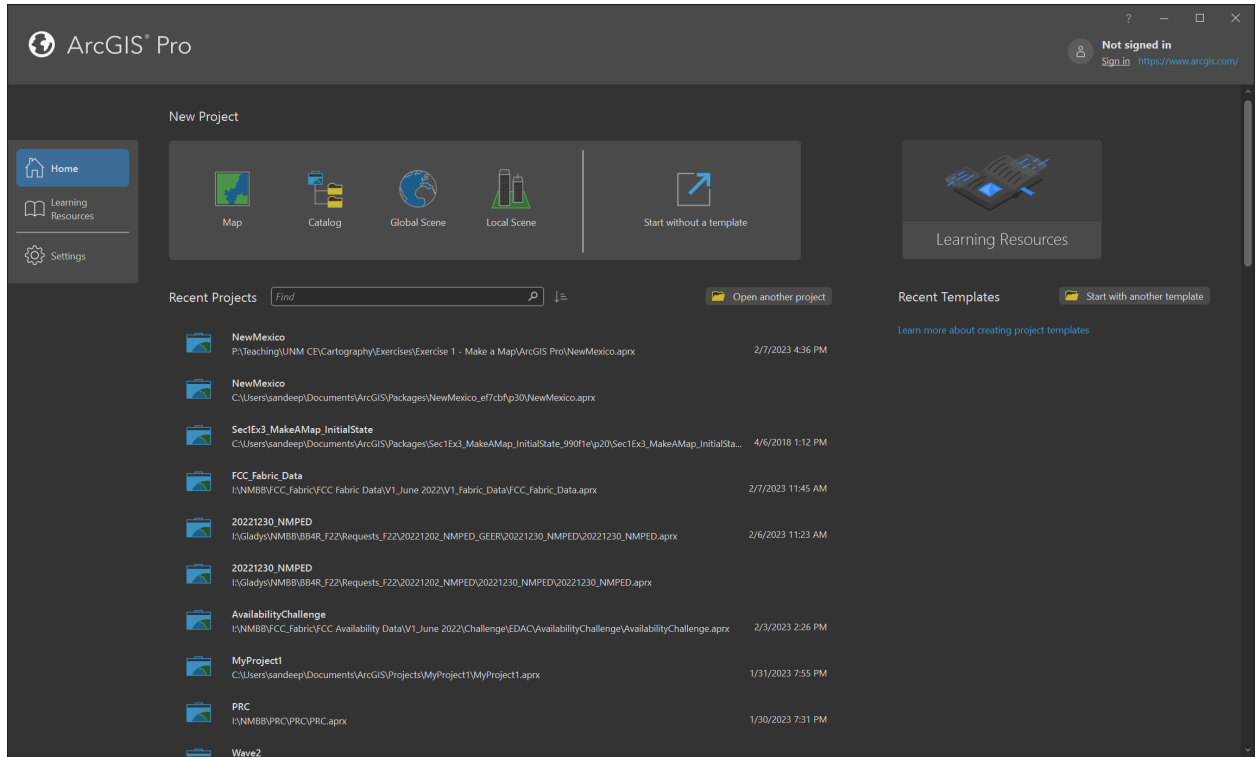


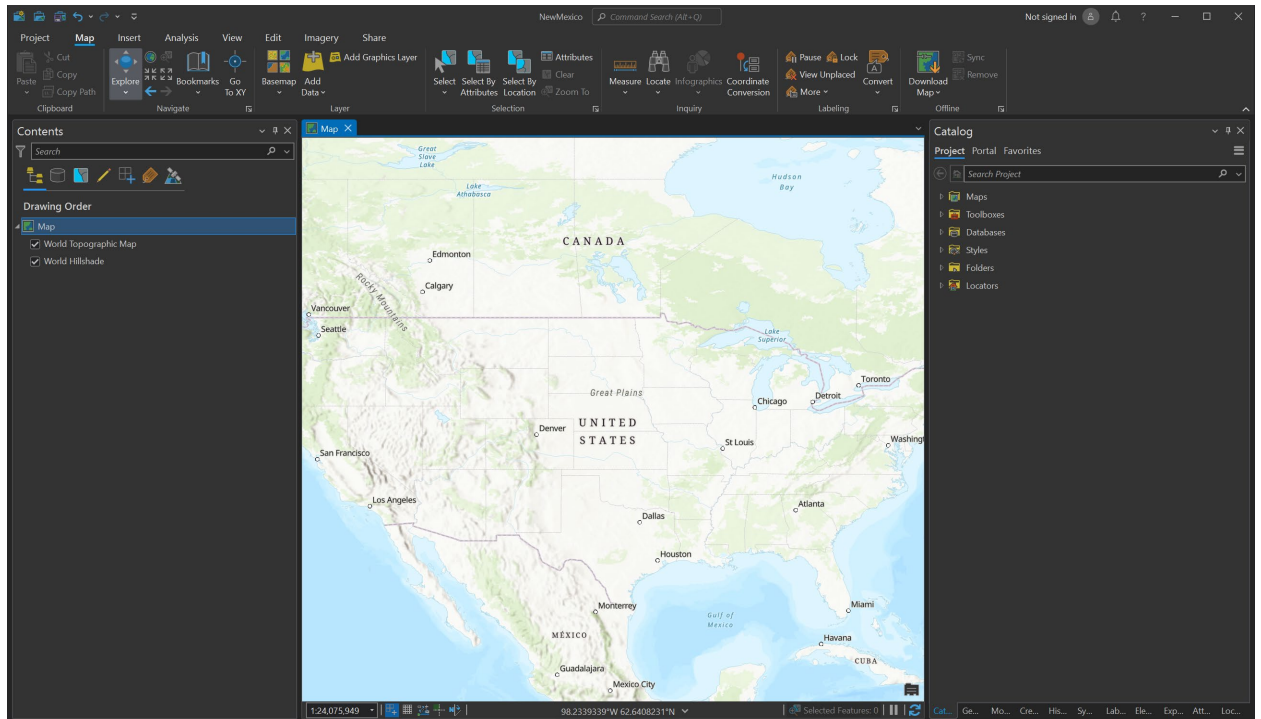
## Exercise 1: Create a Map of New Mexico

Data for this exercise provided in the class.

1. Download data and unzip the file to a folder on your PC.
2. Open ArcGIS Pro from your Windows Start Menu.



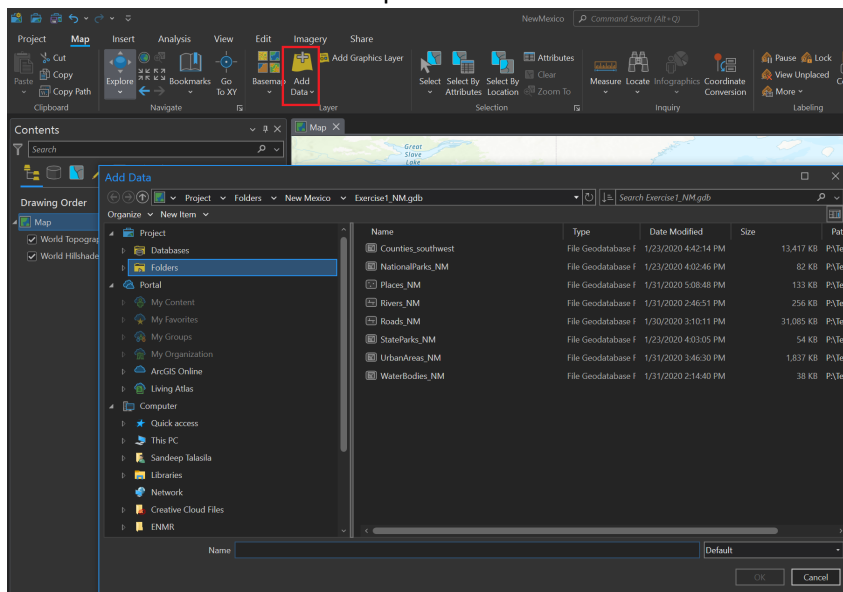
3. Click on **Map** and **Create a New Project**.

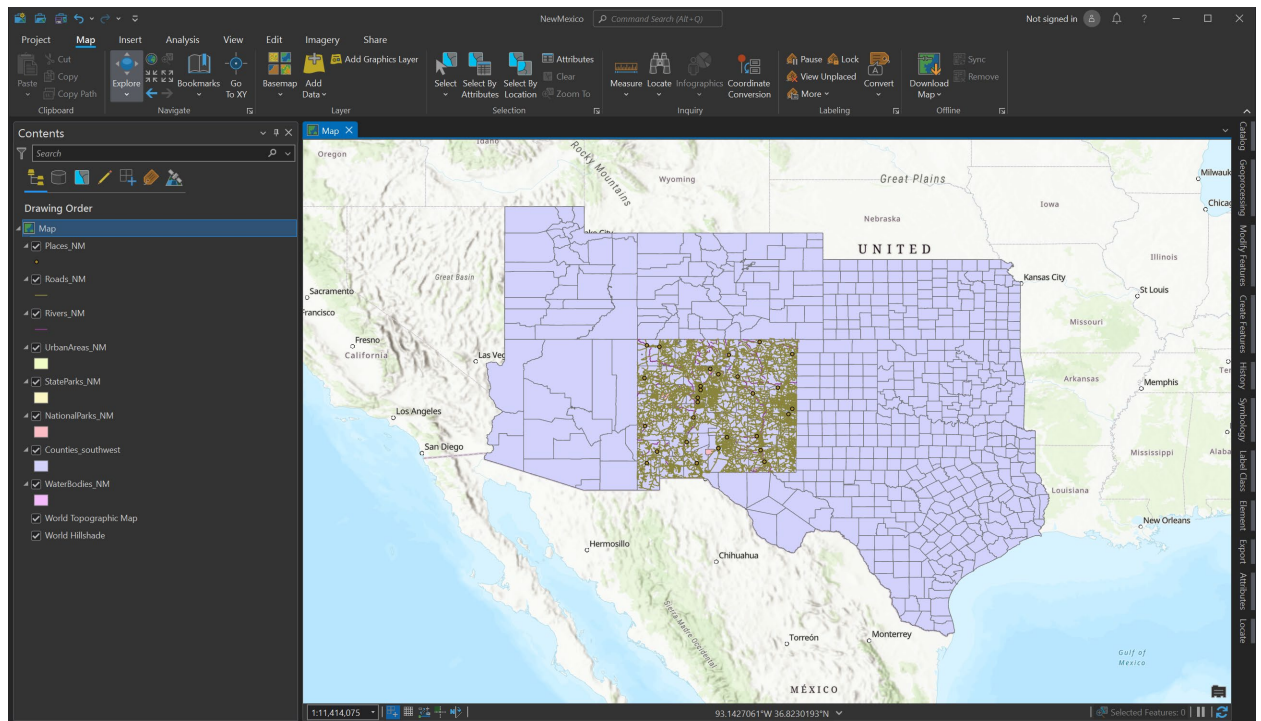


## Add Data

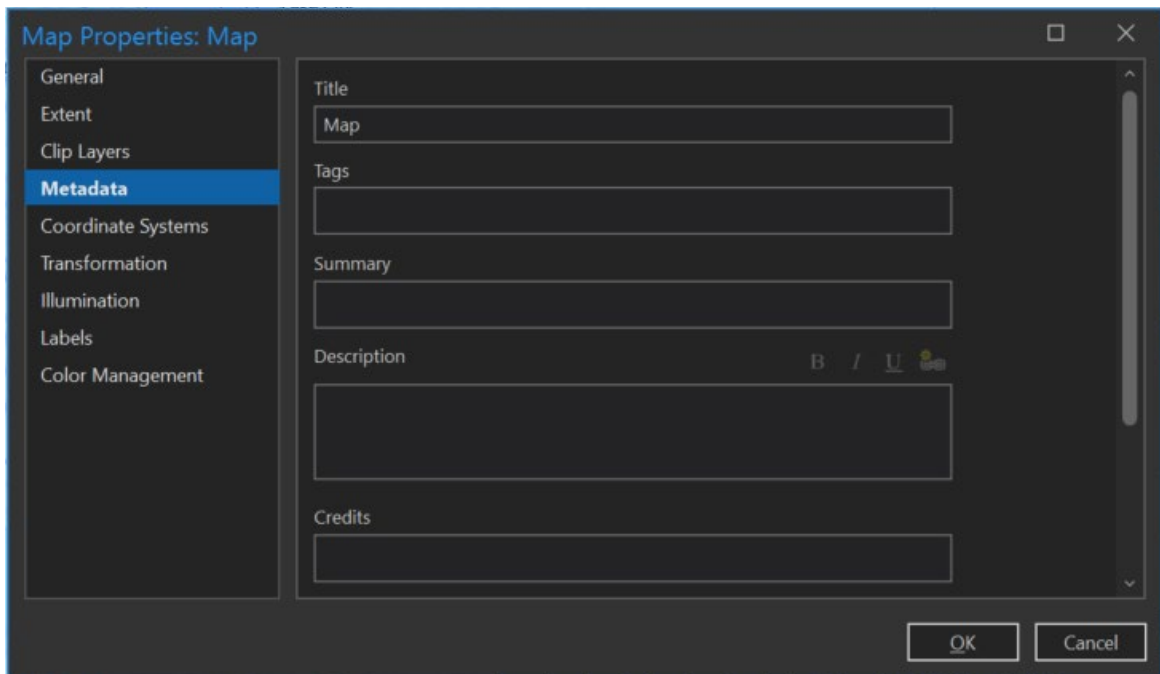
Add necessary data to the **Map** window in ArcGIS Pro Project. To do that ArcGIS Pro need to get access to the folders on your PC.

- Click Add Data button under Map menu and navigate to the **Exercise1\_NM.gdb** geodatabase. Press Ctrl button on the keyboard and select all feature classes (datasets). Click **Add** button to add selected datasets to ArcMap window.

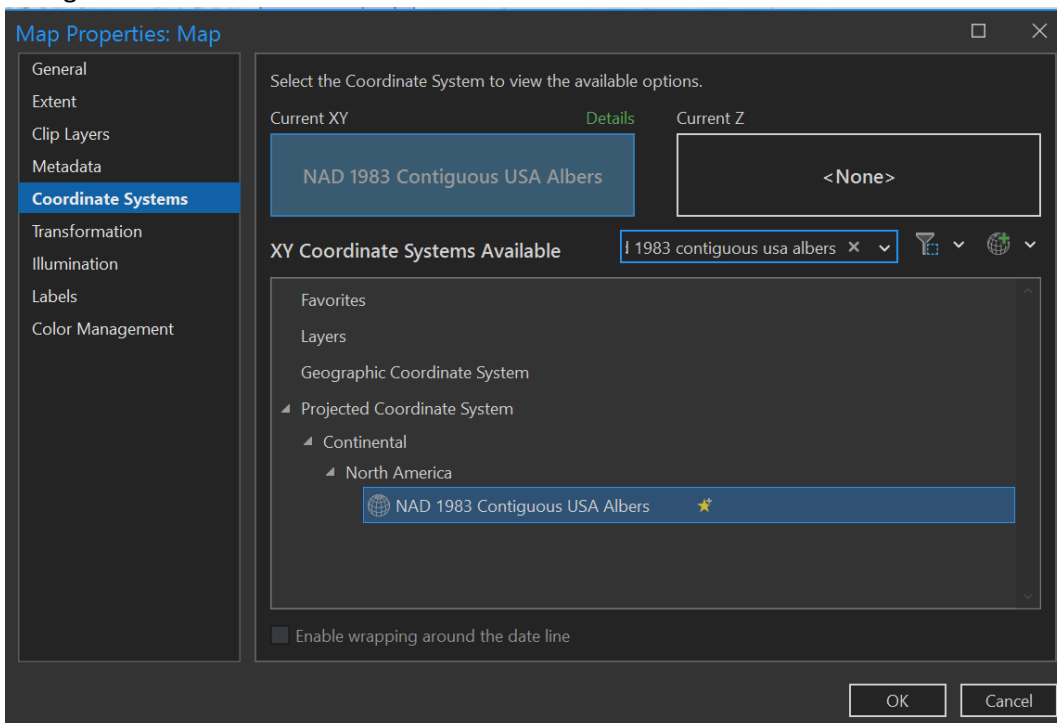




5. Click on **Map** in the **Contents** pane to select and click one more time to make the text editable.  
Name the Map as **New Mexico**.
6. Right click on **New Mexico** map and click on **Properties**, which prompts to a dialog box.
7. Click on **Metadata** tab and update Map information.  
 Title: Reference Map of New Mexico  
 Tags: New Mexico, Counties, Highways, etc.  
 Summary: Reference map of New Mexico  
 Description: Reference map of New Mexico



8. Click on **Coordinate Systems** tab. Enter **NAD 1983 Contiguous USA Albers** in the search bar for the data projection and hit enter key on the keyboard. As shown in the results below, select the projection and click **OK** to apply the coordinate system and close the Data Frame Properties dialog box.

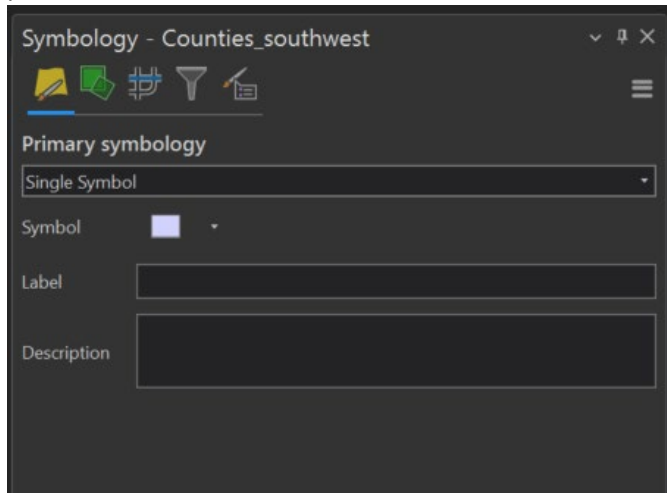


## Symbolize Data

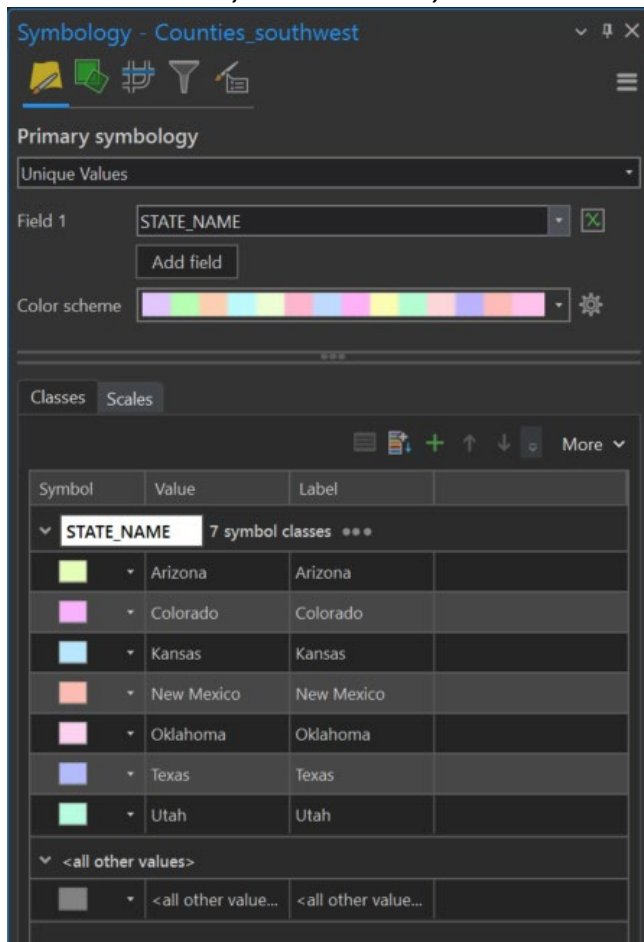
Style data to portray necessary and relevant information the map.

### Symbolize States

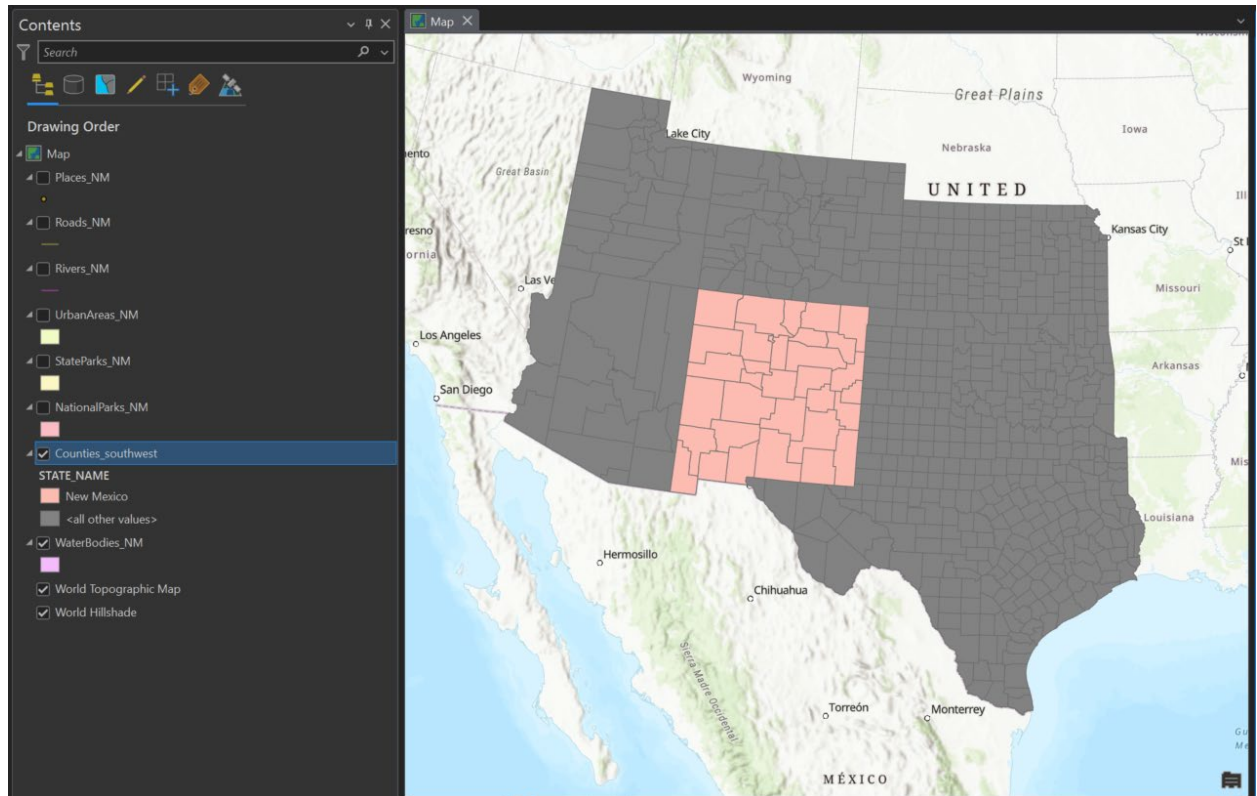
9. In the Contents pane, hover on **Counties\_southwest** layer to select it.
10. Click on Feature Layer tab on the ribbon menu and click Symbology. This opens the Symbology pane.



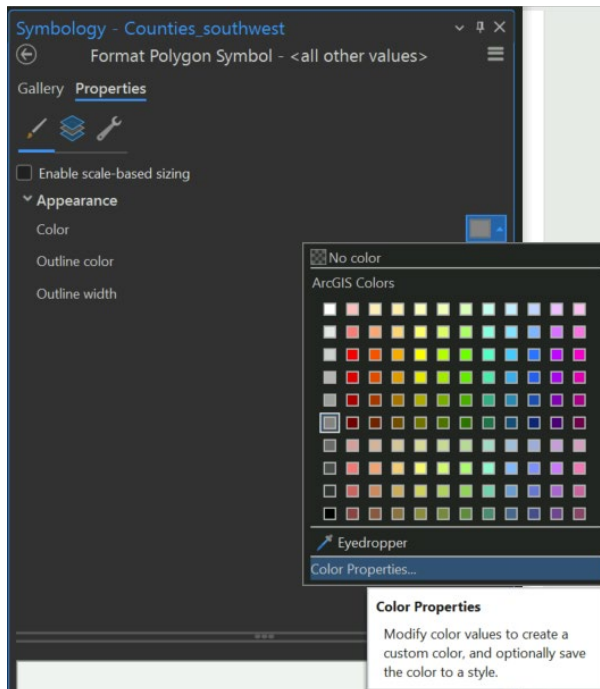
11. Choose Unique Values from the drop down box and Select **STATE\_NAME** for the Field 1 drop down box. Which symbolizes data by State Name.



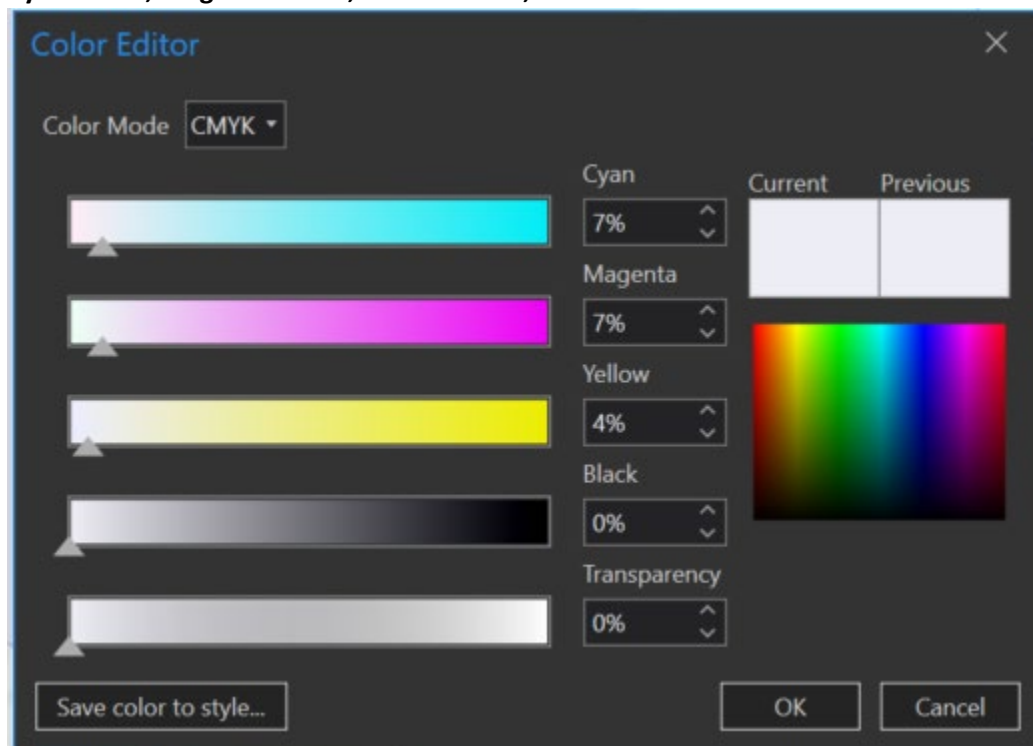
12. Color code states to differentiate New Mexico from the surrounding states. Press Ctrl key on the keyboard and click on each state name except New Mexico.
13. Click **Remove** button to remove those states from the **Symbology** tab. New Mexico is highlighted with a unique symbol to distinguish it from the other states, which are drawn with the symbol defined for "<all other values>."



14. Click on the color box next to <all other values> in the Symbology pane to open **Format Symbol** dialog box.
15. Select **Outline width** to zero. Click on the drop down next to **Color** and select **Color Properties** to open the **Color Editor**.



16. Choose **CMYK** for the Color Mode from the drop down and set the following values.  
**Cyan = 20%, Magenta = 16%, Yellow = 16%, Black = 0%**



17. Similarly, for **New Mexico** and repeat steps 14, 15, and 16, but set color values as follows: **Cyan = 10%, Magenta = 7%, Yellow = 14%, Black = 0%**.



18. Click on the **File** menu on top of the ArcMap and click **Save As**. Browse to your folder and save your map as **Exercise1\_NewMexico\_<YourName>**.

#### *Symbolize Urban Areas*

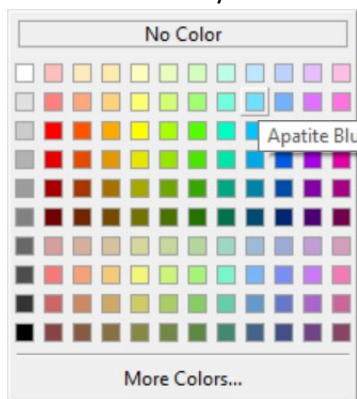
19. Follow above steps 14, 15, and 16 to set following color values for **Urban Areas** layer: **Cyan = 15%, Magenta = 14%, Yellow = 32%, Black = 0%**.

#### *Symbolize Parks*

20. Follow above steps 14, 15, and 16 and set following values:  
**National Park: Cyan = 40%, Magenta = 20%, Yellow = 50%, Black = 10%**  
**State Park: Cyan = 30%, Magenta = 15%, Yellow = 35%, Black = 5%**

#### *Symbolize Waterbodies*

21. Click on the line symbol for **Rivers** layer and select **Apatite Blue** to set color for the layer.



22. For **WaterBodies** layer, select **Apatite Blue** as **Fill color** and **Big Sky Blue** as **Outline Color**.

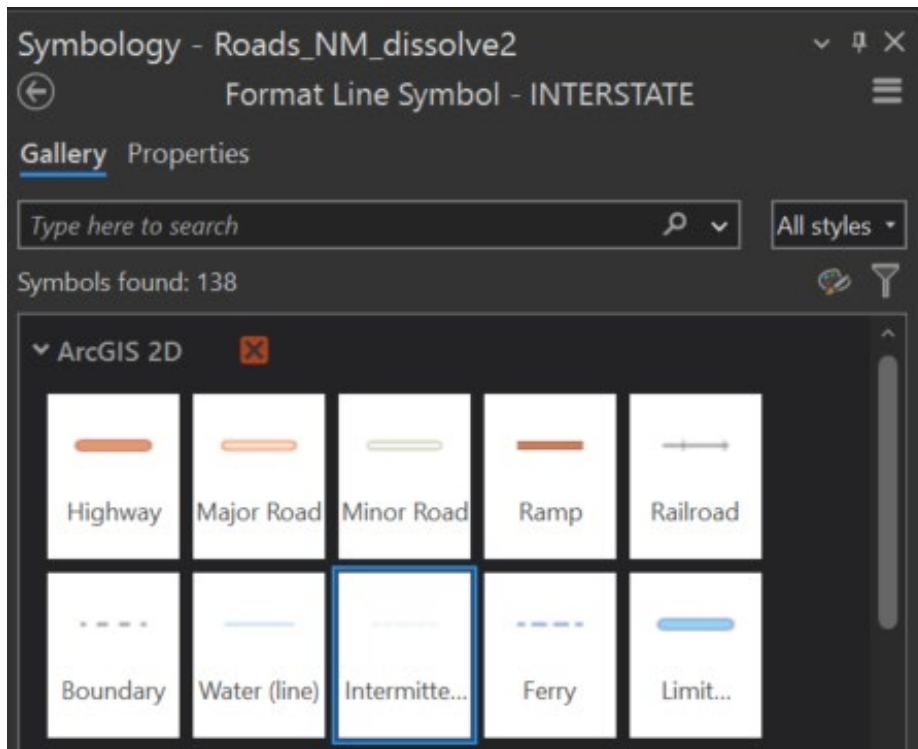
#### *Symbolize Roads*

23. For **Roads** layer, follow steps 9 and 10. Choose Unique Values in the Symbology pane and select **road\_class** from the drop down for **Field 1**.

Symbol	Value	Label	
▼	road_class	3 symbol classes	...
—	INTERSTATE	INTERSTATE	
—	NM HIGHWAY	NM HIGHWAY	
—	US HIGHWAY	US HIGHWAY	

24. Click the symbol for **Interstate**, in the **Format Line Symbol** pane, click **Gallery** tab, and then click the symbol for **Highway**.





25. Click on **Properties** tab, change **Line Width** to **3 pt.** and click Apply.
26. For **NM Highway** and **US Highway**, follow step 23 and select symbol for **Major Road**.
27. Click on **Properties** tab, change **Line Width** to **2 pt.** and click Apply.
28. Click the back arrow to return to the main Symbology pane. Click on Symbol Layer Drawing (third icon) from the tools.



29. For **Enable symbol layer** drawing toggle ON.
30. Optionally, you can change the drawing settings to Join And Merge to draw the layers more clean and visually connected.



### *Symbolize Places and Label place names*

31. Click on Places symbol (similar to Step 14) in the Contents pane and change Appearance in the Symbology Pane, and click Apply to make changes.  
**Color = No Color**  
**Outline width = 0 pt**
32. Click on **Symbology** tab and edit symbol style by clicking on the point symbol.

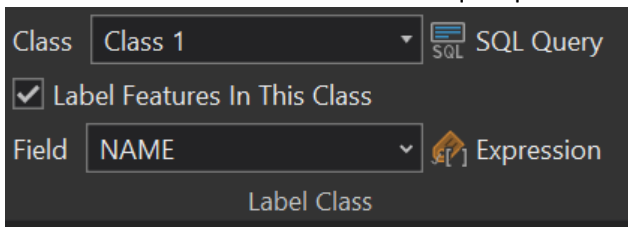
33. Click on **Places** layer to select and click on **Labeling** tab in the ribbon, then click **Label** in the **Layer** group. Alternatively, right click on the **Places** layer in the **Contents** pane and click **Label**. This adds labels to the place name layer as seen below.



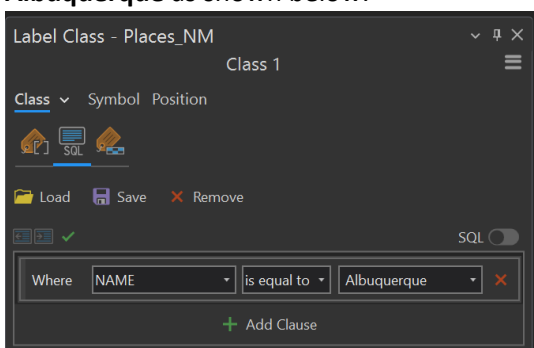
**Extra:** Edit Layer names as follows: Places\_NM = City, UrbanAreas\_NM = Urban Area, NationalParks\_NM = National Park, StateParks\_NM = State Park, Rivers\_NM = River, WaterBodies\_NM = Lake

**Extra:** Highlighting Major Cities (Albuquerque) on the map using a different font size than rest of the labels.

34. In the Labeling tab, under **Label Class** group, create a Class for **Albuquerque**. Click on drop down and create label class and entire Albuquerque as the class name. Click OK



35. Click on **SQL Query** and in the **Label Class** pane, set the expression **NAME is equal to Albuquerque** as shown below.

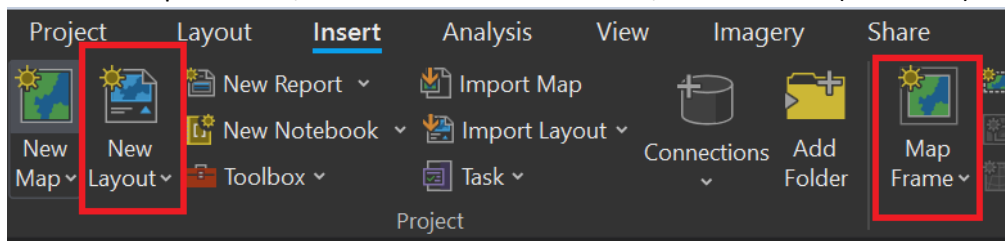


36. Click on **Symbol** tab and change Appearance: **Font Name = Cambria, Font style = Bold, Size = 10pt**, and **Color = Black**. Click Apply to save changes.
37. This will create a duplicate label for Albuquerque. To remove the duplicate, Click **Class 1** from the drop down in the **Label Class**, and select **SQL Query** expression as **NAME is not equal to Albuquerque**.
38. Click **Apply** to save settings.

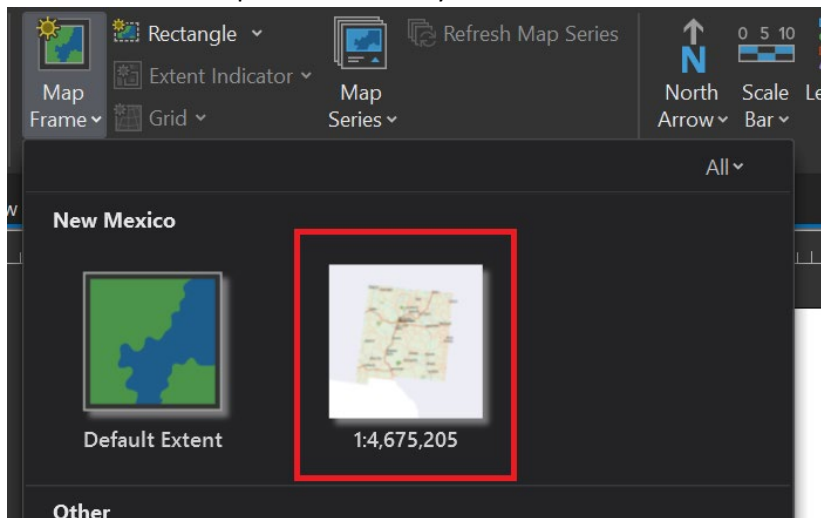
## Add Map Layout

Create a layout view of the map to include all map elements: Title, Author, Legend, Scale Bar, and North Arrow.

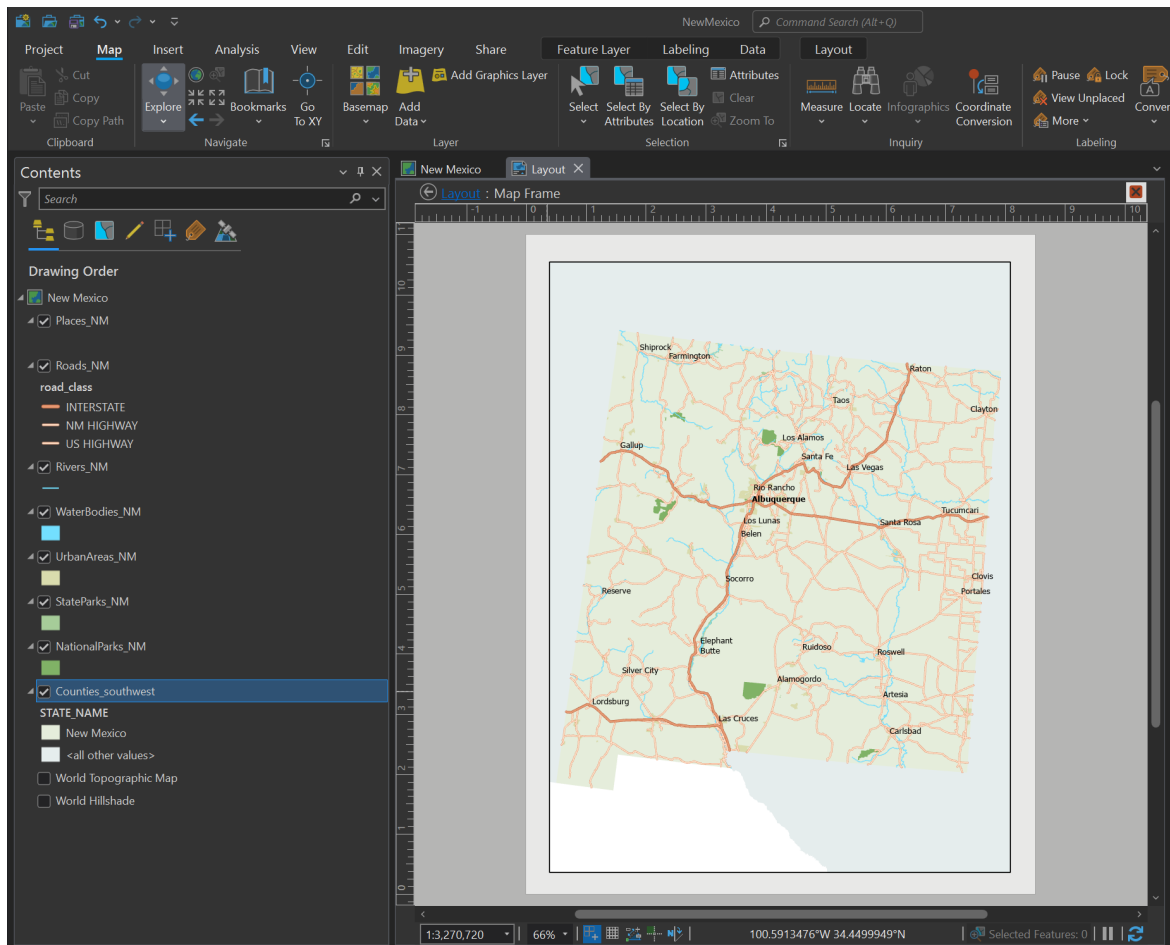
39. Click **Insert** menu on the ribbon and click **New Layout**.
40. From the drop down list, in the ANSI – Portrait section, choose Letter (8.5" x 11").




41. Insert a **Map Frame** and click on the **New Mexico** map. Once selected drag a box on the layout view to add the map frame to the layout.

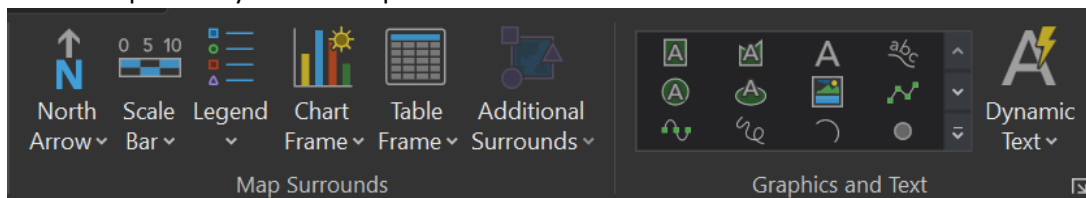


42. Right click on the map frame and **Activate** the frame to interact with the map.
43. In the Map tab on the ribbon, click Explore which changes your cursor to pan. Hold the shift key on the keyboard to change it to **Zoom** icon. Using the zoom tool, zoom the map to fit New Mexico to the full extent of the map.
44. From the **Layout** tab in the ribbon, click **Close Activation**.



### Add Title

45. On the **Insert** tab in the ribbon, in the **Map Surrounds** group, click **Straight Text**  and click on the map where you want to place a **Title**.

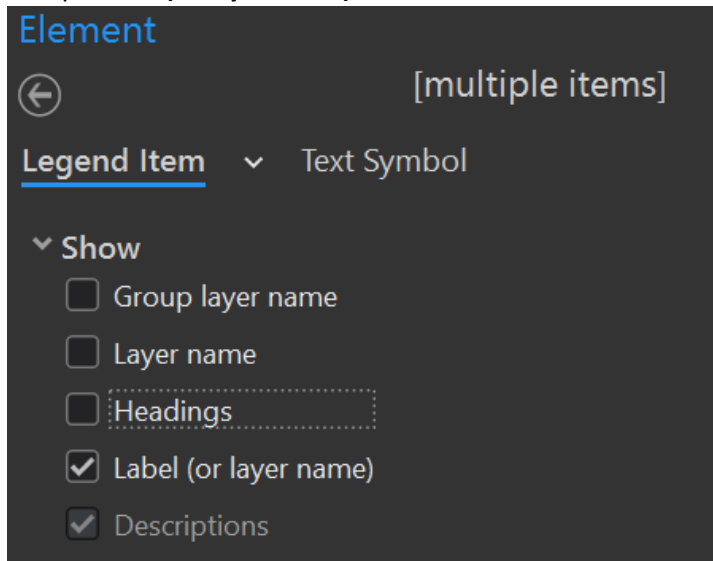


46. Edit text to **New Mexico**; right click on the text and select **Properties** to open **Element pane**.
47. Click **Text Symbol** tab and for **Appearance: Font name = Cambria; Size = 36; Font Style = Bold (optional)**
48. Similarly, using the text tool add **Source, Author, and Date** information to the map where necessary.

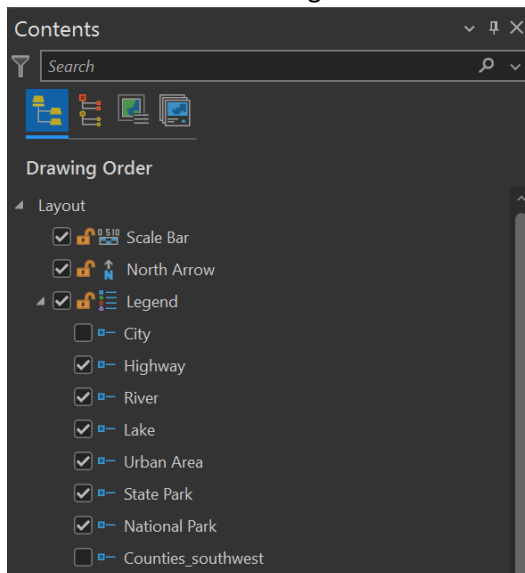
### Add Map Legend

49. On the **Insert** tab in the ribbon, in the **Map Surrounds** group, click **Legend**. In the map layout click and drag a rectangle to add legend to the map.
50. Right click on the Legend to open the Element pane for Legend.

51. In **Options**, under **Legend Items** section, click **Show Properties** button. Uncheck all options except **Label (or layer name)**.



52. In the **Contents** pane under **Drawing Order** uncheck **City** and **Counties\_southwest** layer to remove them from the legend items.



#### *Add North Arrow*

53. On the **Insert** tab in the ribbon, in the **Map Surrounds** group, click drop down for **North Arrow**, and select an option of your choice. In the map layout click and drag a rectangle to add **North Arrow** to the map. Move the north arrow to an appropriate location on the map layout, if desired.

#### *Add Scale Bar*

54. On the **Insert** tab in the ribbon, in the **Map Surrounds** group, click drop down for **Scale Bar**, and select an option of your choice. In the map layout click and drag a rectangle to add **Scale Bar** to the map. Move the scale bar to an appropriate location on the map layout.
55. Click **Save** button on the menu to save Project.

56. To export map, click on **Share** tab in the ribbon and select **Export Layout**. Edit File path and name as desired; choose **PDF** for **File Type** and click **Export** button to export map.

