FAQ
(Frequently Asked Questions)

GIS ArcMap
(ArcMap Version 9.2)

By

Priya Nimbole

Model Research and Development Unit
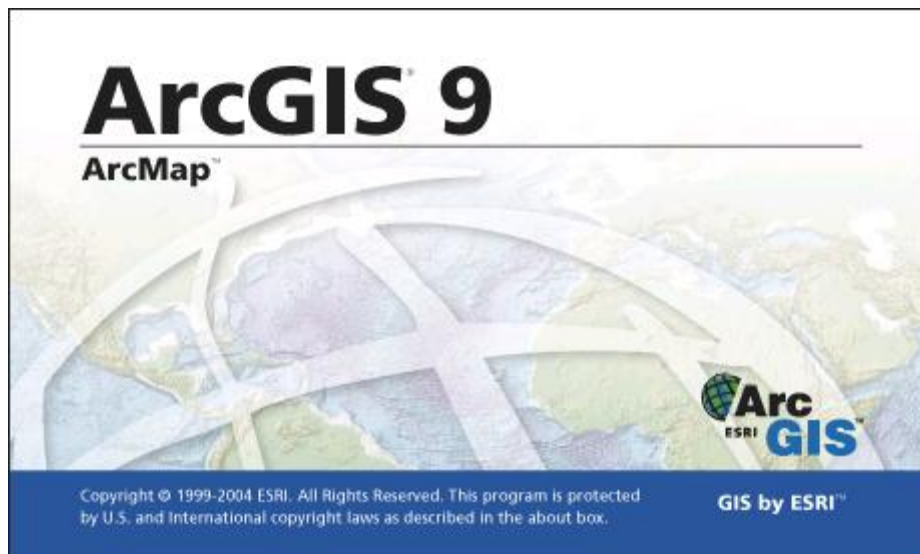**Transportation Planning Branch**
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1 SHAPEFILES

A shapefile is an ArcGIS file format for storing the geometric location and attribute information of geographic features. Geographic features in a shapefile can be represented by points, polylines, or polygons (areas).

Generally, it would not be required to create shapefiles since most of the shapefiles can be found on the 'S:' drive. Exception would be when creating temporary boundary shapefiles to be used for clipping purposes.

1.1 How To Create Shapefile

A shapefile to represent either point, polyline, or polygon can be created using **Arc Catalog**.

Creating Polygon Shapefile

The following procedure is similar for creating point and line shapefile as well.

1. Open **ArcMap.**

2. Open **ArcCatalog** by clicking on [icon] in the ArcMap toolbar.

3. Click on *Connect to Folder* [icon] in the **ArcCatalog** toolbar if the upper level folder is not listed in the catalog tree and navigate to the folder you want to save your shapefile in.

4. Choose *File-New-Shapefile.*

Enter name of shapefile — Choose the feature type of shapefile
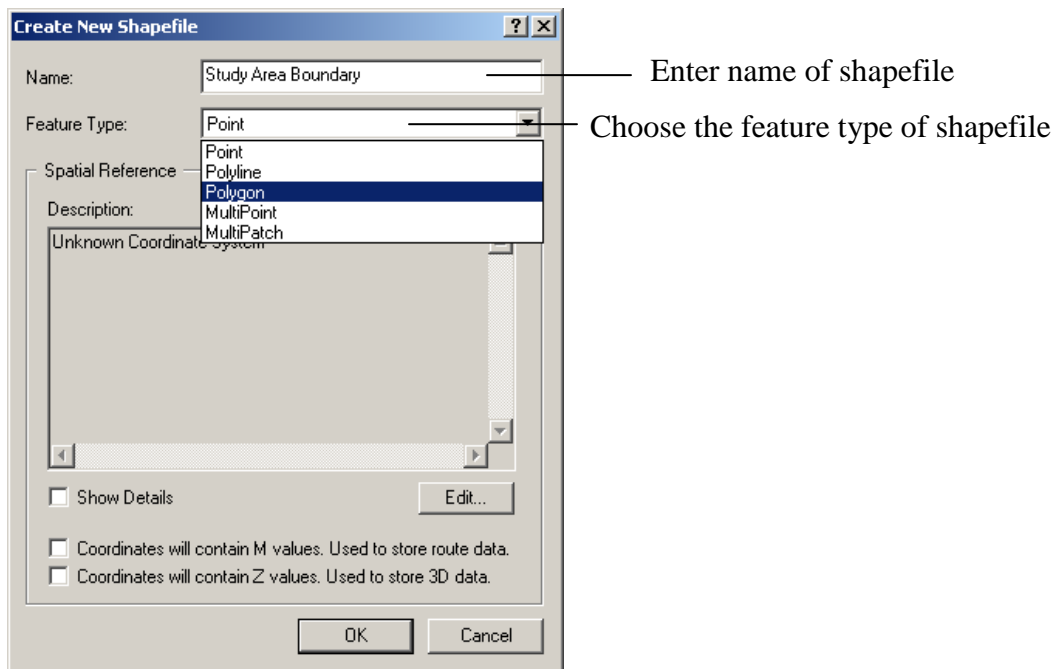
5. Click *Edit* button to specify the coordinate system.
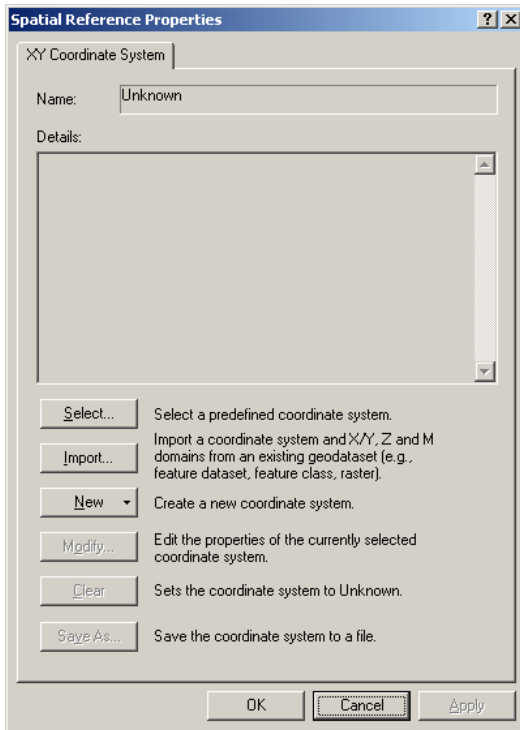
6. Choose **Select** button from the above window, and select the coordinate system.
   The coordinate system for North Carolina would be:
   Geographic Coordinate System- North America-North American Datum 1983.prj
7. Click **OK.**

8. Click *OK.* The 'Study Area Boundary' shapefile should now be created in your folder.

The shapefile created above does not have any features. Using the Editor Toolbar, features (polygons) can be added to the shapefile.

Adding Features To Shapefile

1. Add the shapefile to an **ArcMap** document using the **Add Data** tool .
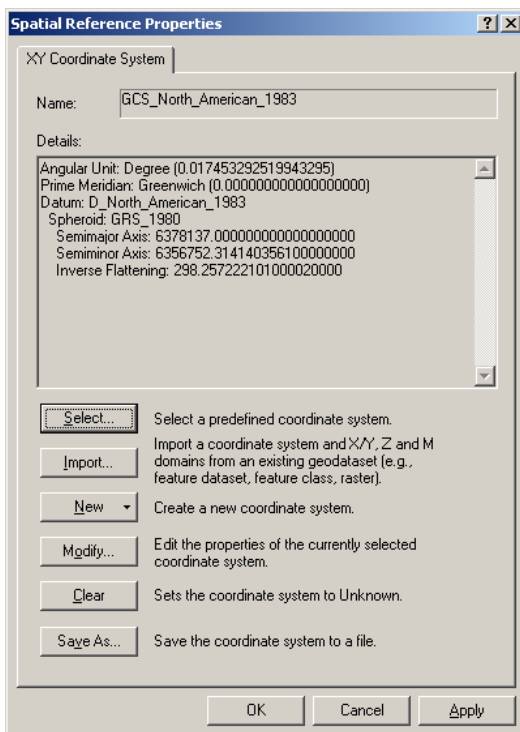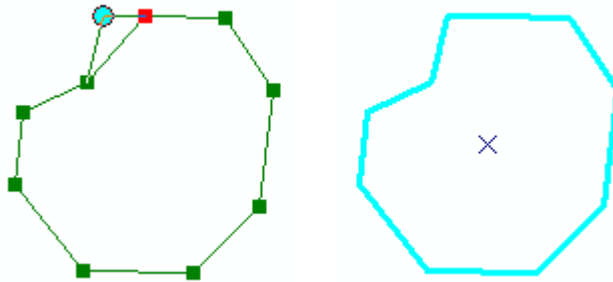2. Click on Editor ▼ in the **Editor Toolbar**. If not visible, choose *Tools-Editor Toolbar.*
3. Click on *Start Editing.*
4. Navigate to your shapefile and click *Start Editing.*
5. Select *Create New Feature* under *Task* on the **Editor Toolbar.**
6. Pick the **Sketch tool** and draw the boundary by clicking for vertices. The image below consists of the sketched boundary on the left and the finished polygon feature on the right.

7. Choose *Editor-Save Edits.*
8. Choose *Editor-Stop Editing.*

1.2   How To Edit Layer

Editing is performed on shapefiles when:
- New features need to be added
- An attribute needs to be added to or deleted from the attribute table
- Attribute data needs to be modified

The following procedure is the same for editing any type of shapefile.

Editing Line Layer

Click on   Editor ▼ in the *Editor Toolbar*. If not visible, choose *Tools-Editor Toolbar.*
Click on Start Editing.

Navigate to your shapefile and click *Start Editing*.
Select *Create New Feature* under *Task* on the *Editor Toolbar.*

Pick the *Sketch* tool and draw a new line feature by clicking for vertices.
Choose *Editor-Save Edits.*
Choose *Editor-Stop Editing.*

1.3 How To Add/Delete Attributes

Adding Attribute

1. Right-click on the layer in the **Table of Contents.**
2. Choose *Open Attribute Table.*
3. Click on *Options* on the bottom right hand corner of the attribute table.
4. Choose *Add Field.*

Enter attribute name

Choose the type
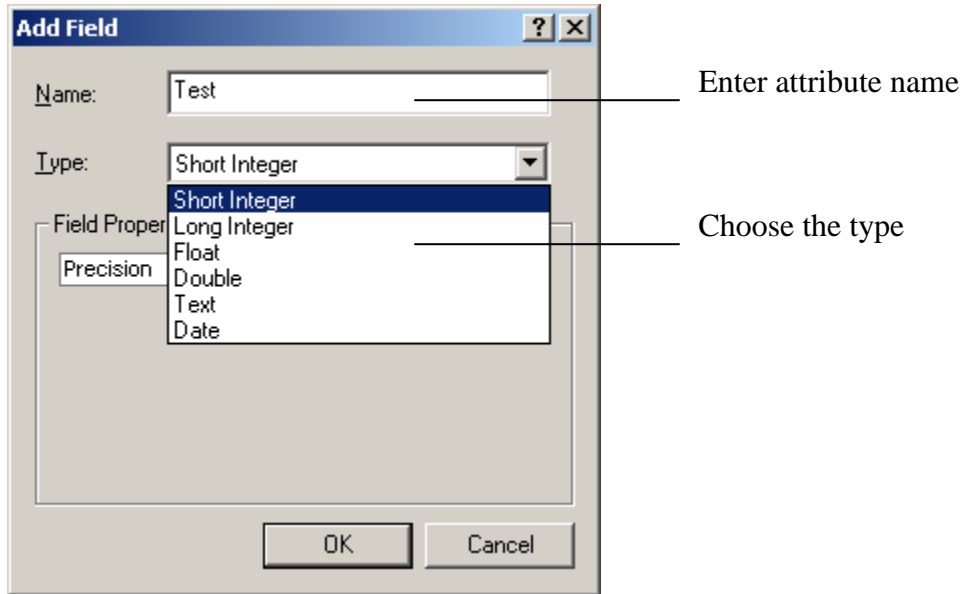
5. Click *OK.*

Deleting Attribute

1. Click on in the *Editor Toolbar*. If not visible, choose *Tools-Editor Toolbar.*
2. Click on *Start Editing*.
3. Navigate to your shapefile and click *Start Editing*.
4. Right-click on the layer in the **Table of Contents**.
5. Choose *Open Attribute Table.*
6. Highlight the column of the attribute you want to delete.
7. Right-click on the column and choose *Delete Field.*
8. Click *Yes.*

1.4 How To Clip

There are three different ways of clipping your area of interest from a shapefile.
- Using the ArcMap inbuilt 'Clip' tool
- Using NCDOT GIS Unit's ArcMap tool
- Using the ArcMap 'Select Features' tool

It is suggested to use the NCDOT GIS Unit's ArcMap tool for clipping whenever possible.
Clipping By Area Using ArcMap

To clip by area, you will need a layer that needs to be clipped (either a point or a line layer) and a cookie cutter layer (polygon) to clip with.

Unless you have a shapefile with the exact area you need to use for clipping, to get the polygon layer ready, you can use the ***Query Builder*** to make your own cookie cutter. For example, you can pick one particular county from the 'County' shapefile to use for clipping roads in that county. The first four steps of the following procedure explain how to use the query builder.

1. Right-click on the polygon layer in the **Table of Contents** and choose ***Properties.***
2. Navigate and click on the ***Definition Query*** tab and then click on the ***Query Builder*** button.
3. Using the operations provided, construct your query to obtain your desired polygon area (cookie cutter boundary). For example, the query below will select just 'Wake' county from the 'County' shapefile and disable the other county features.

Choose attribute

Click to display a list of attribue values to select from

Form query by clicking and picking attributes and operations provided

4. Click ***OK.*** Click ***OK.***

5. Click on [icon] to open the ***Show/Hide Arctoolbox Window.***
6. Choose ***Analysis Tools-Extract-Clip.***
7. Double Click on ***Clip.***

Choose the layer that needs to be clipped

Choose the layer to clip with (cookie cutter layer)

Specify location of the new shapefile and name it
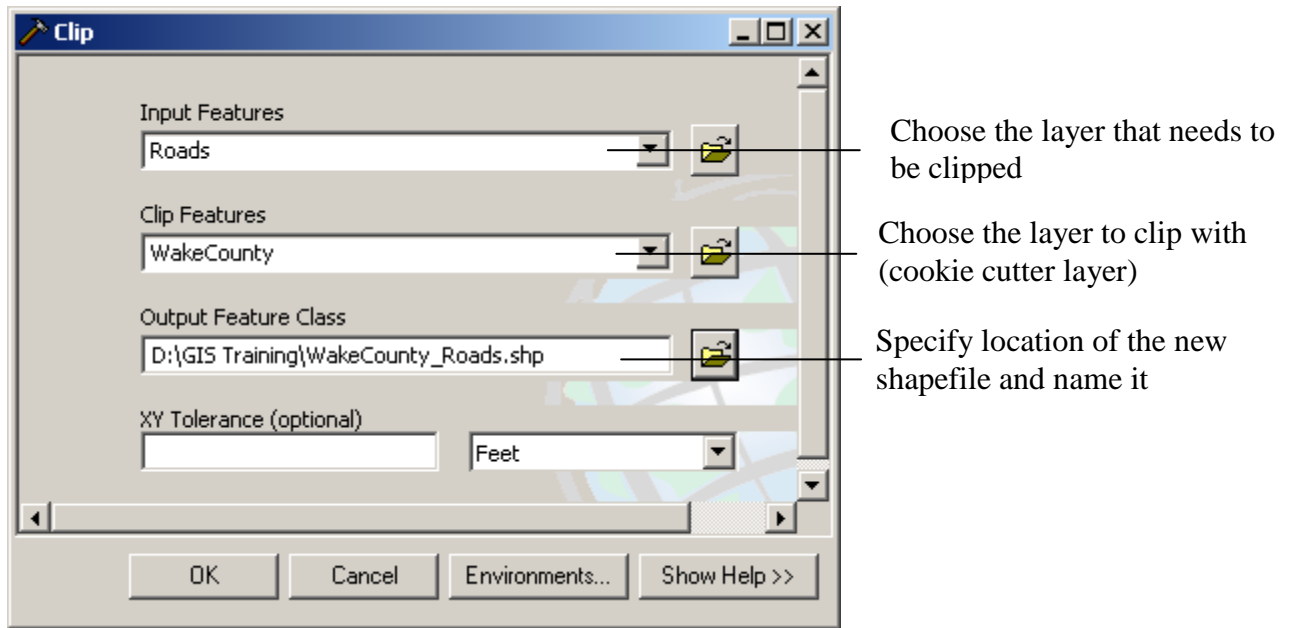
8. Click *OK.*

The clipped features are now stored in a separate shapefile at the location provided.

Clipping Using NCDOT GIS Unit Clipping Tool

The advantage of using this tool is that you can clip multiple layers at one time with one clipping layer instead of doing it individually. For example, you can clip AADT, airports, bridges and roads for Wake county in a single operation.

1. Open an *ArcMap* document. Add the shapefiles that need to be clipped as well as the shapefile to be used for clipping, which should be a polygon shapefile.
2. Click on ⬧ in the **DOT Tools** menu bar to open the *Clip and Overlay Analysis Tool.*

CLIP & OVERLAY ANALYSIS TOOL

Clip selected layers using a clipping layer.
Optionally calculate statistics of clipped features.
Only visible layers are listed.

Select the Clipping Layer
WakeCounty
○ All Features ○ Selected Features

Select the Layer(s) to Clip
Place a checkmark next to the layers name.
☑ AADT
☑ Airport
☑ Bridges
☑ Roads

Specify the Output Shapefile
File Name WakeCounty
Directory C:\Temp

QUIT HELP
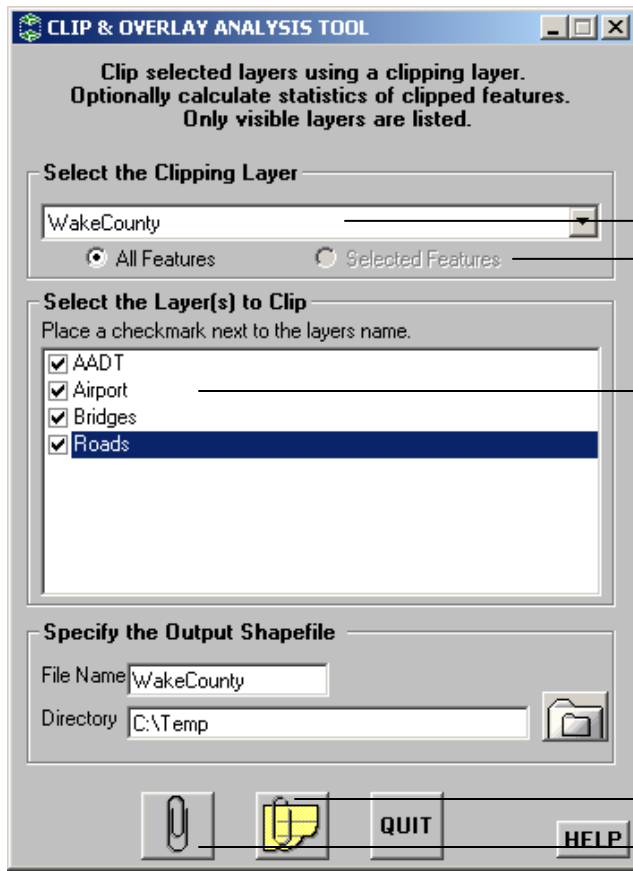
Choose the layer to clip with
(cookie cutter layer)

Select if you want to clip the
layers using all the features in
the "clip layer" or only
selected features

Check the layers that need to be
clipped. You can select all the
layers or a few

Specify location and name

Click for clip and analysis

Click for clipping

For more information on the GIS ArcMap Tool, please refer to the documents here:
S:\ARCGIS\GISunitTools\GIS ArcMap Tool

Clipping by Exporting Selection

1. Choose *Selection-Set Selectable Layers* from the **Toolbar.**
2. Click *Clear All*.
3. Select the layer you want to clip features from by checking against it.
4. Click *Close*.
5. Zoom in to the area you want to clip.
6. Click on ▢ to choose *Select Features* tool from the **Toolbar.**
7. Using the *Select Features* tool, click and drag to draw a square over the area you want to clip.
8. Once the features have been selected, Right-click on the layer and choose *Data-Export Data.*

Choose 'Selected Features'

Specify location of the new shapefile and name it
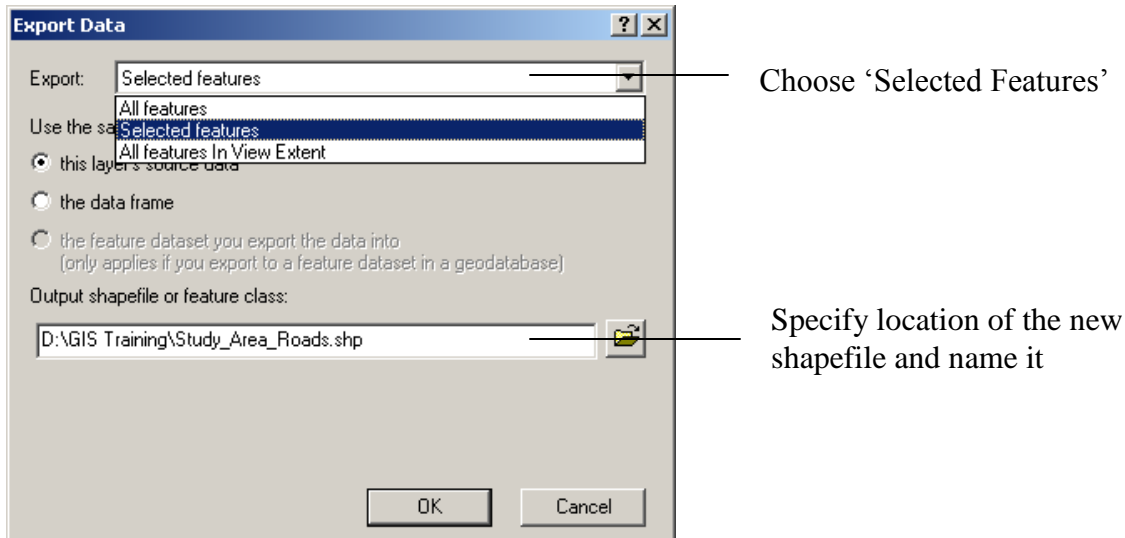
9. Click **OK.**

The clipped features are now stored in a separate shapefile.

1.5 How To Populate New Field In The Attribute Table

1. Use Selection Methods (Select By Location, Definition Query, etc) to obtain your selection set.
2. Open attribute table – go to **Selected** tab – right click and highlight the column of the new field – field calculator - fill with the value. This updates all the selected records at one go.
3. Do **Options – Clear Selection** and repeat above steps until the new field is populated for all the required records.

1.6 Definition Query

Definition query is used when only certain features of a shapefile (layer) need to be displayed on the map while the rest of the features need to be hidden. For example, if you want to show just the Interstate routes and hide rest of the roads or show only a particular project and hide the rest of the road links. This is done by specifying a query in the **Definition Query** box such that only the features that you want to show on the map get selected. Even the attribute table will show records for only the selected features.

You need to construct your own query depending on the desired result using the functions provided in the query builder tool.

1. Right-click on the layer and select ***Properties.***
2. Navigate to the ***Definition Query*** tab.
3. Click on ***Query Builder*** at the bottom of the window that pops up.
4. Using the list of attributes and functions provided, construct the query that needs to be executed. For example, if you want to just show the Interstates on the map and hide other roads, the query should be "RTTYPTXT1= 'I' ".

5.   Click inside the lower box, and then double click on RTTYPTXT1 from the list above to include it in the query box.

6.   Click on **"="** button.

7.   Click on *Get Unique Values* button to get a list of values fro attribute field RTTYPTXT1.

8.   Double click and select the value required from the list of unique values, thus completing the query.

9.   Similarly the other buttons such as And, Or, <> (which means 'not equal to' as opposed to '=') can be used to form various queries which help you show only what you want to show on the map and hide the rest.
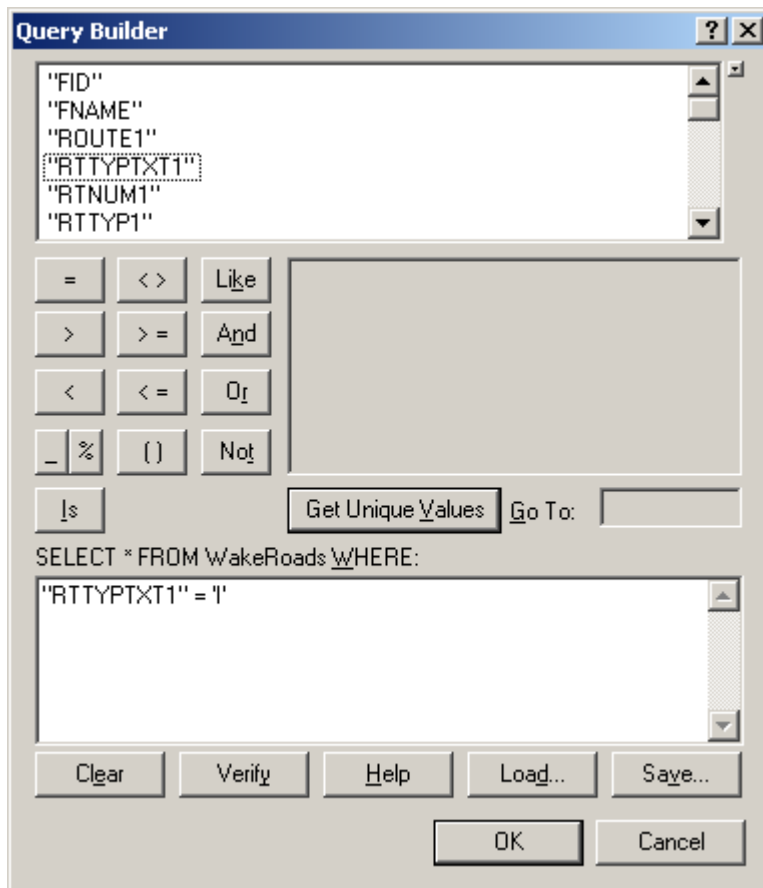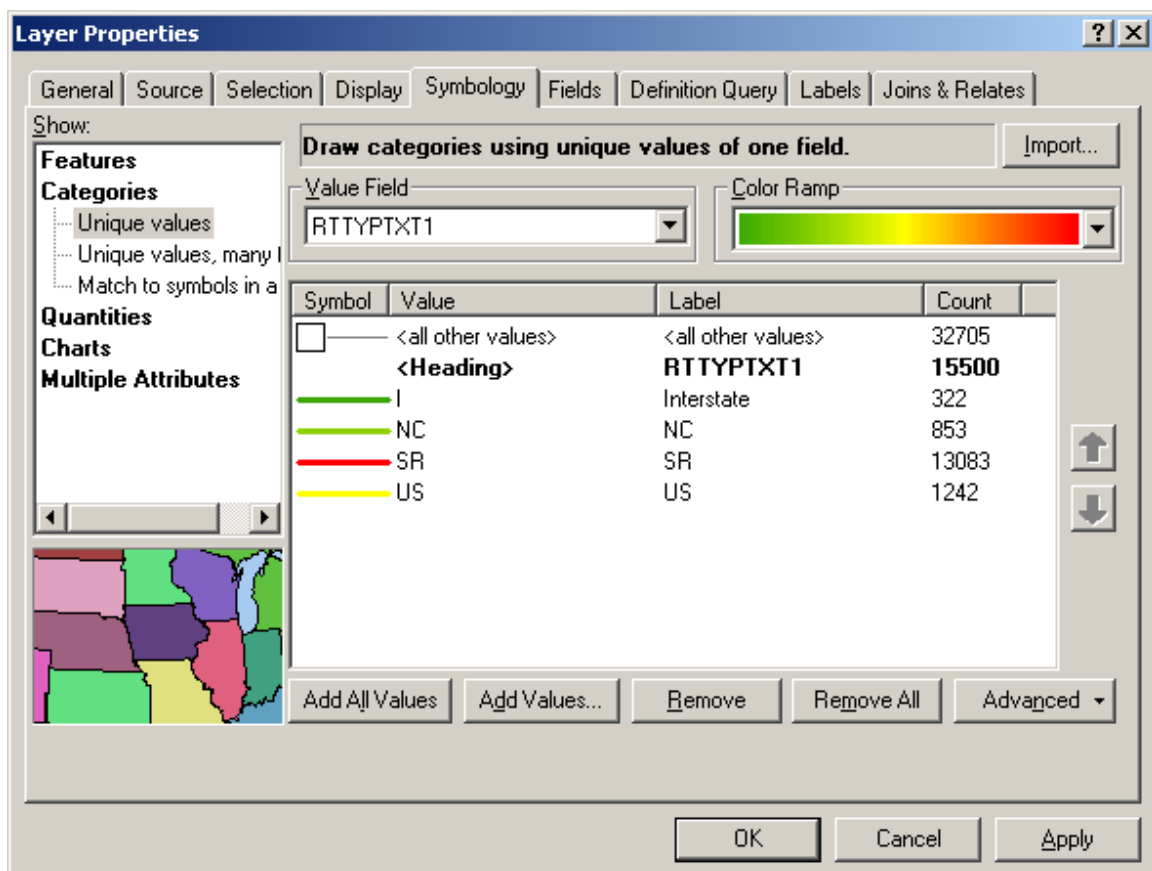

2   SYMBOLOGY

You can use the Symbology feature of ArcMap to easily display attribute data of features for various map purposes.

2.1   Using Categories – Unique Values

To show unique values of an attribute using different symbology on a map, use **Categories-Unique Values** from **Symbology**. For example, you can use it to show different types of routes

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(Interstate, NC, US, and SR) in different colors while selecting them all from one single attribute in the attribute table.

10. Right-click on the layer and select *Properties.*
11. Click the *Symbology* tab.
12. Click on **Categories** on left and select *Unique values*.
13. Select your attribute field using the *Value field* drop-down menu.
14. Click on *Add All Values* button at the bottom to show them in the box.
15. Select a *Color Ramp* from the drop down menu on right, to select the symbology colors or right-click on each value to select a color.
16. *Uncheck* the box for *<all other values>* if you do not want to show them. If you want to display them, it is suggested to use a light grey color to show all other values.
17. Click *OK.*

2.2   Using Quantities – Graduated Symbols

This feature of **Symbology** can be used to display quantities with graduated symbols.
For example, high/low values of AADT can be displayed with corresponding big/small symbols.

1. Right-click on the layer and click *Properties*.
2. Click the *Symbology* tab.
3. Click *Quantities-Graduated symbols.*

4. Click the *Value* drop-down and select the field that contains the quantitative value you want to map.
5. Type the minimum and maximum symbol sizes and click *Classify*.
6. Click the *Method* drop-down and click the classification method you want to use.
7. Click the *Classes* drop-down and click the number of classes you want to display.
8. Click *OK* on the Classification dialog box.
9. Click *OK* on the Layer Properties dialog box.
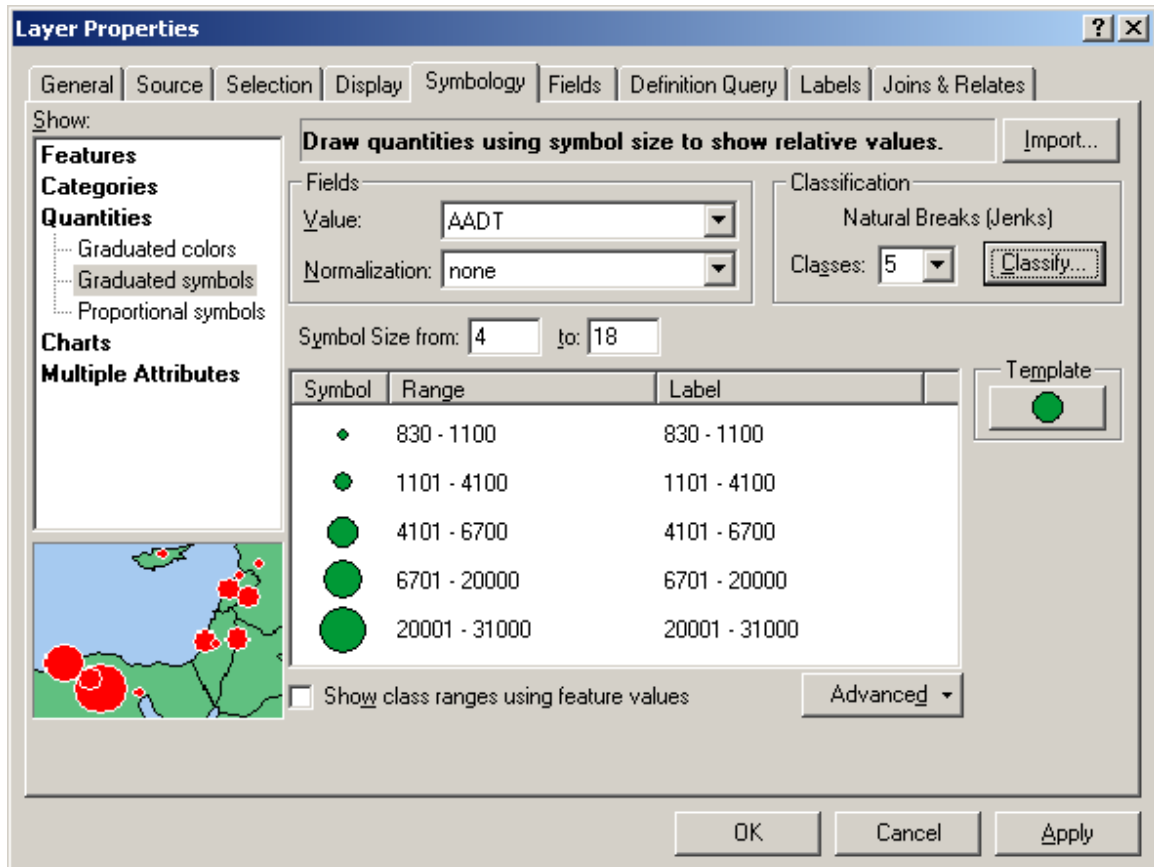
3   LABELING

ArcMap allows features to be labeled in two different ways. Automatic labeling and Manual labeling. Automatic labeling will label all the features in the layer according to the placement properties that you provide. Manual labeling will label only the features which you pick to be labeled. The NCDOT GIS Unit's Shield tool can be used for labeling as well.

Note: Labeling should be performed in the **Data View** window and not **Layout View** window so as to avoid resizing issues.

3.1   Different Ways

Using Automatic Labels

1. Right-click on the layer and click ***Properties***.
2. Click on the ***Labels*** tab.
3. Choose the method from the ***Method*** drop-down. You can choose to either label all the features the same way or define classes of features and label each class differently.
4. Choose the field to label from the ***Label Field*** drop-down.
5. Click on ***Symbol*** to define the text font, color, size, etc.
6. Use the ***Placement Properties*** to define orientation, position and location of the labels.
7. Click ***OK.***
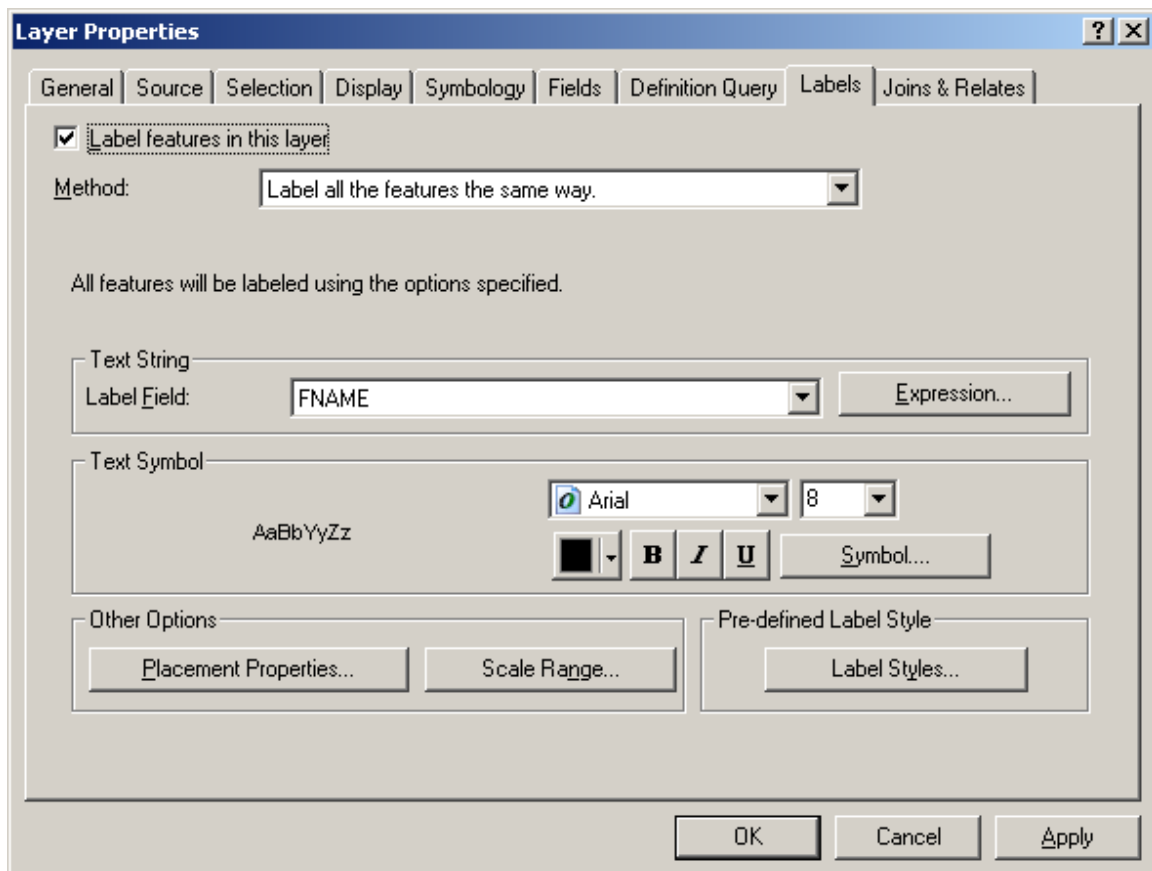
Using Manual Labels

Before you use the manual labeling tool, it is necessary to first specify the **Label Field** in the above mentioned **Label** tab under the layer **Properties**. The manual labeling tool will label the field that is specified under this field. Also, use the **Selection-Set Selectable Layers** to select the layer you want to label, before starting the labeling process.

1. Click on the ***Data View*** button at the bottom of the ArcMap document.
2. In the ***Drawing Toolbar*** located at the bottom of the window, click on the ***NewText*** drop down and select the ***Label*** tool.

Select the Label tool
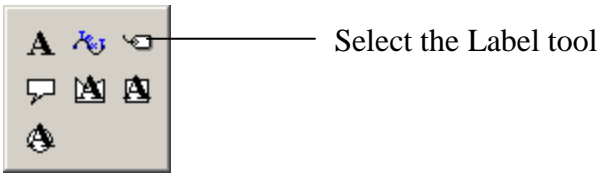
3. Once the **Label** tool is selected, the following window will come up. Make selections about **Placement** and **Label Style** and close the window.

Select the Placement style.

Select the Label style. You can either select the properties already set under the Label tab for the layer or choose to specify the style here by clicking the 'Choose a style' button.
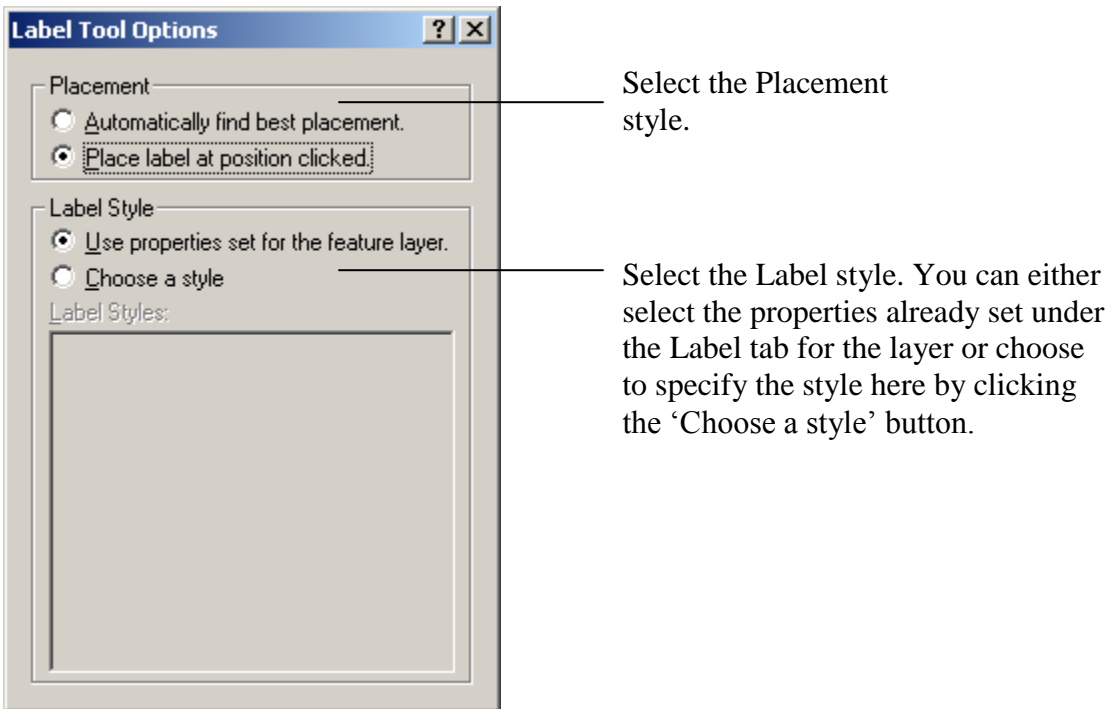
4. Now you should be able to click anywhere on the map and the label tool will label the feature accordingly.

Using NCDOT GIS Unit Labeling Tool

The **Shields Tool** is used for labeling highway shields as well as roads. For more information on the **Shields Tool**, please refer to the documents located here:
S:\ARCGIS\GISunitTools\ShieldsTool

3.2 How To Set Reference Scale

You need to set the reference scale, so that resizing the map will resize the labels as well (Automatic as well as Manual).

1. Highlight **Layers** by clicking on , located in the **Table of Contents** on the top left hand side of the map document.
2. Right-click and choose *Reference Scale-Set Reference Scale.*
3. Now add the automatic/manual labels.

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Setting the Reference Scale will make the labels resize appropriately when you resize the map.

3.3   How To Add Symbols

It is suggested that any shield symbols you need for your map, like the Interstate, US Highway and NC Route shield symbols, should be copied from one map by everybody to standardize the symbols. The map can be accessed from the internal Model Research and Development Unit website located at: **S:\WEB\mrdWeb\mrd\welcome.htm**

Once on the website, click on **Project & Map Template** on the left. Under *Comprehensive Transportation Plan Report Figure Templates,* click on *Planning Area, TAZ and Screen Line Map*. From this map, you can copy the shield symbols and paste them into your map.

For your knowledge, the procedure used in ArcMap to create shield symbols is described below.

Adding Highway Shield Symbol

1. In the ***Drawing Toolbar*** located at the bottom of the window, click on the ***New Text*** drop down and select the ***New Text*** tool.


Select the 'New Text' tool

2. Click on the map at the location the label is needed.
3. Select the text.
4. Right click and select ***Properties-Change Symbol-More symbols -Add***
5. Go to **S:\Comprehensive Transportation Plan\Comprehensive Transportation Plan.styles**. Click ***Open.***
6. Click ***OK.***
7. Click on ***Change Symbol*** and scroll down to click and select the required highway shield symbol.
8. Click ***OK.***

3.4   How To Use Annotations – In The Map

Annotations are used to convert automatic labels to manual labels so that they become easy to manipulate for different placement options. After converting labels into annotations, it becomes easy to delete unwanted labels and move labels to desired locations.

Creating Annotations

After you label features using the ***Automatic Labeling*** procedure, right-click on the layer and choose ***Convert Labels to Annotation***. The following window will come up on the screen:
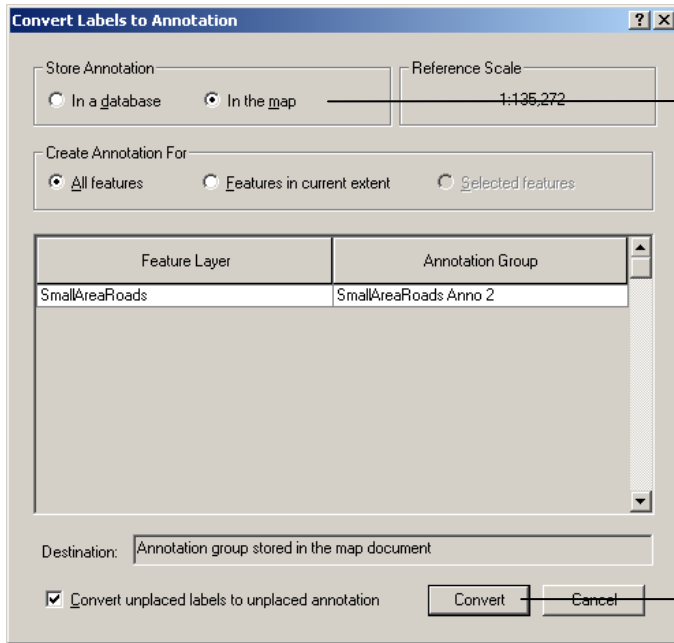
Select 'In the map' for the annotations to appear in the current map

Click 'Convert'

You can now click and choose any feature label in your map, drag and move it to a desired location or delete it by choosing **Right Click-Delete**. You can also change text properties by choosing **Right Click-Properties.**

3.5   How To Use Annotations – In A Database

1. Open Arc Catalog. Browse to the location you want to store annotations at and right click perform **New – File Geodatabase** (default) or personal geodatabase, depending on the need.
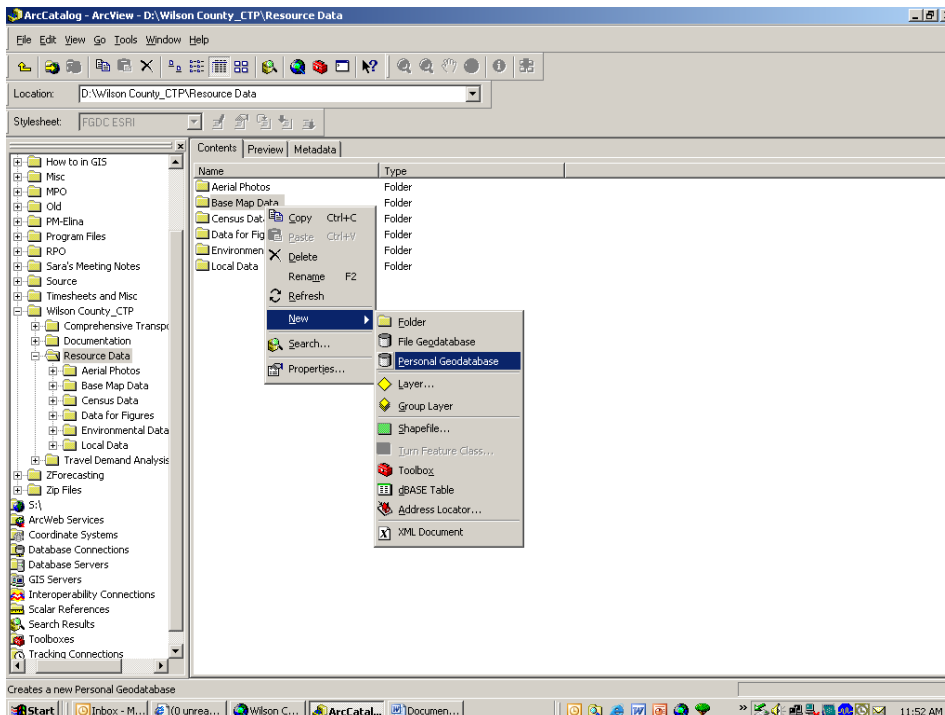
2. Give a suitable name to the file geodatabase. This is the geodatabase that will store your annotations in the form of a feature class. The geodatabse can store a number of such feature classes.
3. Open your shapefile in ArcMap and after performing labeling, right-click on the layer and choose ***Convert Labels to Annotation- In a Database.*** Make sure you choose 'In a database'.
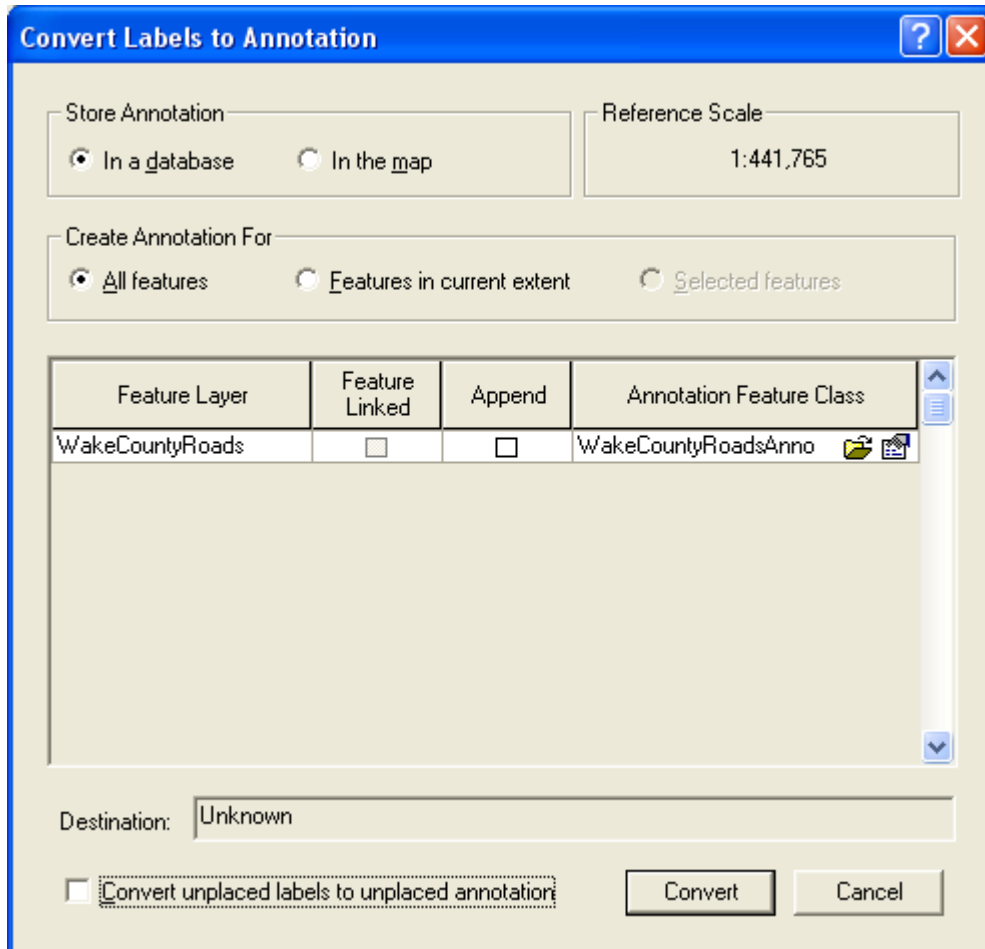
4. Click on the browse to folder button ![icon], and browse to the geodatabase location.
5. Double click on the geodatabase and store the annotations as a feature class by giving it a suitable name.
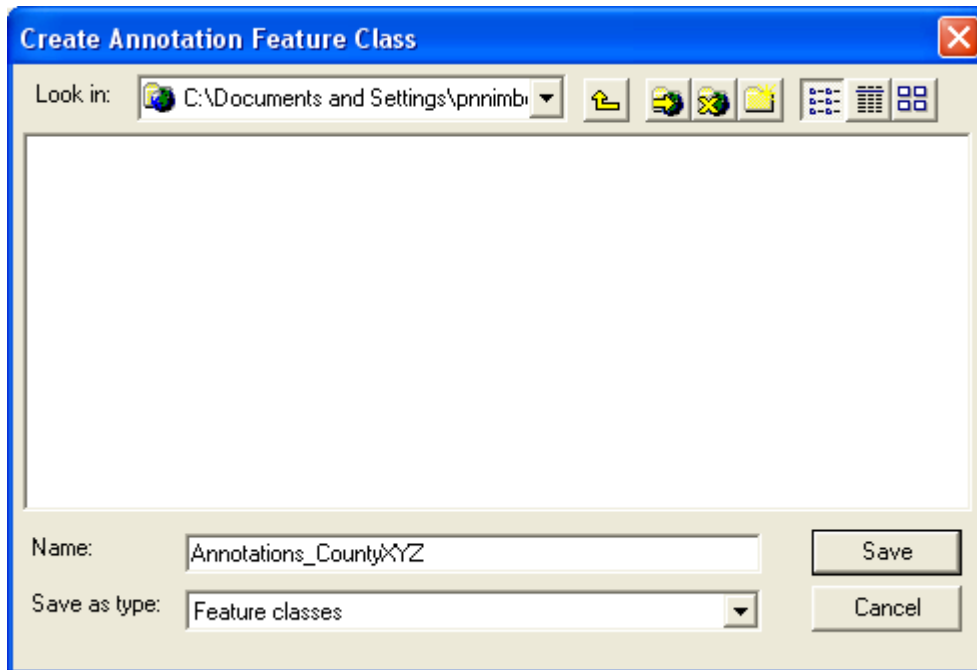
6. Click *Save*. Click *Convert*.
7. You should now see your annotations as a layer in your map. The layer will show on top in the **Table Of Contents** on left.

This new annotations layer can be edited using the **Editor Toolbar**. Using *Start Editing* you can now delete, add, move labels, etc. After doing edits, click on *Save Edits* and the edits will be saved to the annotations layer (feature class in the geodatabse). Just like any other shapefile/layer, this annotations layer can be added to another map using *Add Data* button.

3.6   Labeling Crash and Bridge Locations

- Label the crash locations with Unique ID.
    1. Go To Layer- Properties – Label tab.
    2. Under the label field, use the drop down to select the field with the unique ID in it.
    3. Click on 'Symbol' and 'Add More'.
    4. Add the latest CTP Style file from the S drive. (S/TPB Reference/Comprehensive Transportation Plan/ look for the latest ".style" file)
    5. Once the 'CTP' style file is added, it should show up in the symbol selector drop-down menu.
    6. Select the 'crash location' symbol (red with a white # sign inside)
    7. Click 'Placement Properties' and select the 'Place label on top of the point'
    8. Click Ok, Ok.
    9. Remember to check the box next to 'Label features in this layer.'
    10. Click Ok.

- Cleanup to make only the symbol visible.
    1. Go To Layer- Properties- Symbology.
    2. Double click on the symbol

3. Make the size=0; color=no color
4. In the same window, click on Properties.
5. Uncheck the 'Use Outline' box.
6. Click Ok, Ok.

To label bridge locations with Bridge ID number, the procedure is the same as above, except the symbol is *green in color with a white # sign inside* instead of red. Under the 'label field', the attribute with the bridge ID should be selected.

3.7   Labeling Volume/Capacity Maps for Base and Future Years

How to label Volume/Capacity maps using Annotations; perform label editing for base year, and then be able to substitute base year volumes (ex: 2010) with future year volumes (ex: 2040) and have the labels display at the same locations.

I.   Base Year Volume/Capacity Map

1. Open the shapefile that contains your base and future year volumes and capacities in Arcmap.
2. Label features in the shapefile layer using the expression:
   [2010 Volume] & vbNewLine & "<CLR red='255'>" & [2010 Capacity] & "</CLR>"
3. This will label the Volume and Capacity in two separate lines, with Capacity in red color. Do Horizontal placement of labels and place one label per feature part.
4. Convert labels to annotations and store them in a file geodatabase as feature class "VOC_Base Year". You can edit this annotation layer to complete Base Year Volume/Capacity Map (delete labels, move to correct location, etc.)

II.   Future Year Volume/Capacity Map

1. Open ArcCatalogue. Browse to the file geodatabse and make a copy of the annotation feature class "VOC_Base Year" made in the previous step, for labeling future year volumes. Save this copy of annotation feature class as "VOC_Future Year".
2. Add "VOC_Future Year" annotation feature class to the working map.
3. Right click on the above feature class layer and perform 'Join' with the shapefile (the same shapefile that was used in step 1 for the Base Year map) that contains all your base and future year volumes and capacities. The attributes that need to be joined are "FeatureID" from the annotation feature class and "FID" from the shapefile.
4. Once all the attributes are joined to the future year annotation feature class, the future year volumes can be labeled by recalculating the "TextString" attribute in the attribute table.
5. Open the attribute table of the "VOC_Future Year" annotation feature class. Browse to and right click on "TextString" attribute and perform field calculator. Fill it with the following expression: [2040 Volume] & vbNewLine & "<CLR red='255'>" & [2010 Capacity] & "</CLR>"

6. Make sure you replace the volume and capacity fields with appropriate future year fields from this new joined attribute table.
7. Now the labels should come in at the same locations as the base year labels but should show future year volumes.

4   TABLES

Every shapefile has a **.dbf** file associated with it. If you modify this **.dbf** file, the shapefile gets modified accordingly and the changes are reflected in the map documents containing this shapefile.

You can join a **.dbf** file to the attribute table of a shapefile. Both files need to share one common attribute, which is necessary for a join. Once joined, the new data from the **.dbf** file can be used for map purposes.

4.1   How To Search For Queries

You can use **Select by Attributes** or **Select by Location** to search for queries from a map layer table.
1. Choose *Selection- Select by Attributes* or *Selection-Select by Location* and select the required features.
2. Right-click on a layer and click on *Open Attribute Table.*
3. Choose *Selected* button at the bottom of the attribute table. The records of only the selected features should now be visible in the attribute table. You can also edit the selected features using the *Editor Toolbar.*
4. After work is done, choose *Selection-Clear Selected Features.*

4.2   How To Sort Table

1. Right-click on a layer and click on *Open Attribute Table.*
2. Highlight an entire column and Right-click on it.
3. You can now choose *Sort Ascending* or *Sort Descending.* This will sort the entire table according to the ascending or descending order of that particular column.

4.3   How To Join Tables

You can join the attribute table of a layer to another layer's table based on a common attribute that can be found in both the tables. The name of the field does not have to be the same, but the data type has to be the same; you join numbers to numbers, strings to strings, and so on.

For example, a 'Counties' shapefile with new data can be joined to the old shapefile using the common attribute which they share and maps can be updated using the data from this new shapefile.

1. Right-click on a layer and click on *Open Attribute Table.*
2. Choose *Joins and Relates-Join.*
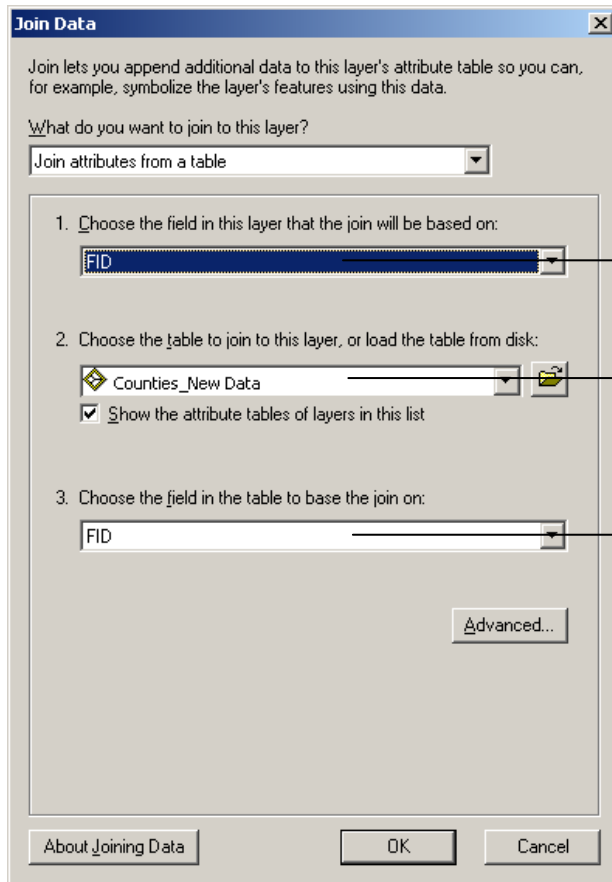
Using the drop-down menu choose the field to be used for the join

Choose the table to be joined to the above mentioned layer

Choose the field in the table from step 2 to be used for the join (should contain the same values as in the field from step 1)

3. Click *OK.*

5   MAPS

Some features which enhance any map are map legend, title block, north arrow, and scale bar. Insets (data frames) are used to display an area of interest in greater detail which cannot be achieved in the main display frame.

5.1   How To Create Insets

1. Choose *Insert-Data Frame* from the **Toolbar.**
2. Activate the *New Data Frame* by highlighting it.
3. Click and choose the *Layout View* from the bottom of the map document. You can now highlight the *New Data Frame* and reshape it by dragging the vertices.

You can add shapefiles to this new data frame and create the inset as you want it.

5.2   How To Insert & Edit Title Blocks and Map Legend

1. To add legend to a map, choose **Insert-Legend** from the **Toolbar** menu and follow the steps by clicking **Next** until done.
2. To add title block to a map, choose **Insert-Title** from the **Toolbar** menu.

3. To edit either, double-click on them to open **Properties** box. You can make changes here.

5.3 How to Plot a Map

If you select the feature **"Scale Map to Fit Printer Paper**" no matter what paper size your map was setup in ArcMap, your map should be plotted properly. This means that you don't need to save your map in different paper sizes. You can apply the same method for printing from a from a PDF file. When printing a map, just make sure that you always select "Scale Map to Fit Printer Paper" in the "Print" window as shown here:
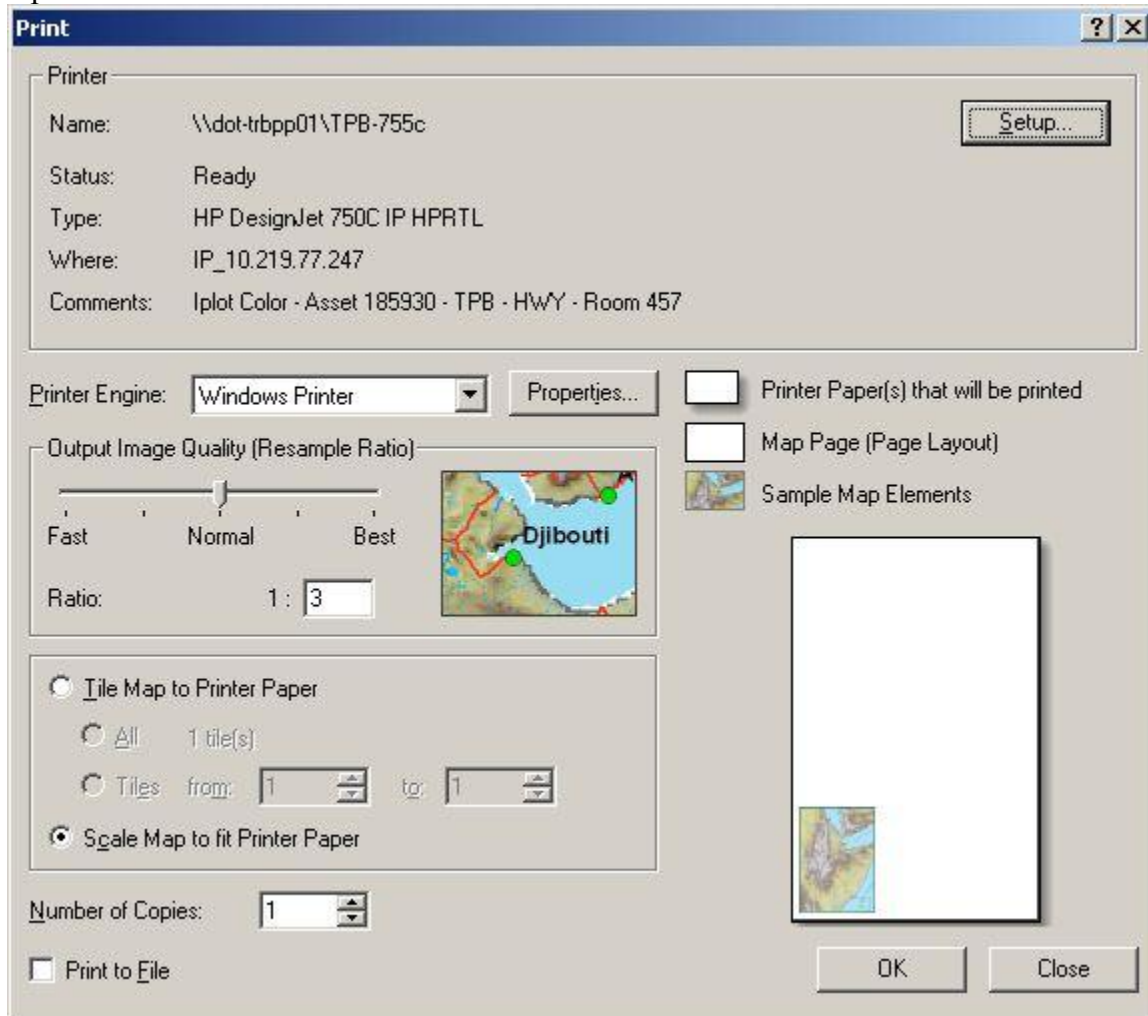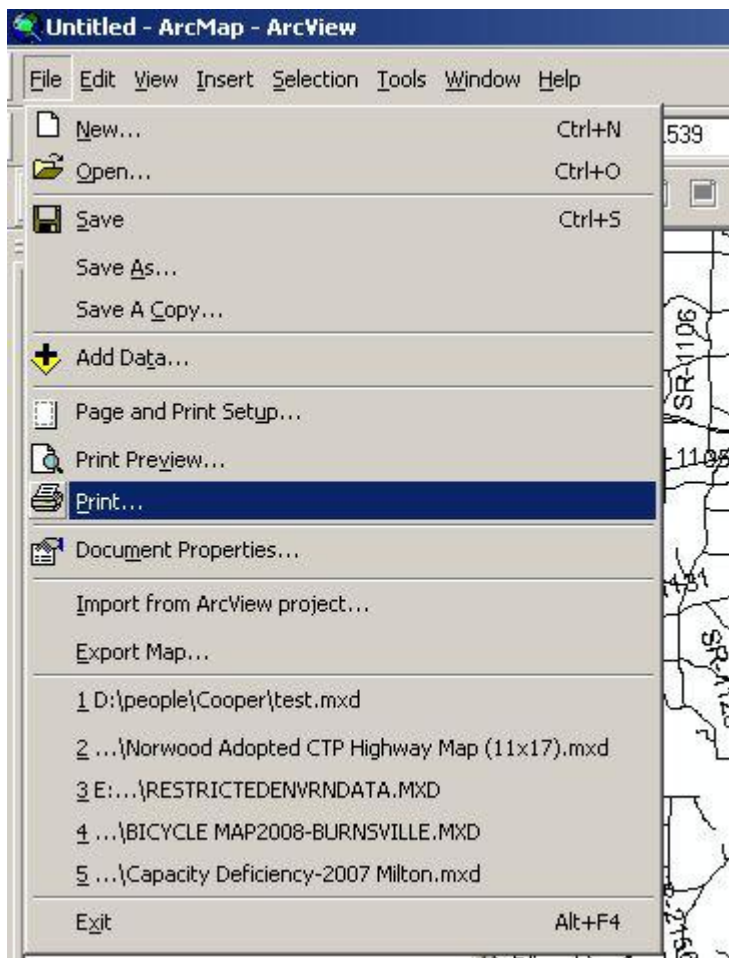

If the selection for "Scale Map to Fit Printer Paper" is grayed out, try to uncheck the "Use Printer Paper Settings" in the "Page and Print Setup" window as shown here:
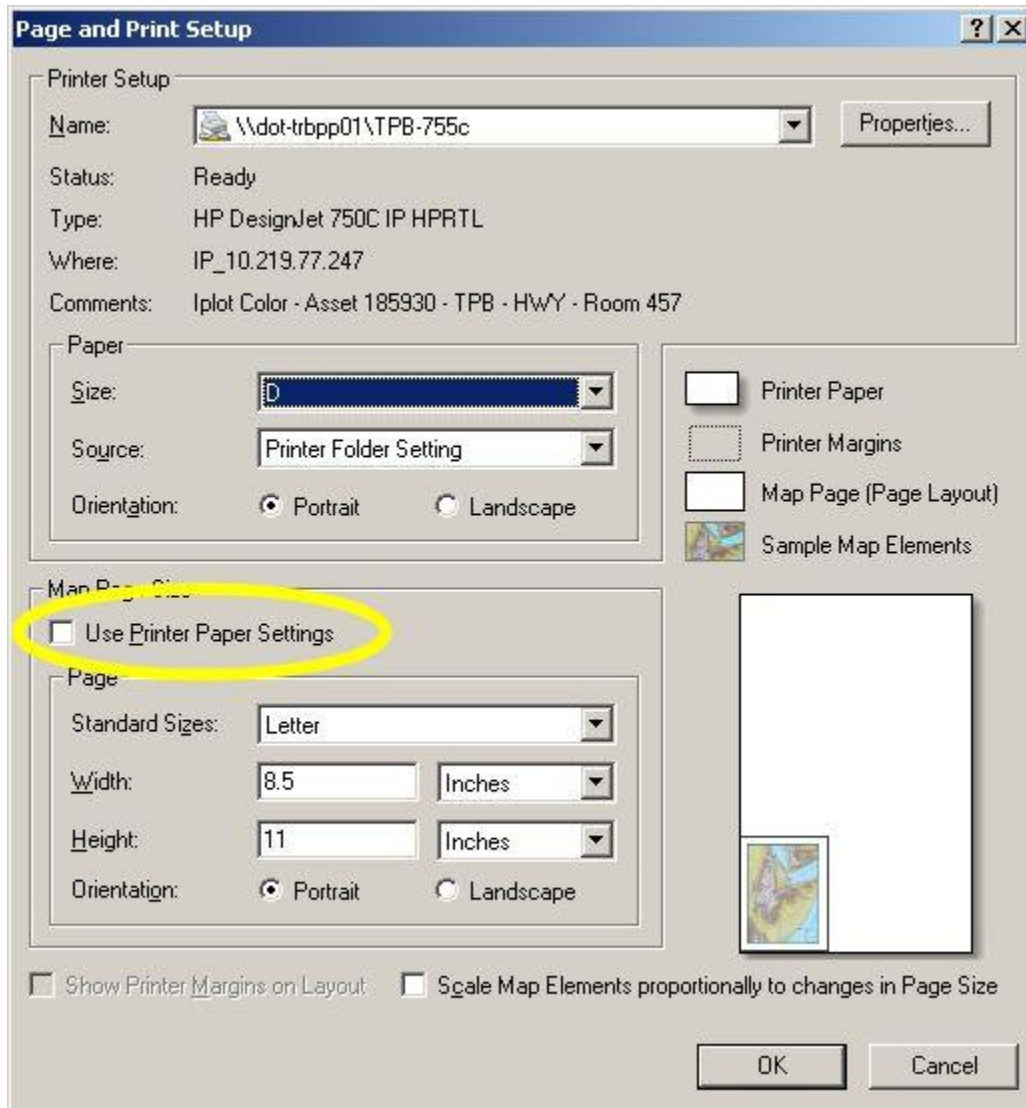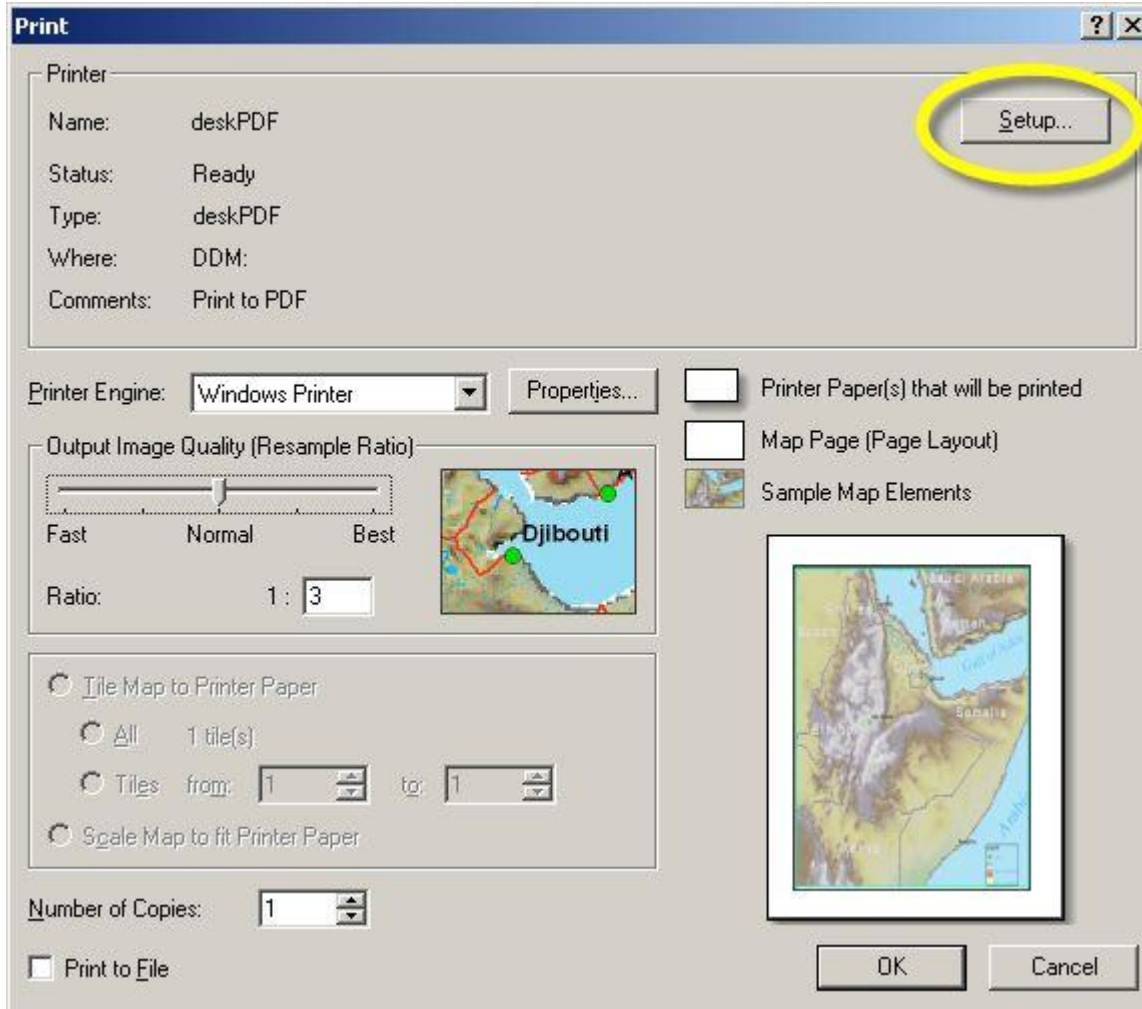
5.4   How To Save Map to PDF File

To save your ArcGIS map in a PDF file, you need to use **deskPDF** by following these steps in ArcMap.
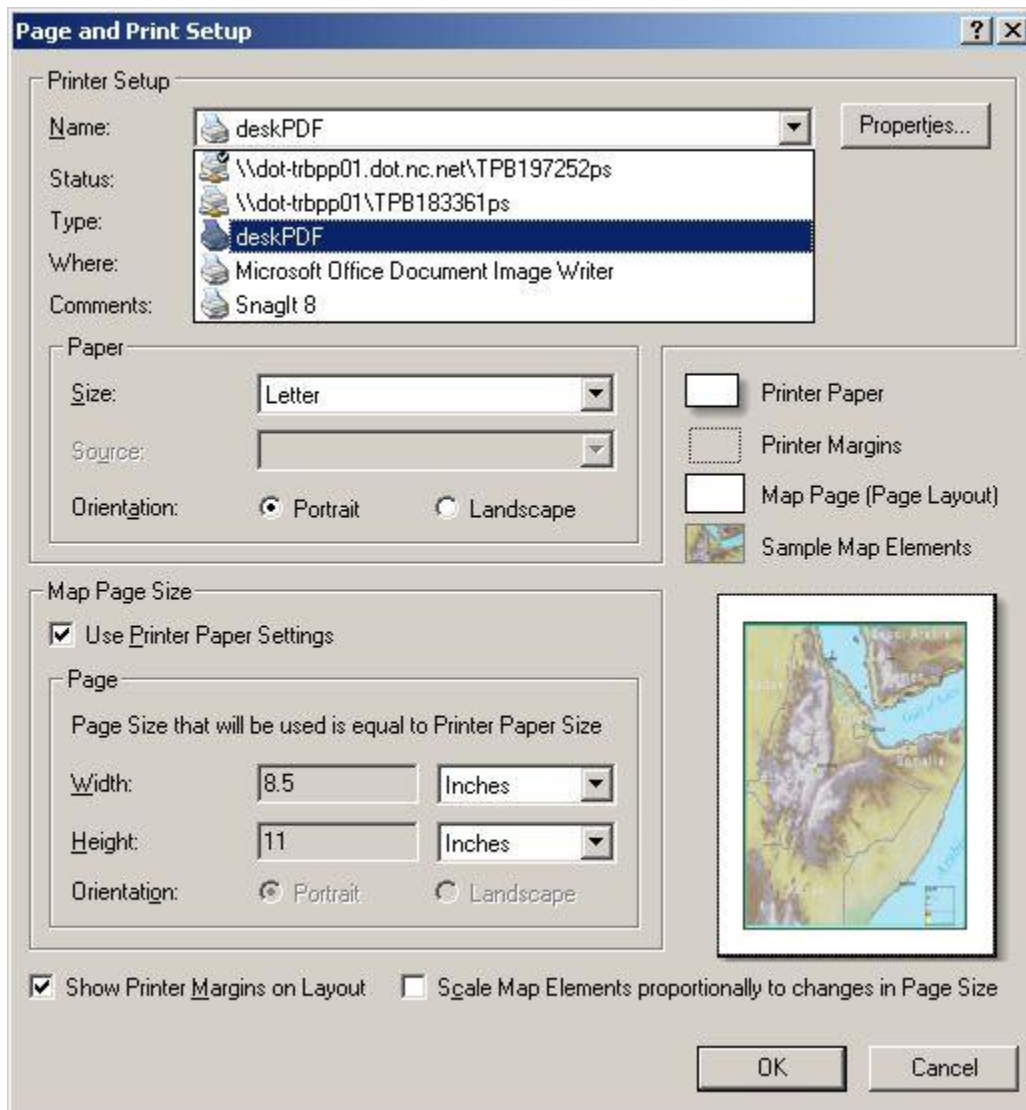
1. Select "Print" from the "File" dropdown menu as shown here:

2. Click on "Setup" button in the "Print" window as shown here:

3. Select "deskPDF" in the "Page and Print Setup" window as shown here (if you don't see the "deskPDF" in the list, please contact IT to install it on your PC):

4. Click on "OK" to close the "Page and Print Setup" window, and click on "OK" to close the "Print" window. Then save your map as a PDF file as shown here:
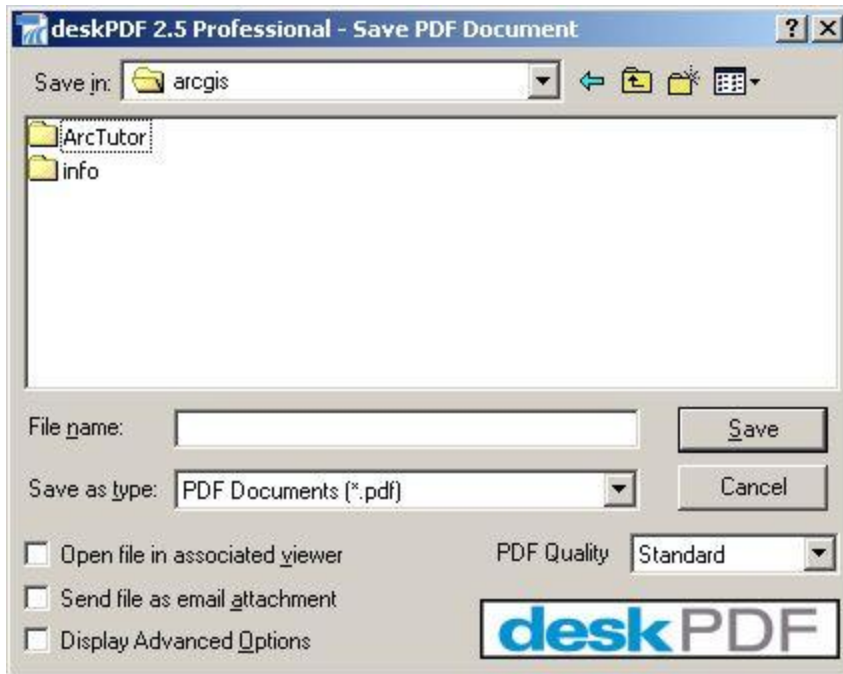
5. Your map should be displayed correctly in PDF format when you save it this way. Otherwise, you may have problems with your PDF file if the map was saved some other ways.

Note: To Export Map as PDF and not lose any of the graphics – fonts, etc:
- Click on **Export Map – Format –** Check "**Embed all Document fonts"** box
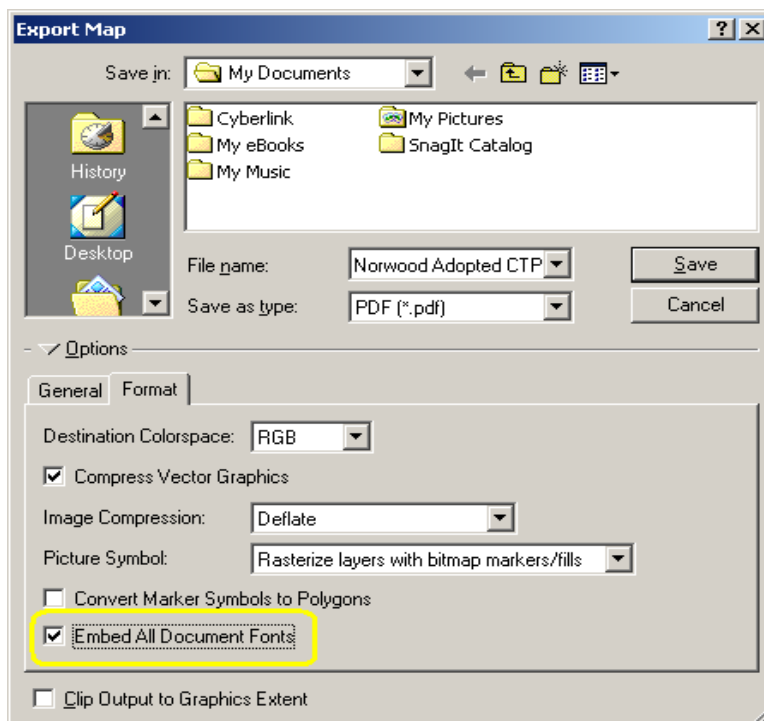
6 MODEL OUTPUT

Travel demand models are frequently used for traffic forecasting. The output files of these model runs need to be converted to a format which is compatible with ArcMap so that the data can be used for map purposes.

6.1 How To Export Model Output From TransCAD

The way to transfer data from TransCAD to ArcMap is to export the geographic data as shapefiles and save other output data as '.dbf' files.

To Export Geographic Data As Shapefile

1. Select the geographic layer you want to export to ArcMap from the main drop-down menu in the TransCAD **Toolbar.**
2. Select *Tools-Export* from the **Toolbar.**
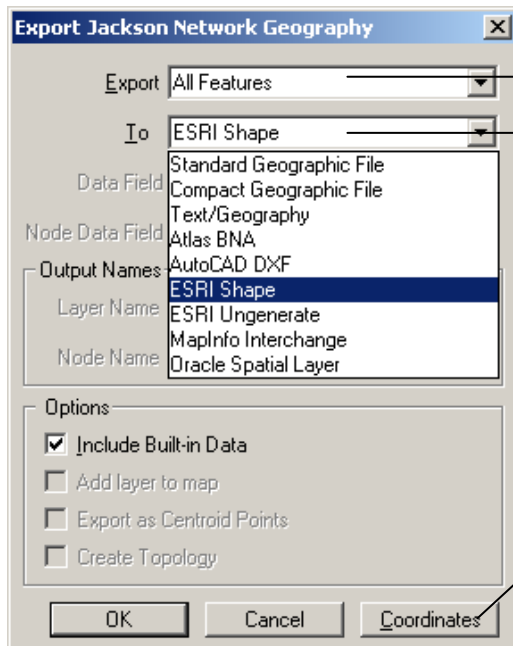
Select **All Features** from the drop-down

Select **ESRI Shape** from the drop-down

Click to specify coordinates for the shapefile (Note: No need to specify coordinates unless there is a problem after exporting, because it may mess up the system sometimes)

3. Specify Coordinates. For North Carolina, it is usually what is specified in the image below.
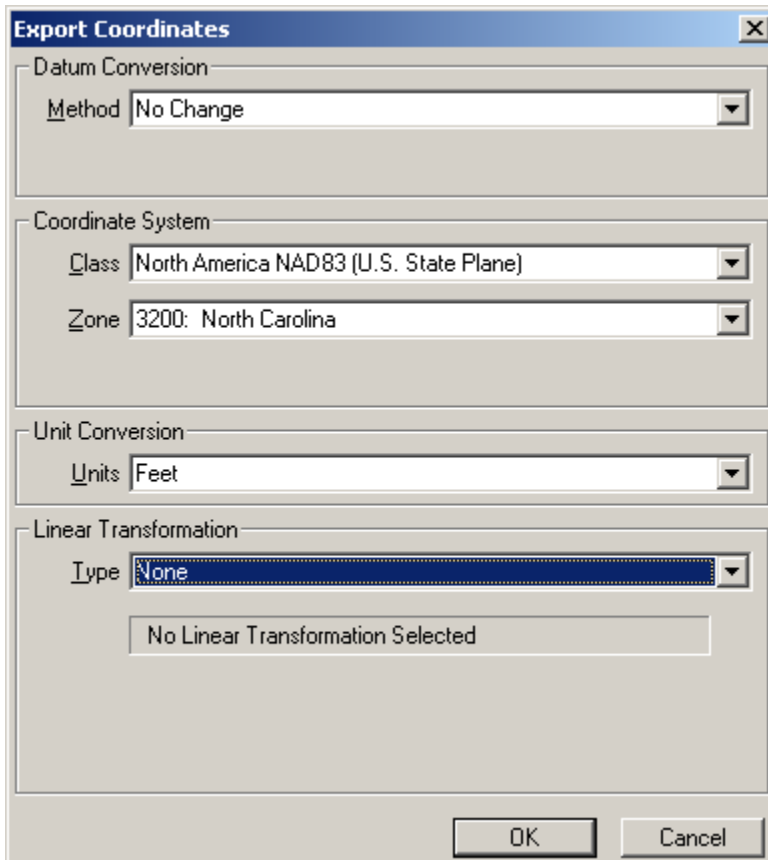
4. Click *OK.*
5. Click *OK.*

You now have the modeled data from TransCAD in a shapefile which can be added to map documents in ArcMap.

To Save Output Data As '.dbf' File

1. Open the output '.bin' file in TransCAD.
2. Select *File-Save As***.** Save it as an **Excel Worksheet.**
3. Open the saved '.xls' file and save it as a '.dbf' file.

This saved '.dbf' file can be opened as a table in ArcMap. The data can be utilized for map purposes by joining to the geographic layer exported as a shapefile, as described above.

6.2   How To View Model Output In CTP Maps

Export the modeled data as shapefiles or save as '.dbf' files and use ***Joins and Relates-Join*** to join this data to other shapefiles, one join at a time only. You will need one common attribute between the shapefiles to use for joining. Refer to section 4.3 How to Join Tables.

7   MISCELLANOUES

7.1   How To Organize Data

In order to organize shape files, layers files and files copied from S: drive so maps can be viewed by others without losing the data source, copy the map document and concerned shapefiles into a single folder and copy this folder over to the S: drive, for example. (Note: When making a copy, the folder structure should be maintained.) If source in the shapefiles is missing, it can be easily reconnected since the location is not deeply buried.

7.2   Where To Find CTP Map Templates

Templates are saved as "ESRI ArcMap Document" using a ".mxt" extension.
Location: *S:\Shared\TPB Reference\Comprehensive Transportation Plan*

7.3   Where To Obtain Latest Shapefiles

Location: *S:\Shared\GIS Data\NC GIS Statewide Data\Latest GIS Data*

7.4   Where To Find ArcMap In-House Tools

There are two in-house GIS tools that are very useful for TPB.
- The ArcMap tool
- The Shields tool.
-

The ArcMap tool consists of the multi layer clipping tool as one of its five tools.

Please refer to the following locations to obtain documents related to the in-house tools including instructions on how to install and use.

ArcMapTool Location: *S:\ARCGIS\GISunitTools\GIS ArcMap Tool*
Shields Tool Location: *S:\ARCGIS\GISunitTools\ShieldsTool*