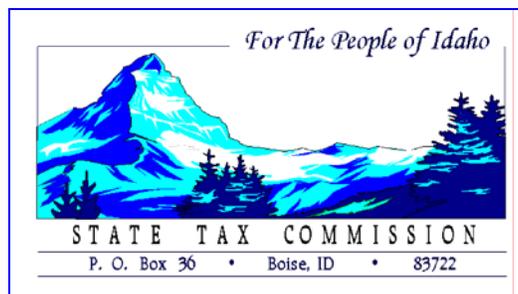


# Creating Map Layouts in ArcGIS 8.3

Idaho State Tax Commission  
September 2003



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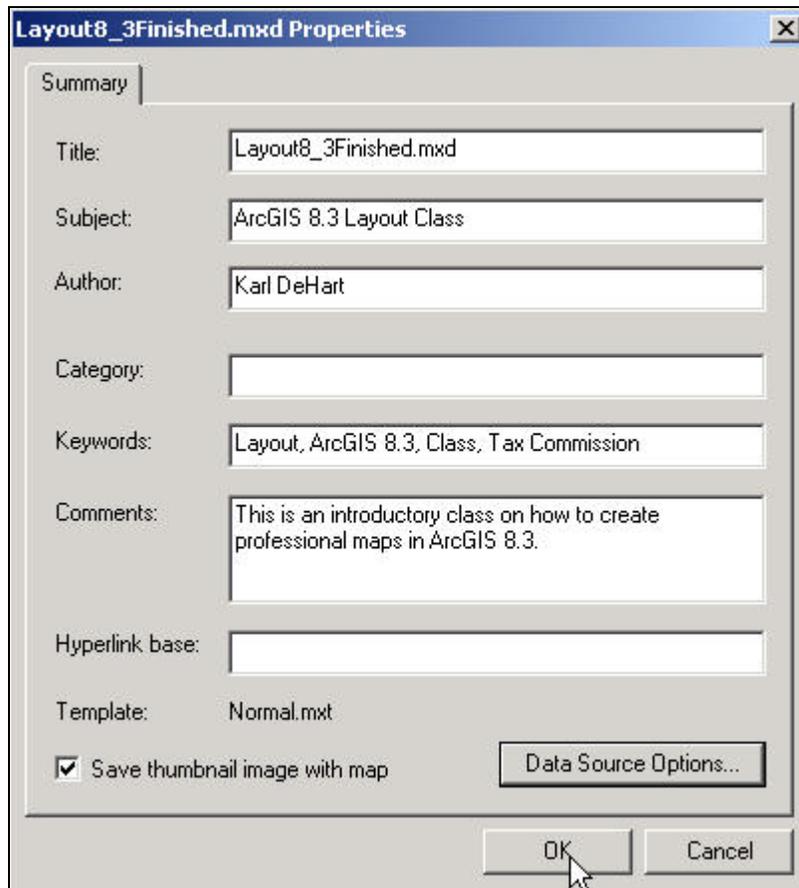
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## Section 1:

### Map Properties

We will start by opening ArcMap and then opening the d:\layoutclass\layout8\_3.mxd. This project has the data already in the Data View that we will be using to make our layout.

Go to the **File** drop-down menu and select **Map Properties**  **Map Properties...**. In the **Map Properties** dialog, you can change the name of the map document and add metadata type information that would be beneficial to other users.



**Layout8\_3Finished.mxd Properties**

Summary

Title: Layout8\_3Finished.mxd

Subject: ArcGIS 8.3 Layout Class

Author: Karl DeHart

Category:

Keywords: Layout, ArcGIS 8.3, Class, Tax Commission

Comments: This is an introductory class on how to create professional maps in ArcGIS 8.3.

Hyperlink base:

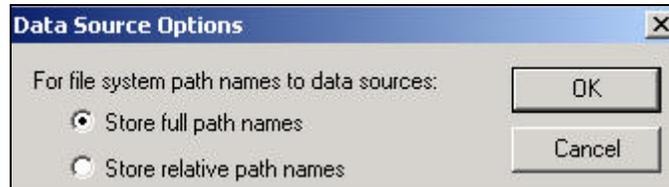
Template: Normal.mxt

Save thumbnail image with map

Data Source Options...

OK Cancel

The **Data Source Options** give you the option of storing path names as full path names or relative path names. This involves hyper-linked information so we do not need to worry about it in this class.

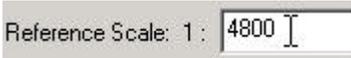


Section 2:

## Data Frame Properties

Right-click on the **Layout view** (middle of view) or the **Data Frame** in the Table of Contents and choose **Properties** from the drop-down menu. The **Data Frame Properties** window will appear; it has eleven tabs. We will not look at all these tabs, only the **General** tab.

Add/change the name of the data frame and add a description. In the **Units** box, set the **Map** units to the units of measure used in the projection for the data – in this case, **feet**. Set the **Display** units to whatever unit of measure you want to use when using the measure tool . (Note: The Map units must be set to match the unit of the projection of the data. If there is no projected data, then you do not have to set it.)

**Reference Scale** : The scale of the data frame used, as the reference scale, to which all symbols and text in the data frame will be made relative. Setting a reference scale is like "freezing" the symbol and text sizes, used in your data frame, so the way they look at the reference scale is maintained at all scales. Regardless of the map scale, text with a reference scale always takes up the same amount of geographic space on the map.

In our case, we will set the **Reference Scale** at **4800**.

The **Rotation** simply spins your view the number of degrees, + or -, you specify. We won't change the **Rotation** or the **Label Engine**.

## Section 3:

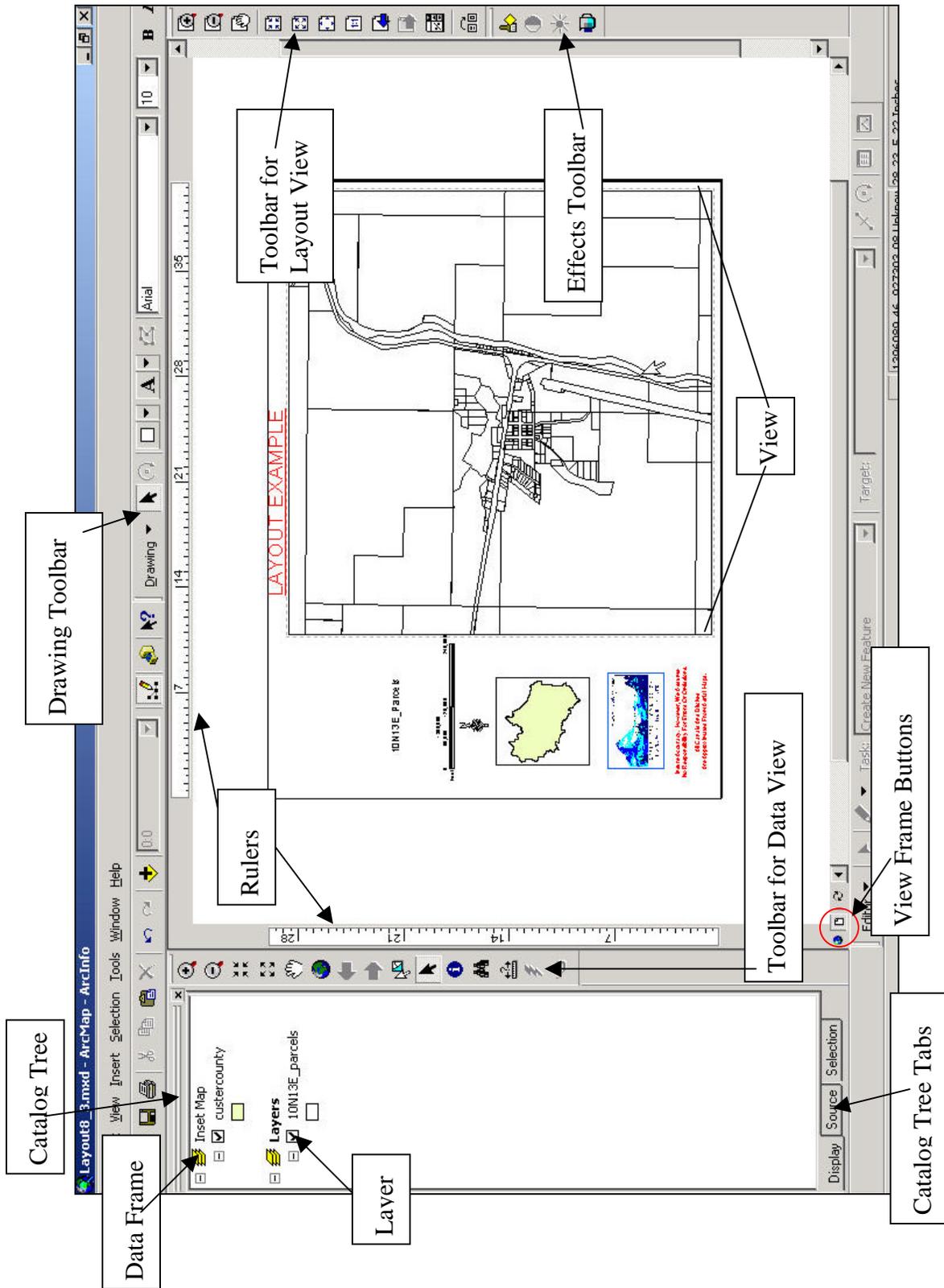
### Layout View

The **Layout View** page is where you prepare maps for production or presentation. This page is where you place map elements such as: titles, legend, scale bar, and north arrow (*see page 6*).

To access the **Layout View** page, click on the **Layout View** button at the bottom left of the view frame . This will switch you to a view with the Custer County data frame visible on the page.

If you use the **Select Elements** tool in the **Layout View** it will only be able to select layout graphics and text. The elements you add to a Layout View are saved in the data frame.

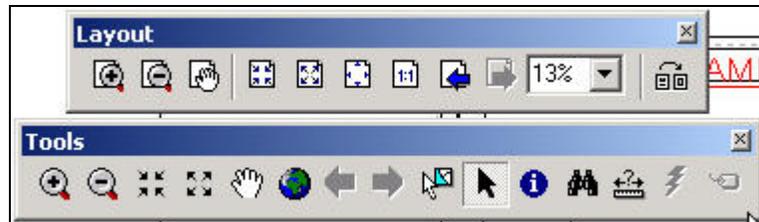
You are able to edit your data in the **Layout View** but this work needs to be done within the data frame or you may get some unexpected results. Editing is accomplished by selecting the **Editor** button  on the Editor toolbar and then choosing Start Editing.



## Section 4:

### Toolbars

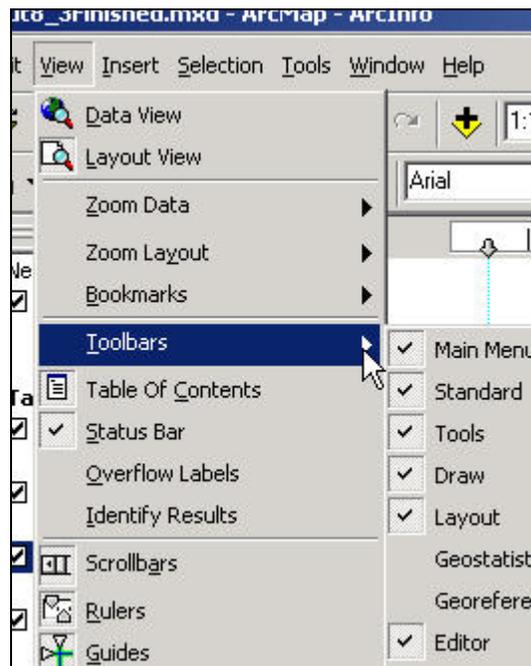
The **Layout View** has its own toolbar. You must be careful to use the correct toolbar. You can manipulate both the **Data View** and **Layout View** from this page. The toolbar labeled **Tools** manipulates the **Data View** and the bar labeled **Layout** manipulates the **Layout View**.



Toolbars can contain menus, tools, buttons, combo boxes, or edit boxes. All toolbars can be floating or docked, just like in Word. A floating toolbar is one that is free floating over your view. The docked toolbar is set into a border of the view on any side. You can even create custom toolbars of elements that are frequently used.

Dock and undock a couple of the toolbars and set things up the way you want.

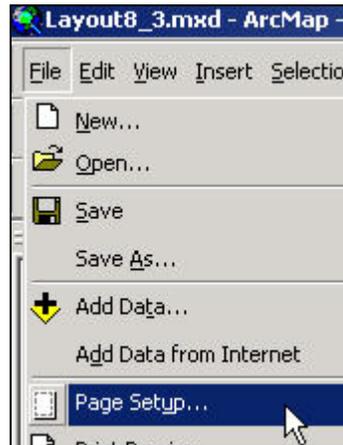
If you need to add toolbars, go to the **Main Menu** choose **View** and then **Toolbars**. Check the toolbars you want to appear on your map, or uncheck the ones you don't want.



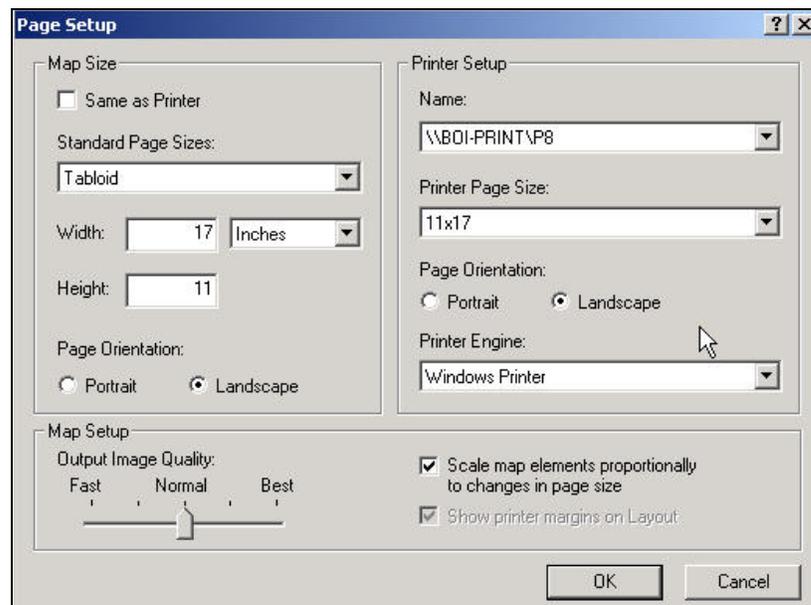
Section 5:

## Page Setup

We are going to set the map to be tabloid size, 11x17, and landscape. Go to the **File** menu and choose **Page Setup**.



The **Page Setup** window will appear.



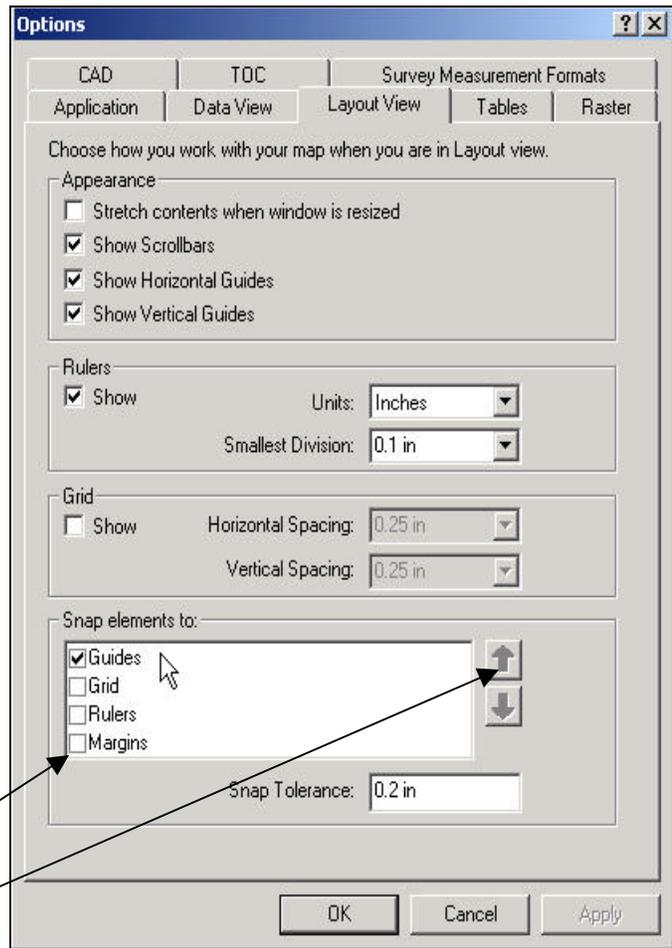
**Uncheck Same as Printer.** If you are going to share this map document with someone that does not have access to the same printers as you, then you need to *uncheck Same as Printer*. **Same as Printer** ties your page setup to the specific printer parameters.

Change both the **Standard Page Sizes** and **Printer Page Size** to *Tabloid (11x17)* and the **Page Orientation** to *Landscape*. Leave the box *checked* for **Scale map elements proportionally to changes in page size**.

## Tool Options

Go to the **T**ools menu and pick **O**ptions at the bottom of the drop down menu. The window below will appear. We will look at four tabs: **L**ayout **V**iew, **T**OC, **R**aster, and **D**ata **V**iew.

Click on the **L**ayout **V**iew tab. Here we have several options that will assist with activating helpful tools in our view, for creating a map. We want to show the **S**crollbars, **G**uides, **R**ulers, and **S**nap to **G**uides. Set the **S**nap **T**olerance: according to the size of your map, the larger the map generally the larger the snap tolerance. If you set your **S**nap **T**olerance to high, on a small map with lots of elements, you may have objects move that you don't want to move. Setting your **S**nap **T**olerance to small, on really large maps, makes it a tedious task to get the object to snap to the guide. If you check more than one item in the **S**nap **e**lements to box, the order from top to bottom, will be the priority order to which elements in the map will be snapped. If desired, *highlight* the object you want to move and use the arrows to the right to change the order.



Next, click the **T**OC tab. We are going to add the selection tab to the **T**able of **C**ontents so we can easily specify the layer we want as the selectable layer. Check the box next to **S**election in the **T**OC tab options box.

Click the **D**ata **V**iew tab. We can change the Scrollbars, and how the view resizes when changed. If it isn't picked already, *choose* the radio button  for **R**edraw the **D**isplay.

Click the **R**aster tab. This is just to show you what is here. If you work with Raster data you will want to remember this page. It is here where you can select what kind of images you want ArcMap to recognize, set when to have pyramids built (allows quicker display of large maps), and change color scheme for the images.

Section 7:

## Components of a Map Layout

Title	Descriptive text (optional)
Map (View)	Inset maps (optional)
Legend	Neatlines (optional)
Scale bar	
North arrow	

Section 8:

## Setting Guides

In the tool option section above we activated **Snap to Guide**. Guides are useful to manage the elements on your map so they are arranged perfectly. We will use the guides to set the view frame, but not the other elements of the map; we will use the alignment tools for those. Map elements only snap to the guides at their edges.

We want to arrange the **Layout View** to be **5** inches from the left, and  $\frac{1}{2}$  inch from the edges. We also want a neatline around all the elements to be a  $\frac{1}{2}$  inch for all edges.

To add a guide, simply click on the ruler where you want the guide to be set. Now add guides at the measurements mentioned above. If you set a guide in the wrong spot, you can left-click and hold on the guide arrow, then slide it up and down the ruler to where you want it. To manage guides, right-click on the guide arrow. In this window, you can remove a guide, hide the ruler, or choose options, and this will go to the window for tools options where we chose **Snap to Guide** (page 7). As you can see in this dialog window, another way to set a guide is by right-clicking on the ruler and choose **Set Guide**.



Now we will set the **View Frame** to fit these guides. Click once within the **Layout View** to activate the handles. It does not matter which handles you use, move your cursor over the handle so it changes to directional arrows.



Click and hold the handle then slid the edge to the appropriate guide.

You will see it snap to the guide. Adjust each side of the view and the neatline, to the guides.

## Section 9:

### Style Palette

There are an enormous number of styles available in ArcMap. The styles are broken into industry-specific groups to assist you when looking for specific symbols or elements to add to your map. By default, when you save a symbol, a personal style sheet is created on your **c:drive**. You can also create styles and place them on your network for others to use.

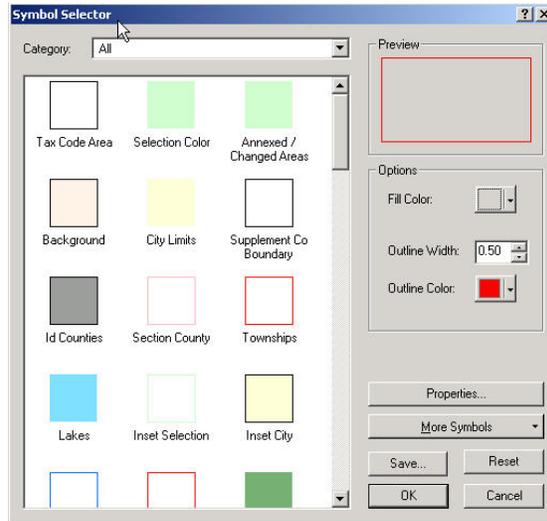
ESRI symbols are common ones, and the use of widely recognized symbols helps you to communicate with the map users. So, when possible, avoid creating your own unique symbols and elements when an easily recognized one already exists. Styles help you maintain standards for symbols, colors, patterns, and methods between your maps, which can help create a professional appearance to the maps sent to your customers.

The ESRI Styles and your **c:drive** style are displayed by default. We can change this to display only your **c:drive** style and the custom style one we create.

First, let us explore what the default shows.



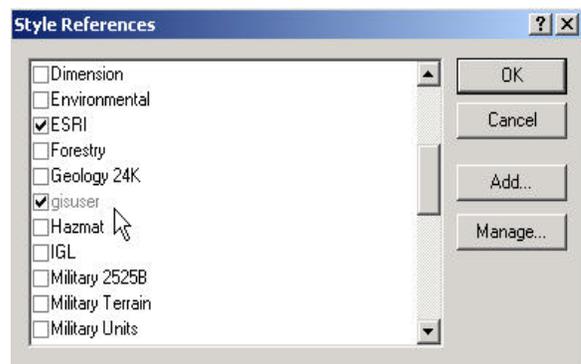
Click once on the symbol for the **custca04** layer and the **Symbol Selector** window will appear. If you scroll down, you notice that the **ESRI** default has a large list. We do not want to search through all these symbols every time we want to modify a symbol or element, so we will deselect the **ESRI** style.



If we do not want a **Style** referenced, go to the **Tools** menu , then **Styles**, then choose **Style Reference**, as shown below.



The **Style References** window will appear. This is where you can set the default **Styles** that would appear on your **Symbol Selector** window. In this example, both **ESRI** and **gisuser** are checked. These are now referenced and their symbols and elements are available throughout ArcMap. Notice that **gisuser** is grayed out. It cannot be unchecked; this is the default style created on the **c:drive**. *Uncheck* the **ESRI** style. This will only be maintained for this **.mxd**. It will change back to the **ESRI** default when a new document is created. Return to the **Symbol Selector** window. What has changed?

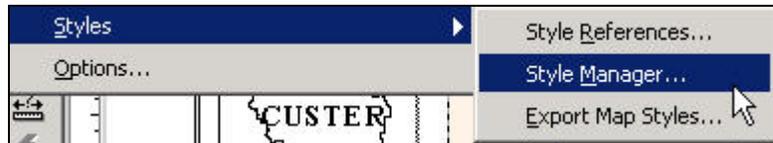


Section 10:

## Create Custom Style

Creating a style for your office is an important step in maintaining continuity, or standards, for the maps produced. We will create a custom style and then go over a couple ways to add new elements.

To create the style, go to **T**ools, then **S**tyles, then **S**tyl**M**anager.



The **Style Manager** window will appear. In the left column, (**T**able of **C**ontents) you should only find the two default styles; **ESRI** and the **c:drive**.

In the upper right corner of the **Style Manager** window, click the **S**tyles button. The menu of all the **S**tyles will appear. At the bottom of the list you will find two selections: **A**dd and **C**reate **N**ew.



Select **C**reate **N**ew... and a **S**ave **A**s window will appear. In this window, at the top, select where you want your new **S**tyl**e** to be saved. Place it in the **L**ayout**c**lass folder (on the network at your office) and enter in a name. Notice that your file will be saved with the extension **.styl**e.

Now click on the **S**ave button.

Notice in the **Style Manager** window your **S**tyl**e** appears in the catalog tree. At this point, the new **S**tyl**e** is empty. Click on the **plus sign**  next to your folder, and expand the new **S**tyl**e**. All the variety of symbols and elements are broken out into folders. If you create a line style, you will want to have it reside in the **L**ine **S**ymbols folder.

At this point, expand the **ESRI** style and look through the folders to see what type of items belong in each folder.

Within the custom style folder, the symbol folders are **white**; this means they are **empty**. They will turn **yellow**, once you have **added items** to them.



## Adding Elements to a Style

Add items to the folder by opening the symbol folder you want to add an element to, then right-click in the right window of the **Style Manager** window, and choose **New**.

Double-click on the line **Symbol** folder. Move to the empty window on the right side, right-click, and a dialog opens with **New** as the only active item. Move your cursor over **New**, and **Line Symbol** will appear. Click **Line Symbol**.



The **Symbols Property Editor** window will appear. We will create the symbol you need using the tools available. There are a plethora of choices to modify the symbols you want to create.

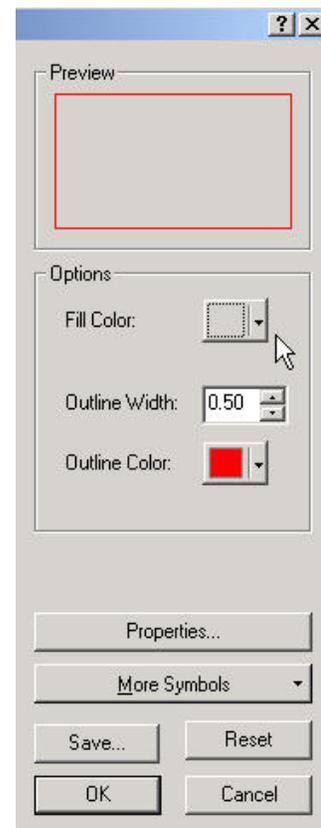
Using the tools available, create a **dashed line with large spaces** between the dashes.

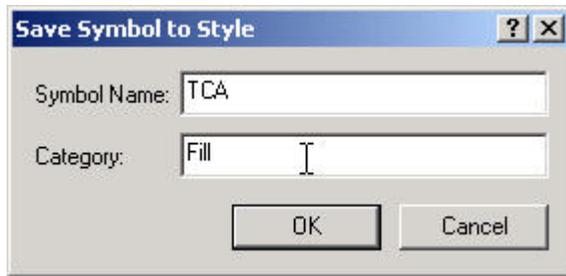
A second method, of adding items to your symbol folders, is to simply **copy** and **paste** them from existing folders. Open the **ESRI Style** and open the **Fill Symbol** folder. In the list that appears, right-click on **Hollow** and choose, **copy**. Return to your **Custom Style** and open the **Fill** folder. Right-click and choose **paste** in the empty window. This is how we will populate the **Custom Style** you have created.

Return to your **Data View**. We are going to change all the symbols for our layers. Click once on the symbol for the **custca04 layer**. The **Symbol Selector** window will appear. We want the symbol for this layer to be a **0.5red outline with no fill**. Using the tools on the right, create this symbol. The **Preview** pane, at the top, right will reflect your changes.

Click the **Save...** button at the bottom. The **Save Symbol** window, seen below, will appear. Enter a name for the **Symbol** you created and enter a **Category**. The **Category** is another tool to further organize your symbols within the **Symbol** folder.

Click **OK**, in the **Save** window, then click, **OK** in the **Symbol Selector** window.





The **Save...** button saves your symbol to your **c:drive** default **Style**. Once you have changed, and saved, all the symbols of the layers in the data frame, return to the **Style Manager** and **copy/paste** or **cut/paste** the new symbols to the **Custom Style**.

(Shortcut keys...**ctrl+a**, **ctrl+c**, **ctrl+x**, **ctrl+v** ...etc.)

## Section 12:

### Insert Map Elements

All the elements listed below can be accessed from the **I**nsert menu.

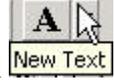
#### A) Title

By inserting the **T**itle through the **I**nsert menu , the title of the project (.mxd) will be inserted as the title. You can adjust the font of the text, after you insert the title, using the **D**raw toolbar buttons. One advantage, is that the title is centered on your map.

There are a couple of other issues with using this method for your title. The size of the title is a default relative to the reference scale we set on page 4. It usually is not what is needed for the map. An additional issue, the .mxd name, is rarely named an appropriate title for the map. File names should still be limited to 8 characters, and cannot have spaces between words, as many map titles do.

#### B) Text

A good alternative for the title, and to enter all other text, is to use the **I**nsert **T**ext

selection , or the **N**ew **T**ext tool . The primary difference is the text using the **I**nsert menu will automatically be placed in the center of the map. When using the **N**ew **T**ext tool, you can place the text wherever you want to.

If you know the font you want to use, set those values on the **D**raw toolbar before choosing either tool.



Set the font to be **Arial, 48**, and choose your own color. Pick the **N**ew **T**ext tool and move your cursor to the approximate area you want your title. Click the page once. A dialog box will open, and then enter in a title of your choice.

If you have a disclaimer saved as a word document, you can open the word document and **copy/paste** the wording into the text dialog box instead of typing in the information. The font selected in the **D**raw toolbar will overwrite the word document font, so make sure you change it from the title font you choose.

### C) North Arrow

The most difficult task when adding a **North Arrow** is determining which one you want to use! The **ESRI Style** alone has over 100 different **North Arrows**. Go to the **Insert** menu, pick the **North Arrow**, and click on the map. The **Symbol Selector** will appear, then start your search for your favorite arrow.

Since we do not want to search through these again, we will save your selected arrow symbol to your **Custom Style**, as we did before with the **Fill** symbol on page 11. You can also save your title text, and disclaimer text, to your **Custom Style**.

### D) Scale bar

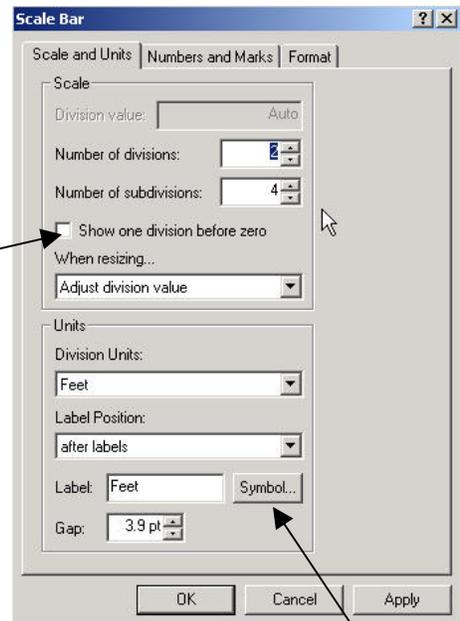
The **Scale Bar** can be frustrating if you insert it before you set the view image at the scale to be used. So, first, check your scale on the **Standard** toolbar to ensure it is set at **15000**.

When you choose the **Scale Bar**, from the **Insert** menu, the **Scale Bar Selector** window appears. Choose the type of **Scale Bar** you want to use, by clicking on it once. You will see your selection appear in the **Preview** frame.

Next, click the **Properties** button. The **Scale Bar** properties window will appear. We will change numerous items in this window. But first, take some time to explore what happens to your **Scale Bar** when you enter different values.

The values we want to enter are:

- a) Number of divisions: **“3”**
- b) Number of subdivisions: **“1”**
- c) *Check* the box for **“Show one division before zero”**
- d) When resizing...choose **“Adjust width”**
- e) Division Units: **“Feet”**
- f) Label Position: **“after labels”**
- g) Label: **“Feet”**



You can access the window, to make changes to the font of the label text, by clicking the **Symbol...** button.

Under the **Numbers and Marks** tab, once again explore the effects of each change. We won't set anything specific in this area, but make the changes you want for your **Scale Bar**.

The **Format** tab is where you will change the format of the text on your **Scale Bar**, and the colors of your **Scale Bar**. Again, we will not specify changes, but explore the effects of the changes made with these tools and make your own changes.

### E) Scale Text

**Scale Text** indicates the scale of the map and features on the map. **Scale Text** tells a map-reader how many ground units are represented by a map unit; for example, "one centimeter equals 100,000 meters." One drawback of **Scale Text** is, that if a printed copy of the map is duplicated at another scale (i.e., enlarged or reduced), the scale text will be in error. Scale bars do not suffer this limitation. Many maps have both **Scale Text** and a **Scale Bar** to indicate the map scale.

Insert **Scale Text** on your own.

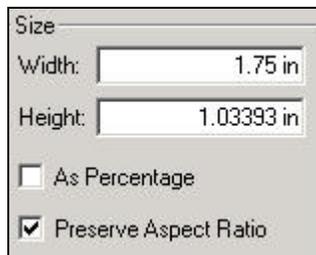
### F) Picture

Images can improve the esthetics of the map, but be careful so they do not draw attention away from the focus of the map. We will insert the State Tax Commission logo. As we have done before, use the **Insert** menu for this object. The first window that opens prompts you to select your image. Navigate to **d:/LayoutClass/**, select **ISTClogo.tiff**, and then click **Open**. The image will be inserted in the center of the view, and probably very large.

We will change the size using the properties, instead of grabbing the handles and shrinking them that way.

Right-click on the image. At this point, you have several options concerning the orientation and alignment of the image file. But we want to resize it, so choose **Properties**. Click on the **Size and Position** tab.

We want to check the **Preserve Aspect Ratio** button and then type in **1.75** in the **Width** box. Because we chose the **Preserve Aspect Ratio**, the **Height** will automatically adjust to maintain the images existing height/width ratio.



## G) Inset Map

The inset map is a Custer County reference map. We are going to add this data by creating another data frame. Pick **Data Frame** from the **Insert** menu options. A blank data frame will be inserted in the middle of the map.



Make sure the new **Empty Data Frame** is *active* in the **Table of Contents**, as we want to add data to it. Click on the **Add Data** button , or right-click on the **Empty Data Frame** and choose **Add Data**. Then navigate to the **Layout** folder and pick the Custer County shape file. Open the shape file.

An image of Custer County will appear on the map. Move the **Inset Data Frame** over to the left side of the map with the other elements we have added.

Now go to the **Table of Contents** and change the **Fill** pattern of the county symbol to be **hollow with a black outline**. After you change the fill pattern, save it to your **Custom Style**, you remember how by now.

**Area of Interest:** Now we need to add an **Area of Interest** rectangle to the inset map. It does not matter where you add it. Go to the **New Rectangle** tool on your **Draw** toolbar. Click the tool and draw a box over the county map of the **Inset** map. The box you create, by default, will be a solid rectangle; *change* it to a **hollow fill pattern** with a **.5 red outline**, then save this to your **Custom Style**.

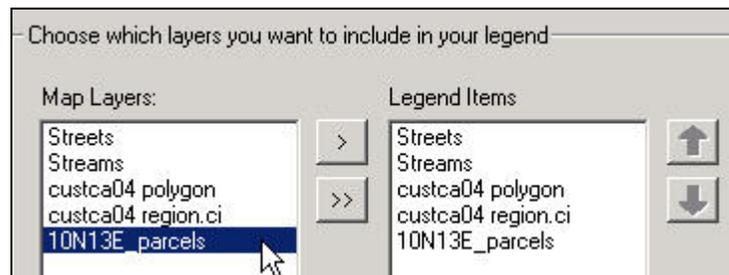


## H) Legend

As with the other items, we are able to manipulate the legend quite a bit. When you insert the **Legend**, you are prompted with a **Legend Wizard**. If only the Custer County layer is showing in this first window, the wrong data frame is active. If this happened, *close* the **Legend Wizard**, go to the City of Stanley data frame, right-click, and choose **Activate**, or double-click on the **Main View Frame** to activate it.

Re-insert the **Legend** on the map. You should see all the layers in the main data frame.

Here, we can choose which layers we actually want to show in the **Legend**. We will leave all the layers selected. Move a couple layers back and forth, move all layers at once, and rearrange the order of the layers, to familiarize yourself with how these operations work.



Once you have arranged the layers in the order you want them to appear in the

**Legend**, click the **Preview** button . The **Legend** will appear on the map. If everything appears to be ok, then click the **Preview** button again so the **Next** button reappears in the bottom right corner.

Click **Next**.

The next window will be used to edit the legend title. In this window, change the **Font** to “**16**” and “**bold**”, then change the “**Justification**” to “**center**”. You can look at the **Preview** again.

Click **Next**.

In this window, change the **Border** to a “**Double line**”, the **Background** to “**Grey 10%**”, the **Drop Shadow** to “**black**”, the **Gap** to “**20**”, and the **Rounding** to “**15%**.” Click on the **Preview** button and view the changes. Re-click the **Preview** button to turn it *off* and then make any changes you would like in this window.

Click **Next**.

This window is to change the symbol appearance. You can change symbols individually. For example, change the **streams layer** to the “**Flowing water**” symbol. Remember to keep the symbols similar in width to maintain a uniform appearance in your **Legend**.

Change the other symbols.

Click **Next**.

This is the last window. In this window, we manage the spacing between each item in the **Legend**. Make changes to the spacing and preview your changes. The **default** is **10.89** for the legend title, and **6.79** for the rest of the items. Change a few of these to see how the **Legend** changes.

Click **Finish**.

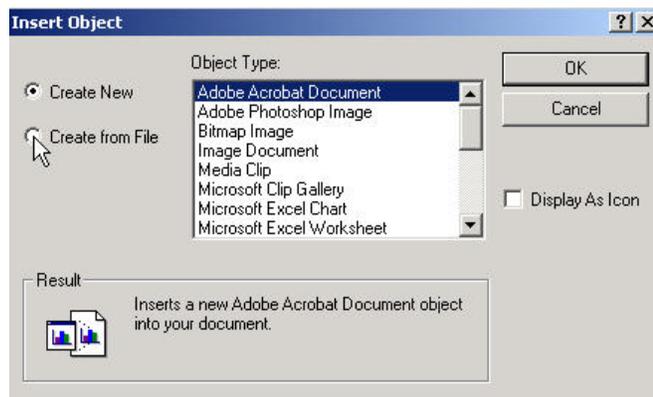
The **Legend** you have created will not be located where you want it on the map; move it to the left column with the rest of elements. Either drag it with your mouse pointer, or use your arrow keys.

## I) Table or Objects

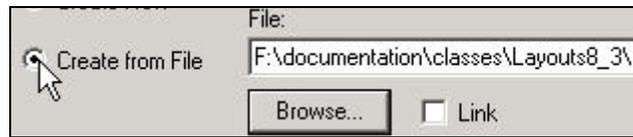
There is *not* an **Insert** table selection in the **Insert** drop down menu. **Tables** are found under the **Insert Object** selection . There are about twenty different object types that can be placed on your map; documents to .wav files (sound) to Power Point presentations. We are going to insert a **Word** table, the **List of Changes**. The document will be dynamic, so you could make changes to it as the information in the table changes.

In this first pop-up window, we can choose **Create New** object or **Create from File**. If you choose **Create New**, a new blank or empty object will be inserted. If you choose **Create from File**, you can insert any current object.

Choose the radio button for **Create from File**.

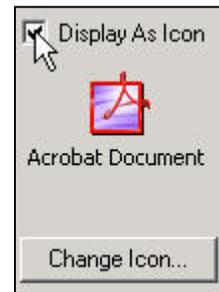


The **Object Type**: will change to a **Browse** menu. Navigate to the **LayoutClass** folder and open **TCA.doc**.



There are two other options on this window. You can check the box for **Link**  **Link** to create a dynamic link to the inserted object. When you do, the changes can be made to the original document and they will change in the file in the map document. Also, if you double-click the file on the map and make changes, these changes will appear in the original file. If left unchecked, changes to either will not be reflected in the other.

The second option is **Display As Icon**. When this box is checked, the object content will not be displayed on the map, but the **Icon** you choose will be. If you share these maps digitally, the user would only have to double-click the **Icon** to see the contents. This may be useful if the information you want linked is too large to be displayed esthetically on the map.



Click **OK**.

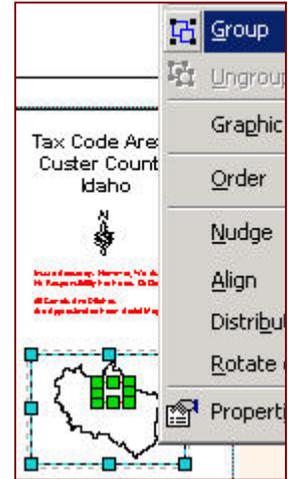
The object is inserted at the center of the view, move it to the left with the other elements. Place the table at the bottom of your elements, on the left.

The table that is inserted is too large. Usually, we can right-click on the element and get a properties window to make changes like size, but not with inserting an object. The size change needs to be done by left clicking, holding a handle, and shrinking the object.

## Aligning and Grouping Elements

### A) Grouping

If we align the elements now, the **Area of Interest** box will no longer be in the location we need it to be. To avoid having to deal with these two related graphics, we can group them. Grouping makes multiple elements act like one element. Select the elements you want to group together, then right-click and pick **Group**.



### B) Alignment

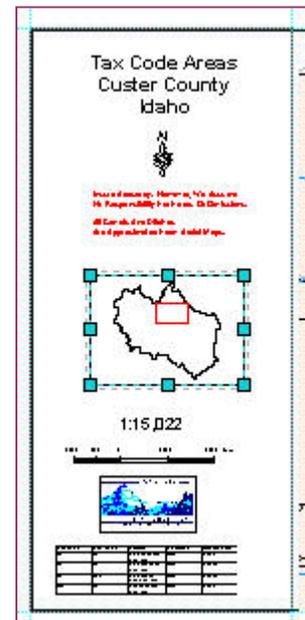
The elements arranged on the left side of the map are not aligned. These elements can easily be aligned and distributed (spacing) by using the proper tools. First, we need to solve the problem of the elements being centered between the view, and the neatline on the left.

We need to create a **New Rectangle**. Draw the rectangle around the elements on the left side of the map. After it is drawn, *snap* each side to the nearest guide. Now we have a map element we can use to center the other elements.

*(Note: Objects, such as the table we inserted, cannot be aligned or distributed with the other elements.)*

Using the **Select Elements** tool, draw a selection box around all the elements on the left side of the map, including the new rectangle we just drew. All the elements should be selected. You can tell when an element is selected because the adjustment handles appear around the element.

Hold down your shift key and click on the table. This should *deselect* the table/object that cannot be aligned.



We can access the alignment options by either right clicking on a selected element, or by going to the **Drawing** button on the **Draw** toolbar and choosing **Align**. We have the option to align right, left, top, bottom, or center.

Make sure the handles for the neatline box are **blue** and the rest are **green**. The **blue** handles indicate which of the graphics is the dominant graphic. The dominant graphic will be the one used as the guide for moving all the other graphics.

Choose to **Align “center.”**

Now all the elements will be centered within the neatline we created on the left side. Next, we will distribute the items evenly, vertically. We are going to set two more guides to help with this. As we did before, *set* two guides on the **vertical** ruler at **one inch from the top and bottom edge** of the map. These should be at the **1 and 10 inch** marks.

Nudge; *do not drag* the top and bottom elements toward these guides until they snap to the guides. If you try to drag the graphics with your mouse into place, you could move it out of center alignment. Click the top graphic so it is selected. Using your arrow keys, move it up until it snaps to the new guide. Repeat this for the bottom item; moving it down to the new guide.

Using the **Select Elements** tool, select all the items on the left except the table (object). Right-click on a selected graphic; choose **Distribute** and then **Distribute vertically**. This will space the elements evenly.

We have many options in the **Alignment** and **Distribute** menus. Experiment with these options and see what each does to the elements you select.



## Section 14:

### Labeling

We want to show the tax code area numbers so we can tell which tax code area any particular parcel lies within.

Go to the **custca04** layer, right-click, and choose **Label Features** from the menu. By default, ArcMap chooses an item from the **Attribute** field. Why any particular item is chosen over another for the default, is one of the great mysteries of the ESRI software. The current label is not the information we are looking for.

First, we need to determine the correct item name. Open the **Layers Attribute** table by right-clicking the layer and selecting **Open Attribute Table**. Scroll to the right. We see that **TCANUM** is the item name we need to use.

Close the **Attribute** table.

Right-click the **custca04** layer and choose **Properties**. The **Layer Properties** window will appear. Choose the **Labels** tab. We will change several items in this window.

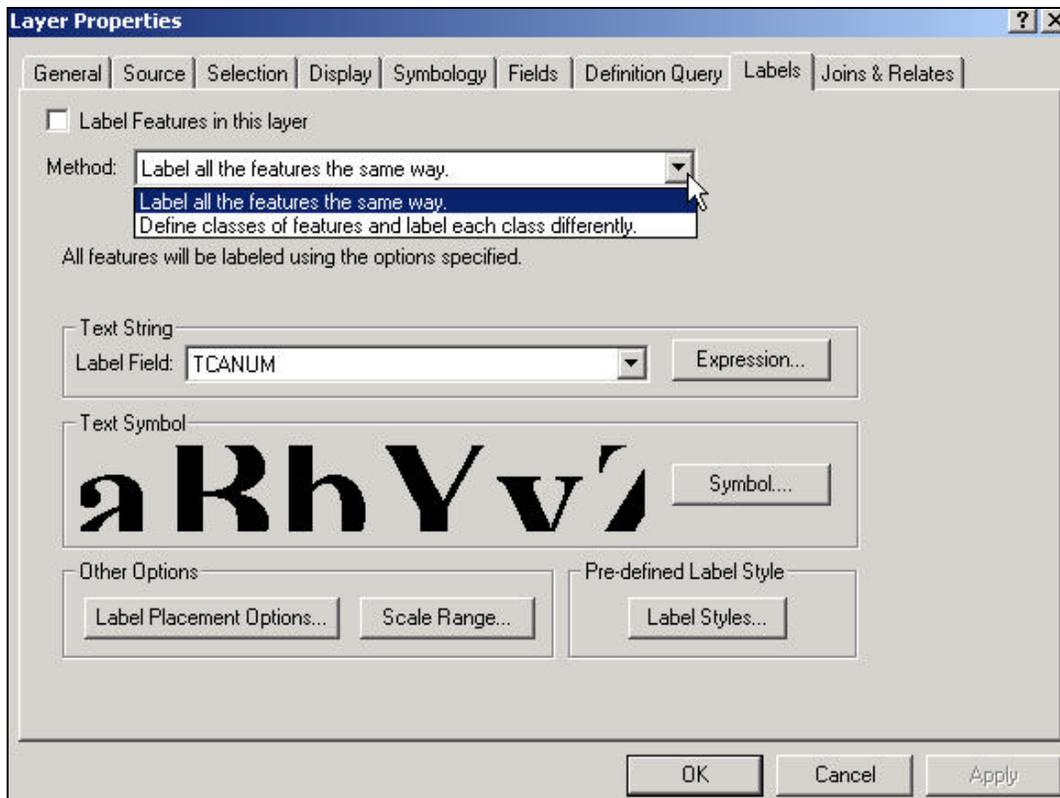
The check box for **Label Features** in this layer should be *checked* already.

For the **Method**, we will choose **Label all the features the same way**. If you choose **Define classes of features** and label each class differently, the **SQL Query** button would appear and you would compile code to create classes.

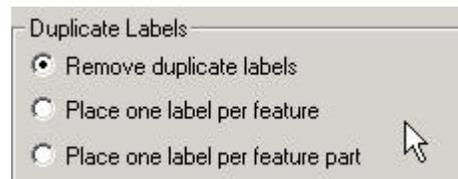
The **Label Field**, in the **Text String** box, is where you choose the item or field from the **Attribute** table to label the map.

Choose **TCANUM**.

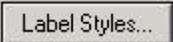
In the **Text Symbol** box, click on the **Symbol** button. Change the font to a size and color of your choice.



The **Label Placement Options** provides controls for your labels. The first option is **how** to place labels. As an example, a highway usually has many segments that are labeled but you do not need twelve labels placed on one feature in the map. In this case, you would choose **Remove duplicate labels**. If you need each feature to have a label because they are all uniquely identified, then you would choose **Place one label per feature part**. Also, for **Place one label per feature**, duplicate labels will not be removed. For multi-part polygons with the same label, and you want all the polygons to have labels, choose the **bottom radio button**. Choose **Remove duplicate labels**.



The **Scale Range** button  will allow you to set a scale at which labels will show or not show. If your map has many small polygons for a feature, and having the labels for those show on the map makes the map unreadable, than set a scale range for those labels. (*Note: These labels will not appear on a printed map*)

The **Label Styles** button  will bring up the styles with standard labels for you to choose from.

Look at the **Label Properties** for the **Streets** layer. There are a few more options for labeling line features.

Section 15:

## Annotation

**Annotation** is used when you have text you want to store to a specific position on your map. We can leave the text as a label, but you cannot manipulate the individual labels, which you can do with an **Annotation** label. You make changes to individual **Annotation** labels in the **Data View**. Label locations are manipulated and controlled by a set of placement rules, some of which we looked at on pages 25-26. We can manipulate the appearance of individual **Annotation** text.

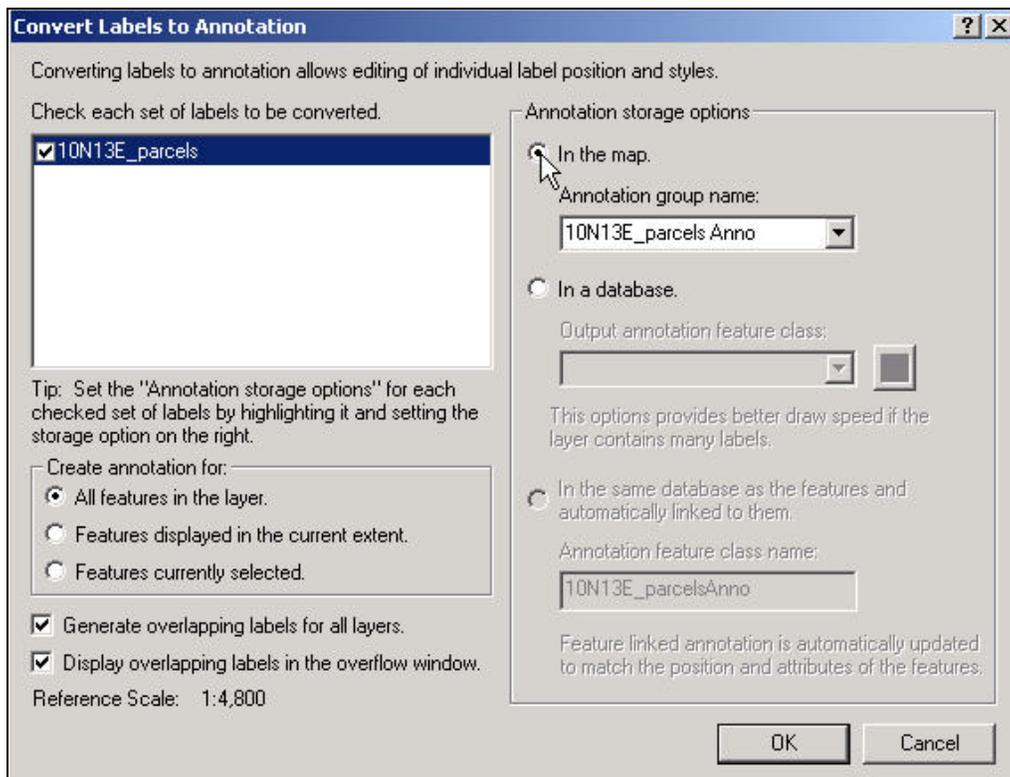
The window below the **10N13E\_parcel**s layer should be *checked* by default. Also, the default for storage options should be **In the map**.

The layers we are using include the whole county, but we are really only interested in labels in four sections. To avoid creating large annotation data sets, we can limit the area that is labeled.

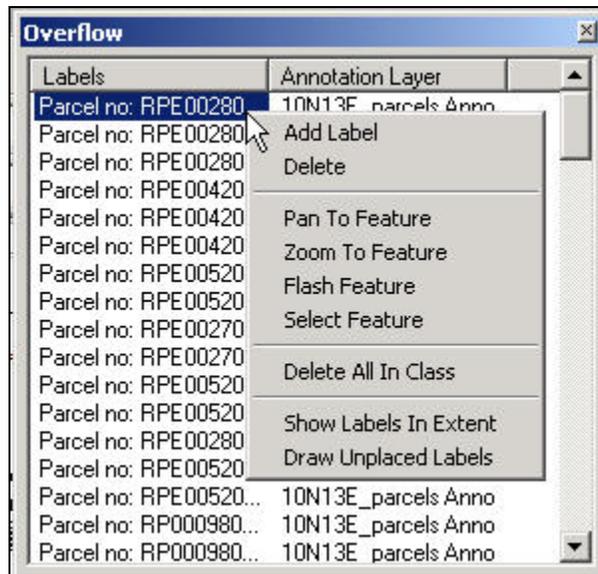
**In the Create Annotation for:** box, choose **Features displayed in the current extent**.

Leave the boxes *checked* for **Generate overlapping labels for all layers** and **Display overlapping labels in the overflow window**.

Click **OK**.



The annotation text **Overflow** window will appear. This is a list of all the labels that overlapped another label. Currently these labels do not appear on the map. By right clicking on one of the labels in the window, we get our options for manipulating these labels.



**Pan To Feature** or **Zoom To Feature** *do* move the **Data View** data. As a result, you will have to re-center the view if you use these functions. Use the options in the window to see how they work with the labels.

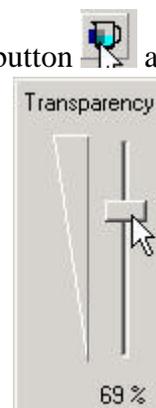
Section 16:

## Transparency

When overlaying two polygon layers that have **solid fill** symbology, the **Effects** toolbar allows you to make one “**see through**”. This is especially useful when working with raster data.



For the **Layer**, choose the **City Layer**. Click the **Adjust Transparency** button  and the **Transparency sliding scale** will appear. Move the **Transparency** to about **70%**. You will see that we can still distinguish the city layer, but now we can see the parcel lines under the city.



## Joining Tables

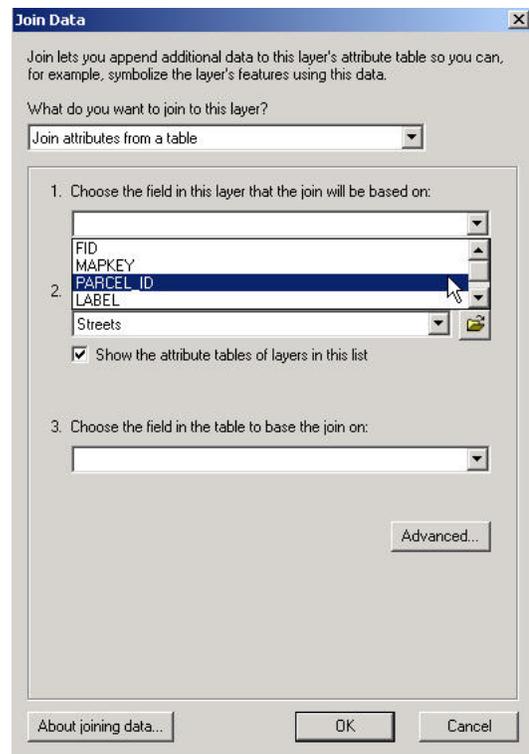
The typical reason for joining, an external table to a layers attribute table, is to extend the information available about the geographic features of your map. For example, linking CAMA data to parcel data allows you to use the CAMA data with a counties parcel layer. Joins are based on the common values of a field found in both tables. The field names do not have to match. With the parcel data and CAMA data there is a many-to-one relationship. In other words, there are numerous polygons with the same unique parcel number in the attribute table, but the CAMA table has that value once in the field we are linking it to (“many-to-one” relationship). You will use **join** for “one-to-one” and “many-to-one” relationships. Use **relate** for “one-to-many” and “many-to-many relationships.”

Right-click on the layer you wish to perform a **join** and choose **Joins and Relates**.

Choose **Join**.

The **Join Data** window will appear. The top drop down window gives the choice of “**joining to a table**” or “**doing a spatial location join.**” Choose **Join attributes from a table**.

1. Choose the **item/field** of the layer you wish to use for your join.
2. Click the **Browse** button, navigate to the **Layout8\_3** class folder, and choose **CAMA.dbf**.
3. Choose the **ParcelId** field from the CAMA data. It does not have to have the same field name.



Click the **Advanced** button. If our target table was a really large table, or we just don’t want to display non-related fields, then choose **Keep only matching records**.

The joined records will be appended to the attribute table.

PIN	county.PAR14	pcsale00.OID	pcsale00.SL_PAR_14	pcsale00.S
040A	RP09S19E333040	3048	RP09S19E333040	RP09S19E33

If you want to read more about joining data, then click on the **About joining data** button.

## Section 18:

### Scale for Plat Maps

By Idaho code, plat maps should be 30 x 36 (this is going to change) with a View Frame being 30 inches in width and height. At this page size, we can set some values in ArcGIS to help us manage maps. Note that the scale will change if you change the page size. We will compare the map, we created above, to these changes.

Open a **New** empty ArcMap project and from the Jerome folder in the **LayoutClass** folder, bring in the file **county.shp**.

Go to **Page Setup** and change the **page size** to **30 x 30**.

We want to have a layout with four sections in our view. If we want **1-inch to equal 400 feet**, we will set our **scale** at **1:4800**. If we **zoom** in to one section, then set the **scale** at **1:1200** and the **measure** will be **1 inch equals 100 feet**.

*(Reminder: A scale of 1:4800 means 1 inch on the map equals 4800 inches on the ground)*

Make these changes to your map.

## Section 19:

### Setting Extent

**Extent:** Setting the **Extent** is helpful when you do not want anything to change regarding the amount of data in your view. For example, the data we used for the Custer County map included the entire county. We could have set the **Extent** to only include the area we were interested in, and only that area would have been drawn. If you avoid drawing on large data sets, it will save you time.

With the Jerome data, we will set the **Extent** for four sections so we do not draw on the data set for the entire county.

First, go to the **Layout View** and move your cursor over the window. You will notice numbers changing in the bottom left of the window. The far left numbers are the **page measurement numbers**, and the others are the **X Y location numbers**.



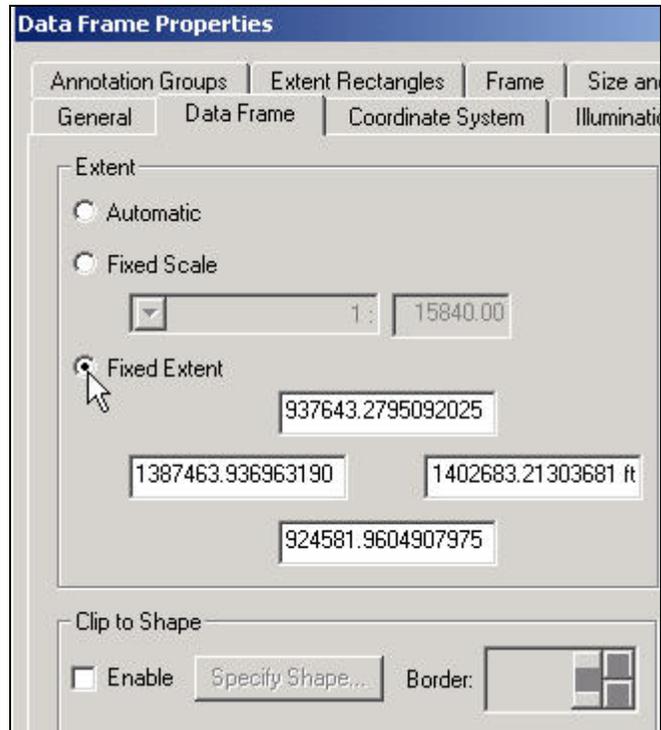
1393531.28 930893.94 Feet 8.82 5.17 Inches

**Record** the numbers when you move your cursor to the left, right, top, and bottom of the view to include what you want your view to contain. The **first number** will be used for the **east and west values** and the **second number** for the **north and south values**. You should have **four unique numbers recorded**.

Go to the **Data Frame**, right-click, and choose **Properties**. In the **Data Frame Properties** window, choose the **Data Frame** tab.

Choose the **Fixed Extent** radio button. The grayed-out values below will become active.

Enter in the values you recorded, and click **OK**.



Return to the view window and try to pan the view as before. The **Pan** and **Zoom** tools, on the **Tools** toolbar, are grayed-out. The view is *fixed*. If you change the size of the page, the view will increase but will still only include the data you want viewed.



Section 20:

**Glossary** (*Copied from ESRI*)

**Active data frame** - The data frame in the view that is currently being worked on. For example, the data frame to which layers are being added. The **Active data frame** is shown in bold text in the ArcMap table of contents.

**Attribute** - A piece of information describing a map feature. The attributes of a census tract, for example, might include its area, population, and average per capita income.

Or

A characteristic of a geographic feature described by numbers, characters, images, and CAD drawings, typically stored in tabular format and linked to the feature by a user-assigned identifier. For example, the attributes of a well might include depth and gallons per minute.

Or

A column in a table.

**Extent** - The coordinate pairs defining the minimum bounding rectangle (xmin, ymin and xmax, ymax) of a data source. All coordinates for the data source fall within this boundary.

**Item** - A column of information in an INFO table

Or

An element in the Catalog tree in ArcCatalog. The Catalog tree can contain both geographic data sources and nongeographic elements such as folders, folder connections, and file types.

**Join** - The process of attaching tabular data to geographic features. Attributes in an attribute table are appended to the features in a spatial data table using an attribute or item common to both tables.

**Layout** - The design or arrangement of elements—such as geographic data, North arrows, legends, and scale bars—on a digital map display or printed map.

**Layout view** - The view for laying out your map in ArcMap and ArcReader. Layout view shows the virtual page upon which you place and arrange geographic data and map elements—such as titles, legends, and scale bars—for printing.

**Scale** - The relationship between the dimensions of features on a map and the geographic objects they represent on the earth, commonly expressed as a fraction or a ratio. A map scale of 1/100,000 or 1:100,000 means that one unit of measure on the map equals 100,000 of the same unit on the earth.

**Scale bar** - A map element that shows the map scale graphically.

**Table of contents** - In ArcMap, the table of contents lists all the data frames and layers on the map and shows what features the symbols in each layer represent. ArcScene also has a table of contents.

**Toolbar** - A set of commands that let you carry out related tasks. The Main Menu toolbar has a set of menu commands; other toolbars typically have a set of buttons. Toolbars can float on the desktop in their own window, or you can dock them at the top, bottom, or sides of the main window.

**Views** - Different ways to see the contents of the selected item in the Catalog tree in ArcCatalog.