Creating Map Layouts
In
ArcView

Idaho State Tax Commission
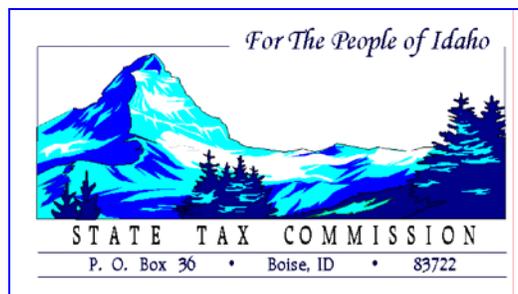July 2003

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Section 1:

What is a layout?

- A layout is a map that combines ArcView project components – views, charts, and tables – with additional elements, such as legends, scale bars, text, north arrow, and graphics to form a single output document.

Section 2:

Why a layout?

- A layout conceptually prepares your work for hard copy output. It is within the layout framework, and not within a View, that layout elements can be added.

- It is within the layout framework you design your map to fit your specific printer or plotter.

- You have control over page size, page orientation, output format, and output resolution.

- You can group ArcView project components and additional map elements through the use of frames.

- A frame can be dynamically linked to other components allowing your layout to change as you change your data.

- A layout can be used as a template for future map production. The template we will create is simply an ArcView project (.apr) with an empty View(s), and a Layout with the repetitive elements, for a series of maps you intend on creating.

Layout Example

Secs 17, 18, 19, 20 T09S R17E

N
W E
S

CUSTER COUNTY
IDAHO

Legend

☐ 10n13e_parcels.shp

the life-mark of Idaho

Scale 1" = 400'
1000 Feet

Revisions

Date																	

4

Section 4:

Making a layout

a. Getting Started

Hints (See handout from "Inside ArcView GIS" 2ndEdition)

We will start by opening ArcView3.2a and then opening the
c:\layoutclass\plot_template.apr. This project has the views already created
that we will be using to make our layout.

b. Components of a Map Layout *(see graphic below)*

Title
Map (View)
Legend
Scale bar
North arrow

Descriptive text (optional)
Inset maps (optional)
Neatlines (optional)
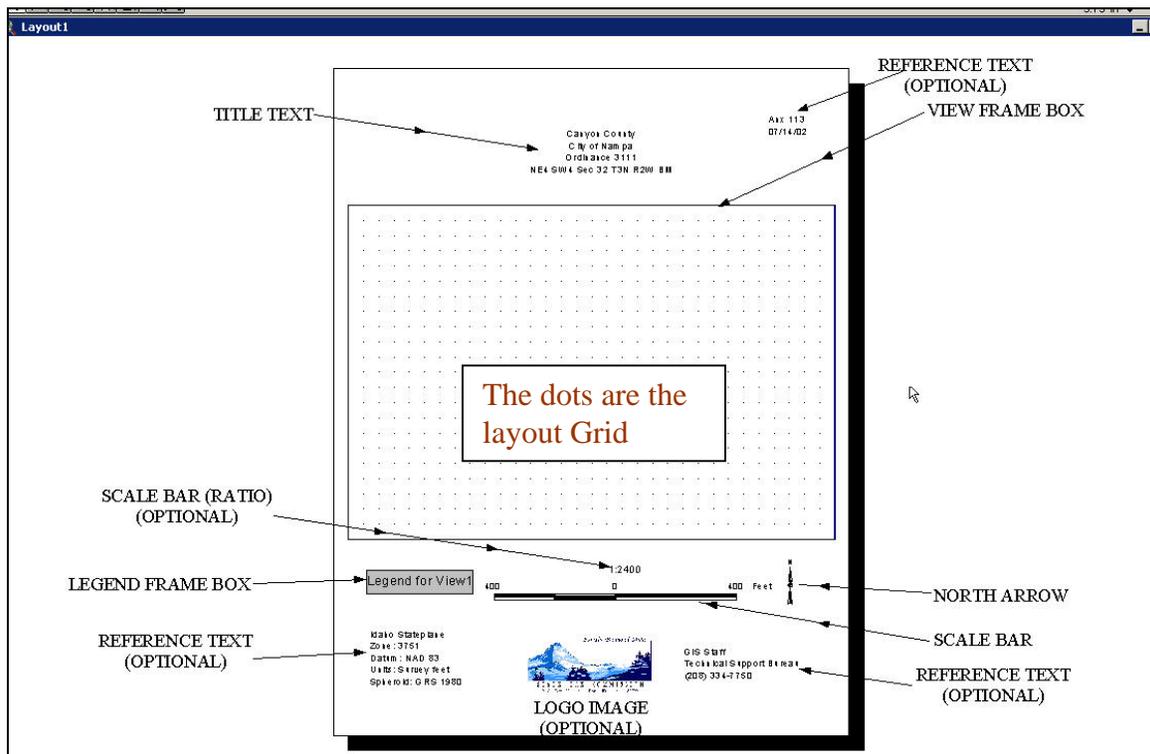
Section 5:

Open an Empty Layout

Double-click **Layouts Icon** in the Project Window (*see graphic below*). This will bring up an empty layout view.

Or you can open a new layout by clicking the **Layouts Icon** once and then clicking the **New Button.**

Open the **Layout** drop-down menu. Here you can control the layout page: **Properties…**, **Page Setup…, Hide Grid, Hide Margins, Add Neatlines**, and use ESRI designed Templates.
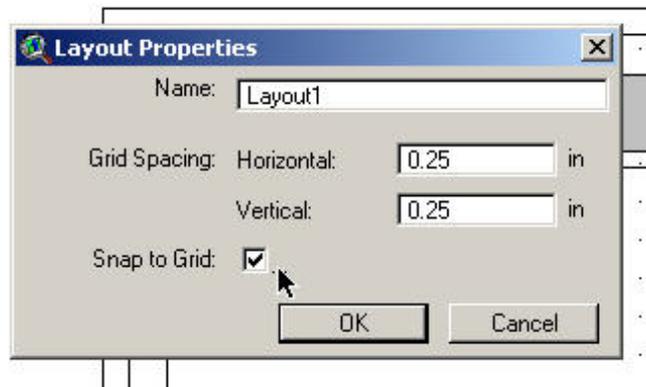
(Note: Page Design Options – We will be making a Layout that looks like a Plat map. See <u>Layout Example Page 3</u>.)

Layout Properties

There are three (3) main functions within the **Layout Properties** dialog window: **Name**, **Grid Spacing**, and **Snap to Grid**.

a. Name

Choose a **Name** for your layout.

b. Grid

The grid provides a mechanism for registering the positions of graphics to uniform intervals on the layout page. A grid is based on one of the subdivision levels of the chosen page units (inches, centimeters, etc.). When a graphic is created, moved, or stretched when the grid is active, each of its coordinates is snapped to the nearest grid point. (From **Help**)

c. Snap to Grid *(see graphic above)*

By leaving this option checked (by default it is active) all your map elements will automatically be adjusted to the nearest grid points. The advantage is that your map elements can be easily aligned without using your graphics alignment tools.
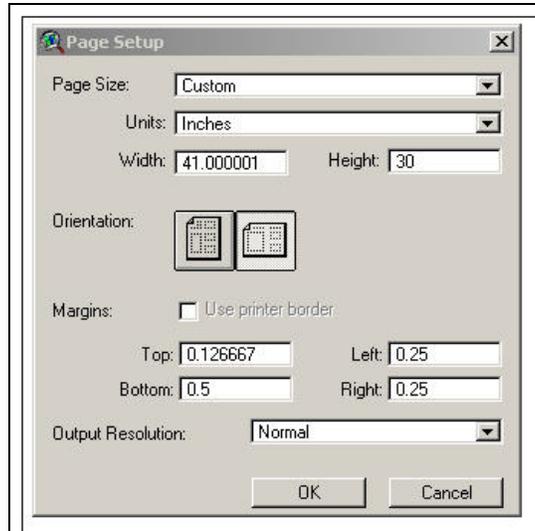
If you *uncheck* **Snap to Grid,** you will be free to move your map elements anywhere on the layout page.
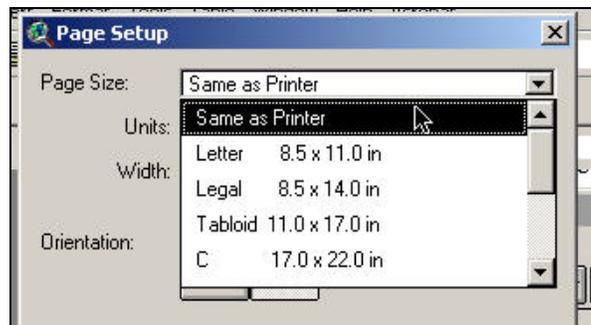
Section 7:

Page Setup *(see graphic below)*

The main functions of the **Page Se_t_up…** dialog window are to set the **Page Size** and **Orientation**.

Open the **<u>L</u>ayout** drop-down menu, choose **Page Se_t_up…**

Page Size: Choose **Custom** in the pull-down menu, then enter the **Width:** 41 and **Height:** 30. *(See graphic above.)*

Choose the **Orientation** of the layout page by clicking the appropriate button, and click on **Landscape**.

The **Output Resolution** is a pull-down that includes the choices Low, Medium, and High. You may want to choose High when printing your final product, and Low when printing drafts.
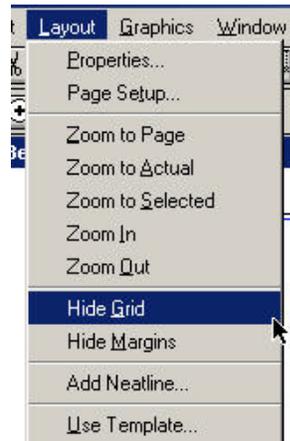
Leave resolution at **Normal**.

Click **OK.**

Section 8:

Hide Grid and Margins

By default ArcView displays the Grid and a Margin around the Layout page. We will turn these off.

Go to the **Layout** pull-down menu, click once on **Hide <u>G</u>rid,** then repeat for **Hide <u>M</u>argin**.

| Layout	Graphics	Window
Properties...
Page Setup...
Zoom to Page
Zoom to Actual
Zoom to Selected
Zoom In
Zoom Out
Hide Grid
Hide Margins
Add Neatline...
Use Template...

Section 9:

Adding a View Frame

We will add a **View Frame** to the layout by choosing the **View Frame** tool from the drop-down menu (*see graphic*) and then drawing a box on the layout page.
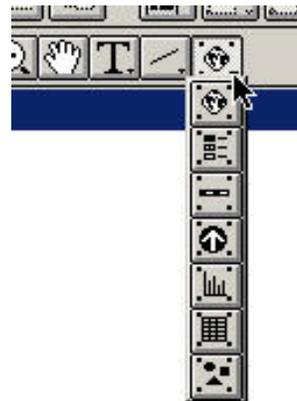
The page is 41 inches wide, so we will want to place this frame starting 12 inches over and 1 inch down from the Layout Page edges. You will use the position guide, in the upper right corner, to help you position the start point of the frame *(see graphic below)*.
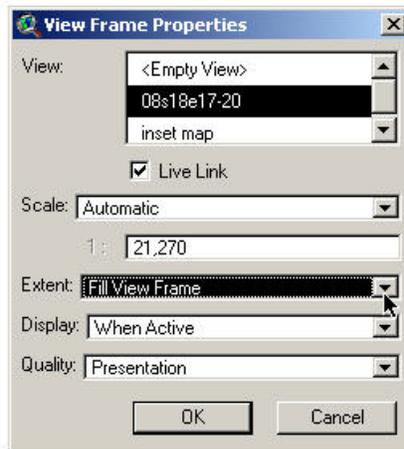
43.00 in ↔
31.45 in ↕
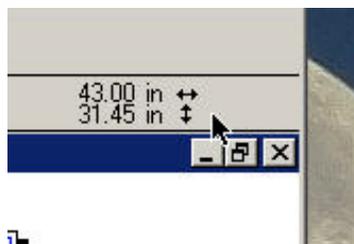
Right click, hold on your start point, and pull diagonally across the page to the lower right-hand corner of the map. Once you release, the **View Frame Properties** dialog window will appear.

Section 10:

View Frame Properties

From the **View** list, choose the "**10n13e**".

For this example, we will leave **Live Link** checked.

On the **Scale**, choose the "**User Specified Scale**". It is the only choice that will allow you to have true distance measures on your layout; for example, your scale bar. You will notice that the **1**, on the next line, is now active. You are now able to specify the scale you want.

In the scale ratio line below **User Specified Scale**, type **4800**.

> (*Note:* Scales to use: 4 Sections – 1:4800   ¼ Section – 1:1200)

Change **Extent** to "**Clip to View"**.

Leave **Display** at "**When Active**".

Leave **Quality** at "**Presentation**".

Click **OK**.

Section 11:

Inset Map

Add another **View Frame** to the left side of the one you just created. Make it small, and don't worry about the size being perfect *(see)*. You can easily resize it as we fill in the rest of the legend information.

This one is for the inset map, so in the **View Frame Properties** window at **View**, choose "**inset map**".

Using the **Draw Rectangle** tool, from the **Graphics** pull-down, draw a box around the inset map.

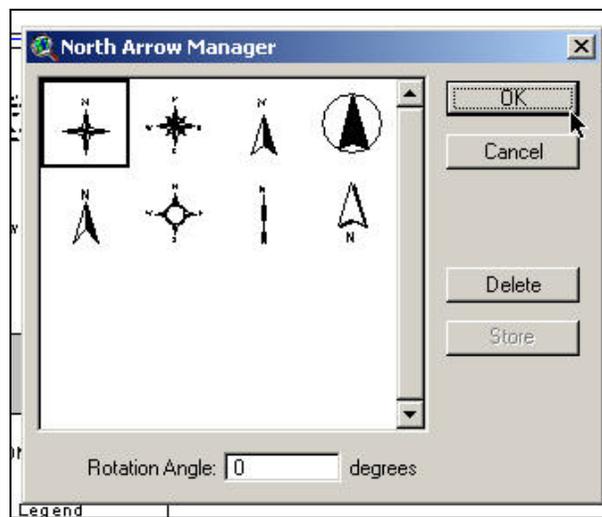Also, draw a box for the area of interest *(see graphics below)*.
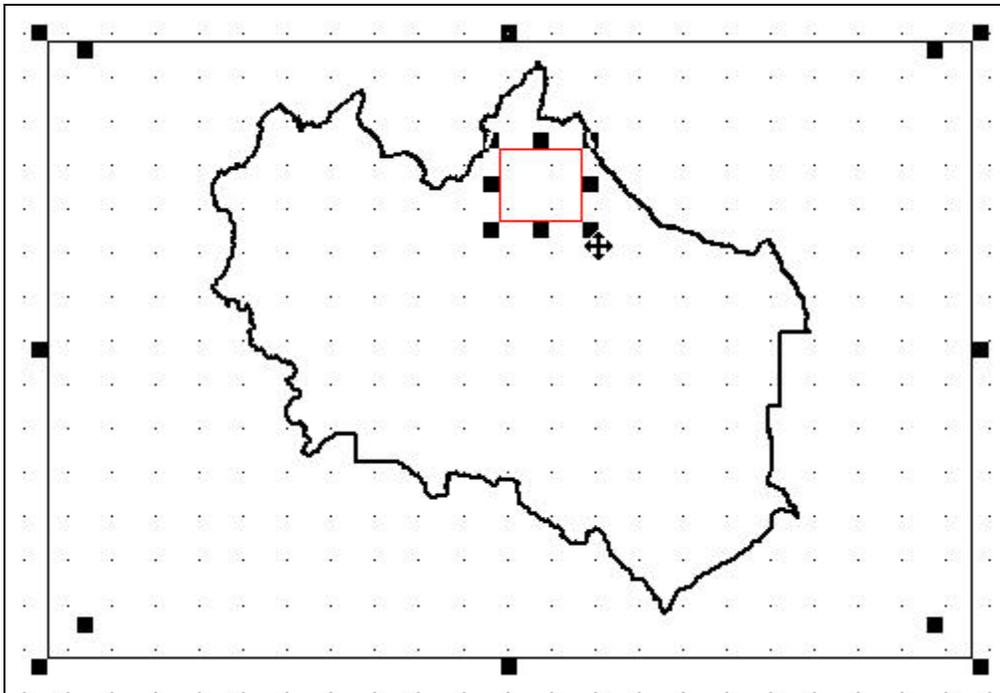
Section 12:

North Arrow Frame

From the **Frame** tool drop-down menu, choose the **North Arrow Frame** tool. It's the arrow pointing up. Left click and hold, then drag the box in the position where you would like to place the North Arrow.

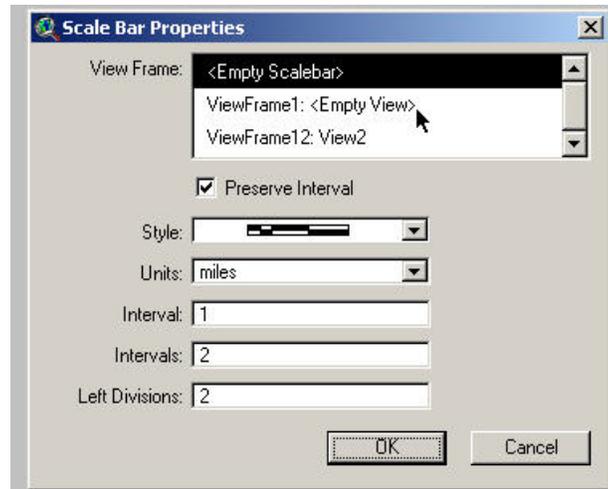The **North Arrow Manager** dialog window will pop-up *(see graphic below)*.

Choose your **North Arrow** style.

Click **OK.**

Section 13:

Scale Bar Frame

From the **Frame Tool** drop-down menu, choose the **Scale Bar Frame** tool. Right click and hold, then drag the box in that position.where you would like to place the scalebar and The **Scale Bar Properties** dialog window will appear.

In **View Frame**, choose "**ViewFrame 1: 10n13e**".

Leave the **Preserve Interval** checked.

You can choose the bar style you want to use from the **Style** pull-down menu. You can choose a bar style or ratio style.

Hint: You can test your scalebar, if there is a known distance on your layout: for example, the length of a section. Sections are approximately 1mile wide. This isn't exact, but it allows you to catch gross errors.

Section 14:

Picture Frame *(Logo)*

From the **Frame Tool** drop-down menu, choose the **Picture Frame** tool. Right click and hold, then drag the box in the position where you would like to place the picture.

Click on the **Browse…** button and navigate to the logo **c:\layout\ISTClogo**
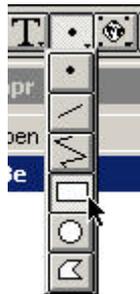*(see graphic below).*
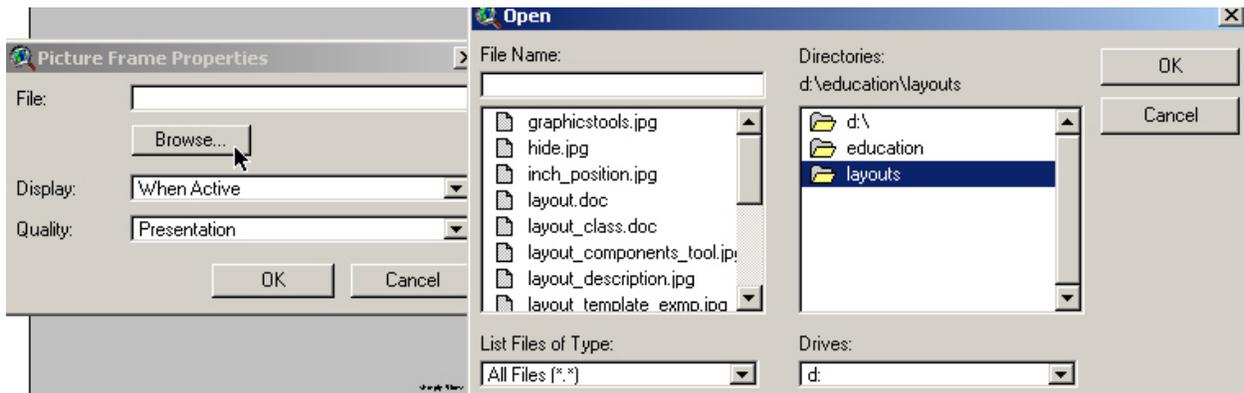
Click **OK**.

Leave **Display** at "**When Active**".

Leave **Quality** at "**Presentation**".

Draw a box around the image with the **Draw Rectangle** graphics tool.
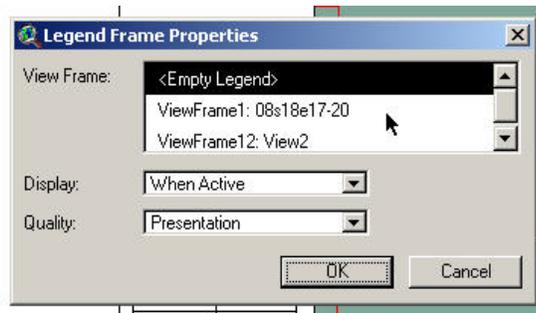
Section 15:

Legend

From the **Frame Tool** drop-down menu, choose the **Legend Frame** tool. Right click and hold, then drag the box in that position where you would like to place the legend.

Choose **ViewFrame** "**10n13e**".

Leave **Display** at "**When Active**".

Leave **Quality** at "**Presentation**".

Click **OK**.

> **Note:** You will notice that the active theme names, from the View 10n13e, have been added to the layout. The names we have added are not very descriptive. So to change them, we have to go to the View the themes are in, and change them there.
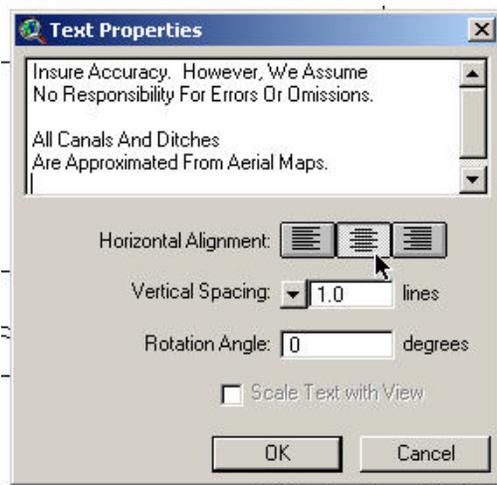
Section 16:

Adding Text

We have many areas to add text (*see Layout Example Page 3*), and we can add it 2 ways: the **Text** tool, **Copy** and **Paste**. We will use both techniques to show the differences.

Open the word document, **c:\Disclaimer**, select the text, and then press **ctrl+C** to copy the text. Open your layout document, from the **Text** tool menu, choose the **T** with the serifs *(see graphic below)*. Move your pointer to the layout page where you want the disclaimer to be and right click once.
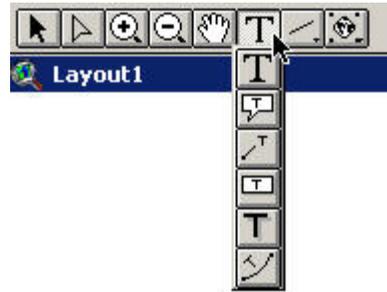
The **Text Properties** window will appear *(see graphic below)*. Now press **ctrl+V** to paste the disclaimer into the window. We want to have the text centered, so press the center align button. *(Note: the text within the Text Properties window will not change in appearance).*


Click **Ok**.

Add the location text in the upper right corner of the map. Choose the **T** from the **Text** tool menu, and click the map where you want to place the text. This time, just type the text you want into the **Text Properties** window.

Section 17:

Graphic Line

To help with appearance, we will add a line around some of the frames. We can do this simply by choosing the **Draw Rectangle** tool, from the **Graphic** tool drop-down, and then dragging a box around the graphic.

(Hint: First select the graphic or frame you want to draw a box around. This will bring up the graphic handles which you can use as a guide to draw a uniform box).
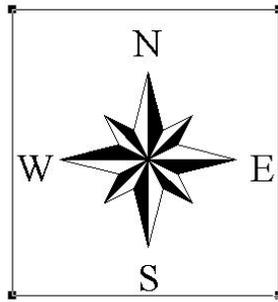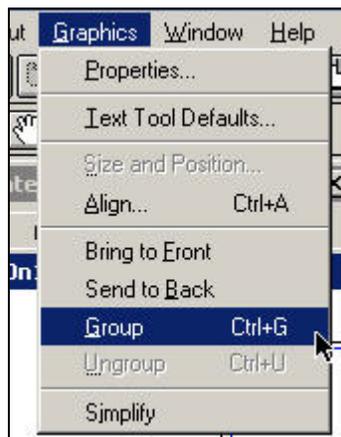

Section 18:

Grouping Graphics

We will group the **Logo** with the **Graphic Box**. Then, group the **Inset Map, Area of Interest box,** and **Graphic Box**.

You can select the logo and graphic box, together, by holding down the shift key and left clicking on both. Then, go to the **Graphics** menu and choose **Group** *(see graphic below).*

Now we can move both these items as a single unit. Repeat this process for the **Inset Map** and it's associated graphics.

Section 19:

Positioning Graphics and Text

When positioned by hand, the graphics and text will not be aligned perfectly. So, use the **Align** tool to deal with the positioning issues.

To be able to access the **<u>Align</u>** tool, you need to have two (2) or more graphics selected. We are going to align the Revision Table and center-align all the graphics.

Select all the graphics and text, on the left side of the layout, by holding down the shift key and right clicking on them.

Once the graphics are selected, go to the **<u>Graphics</u>** menu and choose **<u>Align</u>**. *(See graphic below.)*

The **<u>Align</u>** dialog box will appear. Choose the >|< button, to align the graphics to center.

Under **Vertical Alignment**, check the box for **Equal Spacing.** This will distribute your graphics vertically.
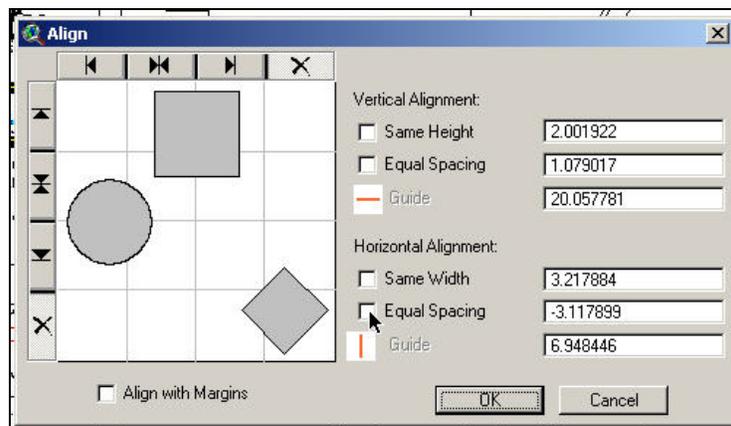
Now, we will use the **Align** tool to arrange other graphics on the page.

Section 20:

Revision Table

We will create a table where dates can be added anytime a revision is made to the map. The table will be created using the graphic tools, so you become more familiar with the tools.

From the **Tool bar**, choose the **Graphics** pull-down menu, choose the **Draw Rectangle**, and then draw a box for the outside border of the table *(see)*.

From the **Graphics** menu, choose the straight-line tool.

Zoom in to the box you drew, then draw a line across the width of the table. The line will appear smooth when it is straight.

With the line you just drew selected, press **ctrl**+**C**, and then **ctrl**+**V** to copy and paste as many lines as you need for the table. As you copy them, drag them below the original line. Don't worry about alignment right now…remember, we have a tool to make that easy.

Select the **Pointer** from the **Tool Bar**, then draw a box around all the graphics you just created to select them. Use the techniques we learned, with Position Graphics and Text, to align the graphics of the table.

Section 21:

Labeling

Labeling is one thing that needs to be done in the **View**, and not on the Layout Page. We will review two (2) ways of labeling your maps.

If you want to label only a few specific features in your map, use the **Text Labels** tool. This allows you to place the label in a specific position and add only as many labels as you need.

Close your Layout and open your **View**. Make the theme active that you want to label.
Go to the **Theme** menu and choose **Properties.** The **Theme Properties** dialog will
appear *(see graphic below).*
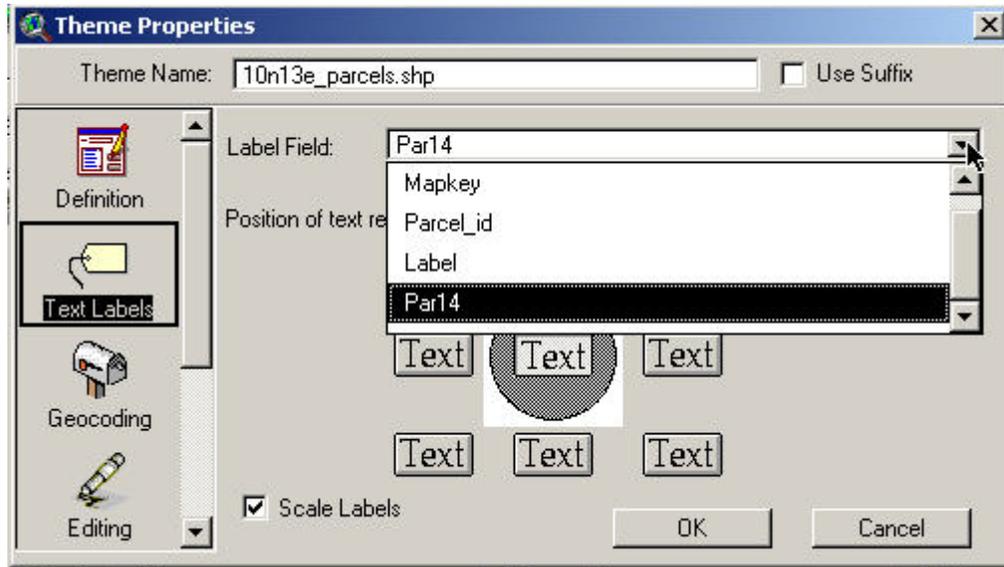
Choose the **Text Labels** from the left side in the scroll bar list.

Make sure the **Theme Name** is correct.

The **Label Field** gives you a pull-down list of the **Items** (Fields) in your table for the
active theme.

Choose the **Item** you want to label on your map.

The **Position of text relative to label point** simply tells you where your label will be
placed in relation to the spot you click on the map. For example, the default is the center
and when you click a spot on the map, the label will be centered on that point.

Scale Labels check box is checked by default. We will leave this checked.

Click **OK**.

From the **Tool Bar**, choose the **Label** tool.

Once you move your pointer over the map,
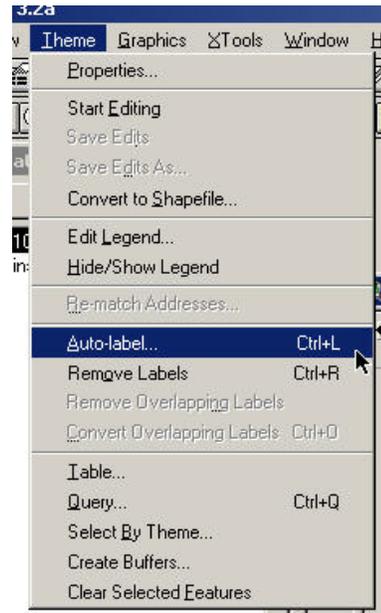it should display the same as the **Label** tool.

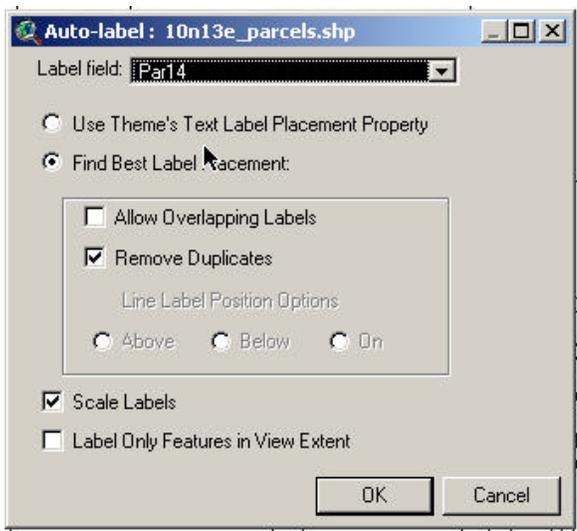Click the points, within the features, you would like to label on the map.

Section 22:

Auto-Label

If you want to label all the features of a theme on your map, **Auto-label** may be a better option.

From the **Theme**, menu choose **Auto-label**.

The **Auto-label** dialog will appear.

From the **Label field**, choose the **Item** you wish to label on your map.

Leave the radial button for **Find Best Label Placement** turned on.

Check the box for **Allow Overlapping Labels**. This will label all features of the active theme, so, you may have to move a few labels.

Leave the **Scale Labels** box checked.

Click **OK**.

ArcView automatically labels the map where it calculates the best placement for the label to be. ArcView will try to place the labels so they are not covering other features, or other labels.

Open your Layout to determine if the size and placement of the labels are good.

Ok…we are DONE…well maybe things are not arranged perfectly, but you now know which tools to use to move things where you want them.