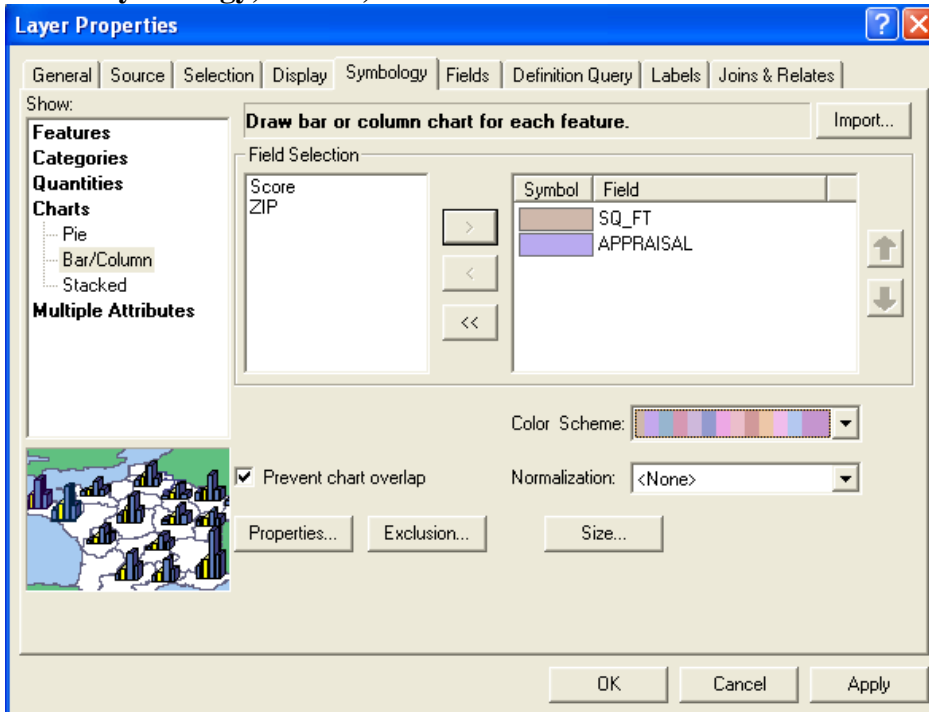


- c. Change **Label Field** to **STREET**. Change the apparent of label, too.

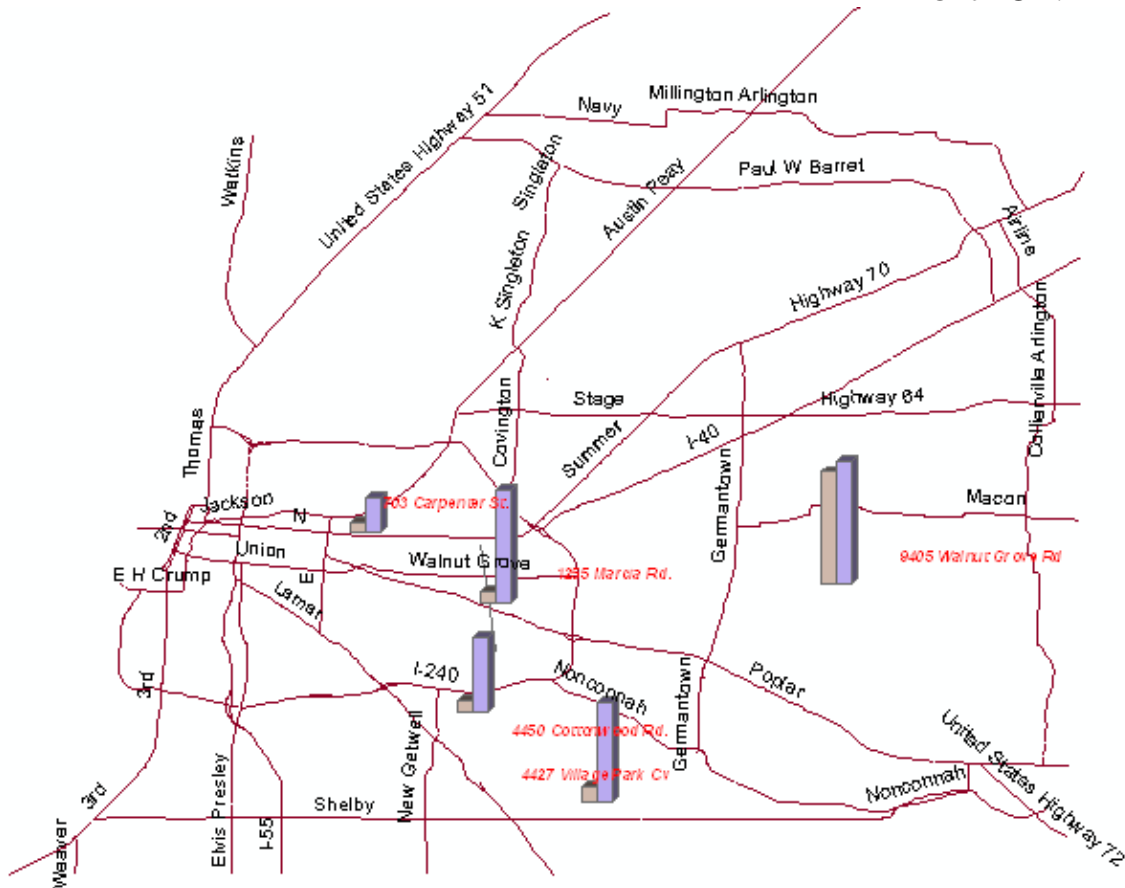


VIII. Display the Land Size and Appraisal.

Right click on the Geocoding Results Layer and click on **Properties** and click **Symbology, Charts, Bar/Column**. Select fields.

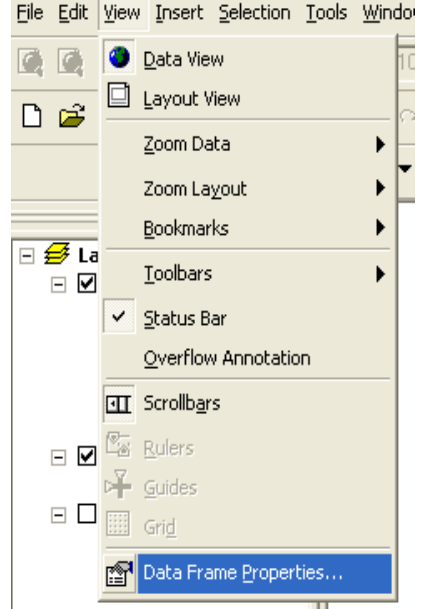
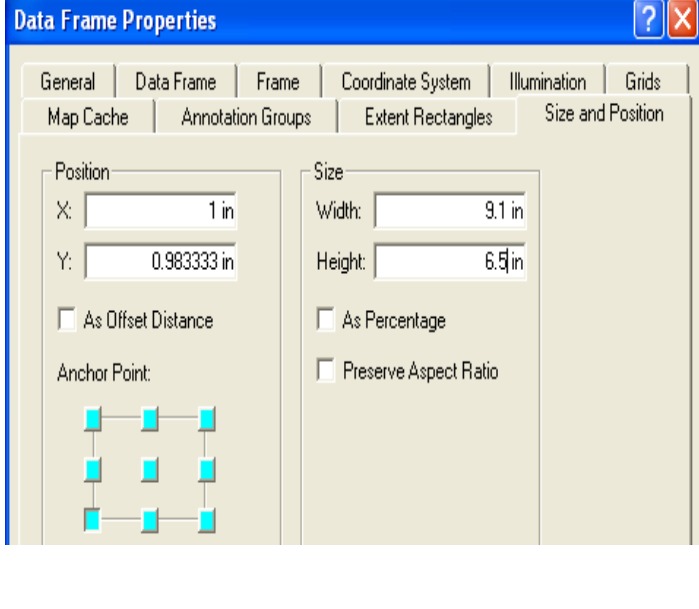


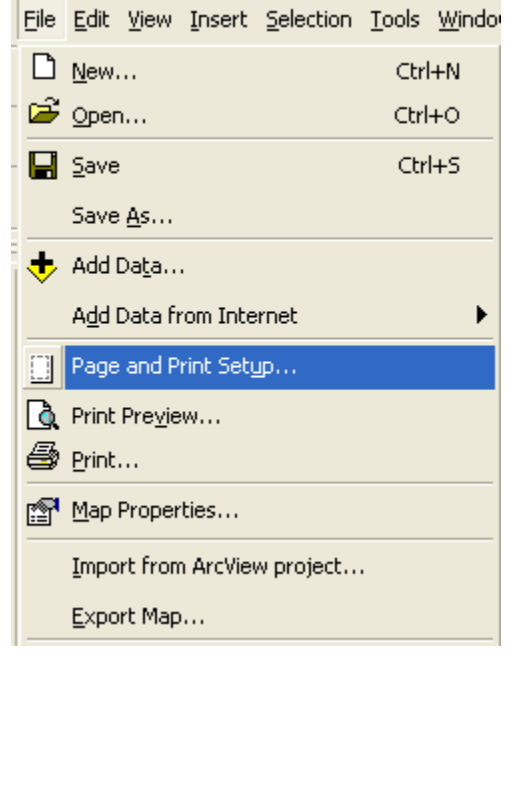
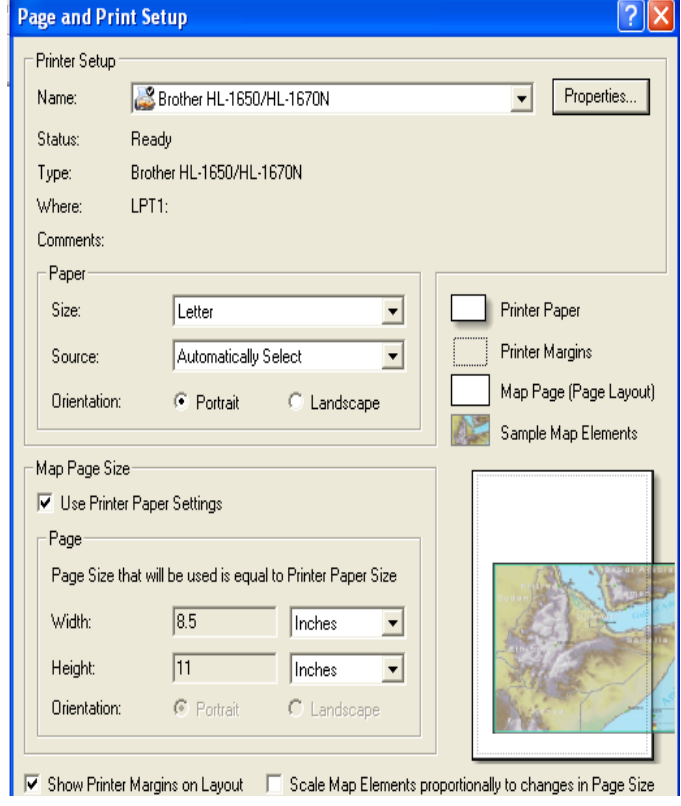
Click **OK**.

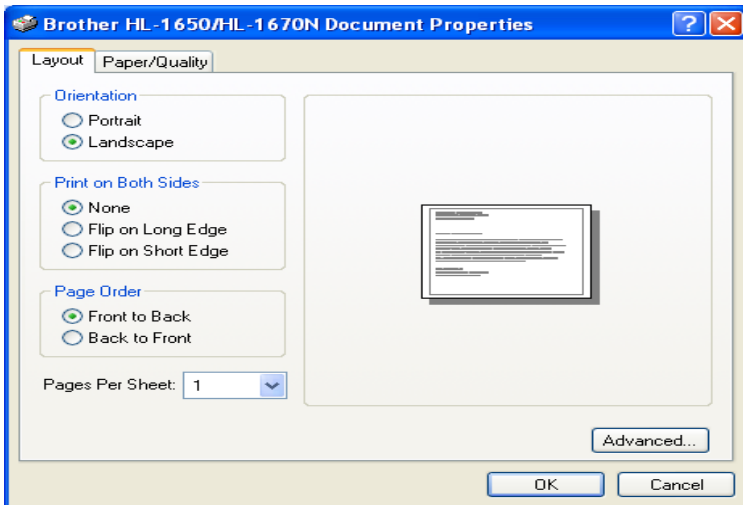


IX. Add Title, Legends and Labels.

a. Change the printout to **landscape** format:

 <p>The screenshot shows the 'View' menu in a software application. The 'Data Frame Properties...' option is highlighted at the bottom of the menu. Other visible options include 'Data View', 'Layout View', 'Zoom Data', 'Zoom Layout', 'Bookmarks', 'Toolbars', 'Status Bar', 'Overflow Annotation', 'Scrollbars', 'Rulers', 'Guides', and 'Grid'.</p>	 <p>The screenshot shows the 'Data Frame Properties' dialog box with the 'Size and Position' tab selected. The 'Position' section shows X: 1 in and Y: 0.983333 in. The 'Size' section shows Width: 9.1 in and Height: 6.5 in. There are checkboxes for 'As Offset Distance', 'As Percentage', and 'Preserve Aspect Ratio'. An 'Anchor Point' section shows a 3x3 grid of points.</p>
<p>Click on View then Data Frame Properties</p>	<p>Click on the Size and Position tab. Exchange the numbers for width and height.</p>

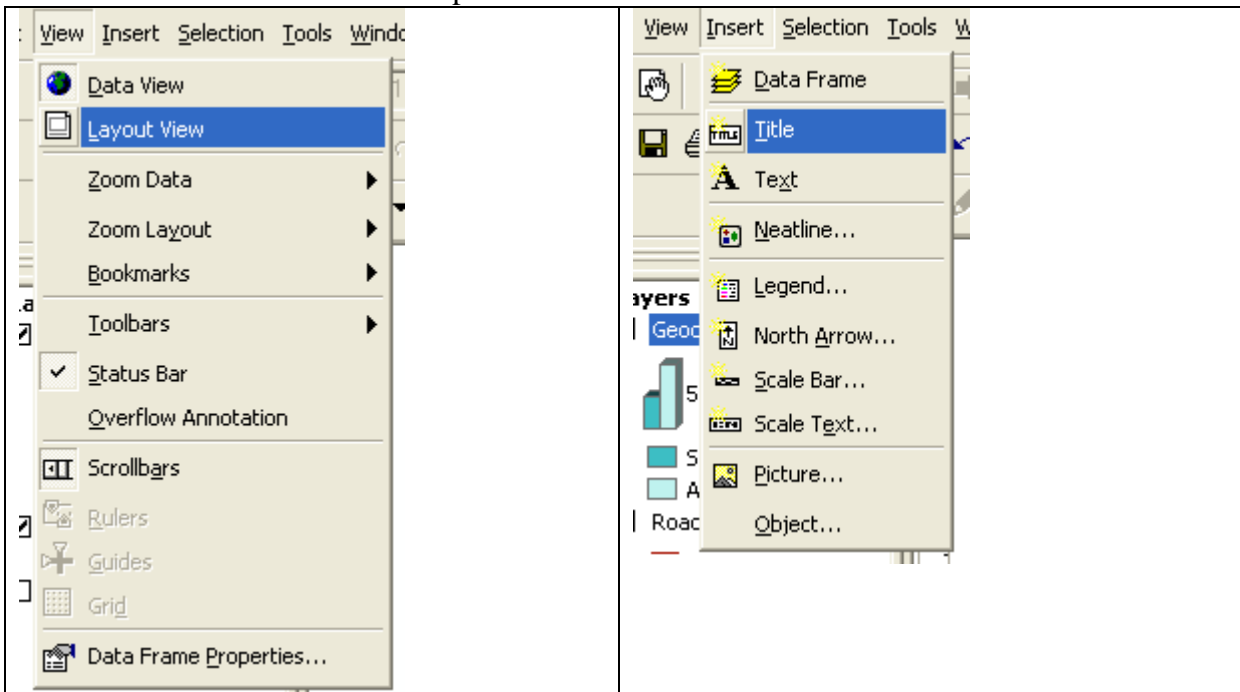
 <p>The screenshot shows the 'File' menu in a software application. The 'Page and Print Setup...' option is highlighted. Other visible options include 'New...', 'Open...', 'Save', 'Save As...', 'Add Data...', 'Add Data from Internet', 'Print Preview...', 'Print...', 'Map Properties...', 'Import from ArcView project...', and 'Export Map...'.</p>	 <p>The screenshot shows the 'Page and Print Setup' dialog box with the 'Printer Setup' tab selected. The printer name is 'Brother HL-1650/HL-1670N'. The 'Paper' section shows 'Letter' selected. The 'Map Page Size' section shows 'Use Printer Paper Settings' checked, with 'Page Size that will be used is equal to Printer Paper Size'. The 'Width' is 8.5 Inches and 'Height' is 11 Inches. There are checkboxes for 'Printer Paper', 'Printer Margins', 'Map Page (Page Layout)', and 'Sample Map Elements'. A preview of a map is shown on the right.</p>
<p>Click on File then Page and Print Setup</p>	<p>Click on Properties</p>



Select **landscape**.

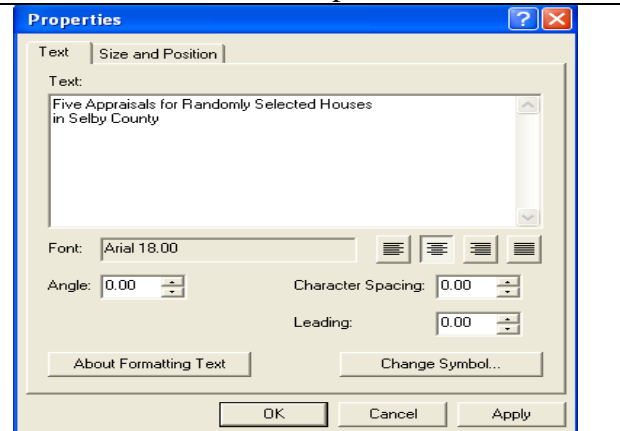
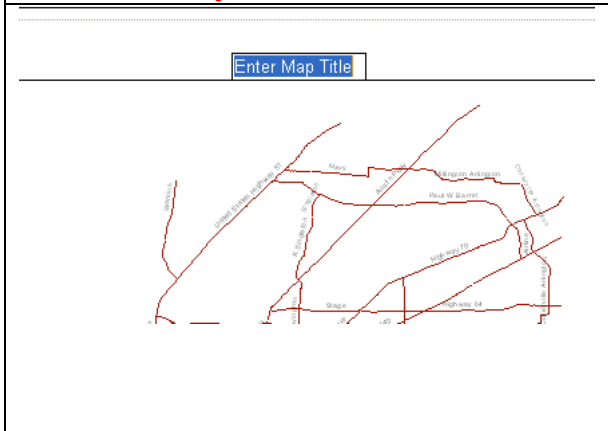
Click OK twice.

b. Insert Title for the printout:



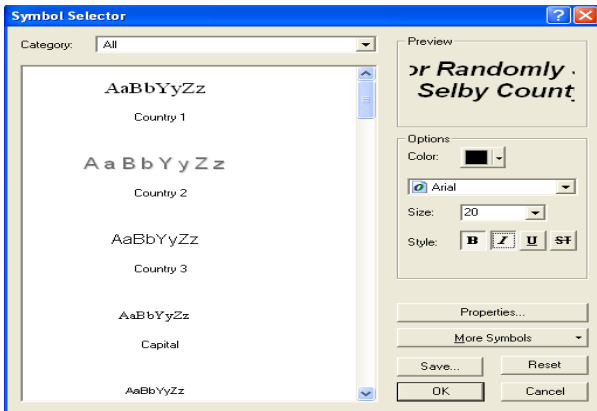
Go to **View/Layout**

Insert a Title for the Map



Enter Map Title

Click **Change Symbol** to change font

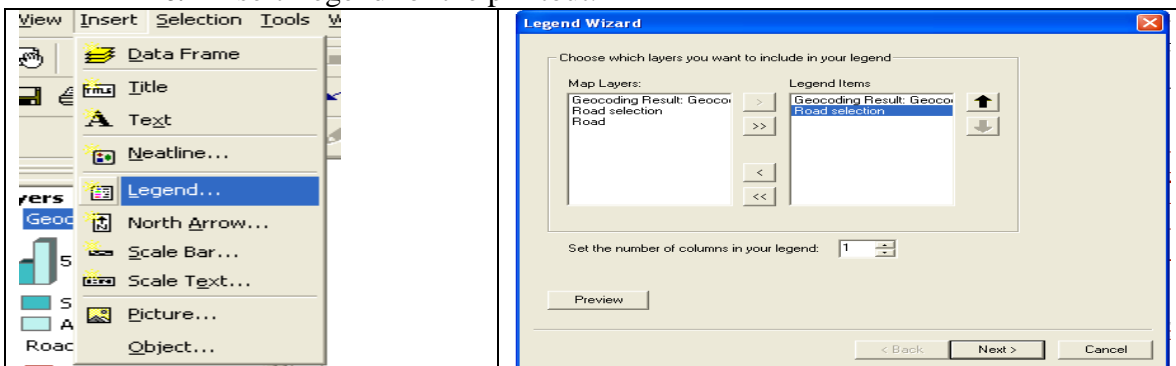


Change title's format from this window.

Click OK twice.

Move title box up a little bit if it is necessary.

c. Insert Legend for the printout.



Insert Legend.

Choose the layers for legend, click a few times of Next until Finish. Finally, move the legend to the corner of map.

The final map will be looked like the one below.

