

## #6a – Add Photo to GIS Project

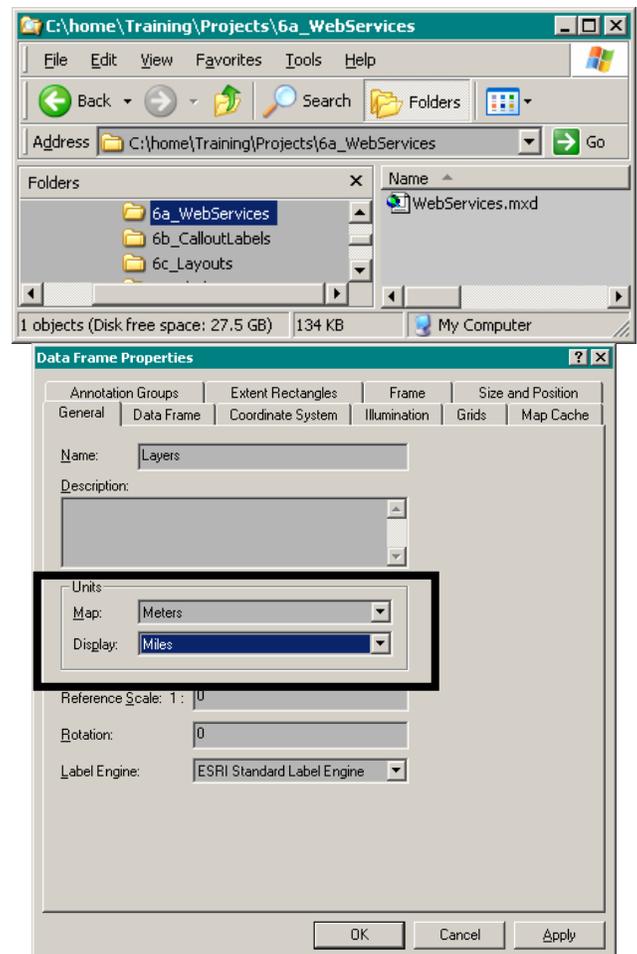
The goal of this exercise is to add an aerial photo to a GIS project, when you do not have access to, or cannot find the imagery you need on the GIS server. The following process will walk you through connecting to the APFO web services. You will NOT download the data, you will just be able to add it to your project, even though the actual imagery is located remotely.

**Tasks you will learn in this Exercise:** Adding NAIP Imagery from an ArcIMS Web Service, Rename data sets (shapefiles), Symbolize datasets, Table of Contents, Insert Data Frames to add an inset Locator map, Change Selection colors (highlights) to draw emphasis to a small area.

NOTE: If both ArcCatalog and ArcMap are open at the same time, some changes made to one may not be reflected in the other. It is always best to only have one open at a time. Also, become familiar with “refresh” methods – click on F5 button, or View – Fresh, or refresh icon at bottom center of ArcMap documents.

### Initial Project Setup:

1. Open ArcCatalog.
2. In your **C:\Home\Projects** folder, create a new subfolder called **WebServices**. This is where you’ll work from on this exercise.
3. To Begin and Save your Project:
  - a. Open ArcMap – click on New Map.
  - b. Then click on **File - Save As –**  
**WebServices.mxd** *Make sure you navigate and save this project to your C:/Home/Projects/WebServices folder.*
4. In the “Table of Contents”...which is the left pane in ArcMap,
  - a. Right-Click on **Layers** (Also called the Data Frame.)
  - b. Select **Properties – General**
  - c. Set the following Units:
    - i. Map to Meters
    - ii. Display to Miles
    - iii. Click OK and close.



### Reminder:

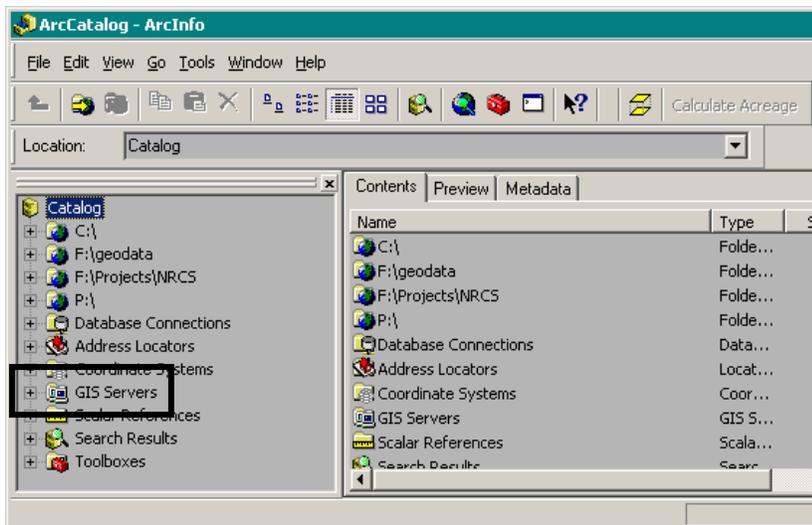
If you had already added one of the shapefiles that we’ll be using in this lab to your project before doing Step #3, ArcGIS would have automatically registered that the Map Units were Meters.

Also recall that the “Display: Miles” is what is used when you add a Scale Bar to your Layout – distance will be measured in miles (vs. feet, meters, etc.).

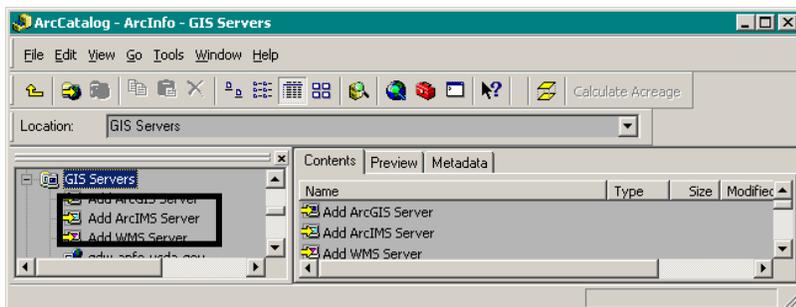
## Begin the Process

The following will walk you through the process of adding **APFO** imagery to your project

5. Open ArcCatalog.
6. Close all of your “-“ boxes until the Catalog Tree (left pane) looks similar to diagram at right.
  - a. Your diagram will differ depending on folder connections you’ve made in the past.
  - b. Your screen may just show that you are connected to the “C” folder (which ArcCatalog automatically does).
  - c. In the next step we will focus in on the GIS Servers (see box at right).

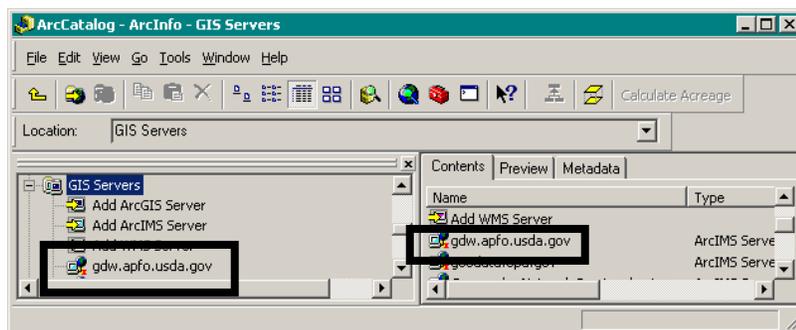


7. Double-click on “GIS Servers” to open. You will see 3 choices:
  - a. “Add ArcGIS Server”
  - b. “Add ArcIMS Server” and
  - c. “Add WMS Server”
  - d. In the next step we will focus in on the “Add ArcIMS Server” (boxed at right).



**NOTE:** If, however, you see the diagram at right – in particular the red “x”, that means you have already gone through the process of connecting to the appropriate server.

In this case, **Skip Steps # 7 thru #11.**



FSA’s APFO stores all of its imagery, and has created an ArcIMS website that allows outside users to access the photos.

8. Double-click on **Add ArcIMS Server**.

A dialog box will open. The one on the left is the empty dialog.

9. In the gray box after “URL of server, and AFTER the **http://** type in the following.

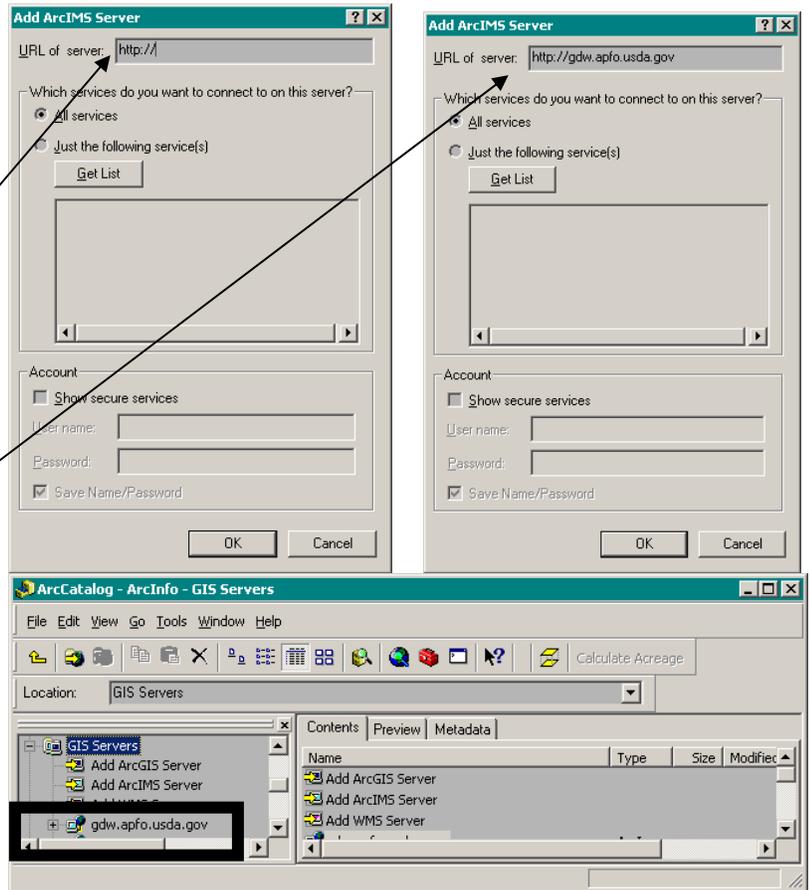
**gdw.apfo.usda.gov**

The diagram at far right shows an example of how this will look after you’ve entered the information.

10. **Click OK.**

11. The dialog box will close and if you look back in the Catalog Tree (left pane), you will notice a new internet folder.

12. Click on the “+” sign in front of **gdw.apfo.usda.gov**



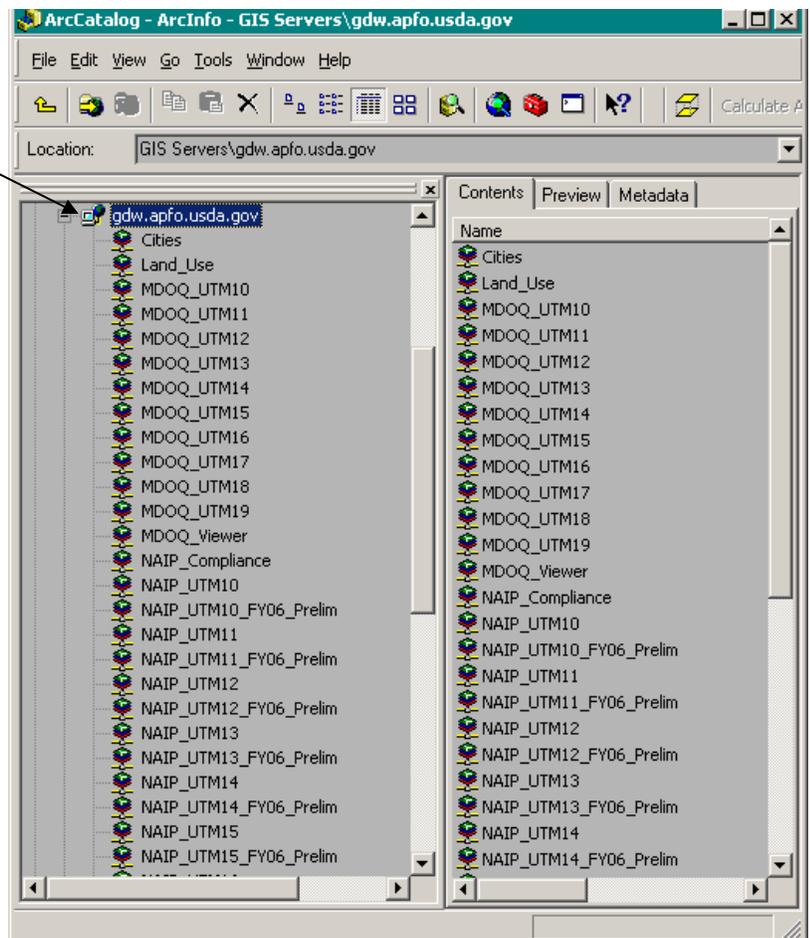
13. Then click on **gdw.apfo.usda.gov**. ArcCatalog should now resemble the diagram at right.

14. What’s displayed are complete strips of imagery for each UTM Zone (basically, a 6 degree wide zone running from 84 degrees North latitude to 80 degrees south latitude).

- Now granted, we don’t want to view imagery for Texas, but, again, this is a quick way to view imagery when you cannot access it locally. Once you’re zoomed into your area of interest, redraws will occur quickly.

So, let’s take a look at how to bring this into an ArcMap project, and what the imagery actually looks like.

Also, remember this is just like connecting to a new folder, so you will now be able to add this imagery to your ArcMap projects.

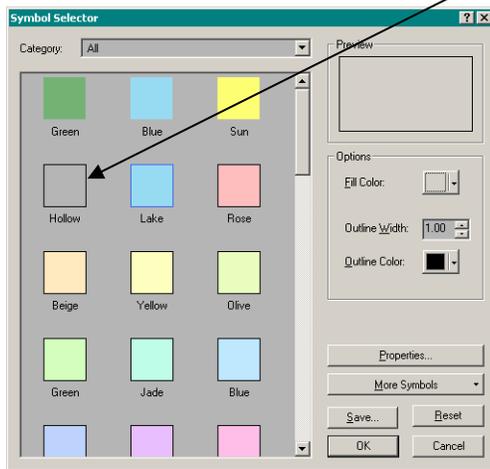
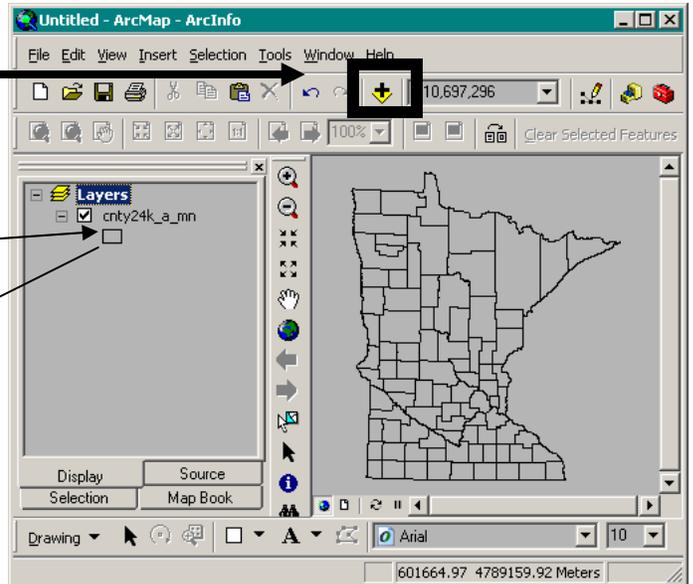


15. If your project is not open, reopen ArcMap.

- a. Click on the “add “ button, navigate to and add the following dataset:

f:\geodata\government\_units\cnty24k\_a\_mn.shp

- b. Make the dataset “hollow” by clicking on the colored box and selecting the choice “Hollow.”
- c. Click **OK**.

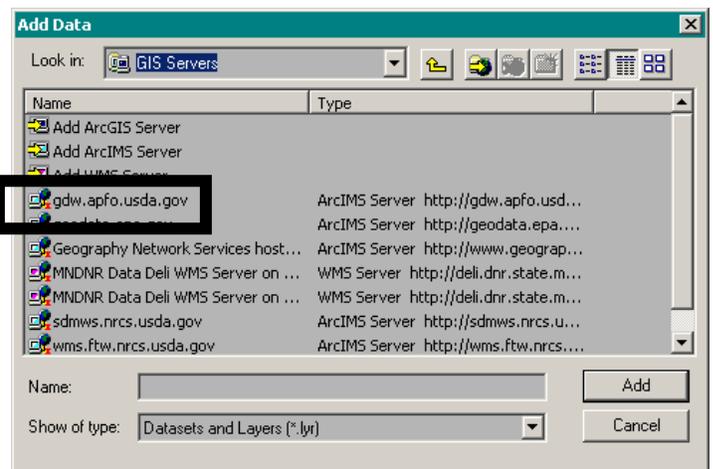


Your map should now resemble the above picture.

16. Now to add the imagery. Again, click on the “Add” button and let’s navigate to the **gdw.apfo.usda.gov** website.

- d. Click on the “down black triangle” next to the “Look in:” gray box. Select **GIS Servers**.

17. If you need to, Double-click on “GIS Servers” again to see the choices below. The dialog box at right opens and you can see that the **apfo** website is shown, but it has a red X. This just means that it is not activated, or not in use yet.

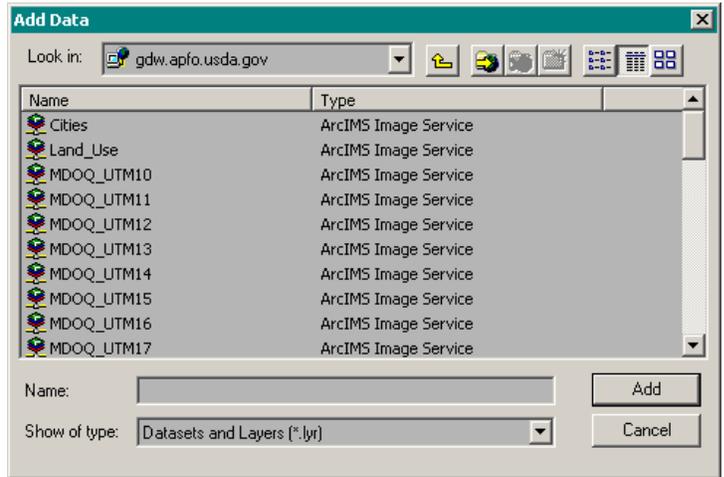


18. Double-click on the **gdw.apfo.usda.gov** link.

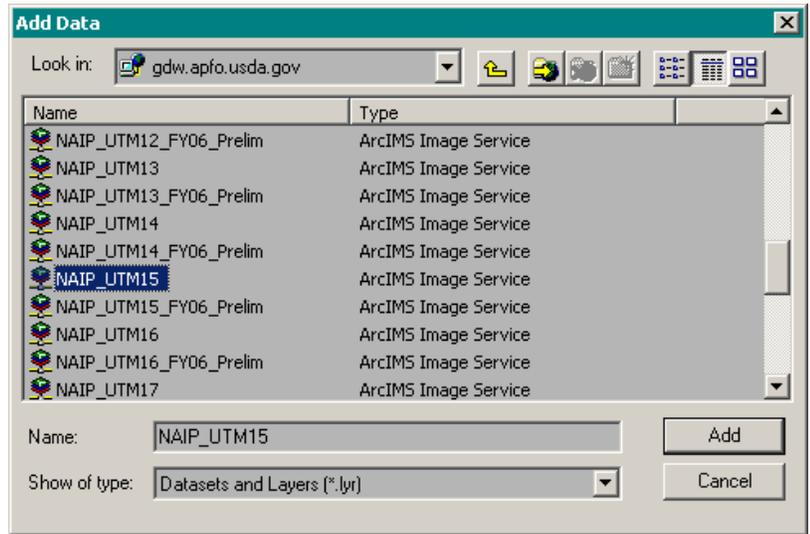
19. You will now see the dialog box shown at right.

These are different types of ortho imagery that can be viewed by users across the country. Here in MN, we deal with UTM Zones 14, 15 (and at the tip of the Arrowhead region – Zone 16).

Zone 10 is for California and Zone 19 is Maine, so these zones encompass the full United States.



20. Next, Scroll down until you reach “NAIP\_UTM15”. Select it (to highlight it) and click **Add**.

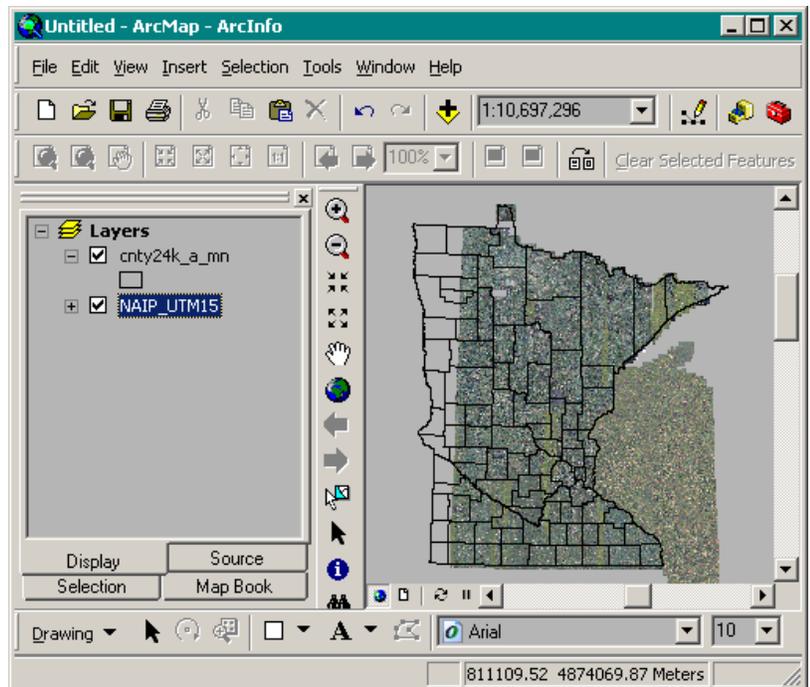


21. When the NAIP is added to your project, it will resemble the diagram at right.

As you can see at right, UTM Zone 15 does not include all of Minnesota.

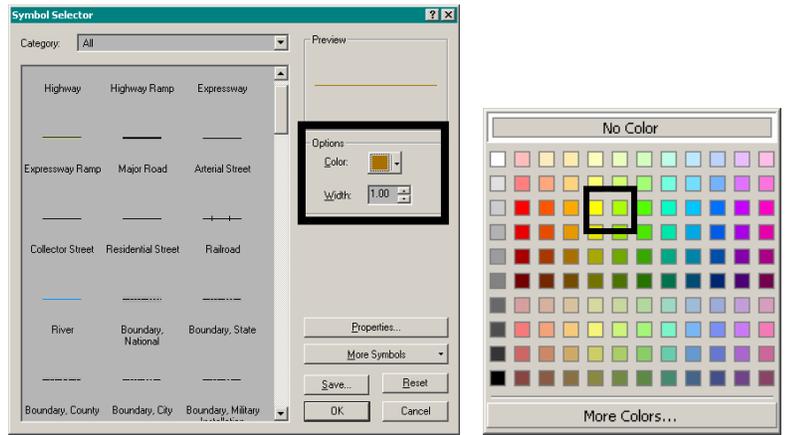
The western counties are actually in UTM Zone 14, so if any of these counties were your area of interest, you would just add in Zone 14 instead.

Or, you could add in both Zone 14 and Zone 15 and they would overlay in your project, allowing complete state coverage. [BE SURE TO ADD YOUR LOCAL DATASET FIRST, OTHERWISE YOU’LL SEE NAIP FROM MINNESOTA TO TEXAS.]



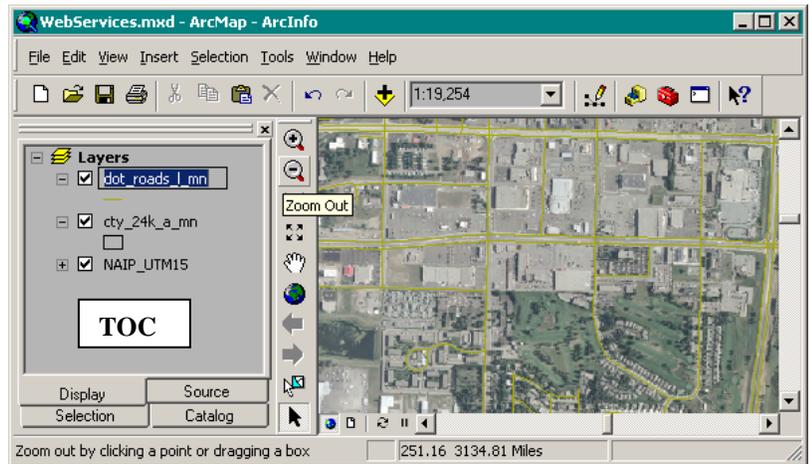


- b. The first dialog box to the right will open.
- c. Click on Color. The dialog box at far right will open. Select a bright color – I chose bright yellow.
- d. You can also change the Line Width. Minimum should be 1.00 – experiment to see what works best.



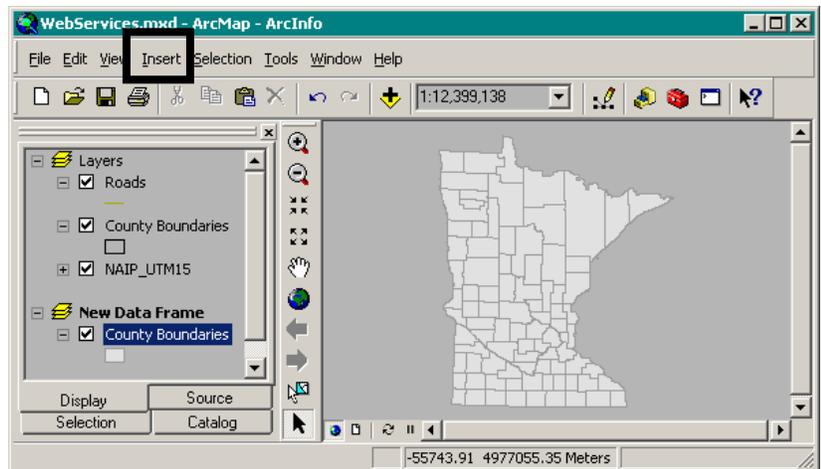
26. At right is a diagram of the area of interest which includes the NAIP imagery as well as the DOT roads. Let's clean-up a little and change the dataset names in the left pane, called the Table of Contents (TOC)

- a. Left-click once on **dot\_roads\_1\_mn**.
- b. Left-click a second time and you'll see you a box around the name.
- c. You can now retype "**Roads**" and hit **Enter**.
- d. Do the above for the "cty\_24k" and rename to "**County Boundaries**" and hit **Enter**.



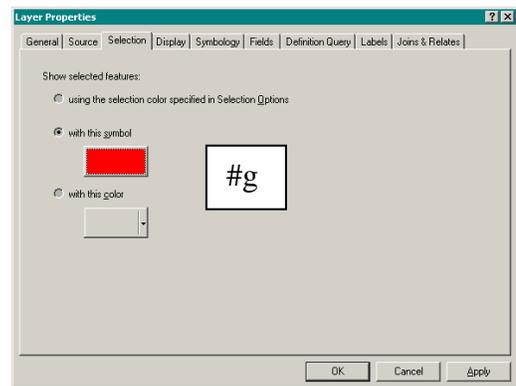
27. In preparation for creating a final map layout, you will create a "Locator" map showing where Stearns County is within Minnesota.

- e. Click **Insert – Insert Data Frame**
- f. Left-Click on **County Boundaries** from "Layers" and just drag down to the "New Data Frame."
- g. Using the instructions from above, change the fill color and outline color to a light gray/dark gray respectively.



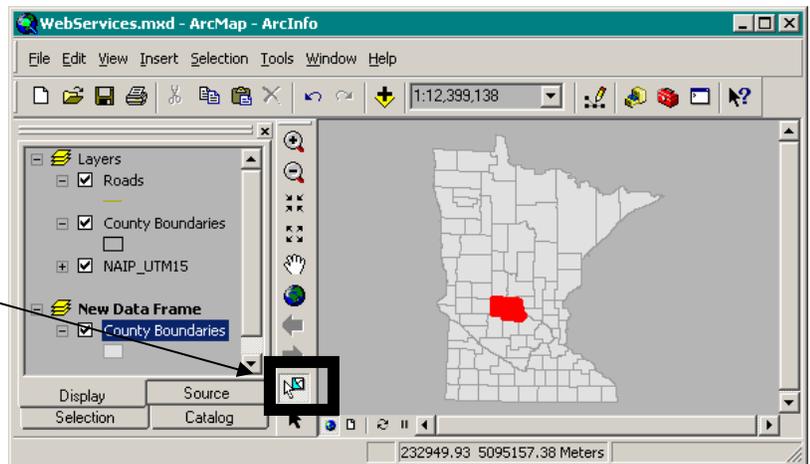
28. To really make Stearns County stand out we need to adjust some settings. To do this:

- Right-Click on **County Boundaries**
- Select **Properties** (bottom of list)
- Click on **Selection** Tab
- Click on middle radio button “**with this symbol**”
- Click on the Symbol – dialog box at far upper right will open.
- Change Fill Color and Outline Color to a bright Red. Click **OK**.
- Result will look like dialog box at right. Click **OK**.



29. Back in the TOC,

- Click on the Select Tool
- Click on Stearns County to highlight.
- Your data view should resemble that at right.



You are now ready to begin creating your Layout.

Proceed to the “#6b - How to Create Call-out Labels” Exercise if you are continuing.