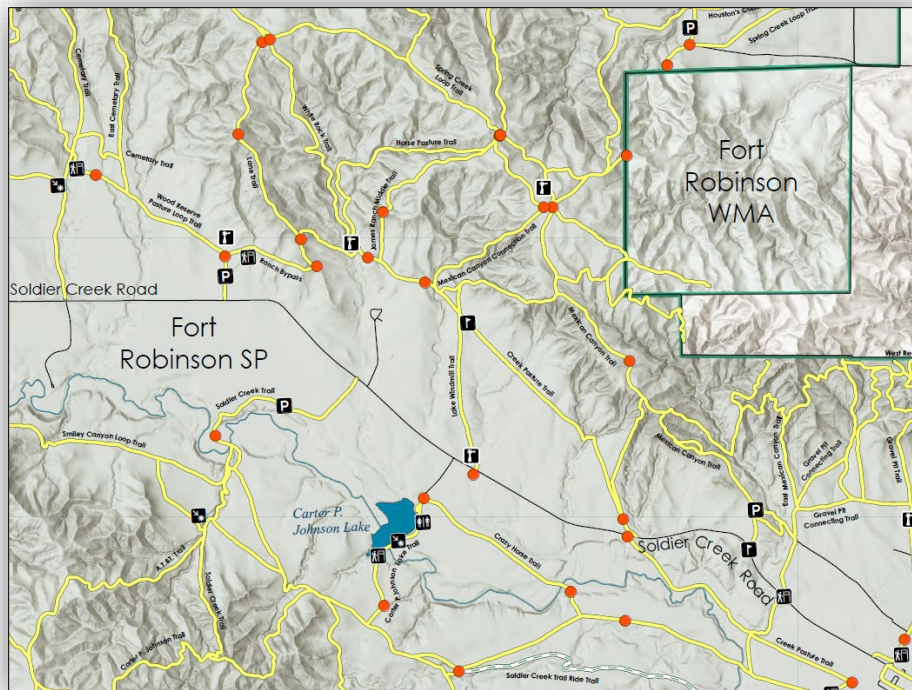# ArcGIS Pro – Session One

Creating Your First Map

The following step-by-step guide will help you to create a generic map using ArcGIS Pro (Pro), and some best practices for storing data, file management, and naming convetions.

During the process you will be making an Pro "Project". This Project will consist of several files and folders including a "File Geodatabase". You will create a "Feature Dataset" to store features. The Feature Dataset is nested inside of the File Geodatabase.
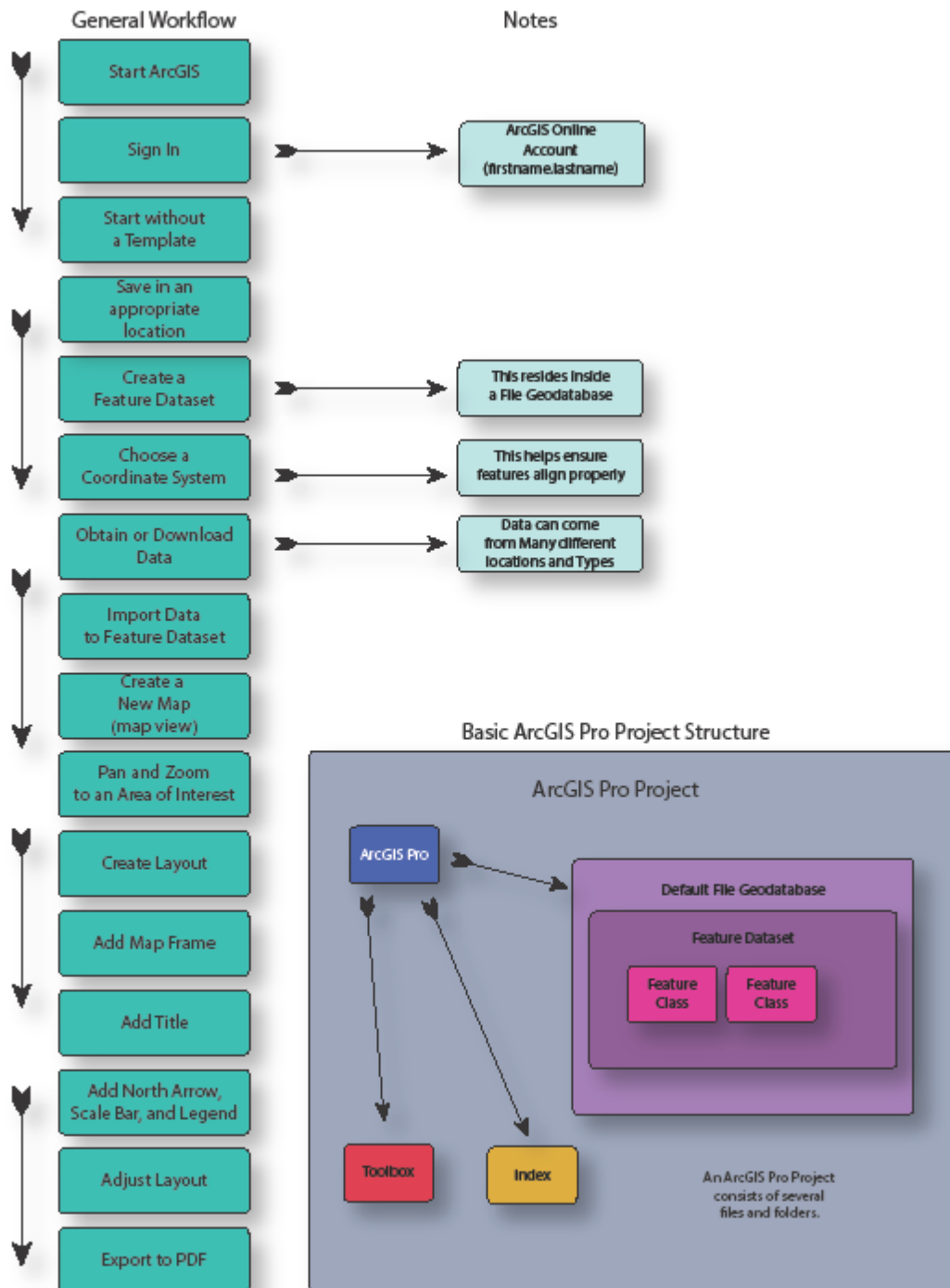
You will also find and download data using the internet. For Session One this original data will be in the form of a shapefile, which has become a Geographic Information System (GIS) industry standard file format. You will then "import" (copy) this data into the Feature Dataset that was created. Once that import is complete, the shapefiles become "Feature Classes", and along with that new designation, they gain some extra functionality that may be explored at a later time.

During this session, you will also be shown some styling options to help create a more meaningful graphic representation of your data. You will then create a Layout and be able to share this with others.

Please note that ArcGIS software updates regularly and images may not be completely accurate to your screen view. Every attempt has been made to make the images as accurate as possible.

ArcGIS Pro Session One Diagram

General Workflow

- Start ArcGIS
- Sign In
- Start without a Template
- Save in an appropriate location
- Create a Feature Dataset
- Choose a Coordinate System
- Obtain or Download Data
- Import Data to Feature Dataset
- Create a New Map (map view)
- Pan and Zoom to an Area of Interest
- Create Layout
- Add Map Frame
- Add Title
- Add North Arrow, Scale Bar, and Legend
- Adjust Layout
- Export to PDF

Notes

- ArcGIS Online Account (firstname.lastname)
- This resides inside a File Geodatabase
- This helps ensure features align properly
- Data can come from Many different locations and Types

Basic ArcGIS Pro Project Structure

ArcGIS Pro Project

- ArcGIS Pro

Default File Geodatabase

Feature Dataset

- Feature Class
- Feature Class

- Toolbox
- Index

An ArcGIS Pro Project consists of several files and folders.

Once installed, ArcGIS Pro Software is found in the Start Menu inside of a Folder titled ArcGIS.

1. Click once to open ArcGIS Pro.
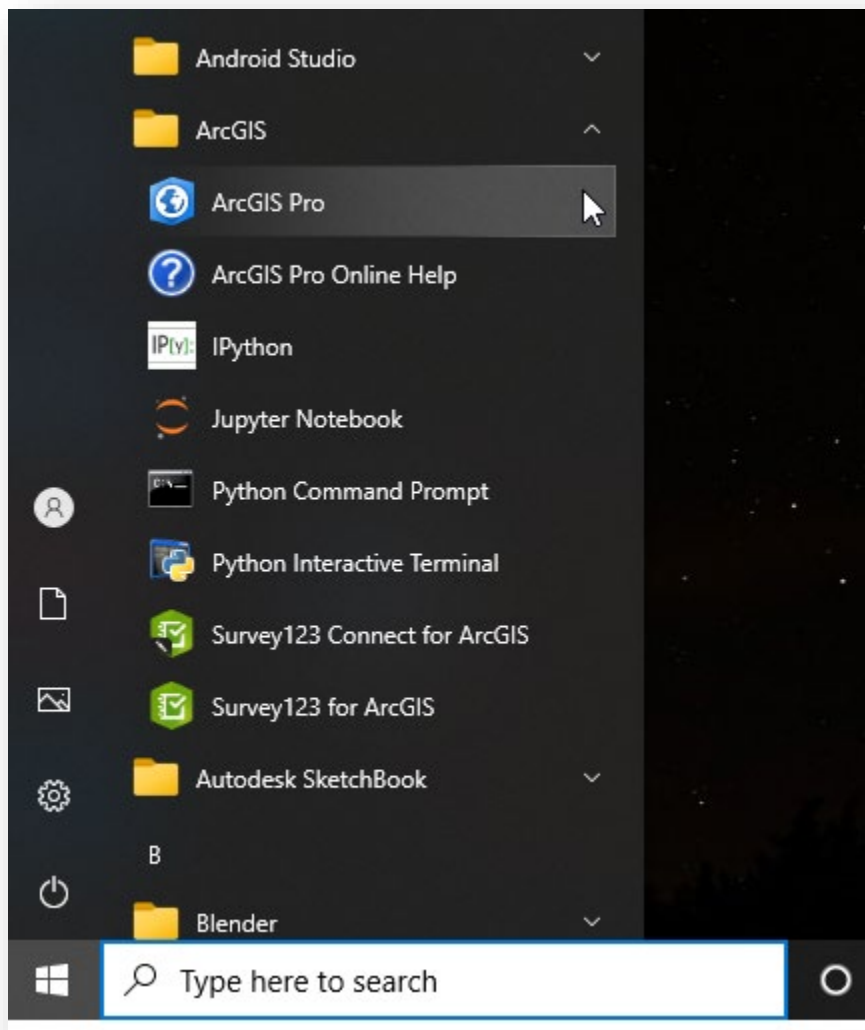
2. Sign in with your ArcGIS Online account information. (usually - firstname.lastname).
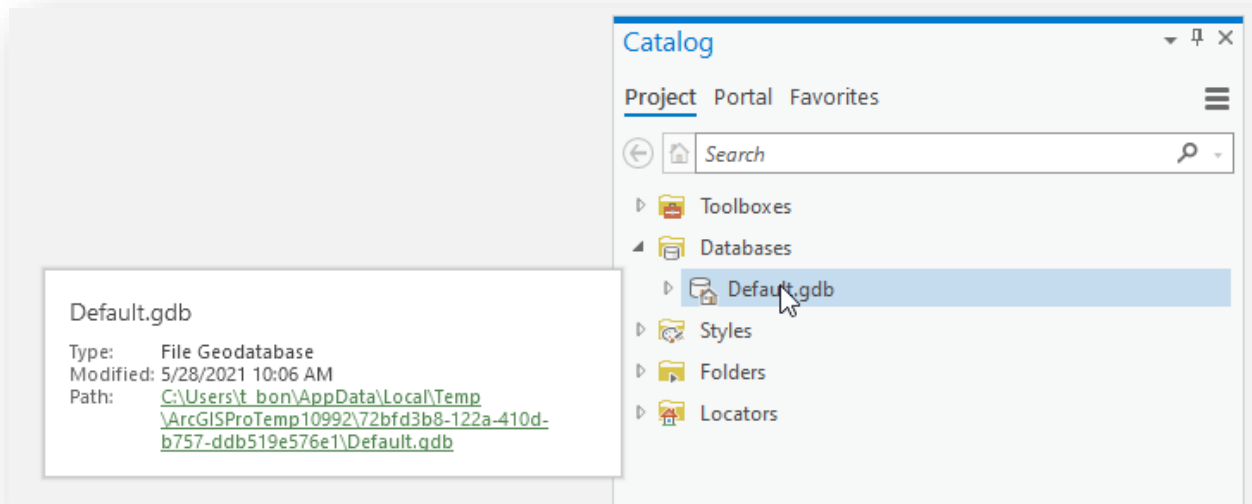
3. Near the center of the screen choose "Start without a Templae (you can save it later)".
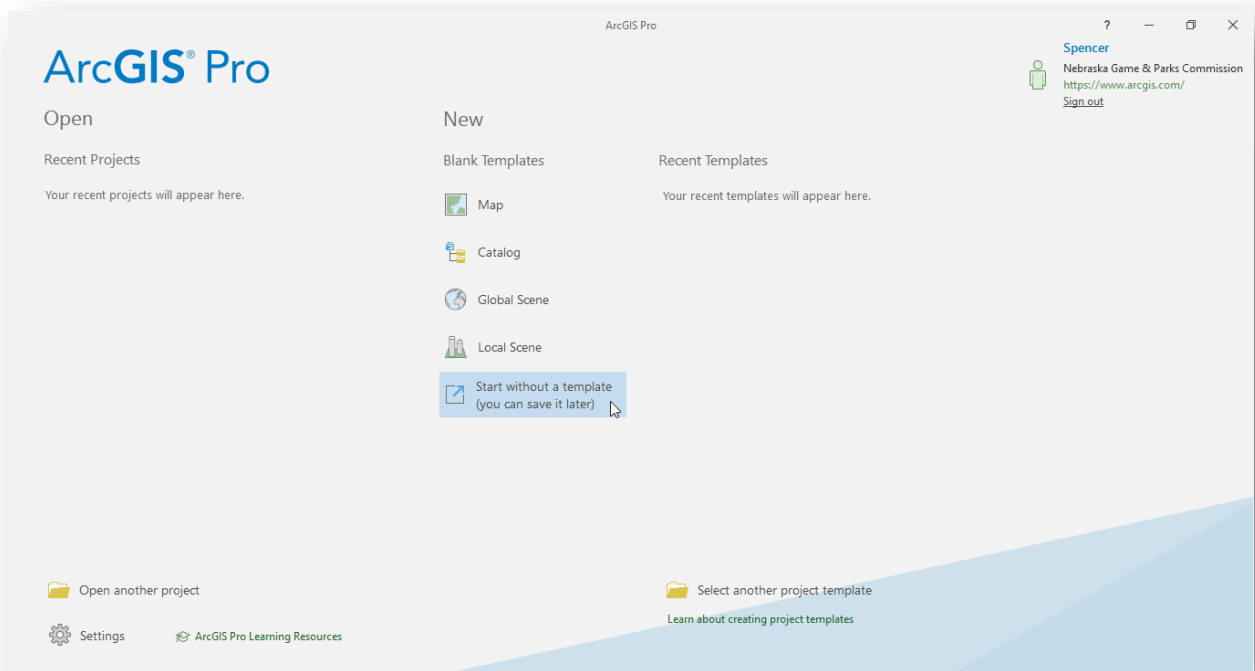

4. The initial user interface is displayed.
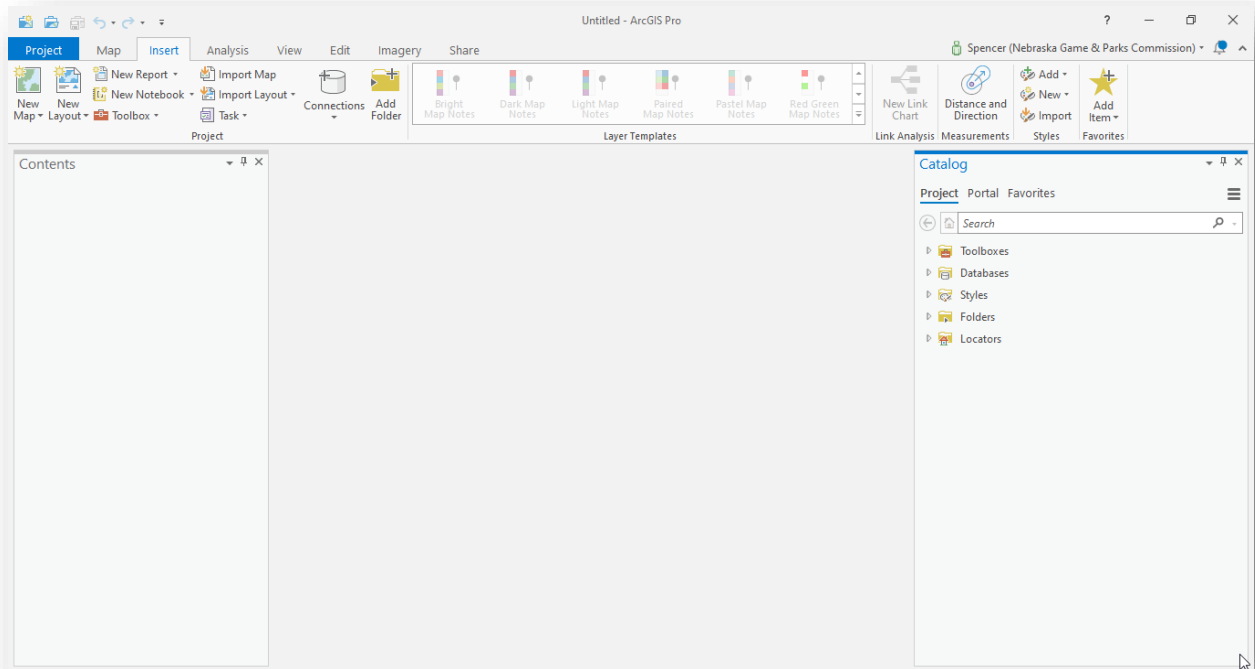
5. On the right-hand side of the screen expand "Databases" and then hover on "Default.gdb". This will display the path of that Geodatabase (File Geodatabase) - Green text. Take note it is inside of a Temp folder for the time being.
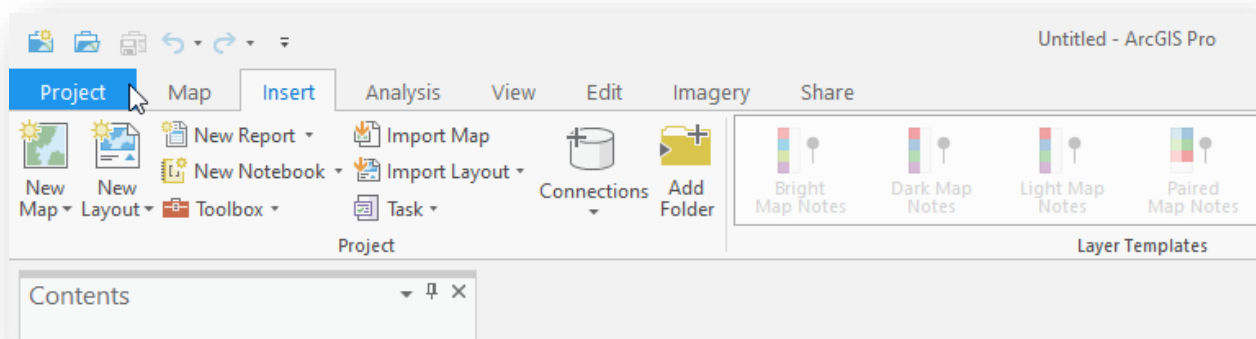

6. Using Windows File Explorer, navigate to the C Drive and right-click to create a New Folder.
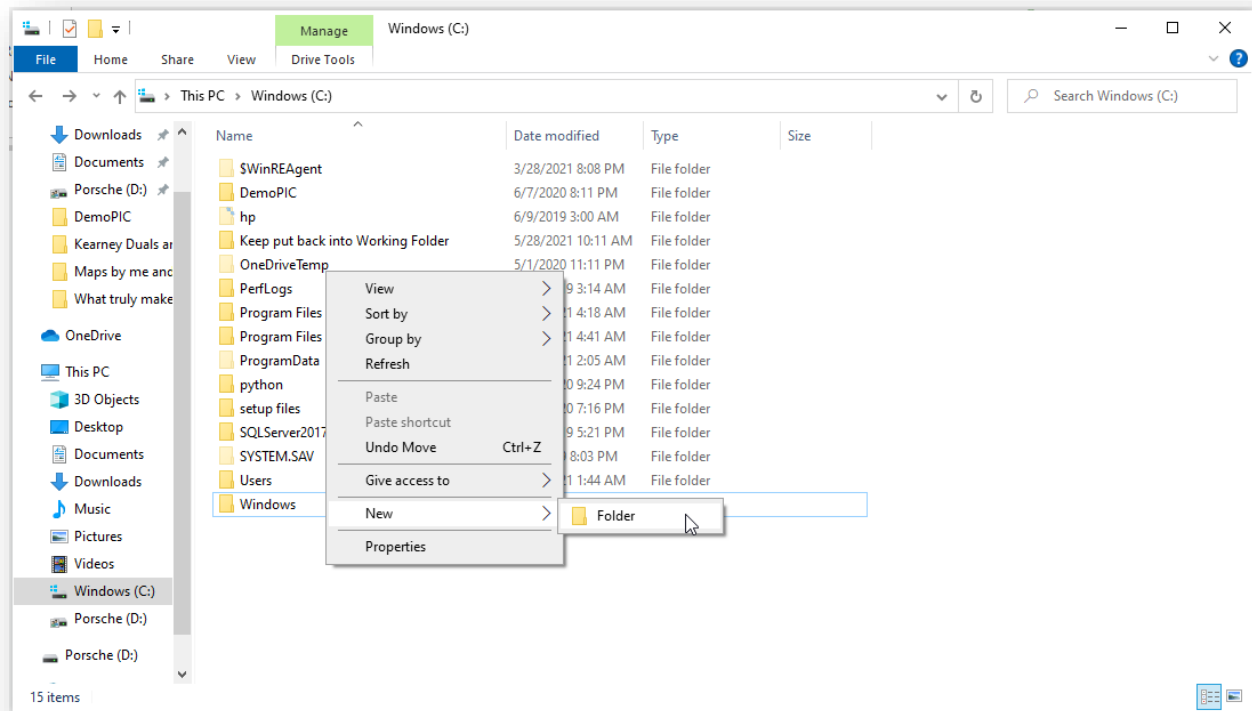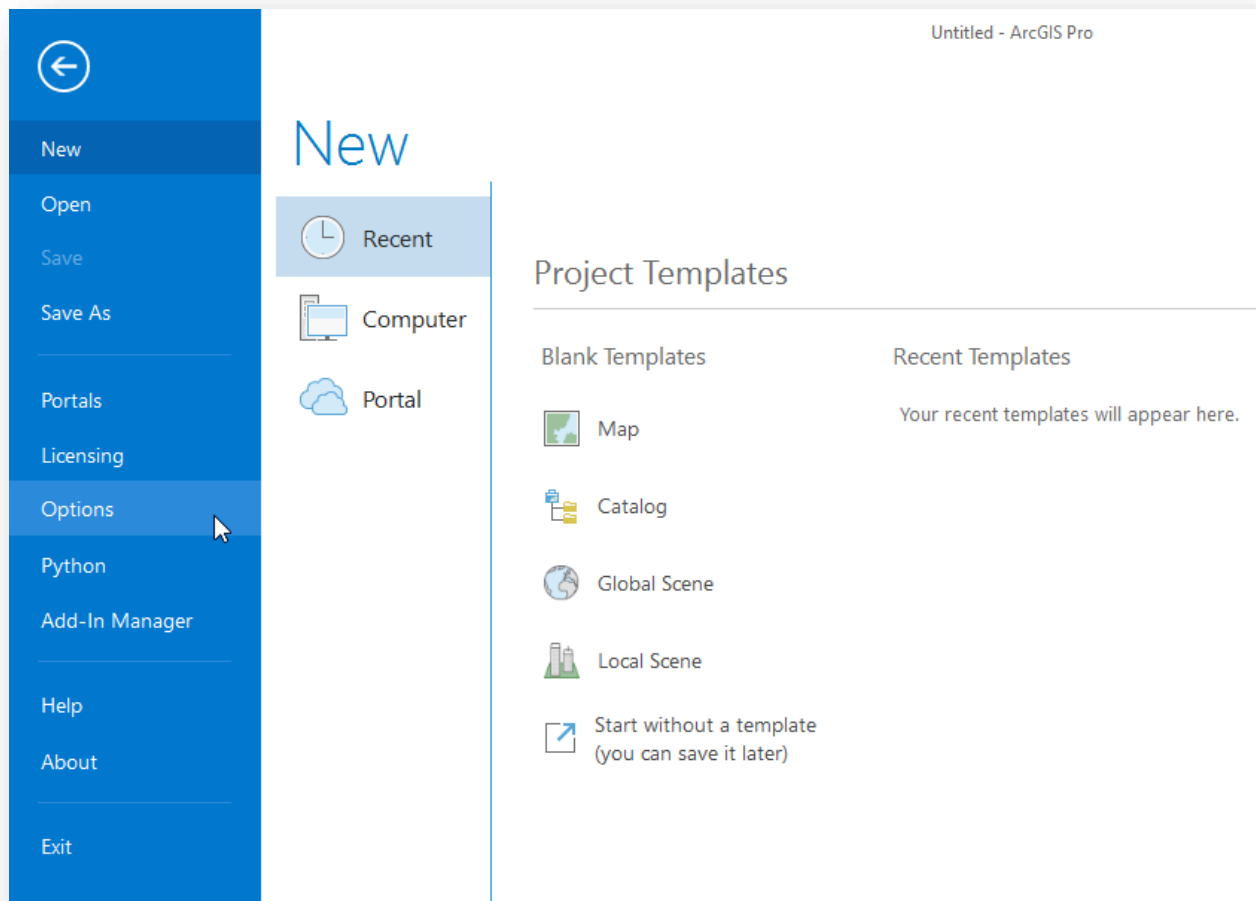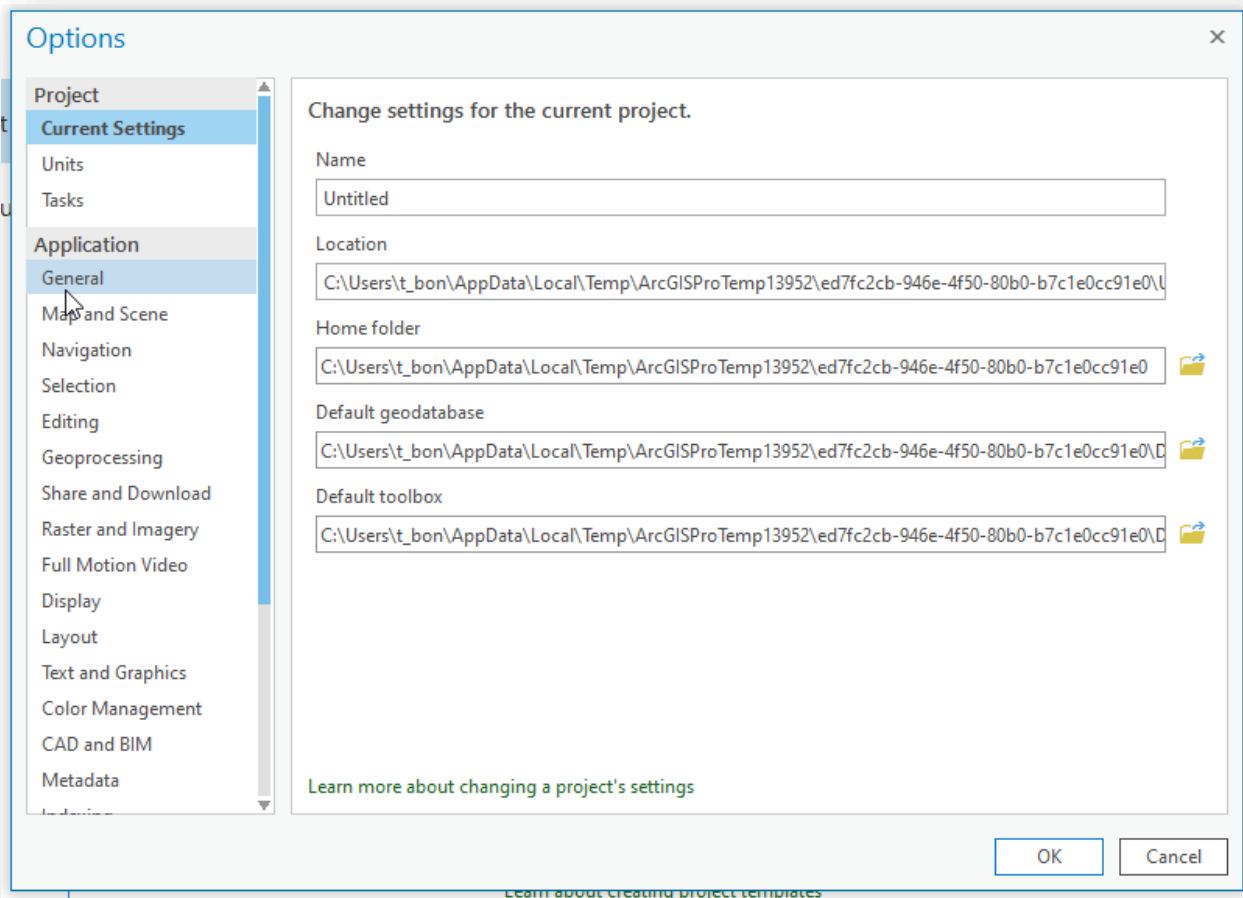
7. Name this new folder "Working Folder".
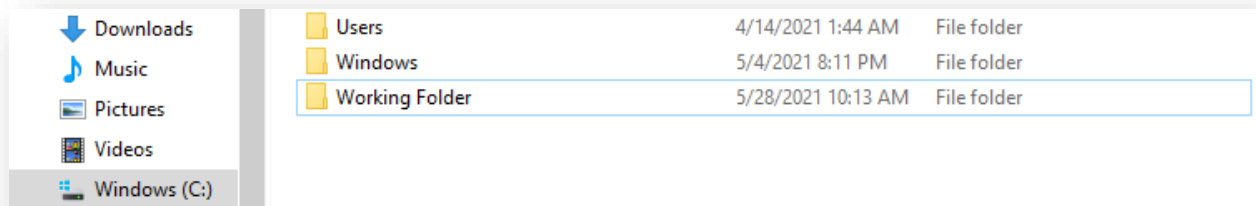
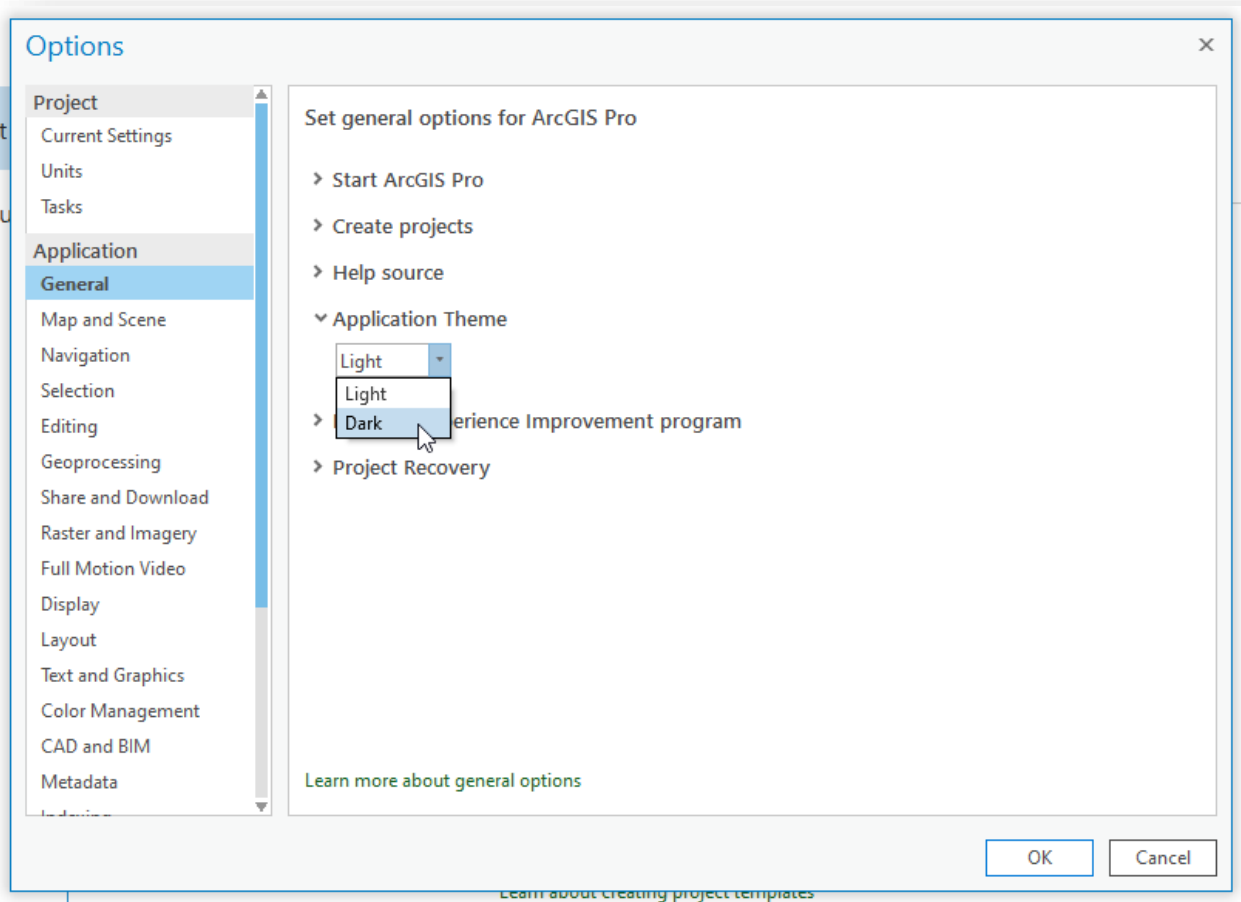8. Click the Project Tab at the upper left.

9. Select "Options".

10. Under 'Application' select 'General'.

Options ✕

Project

Current Settings

Units

Tasks

Application

General

Maps and Scene

Navigation

Selection

Editing

Geoprocessing

Share and Download

Raster and Imagery

Full Motion Video

Display

Layout

Text and Graphics

Color Management

CAD and BIM

Metadata

Change settings for the current project.

Name

Untitled

Location

C:\Users\t_bon\AppData\Local\Temp\ArcGISProTemp13952\ed7fc2cb-946e-4f50-80b0-b7c1e0cc91e0\U

Home folder

C:\Users\t_bon\AppData\Local\Temp\ArcGISProTemp13952\ed7fc2cb-946e-4f50-80b0-b7c1e0cc91e0

Default geodatabase

C:\Users\t_bon\AppData\Local\Temp\ArcGISProTemp13952\ed7fc2cb-946e-4f50-80b0-b7c1e0cc91e0\D

Default toolbox

C:\Users\t_bon\AppData\Local\Temp\ArcGISProTemp13952\ed7fc2cb-946e-4f50-80b0-b7c1e0cc91e0\D

Learn more about changing a project's settings

OK   Cancel

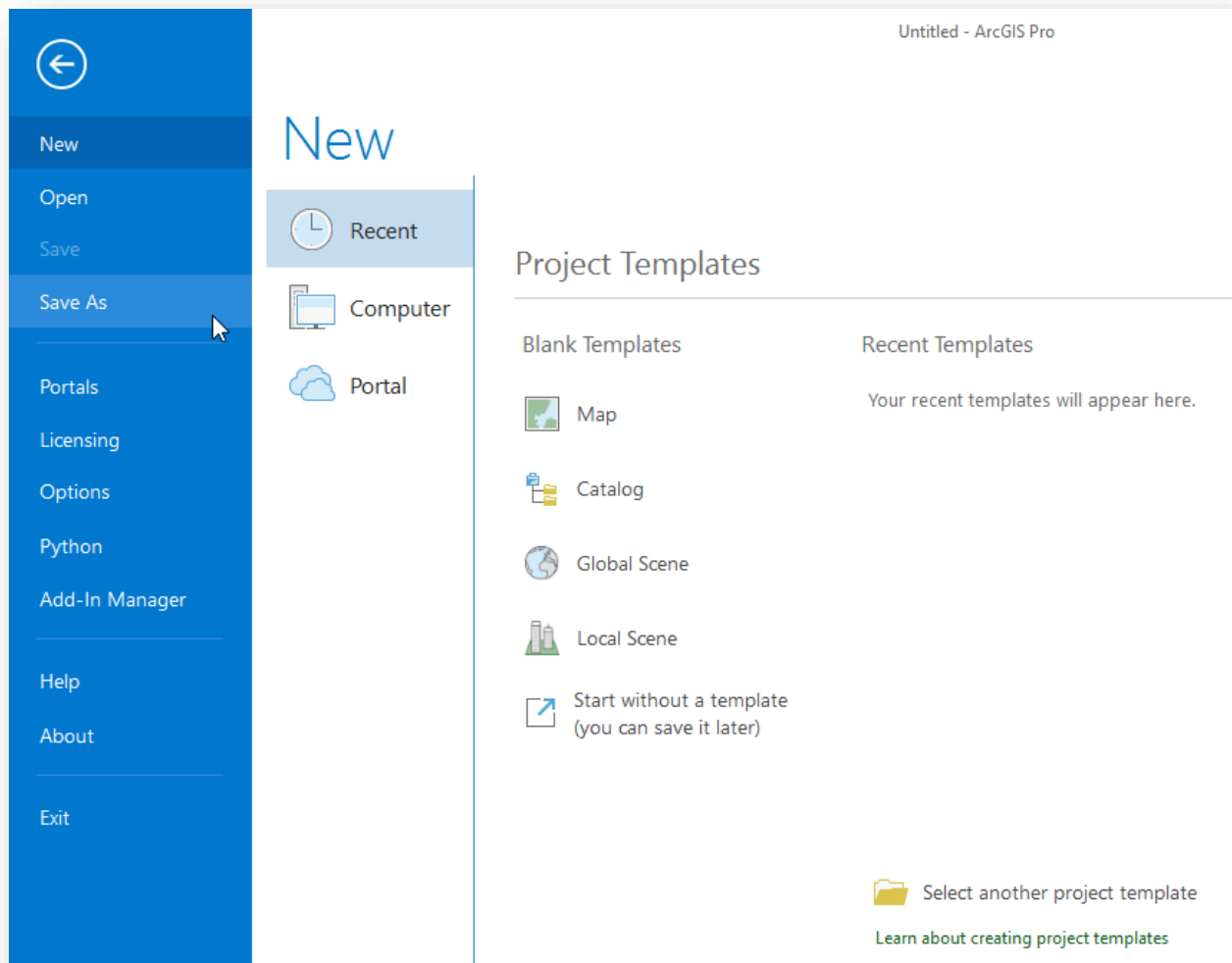Learn about creating project templates
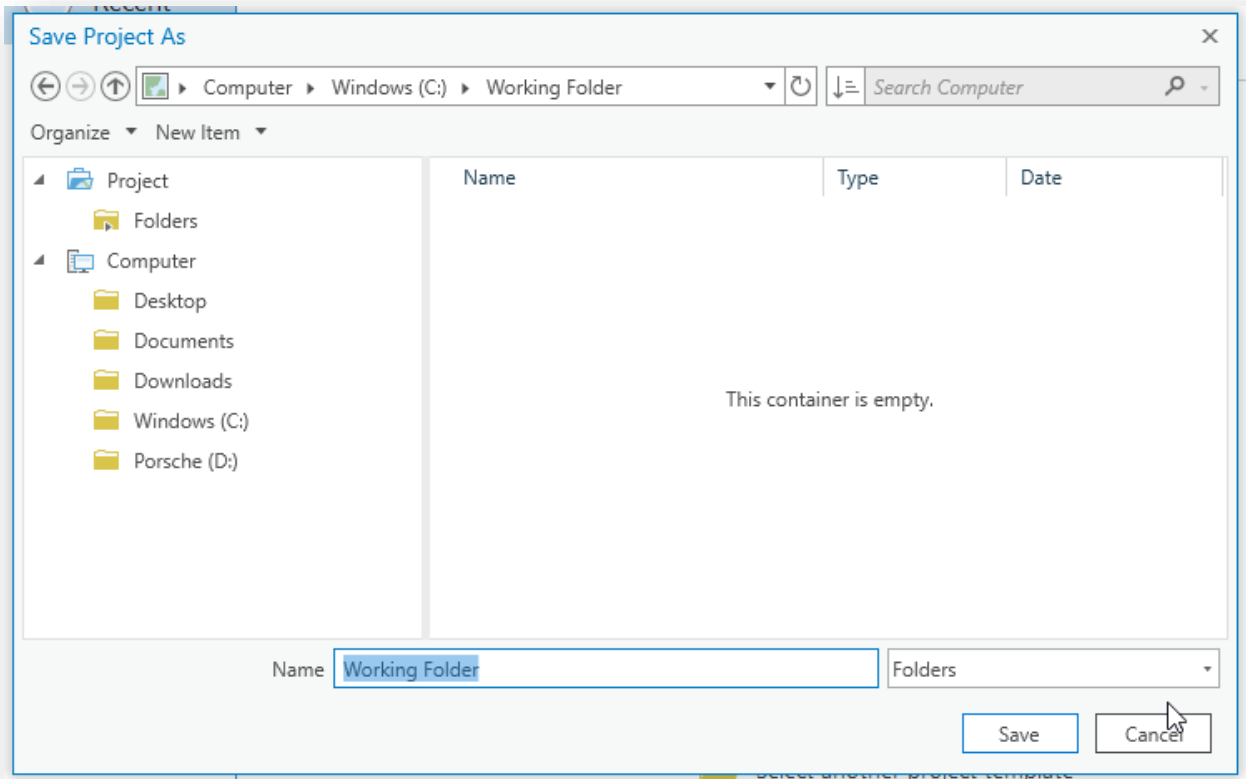
11. Choose the Dark Application Theme

12. A message will display but do not bother to restart ArcGIS Pro just yet – Please wait a few steps.
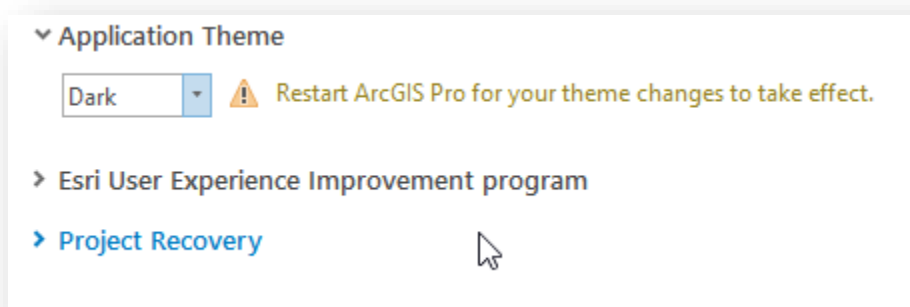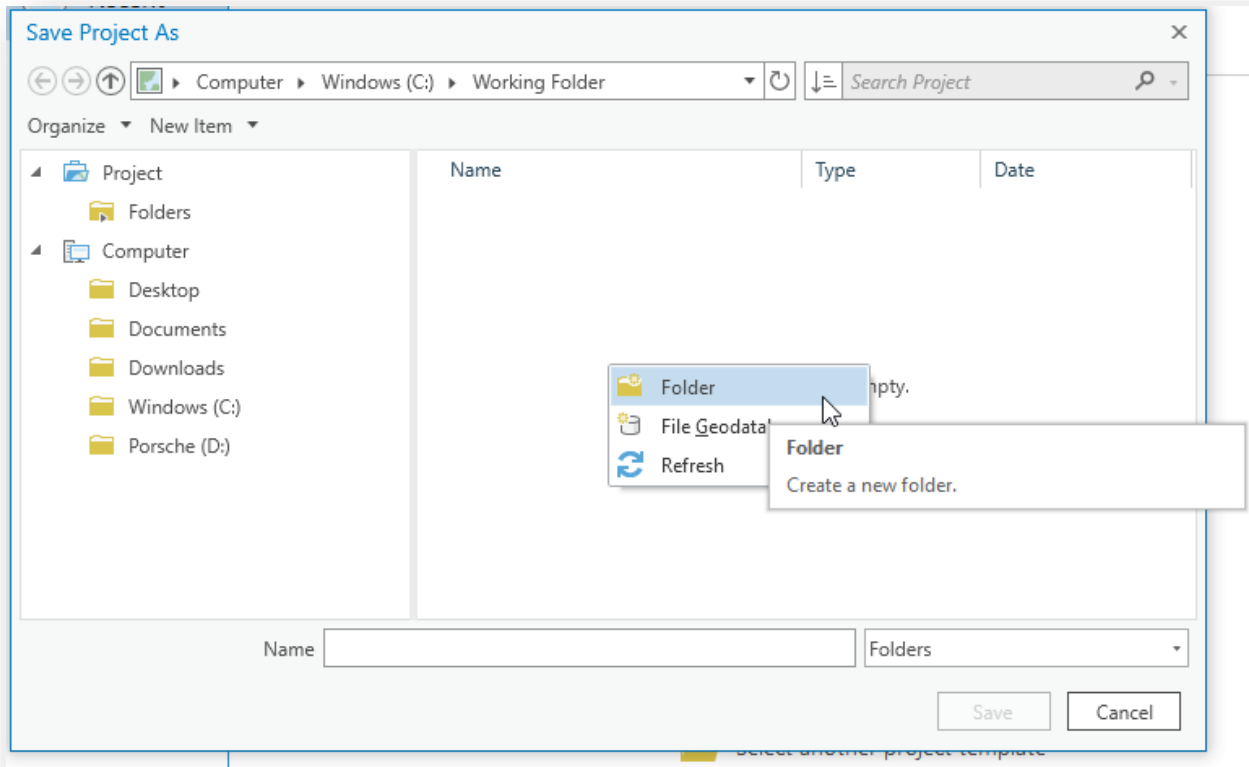
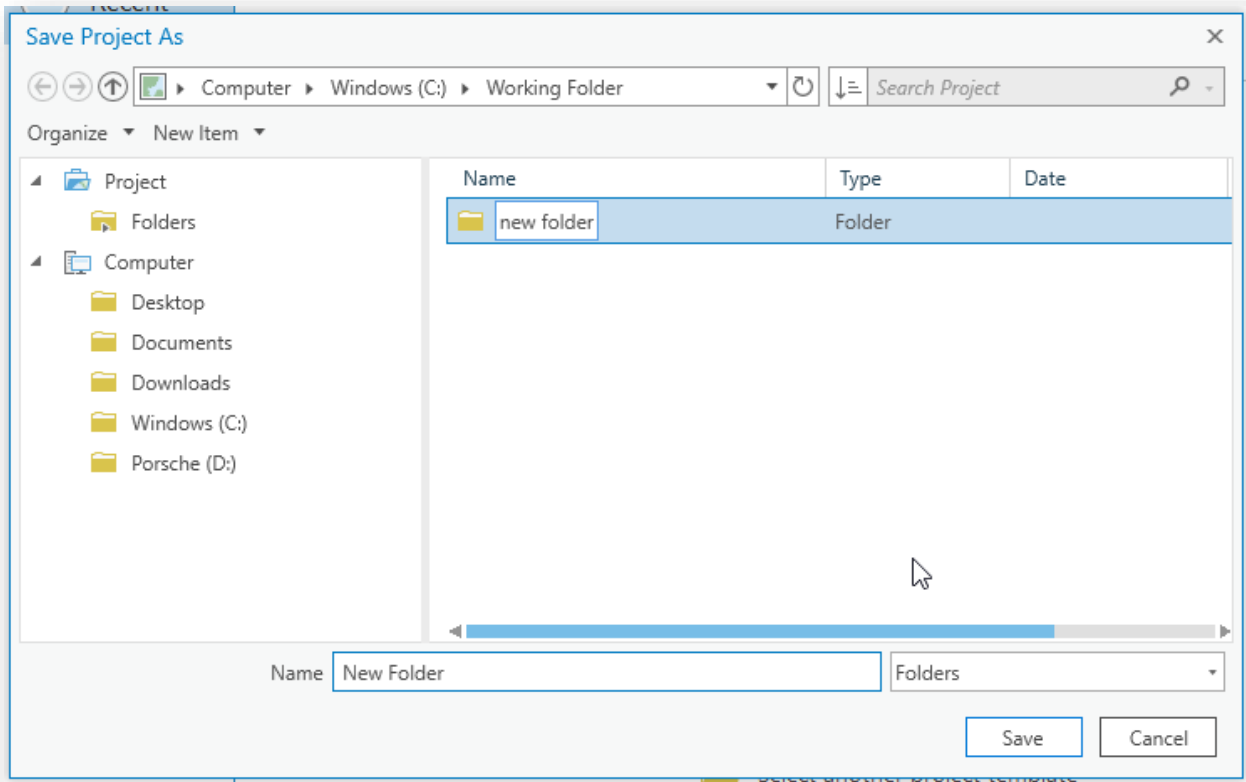13. Choose Save As and navigate to the Working Folder on the C Drive.

14. Notice how ArcGIS Pro tries to name the Project for you based on the folder you are in. This is because a Pro Project is really a set of files and folders that all work together. Therefore, a Folder is needed to house them all. ArcGIS Pro tries to do this for you at the start of each project.

15. Right-click in the center window and create a new folder.

Save Project As ✕

Computer ▸ Windows (C:) ▸ Working Folder ▾ ↻ ↓≡ Search Project 🔍 ▾

Organize ▾ New Item ▾

	Name	Type	Date
▴ 📁 Project			
📁 Folders			
▴ 💻 Computer			
📁 Desktop			
📁 Documents			
📁 Downloads	📁 Folder	pty.	
📁 Windows (C:)	🗂 File Geodata		
📁 Porsche (D:)	↻ Refresh		

Folder
Create a new folder.

Name | [   ] | Folders ▾

Save Cancel

16. Name this new folder the generic name "New Folder" – then click Save.

Save Project As   ✕

⬅ ➡ ⬆ | 🖼 ▸ Computer ▸ Windows (C:) ▸ Working Folder   ▾ ↻ | ↓≡ | Search Project   🔍 ▾

Organize ▾ New Item ▾

▸	Name	Type	Date
	📁 new folder	Folder	

▸ 📁 Project
　　📁 Folders
▸ 💻 Computer
　　📁 Desktop
　　📁 Documents
　　📁 Downloads
　　📁 Windows (C:)
　　📁 Porsche (D:)

Name | New Folder | Folders   ▾

　　　　　　　　　　　　　　　　　　　　　　　　[Save]   [Cancel]

17. Back in ArcGIS Pro expand the Default.gdb then inspect the new path to the source. (C:\\Working Folder\New Folder)
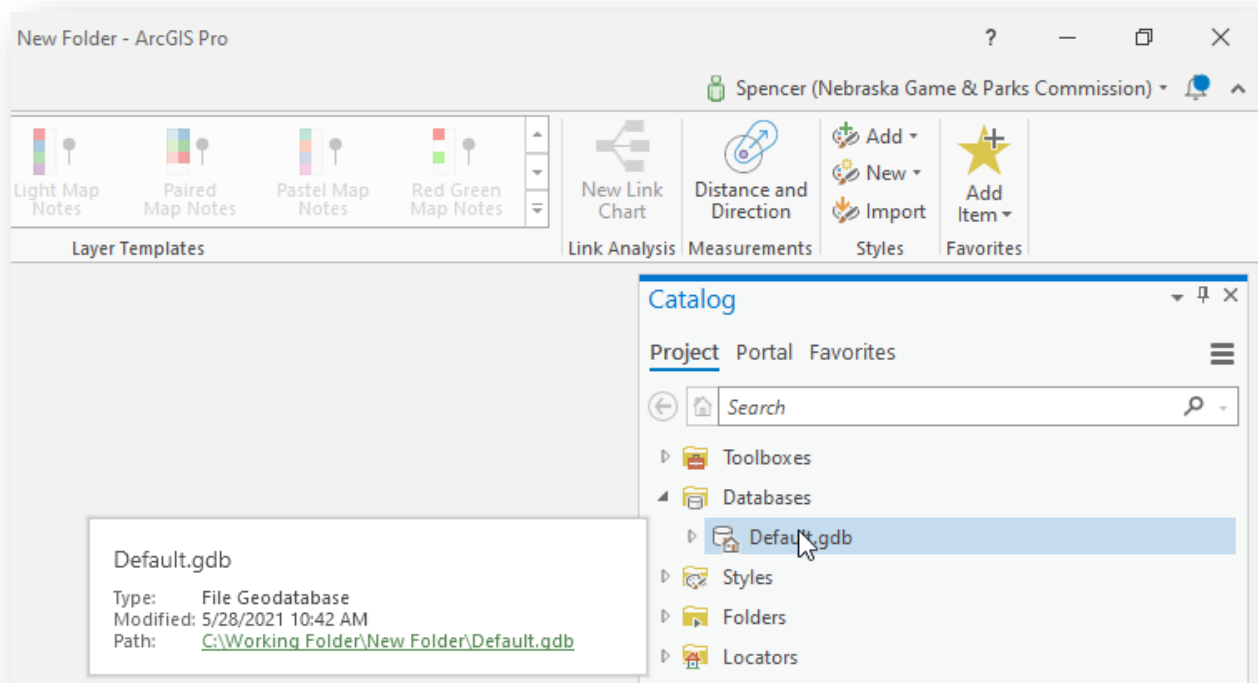
18. Close ArcGIS Pro.
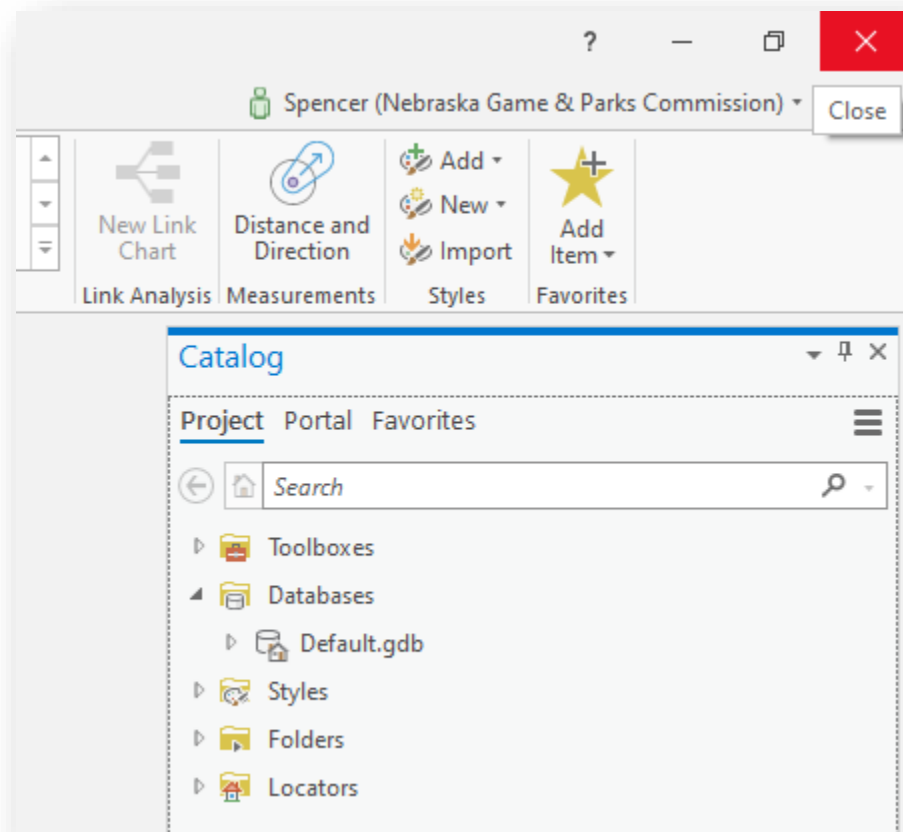
19. Navigate to "New Folder" to inspect the files and folders that Pro creates. Notice that the ArcGIS Project File name is "New Folder" and it is inside of the folder of the same name. This becomes important later when trying to manage all the files of a project. There are other files and folders in this folder, but are only space holders at this time.
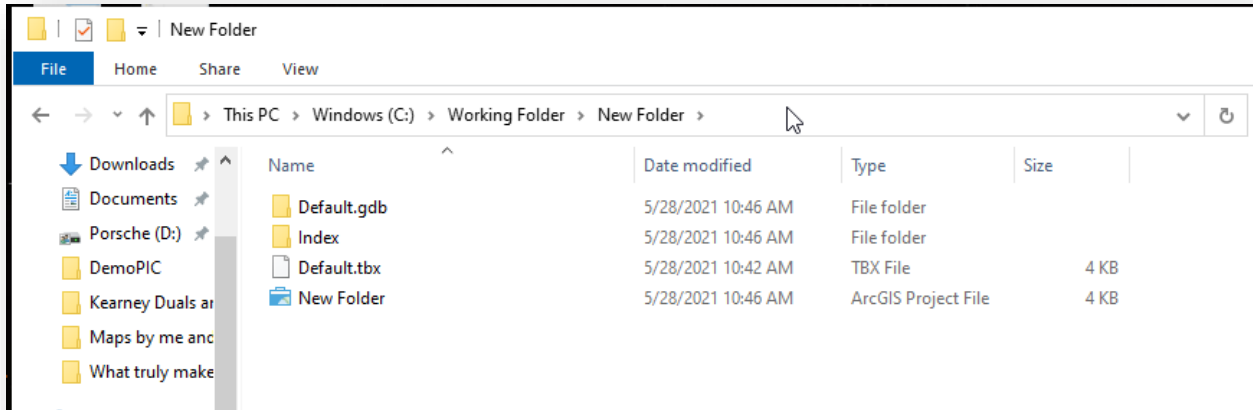
20. Back up one folder in Windows File Explorer and create another new folder.
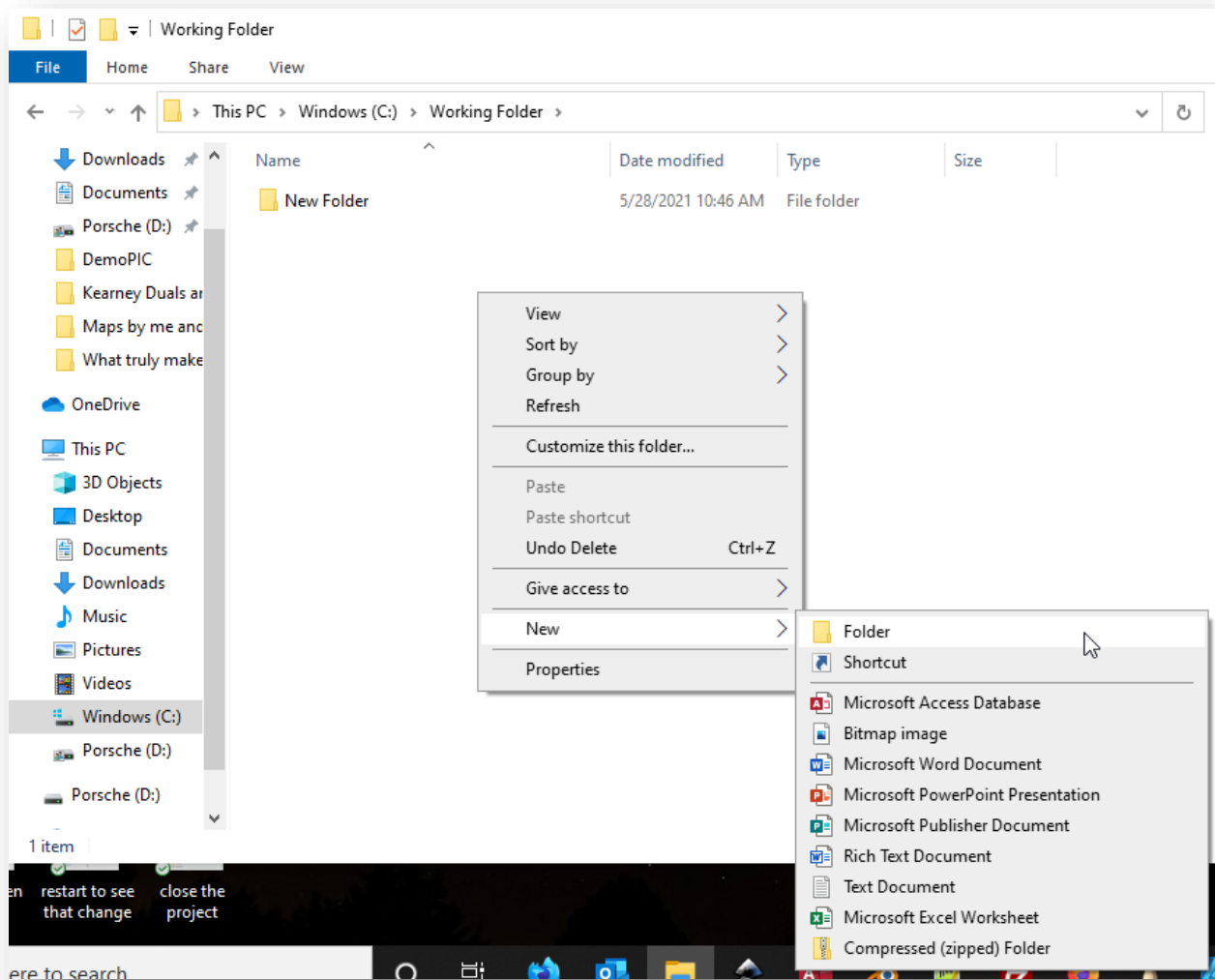
21. Name this new folder "Two" to help us remember.
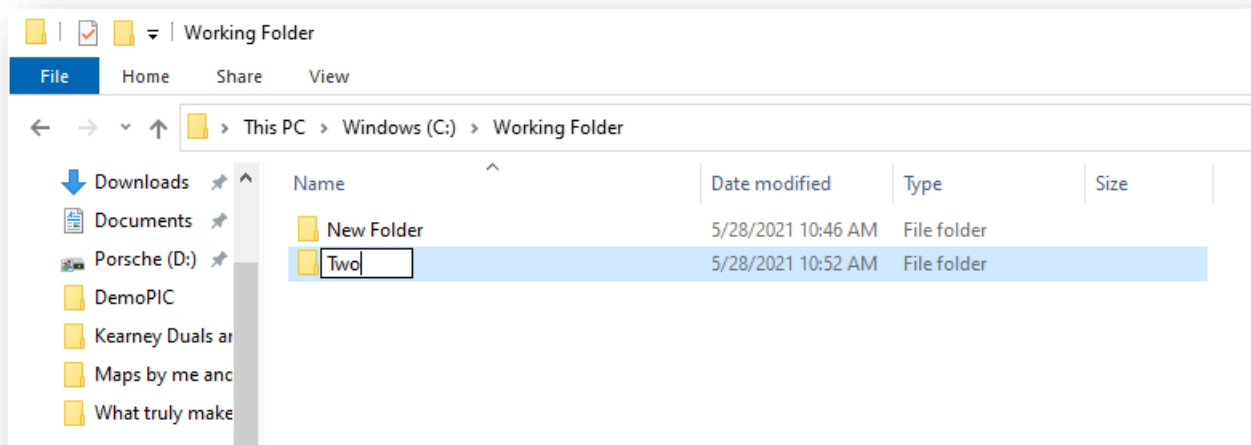
22. Select all of the files and folders for the ArcGIS Pro Project and choose to 'Cut' them instead of Copy.
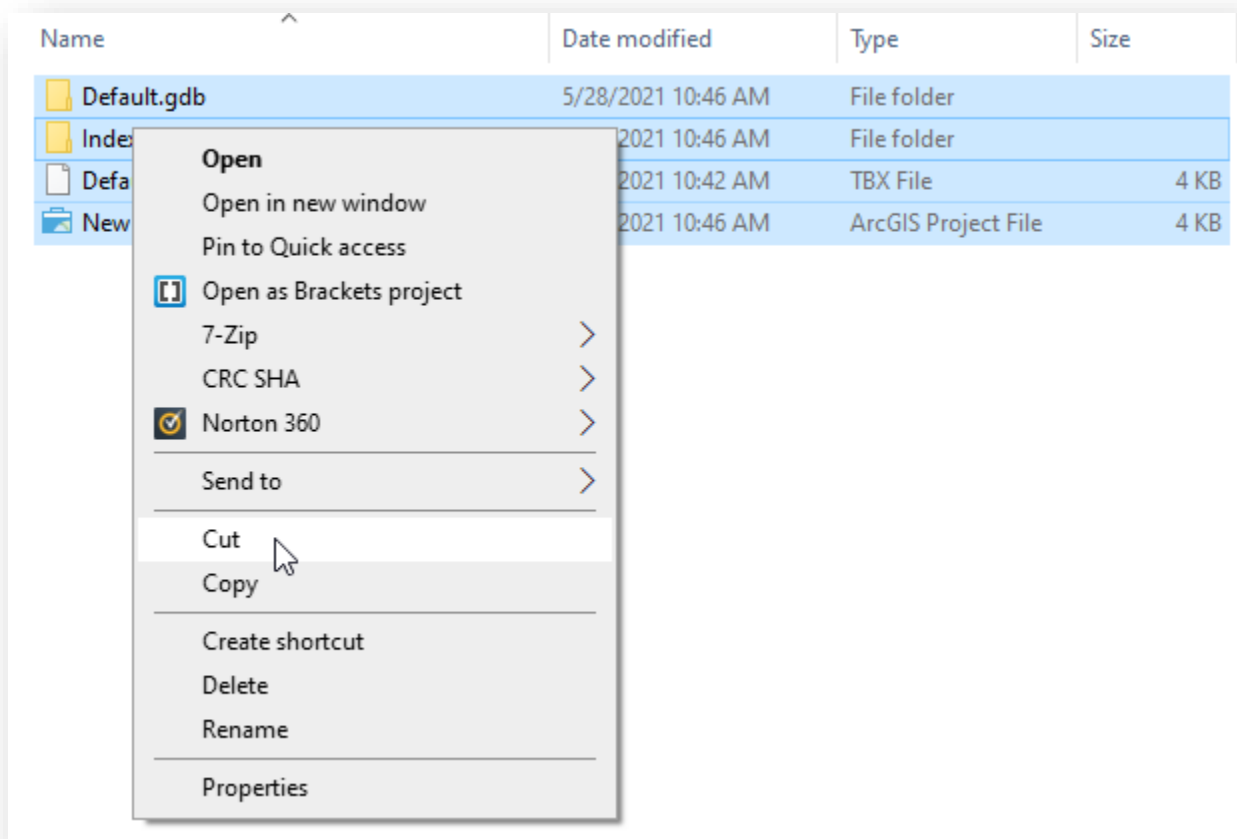
23. Paste all of these files and folders into the newly created folder titled "Two".
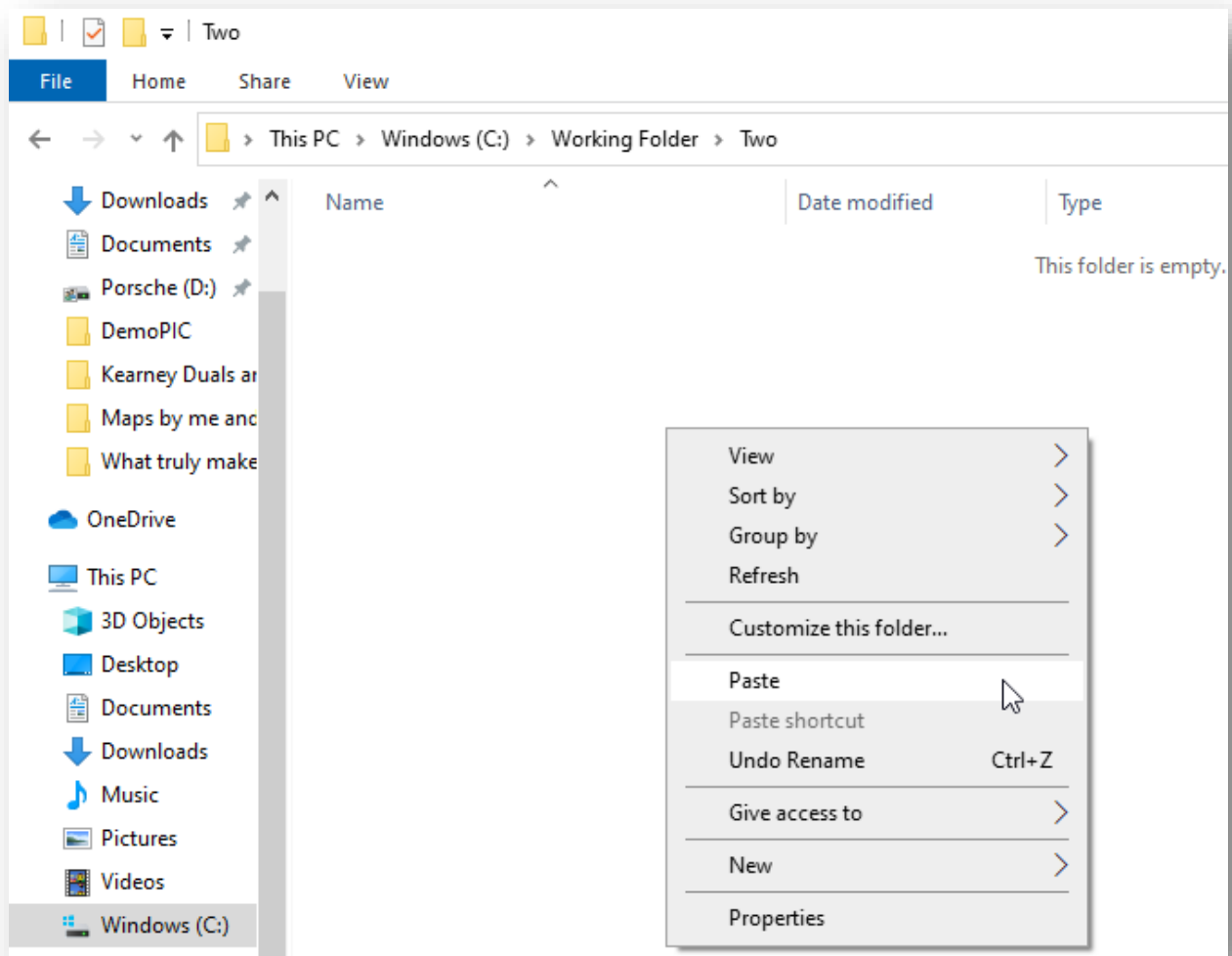
24. Rename the ArcGIS Pro Project file to "**Session One Project**" at this time.
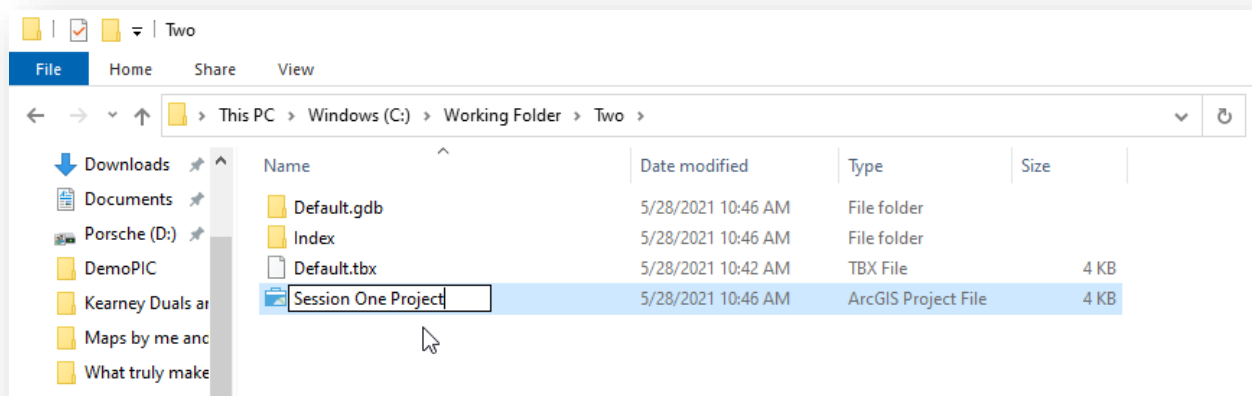
25. Double-click the ArcGIS Pro project to open it. Observe how the display now has the Dark theme applied.
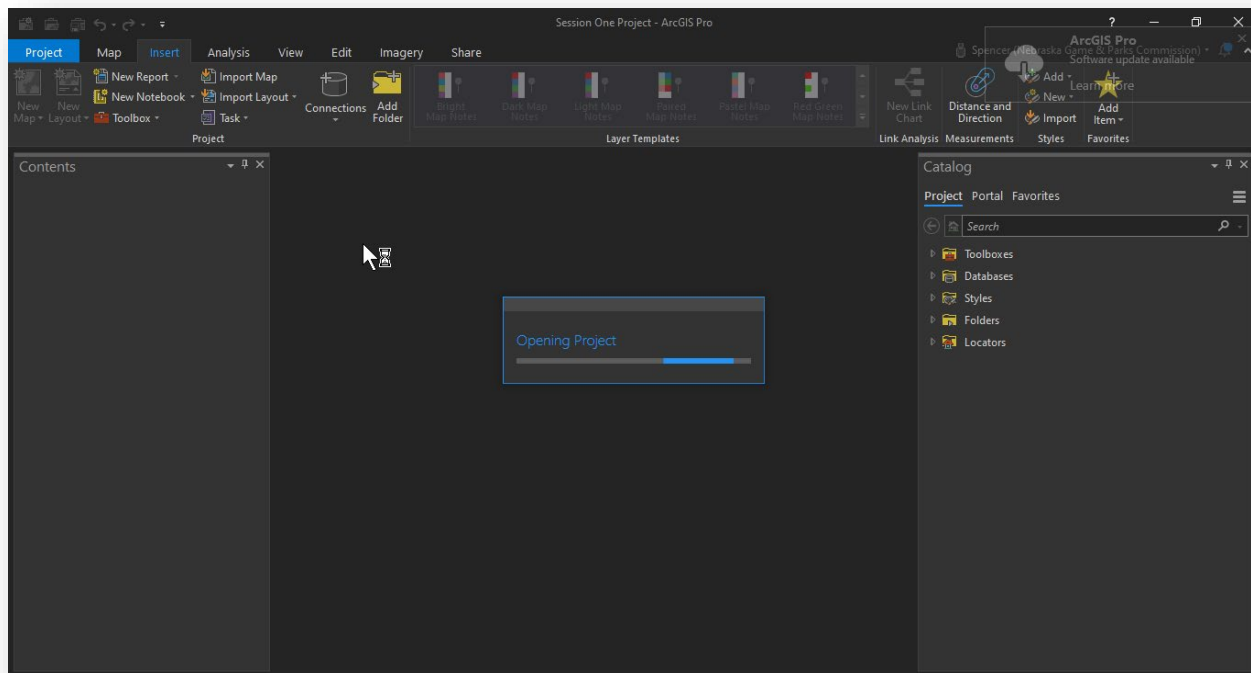
26. Expand "Databases" and hover on the Default.gdb to see the path to the source. Notice that Pro has remapped to the new location with zero effort by you. This is important to remember. The possibility exists that a user can be making edits in a data set, but in reality, the most current data can be in another location. It is wise to double check the source prior to any editing or sharing of data.
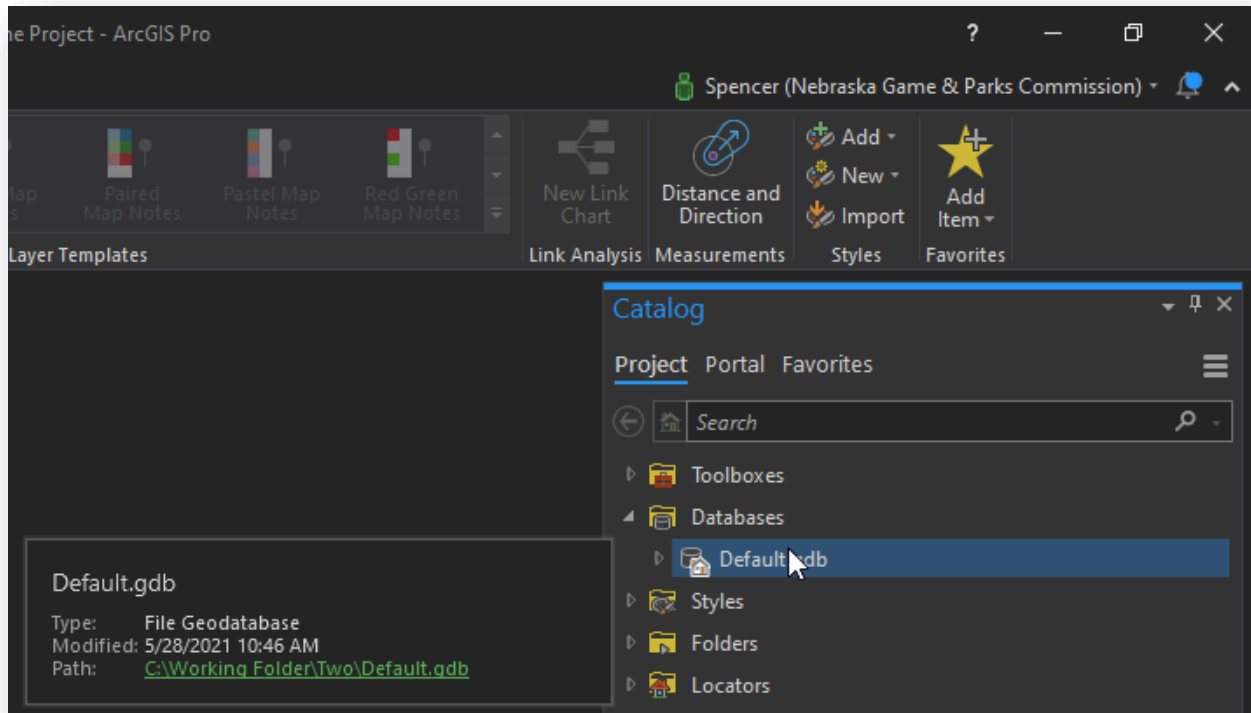
27. Right-click the Default.gdb.
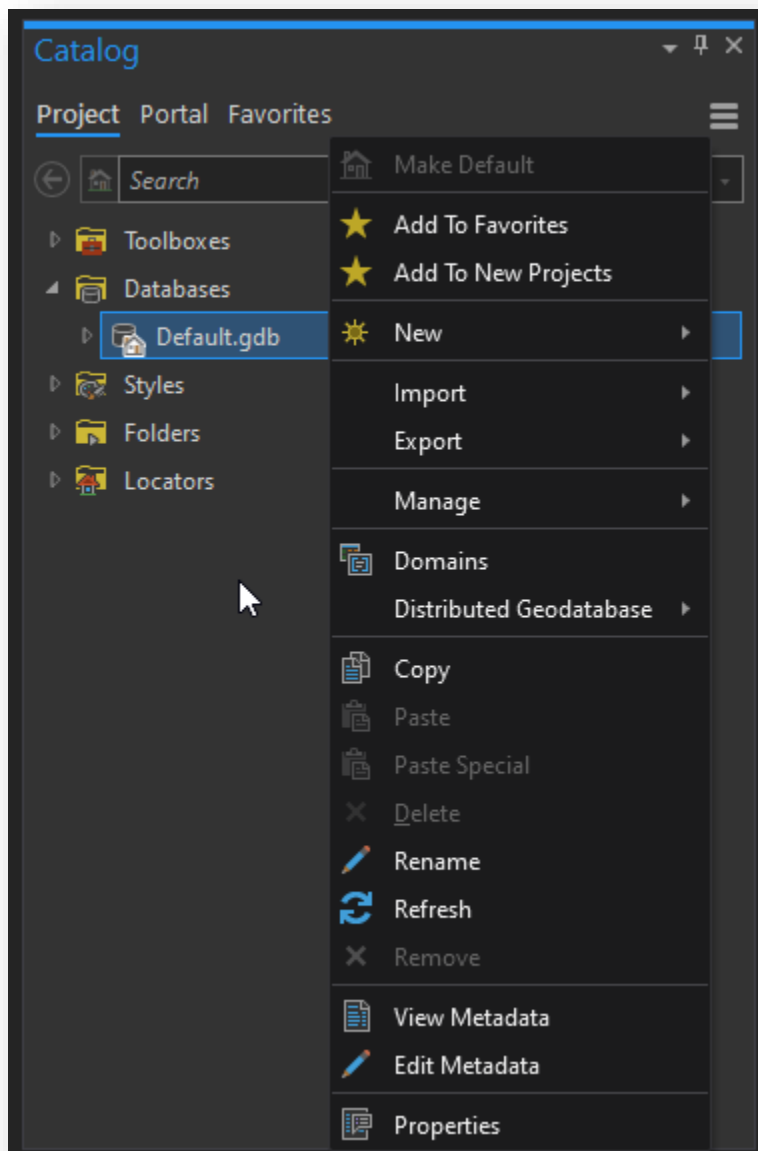
28. Hover on "New".
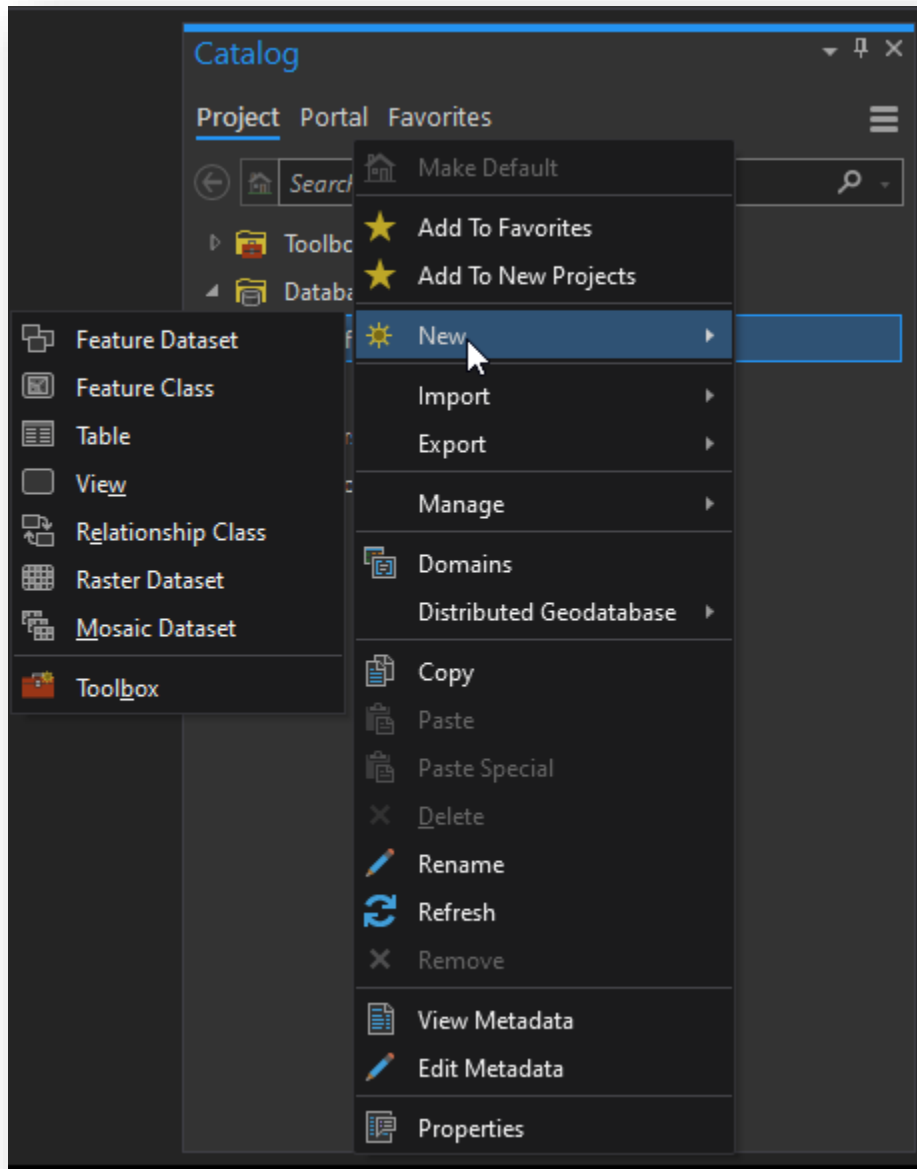
29. Choose "Feature Dataset".
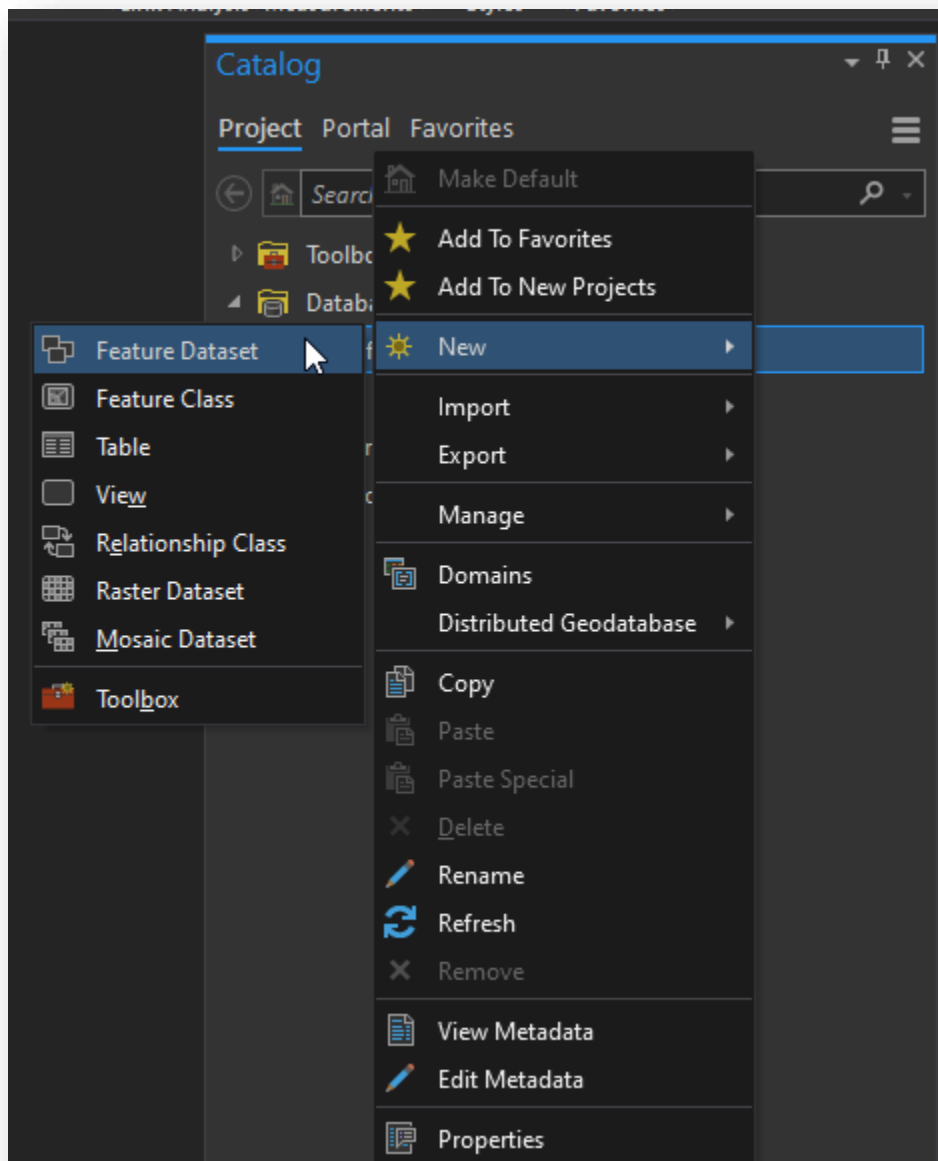
30. On the right side of the screen name the Feature Dataset to "Session_One_Feature_Dataset". Please Note: This name cannot contain any spaces and special characters are also limited.
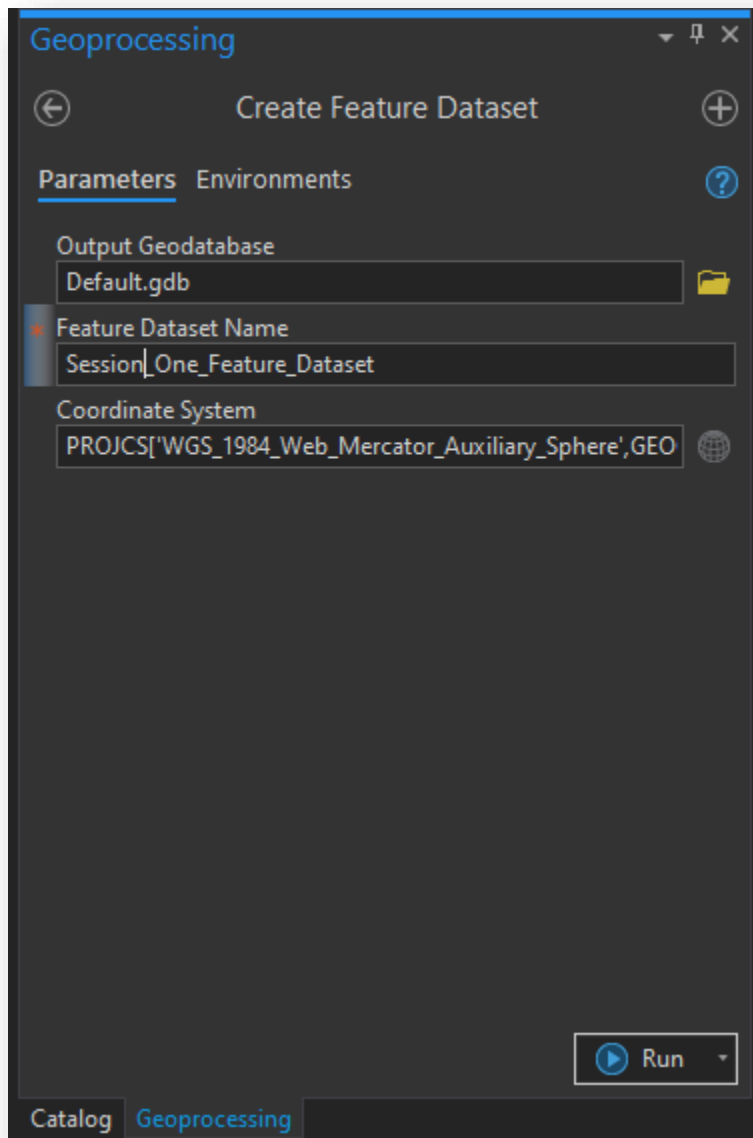
31. Click the small globe to the right of Coordinate System.
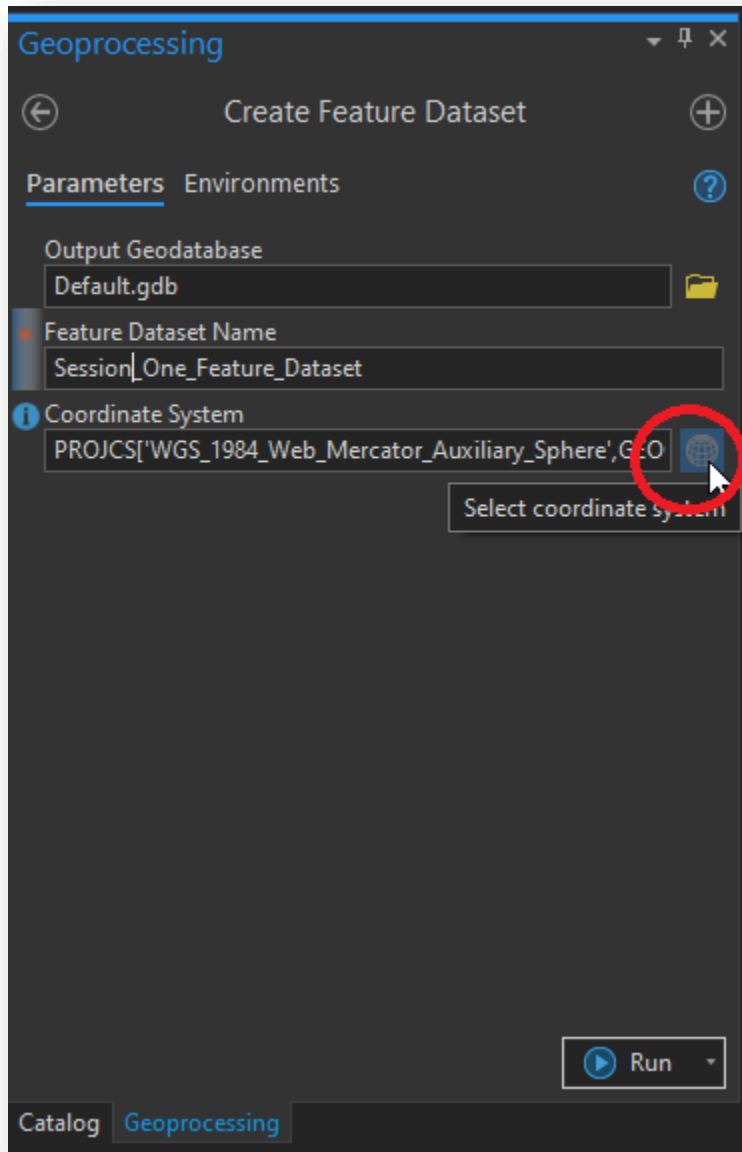
32. Expand Projected Coordinate System.

Coordinate System   ✕

Select the Coordinate System to view the available options.

Current XY   Details   Current Z

WGS 1984 Web Mercator
(auxiliary sphere)   <None>

XY Coordinate Systems Available   Search   🔍 ▾   ▾   ▾

▷ Favorites

▷ Geographic Coordinate System

◢ Projected Coordinate System

    ▷ ARC (equal arc-second)

    ▷ Continental

    ▷ County Systems

    ▷ Gauss Kruger

    ▷ National Grids

    ▷ Oceans

                                          OK   Cancel
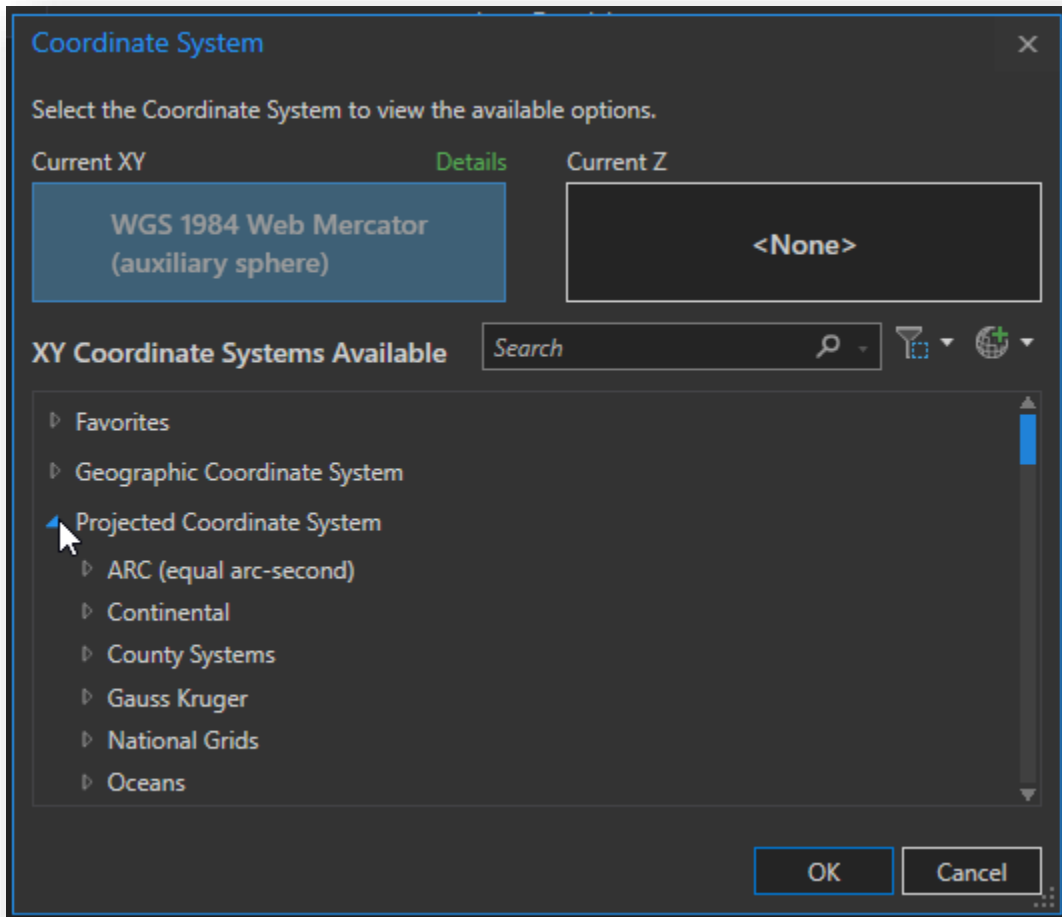
33. Expand UTM.
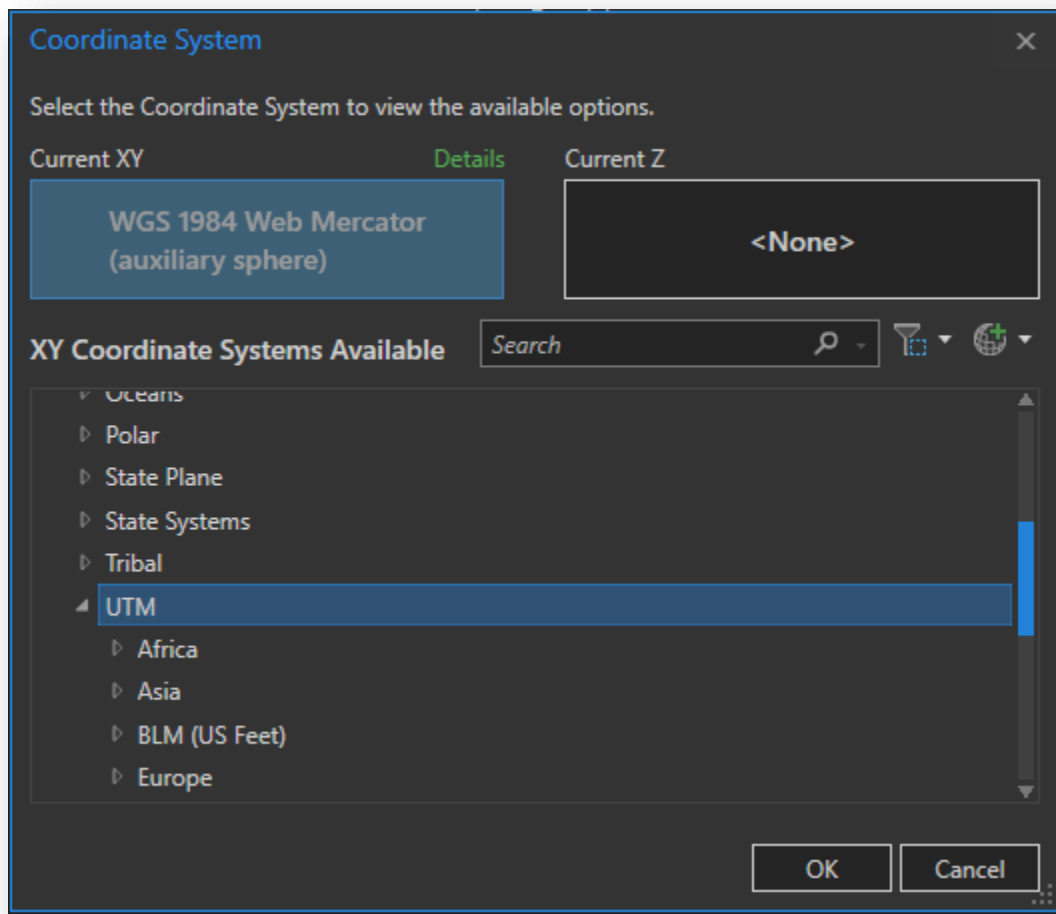
34. Expand NAD 1983.
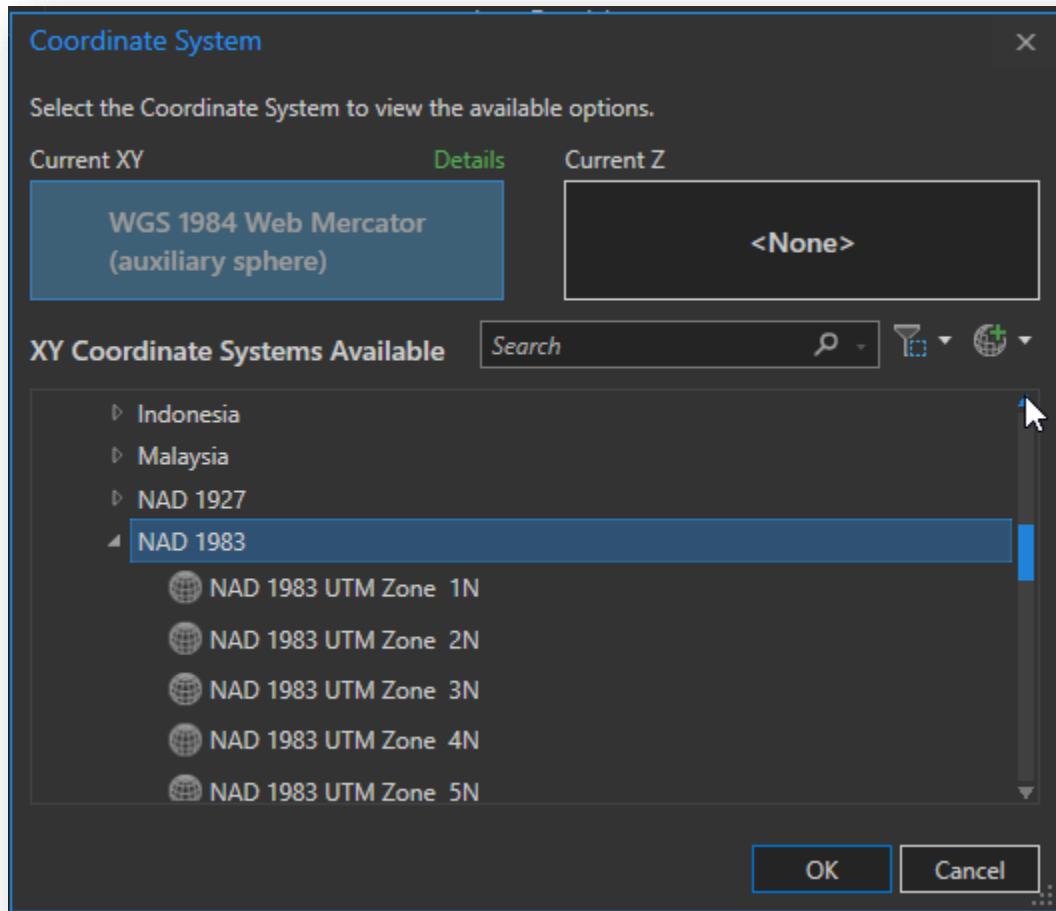
35. Choose "NAD 1983 UTM Zone 14" by clicking just once.
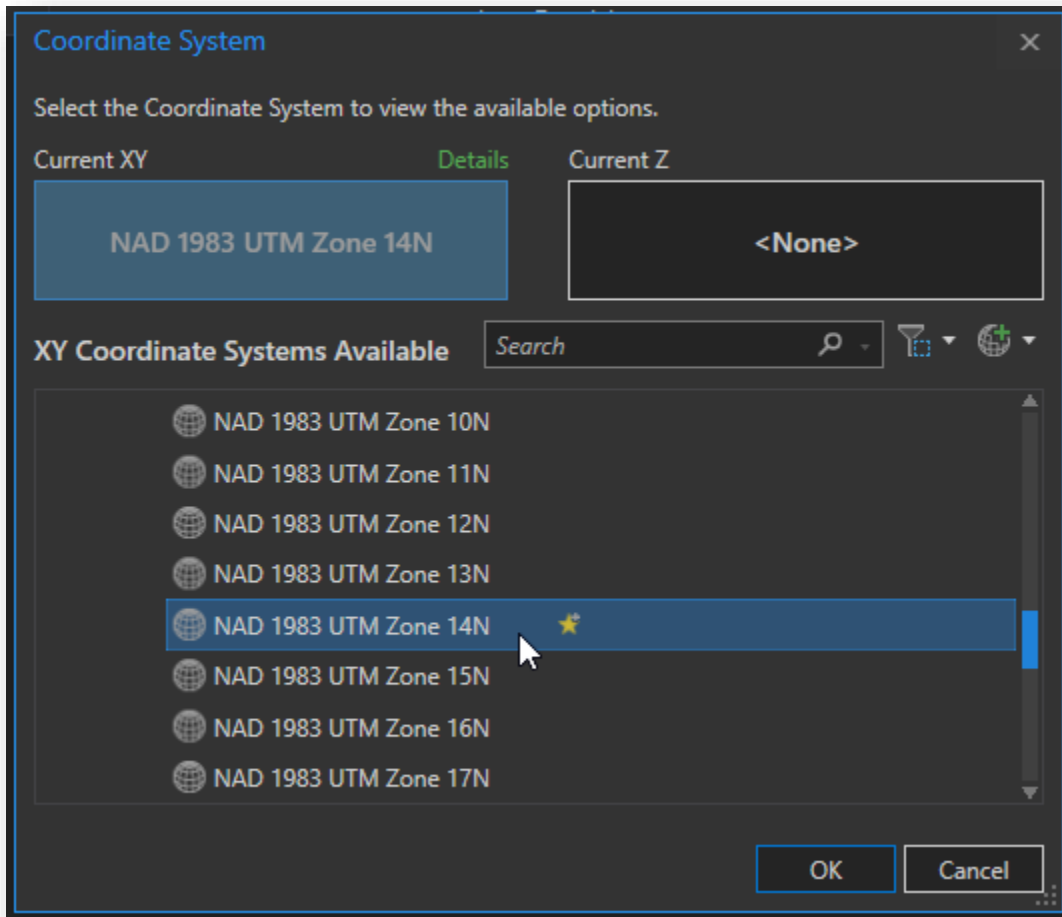
36. Click the small Yellow Star at the right to add it to your Favorites. This way you won't have to hunt for it again.
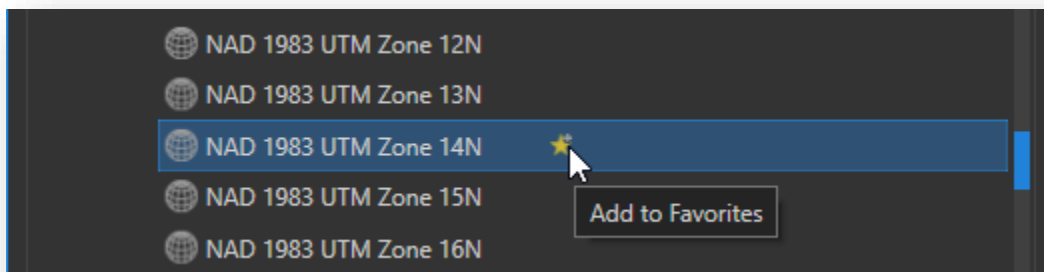
37. "NAD 1983 UTM Zone 14N" is now the current coordinate system which will be assigned to the Feature Dataset we are creating.
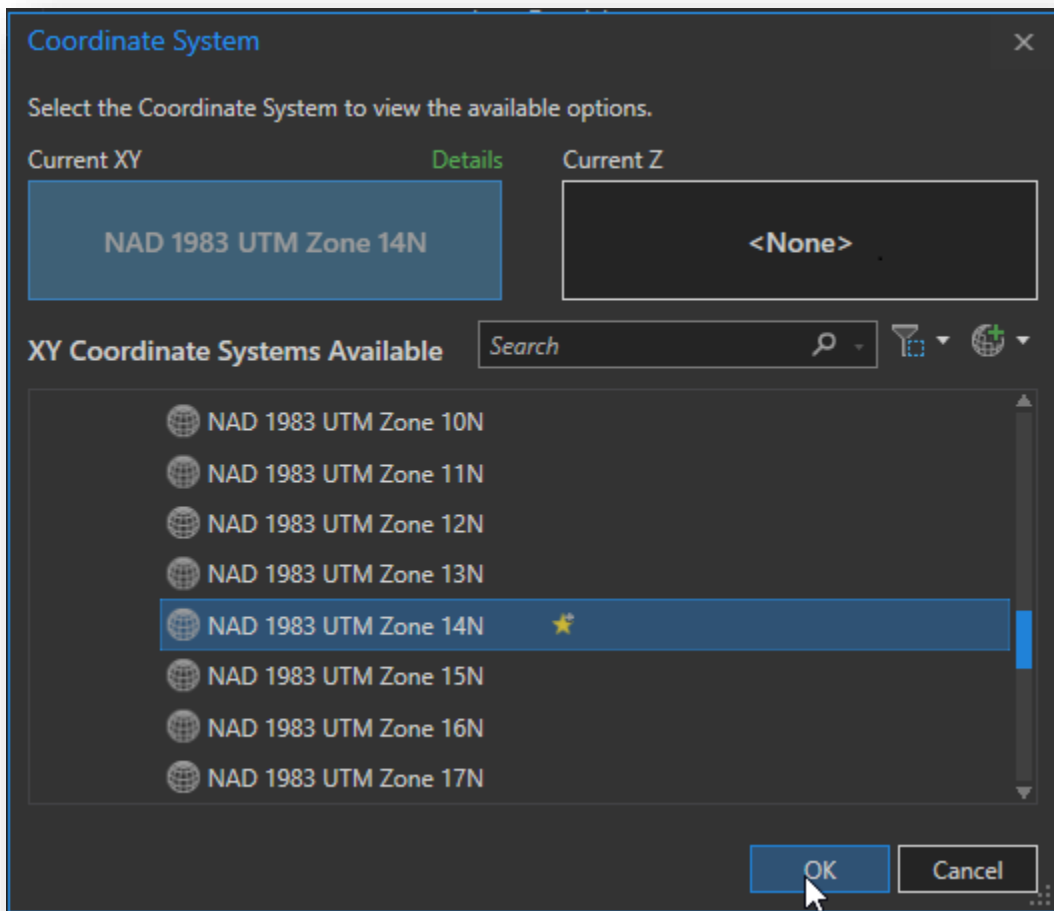
38. Click the Run button at the bottom right of the GeoProcessing Tab.

Geoprocessing

Create Feature Dataset

Parameters Environments

Output Geodatabase
Default.gdb

Feature Dataset Name
Session_One_Feature_Dataset

Coordinate System
PROJCS['NAD_1983_UTM_Zone_14N',GEOGCS['GCS_North

▶ Run

Catalog Geoprocessing
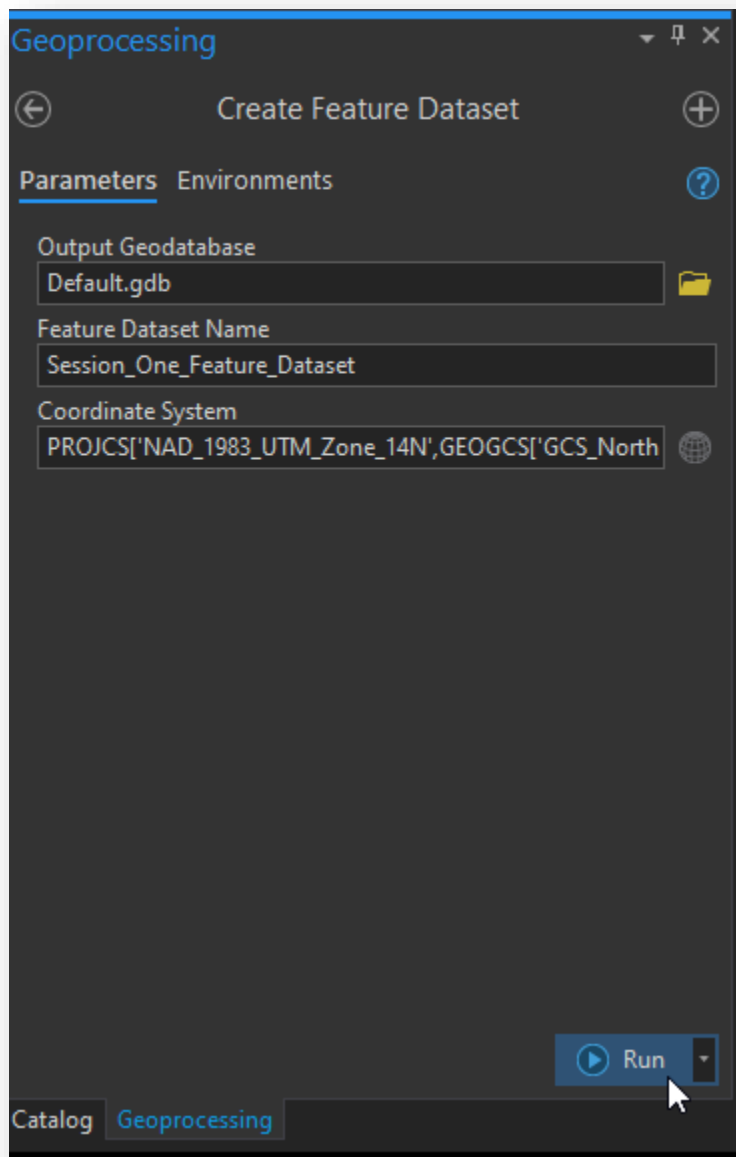
39. The Geoprocessing tool runs and completes with no warnings.
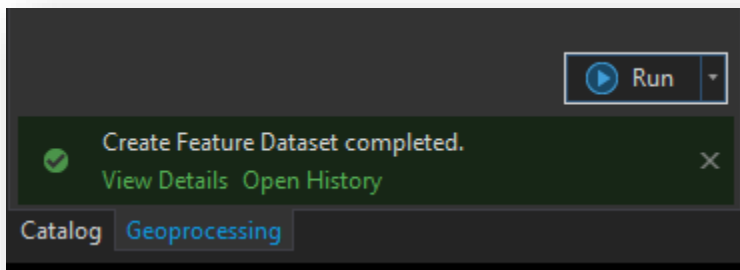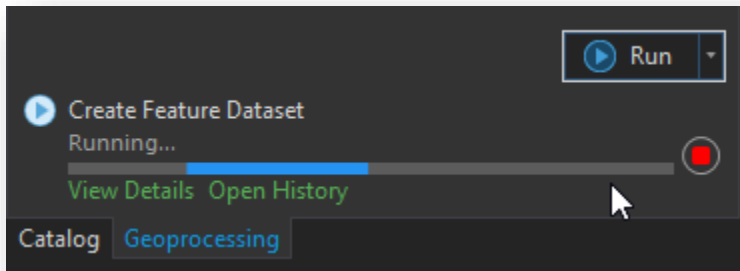
40. Click the Catalog tab at the bottom of the window.
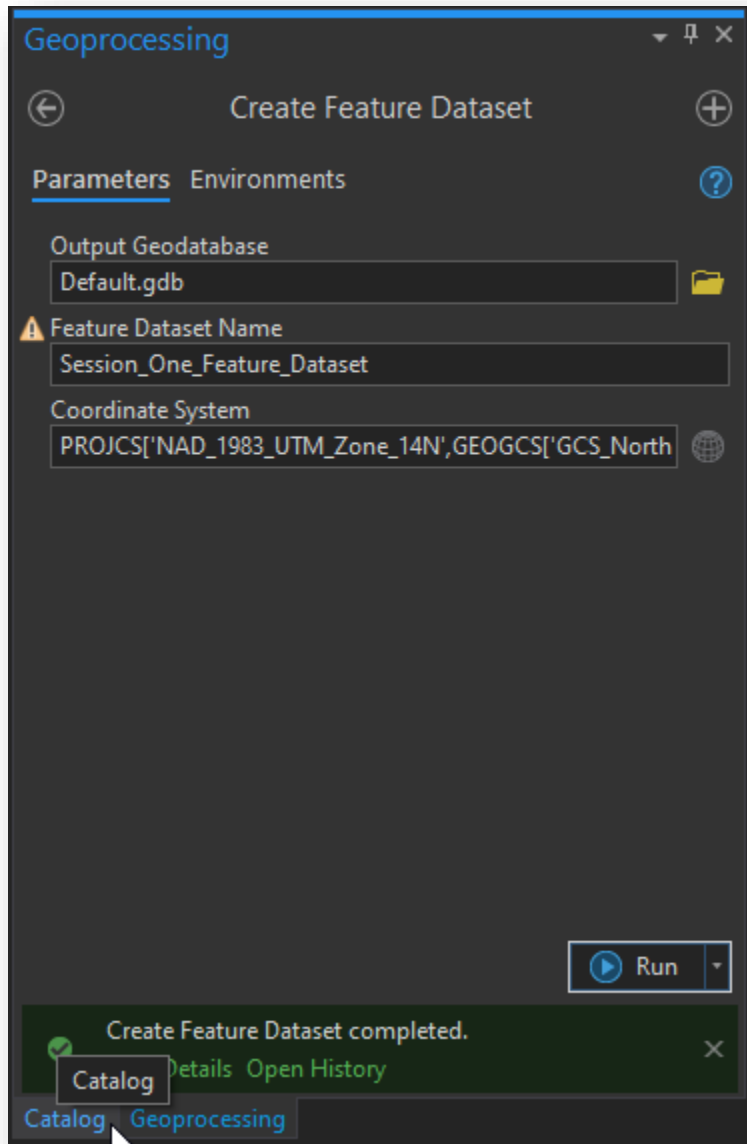
41. Observe the new structure in the Catalog Pane for this project. The Session_One_Feature_Dataset will be inside of the geodatabase (Default.gdb).
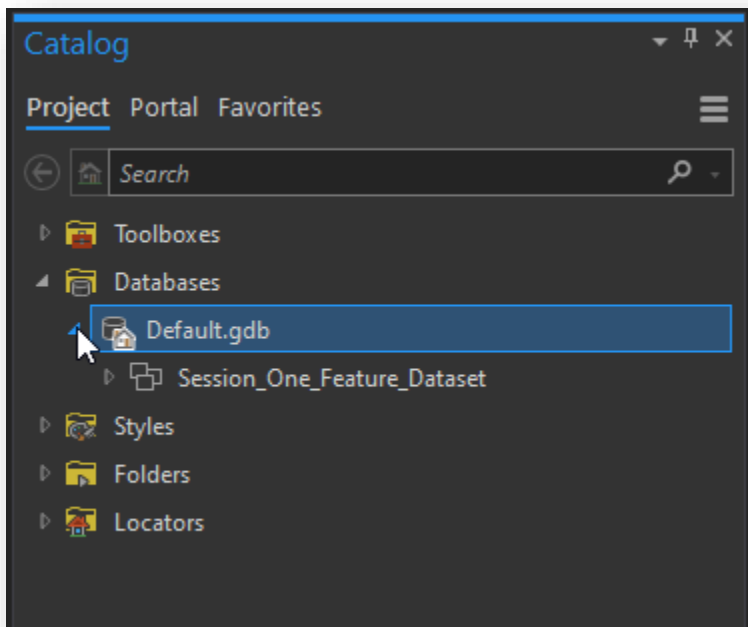
42. Right-click on "Folders" and choose "New Folder Connection".
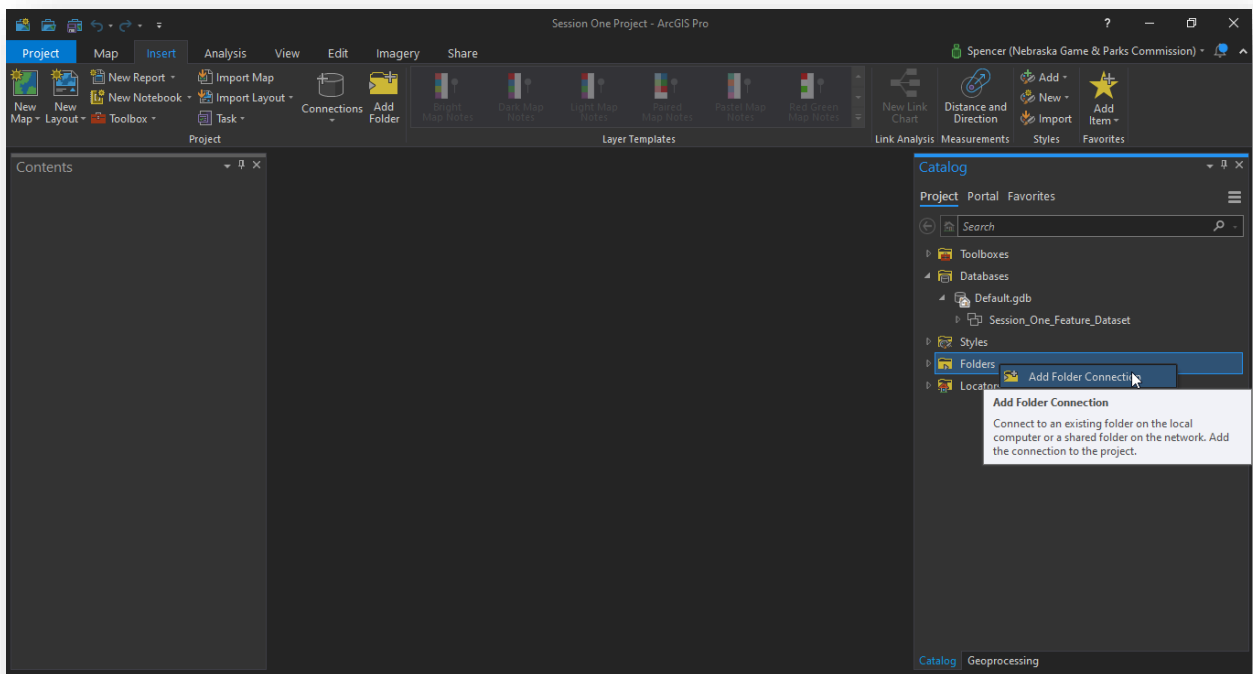
43. Navigate to the Downloads Folder and then create a new folder titled "Downloads for Session One". Click OK to connect to that new folder. The naming conventions you choose can be helpful to determine file locations later on during times when you have a very complex Project that pulls data from numerous sources.
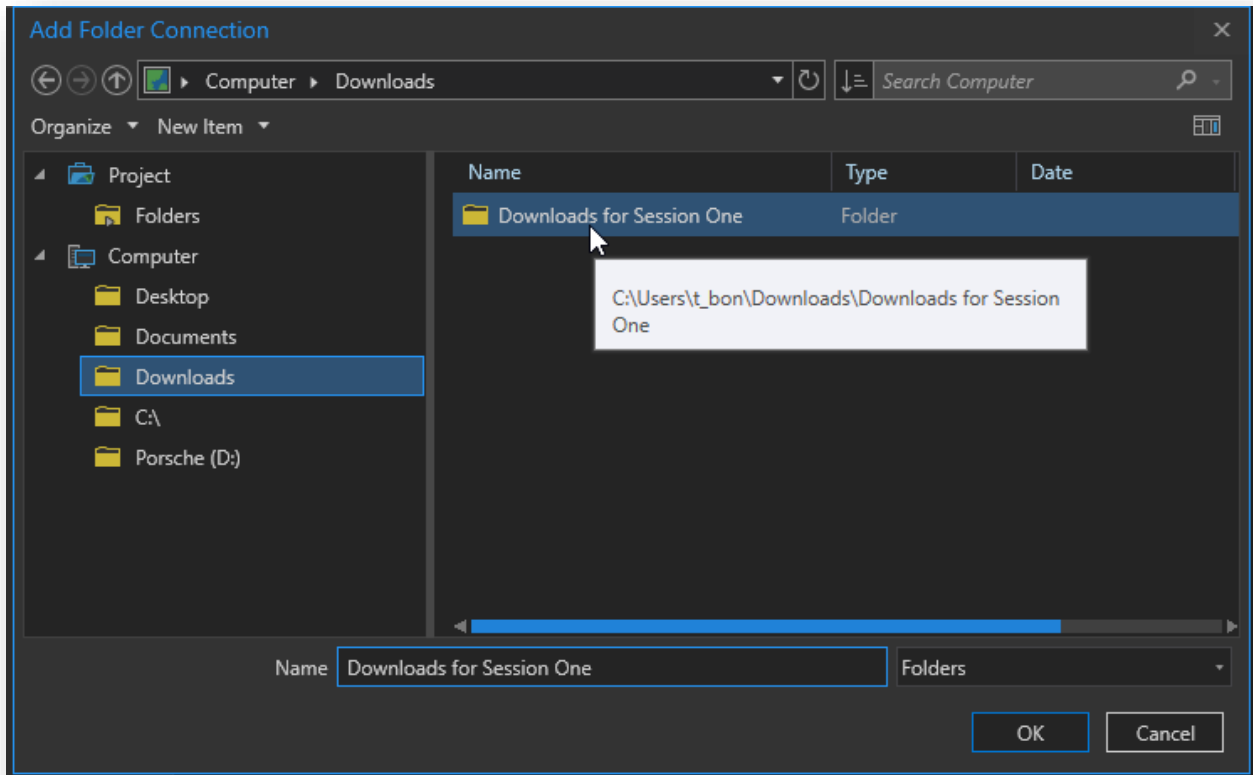
44. Observe the new connection in the Catalog Pane. Please note that a Pro Project does not have to be contained in the folder that you, and Pro, have created. Data can come from nearly any source location and be in many different formats. The small 'House' icon shows the default items, however.
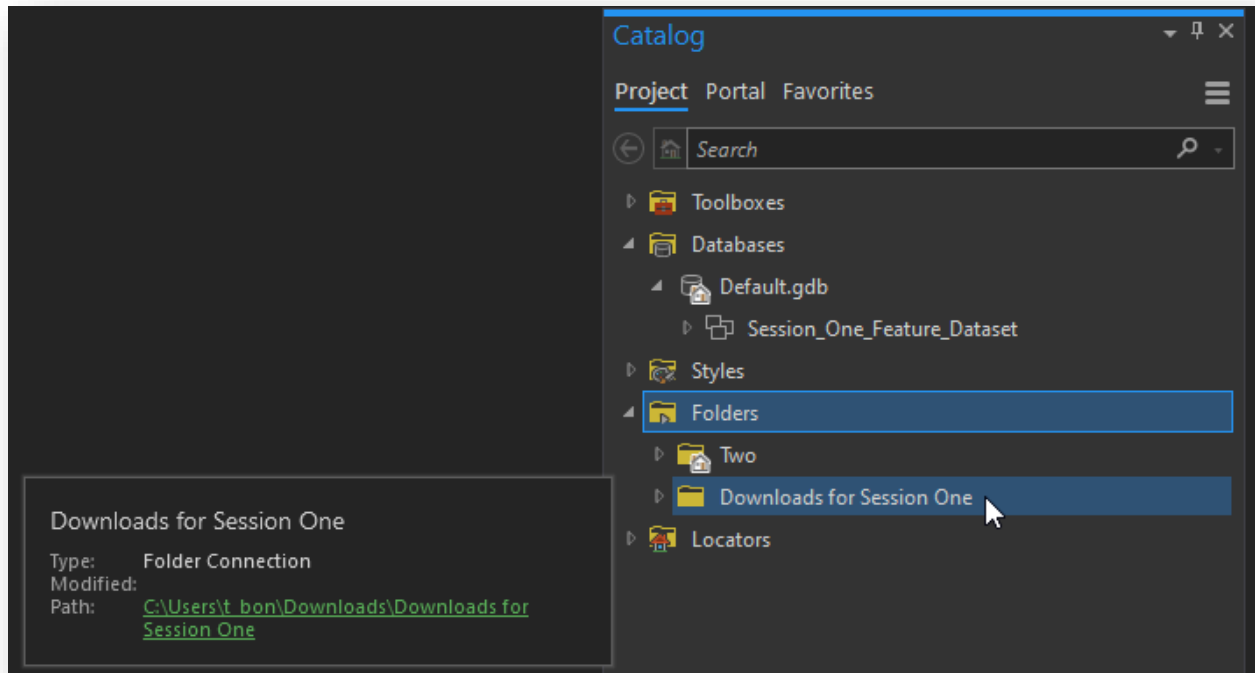
45. Right-click the "Downloads for Session One" folder then choose "Add to Favorites.
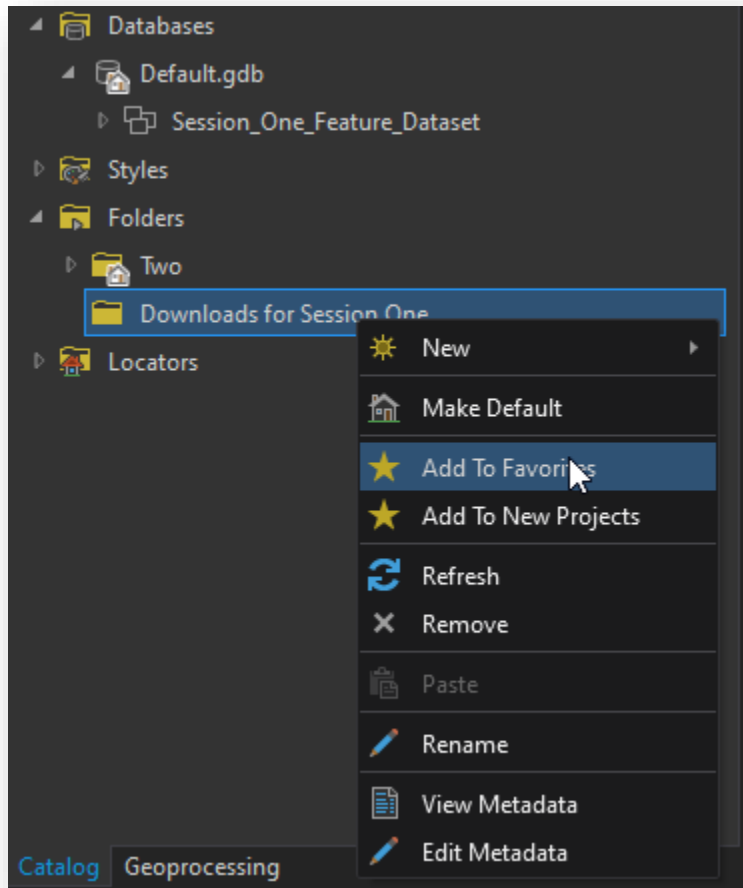
46. Click the Favorites Tab to see the new connection there. This can easily be added to any subsequent ArcGIS Pro Project. This is helpful since you can keep all of your most used items in on location. There will be no need to 're-source' the files. Instead, simply add them to any new project.
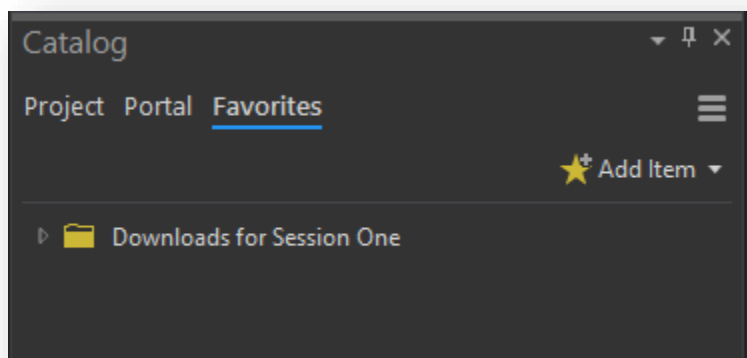
47. Using an internet browser navigate to the NGPC Open Data Portal.

https://data-outdoornebraska.opendata.arcgis.com
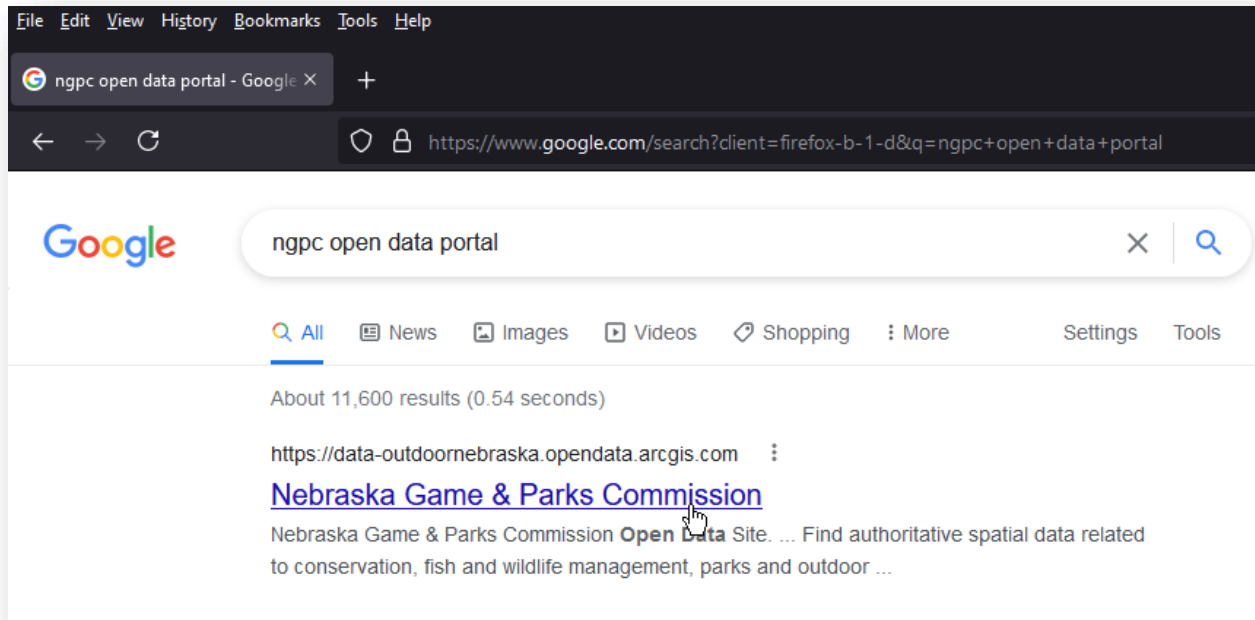
48. Scroll down the page and locate the "Parks" icon.
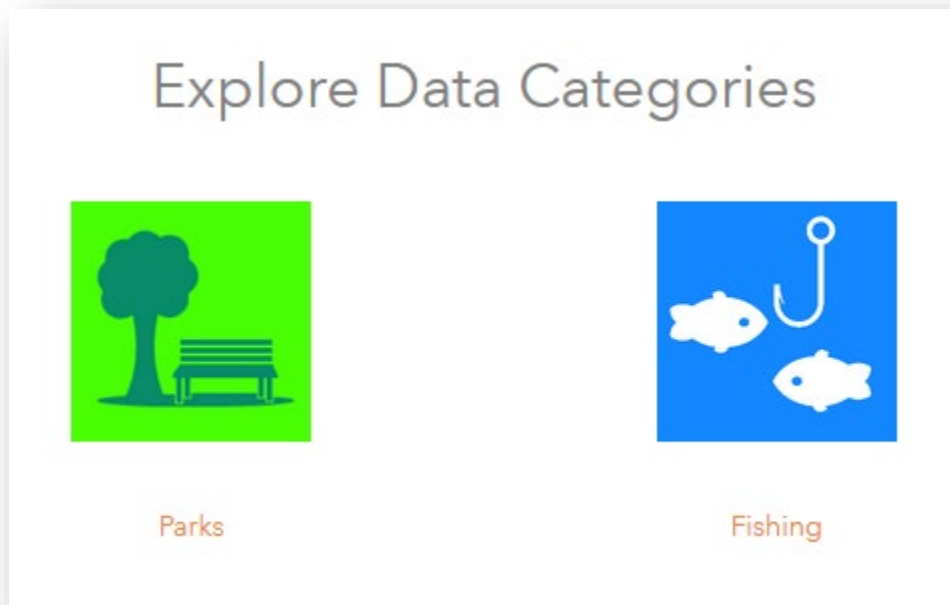
49. On the next page, click the orange text for State Park Areas.

50. Click the small download button to copy the data to your local machine.
   (76 records in this dataset)
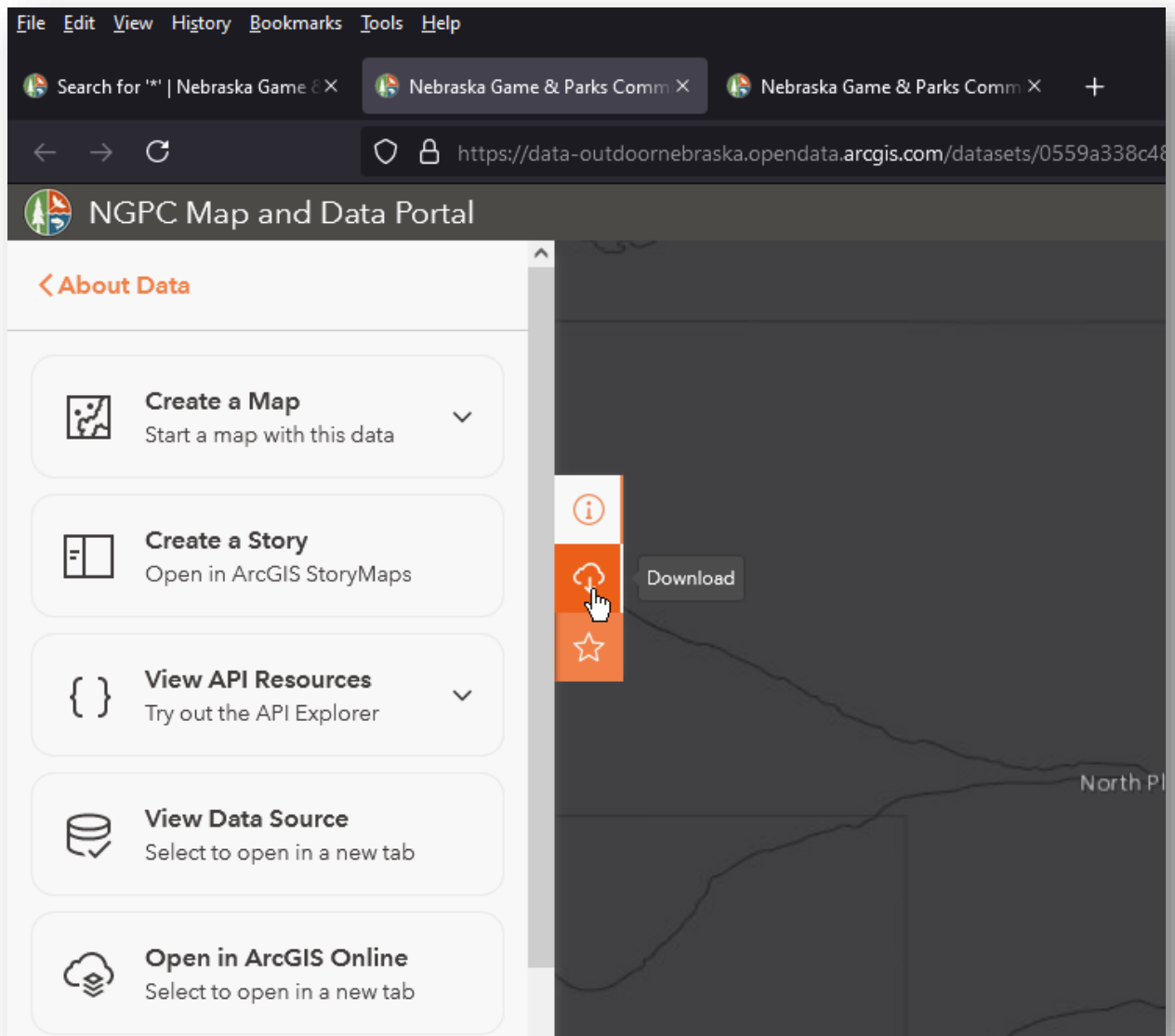
51. Perform the same download steps for "Nebraska State Trails". Go back one web page to find the layer, then click the orange text for Nebraska State Trails.
(476 records in this dataset)
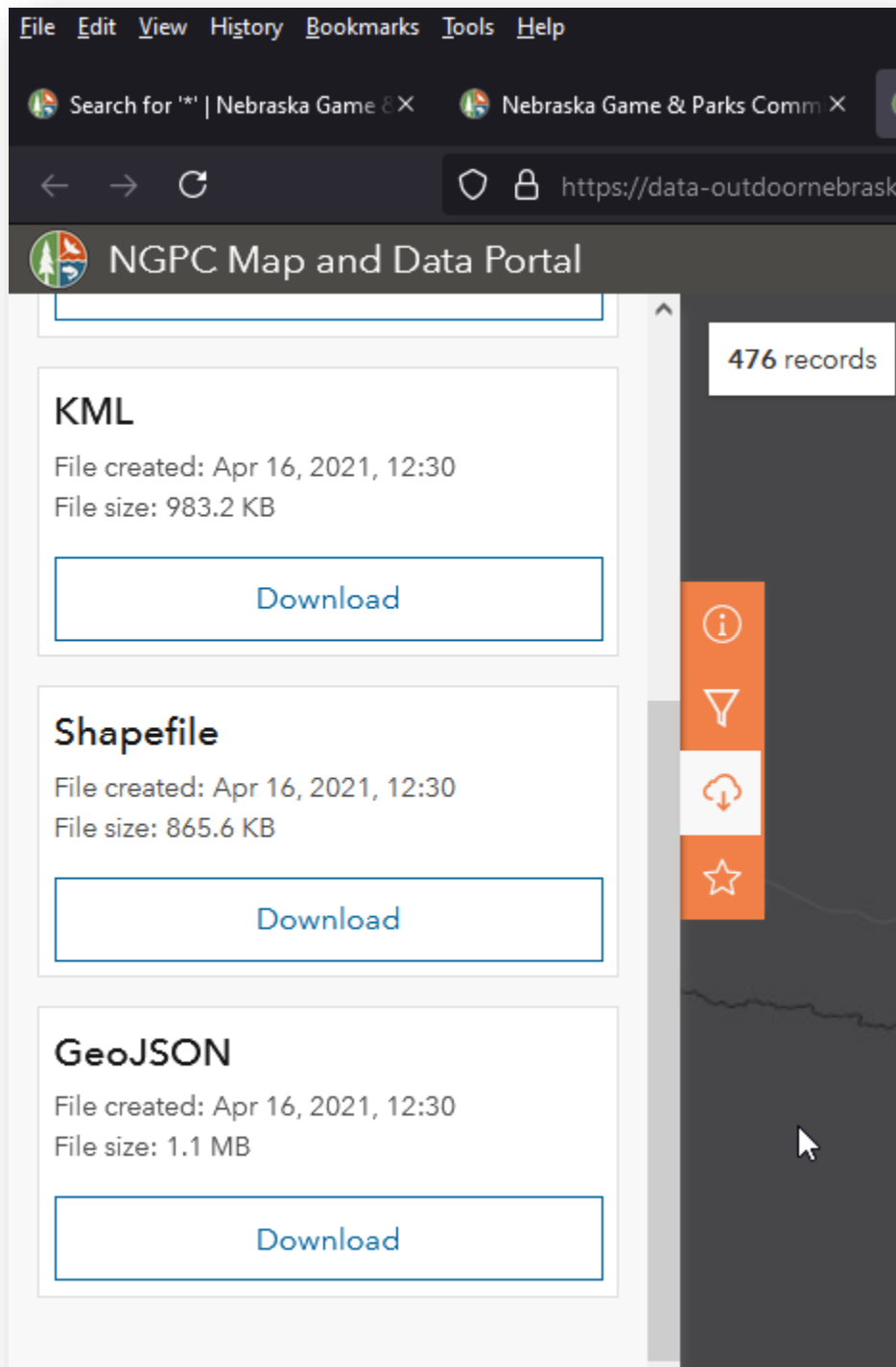
52. Copy the compressed files From your downloads folder into the folder we created called "Downloads for Session One". Remember that ArcGIS Pro is already connected to this folder.
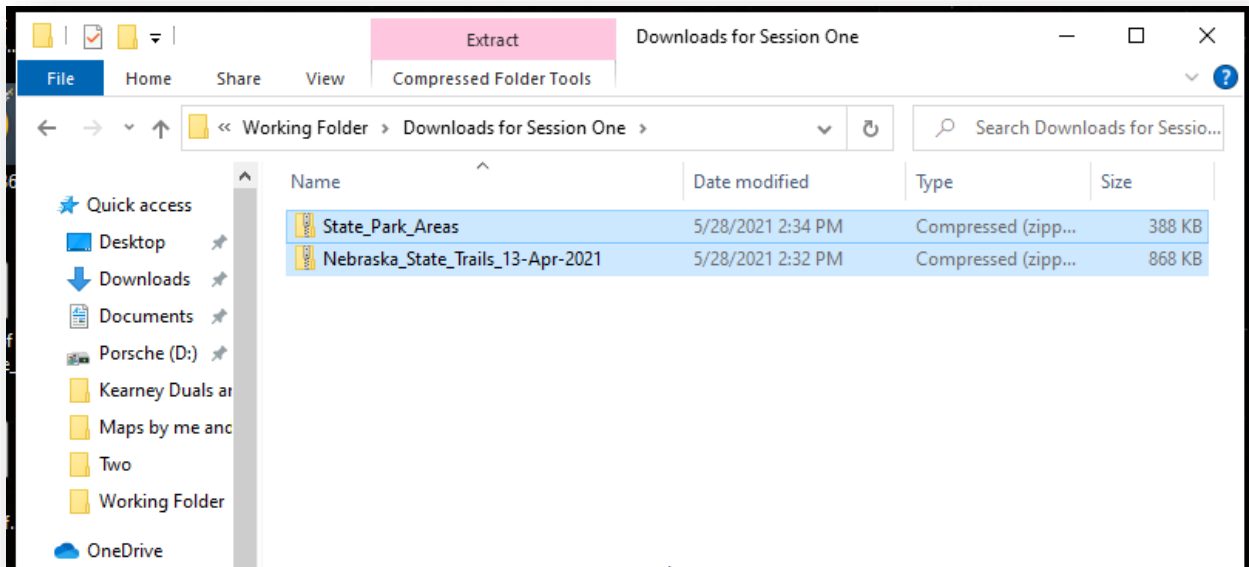
53. Exctract all of the compressed files to this location.
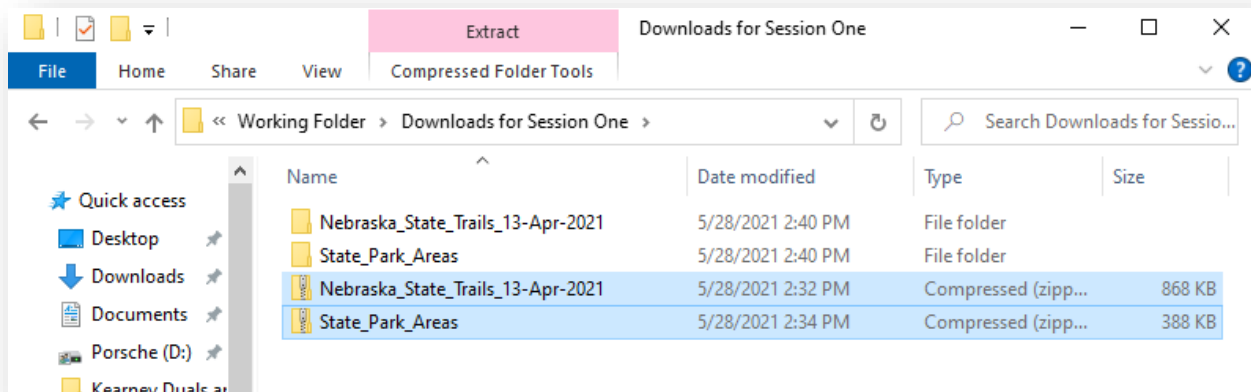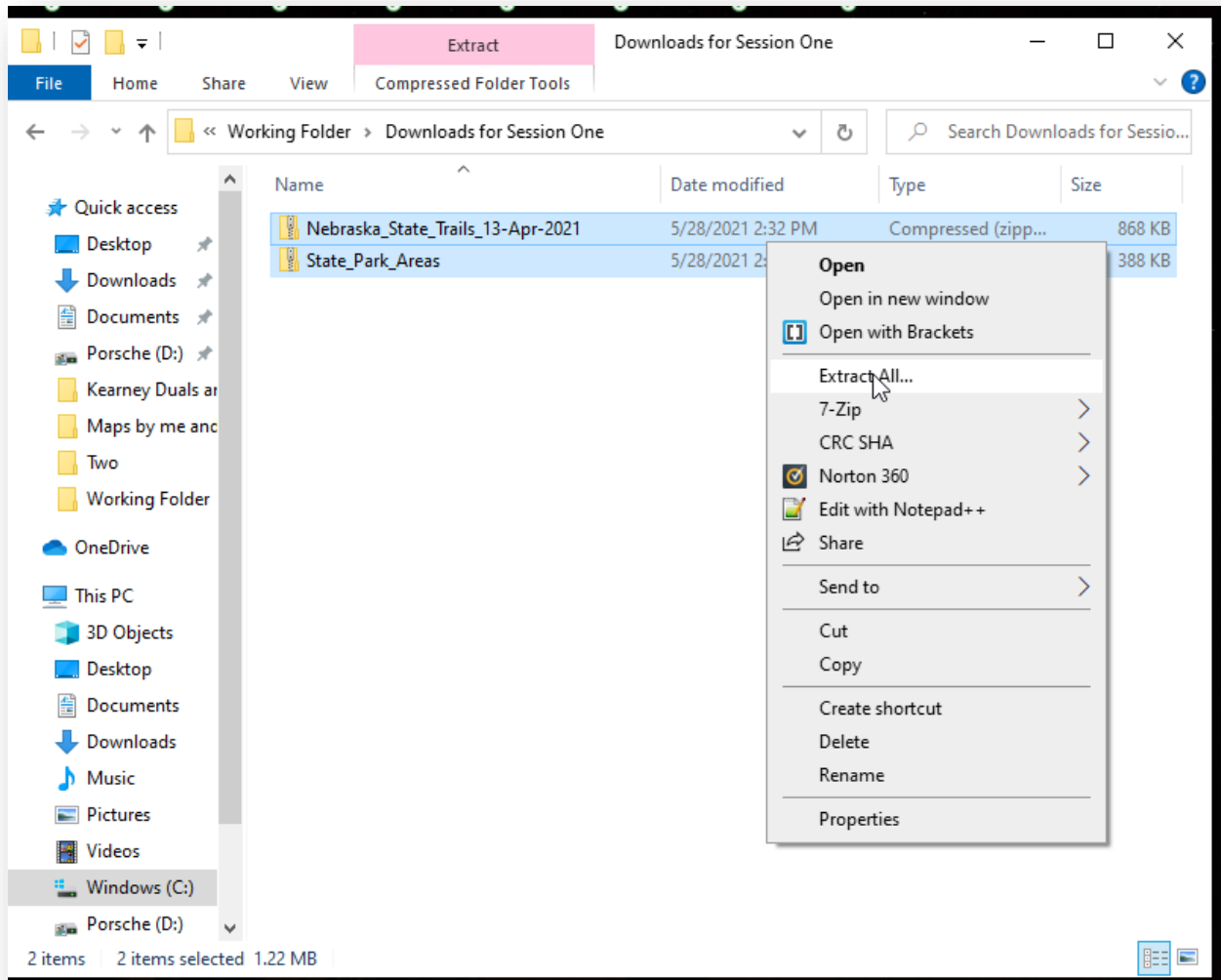
54. Back in ArcGIS Pro, right-click the Working Folder and select "Refresh". This reconnects the link to the folder and will display new content.
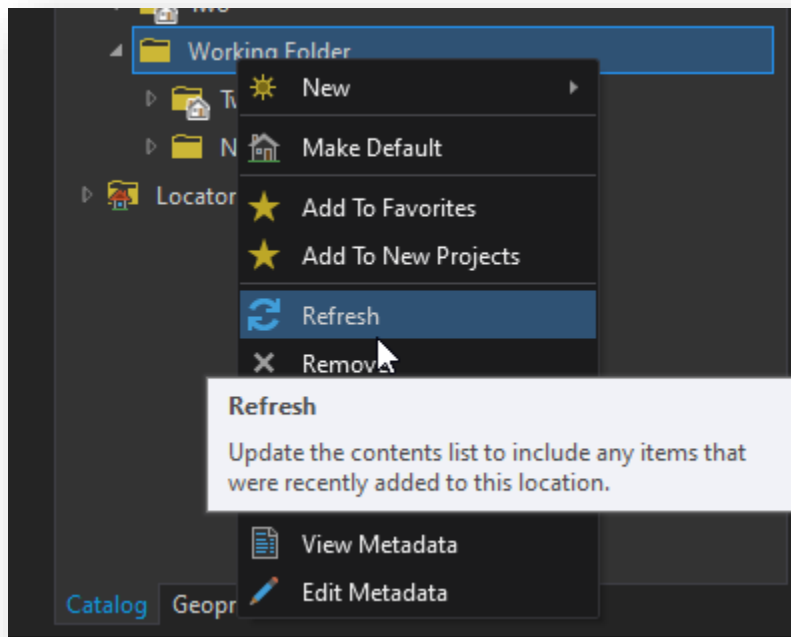
55. Expand the folders for Nebraska_State_Trails and State Park_Areas as far as possible. Then, right-click on the files with extension ".shp" and choose, "Add To New Map" for the first .shp that you choose, then "Add to Current Map" for the second .shp file. The order in which you add these to a map does not matter.
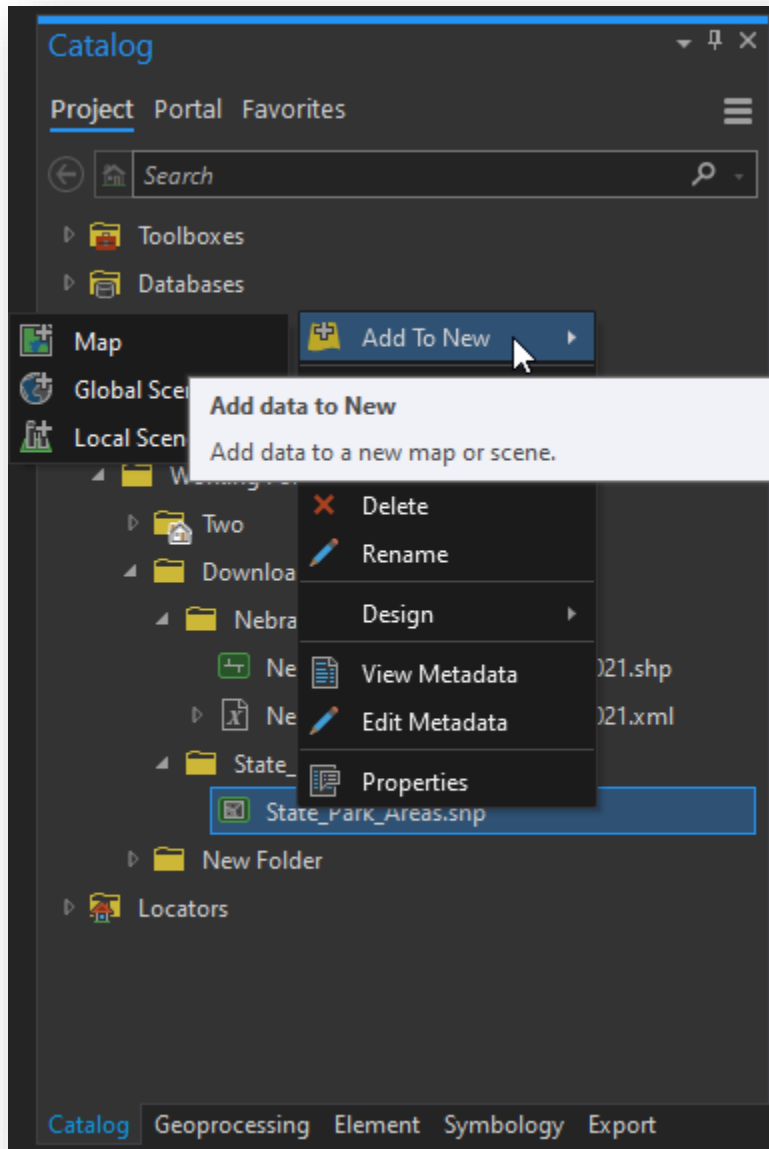
56. The overall "Map View". Note: this is still the defaut projection and coordinate system – Can be changed in the Options like was done to change to a Dark Theme. We will change this Projection momentarily.
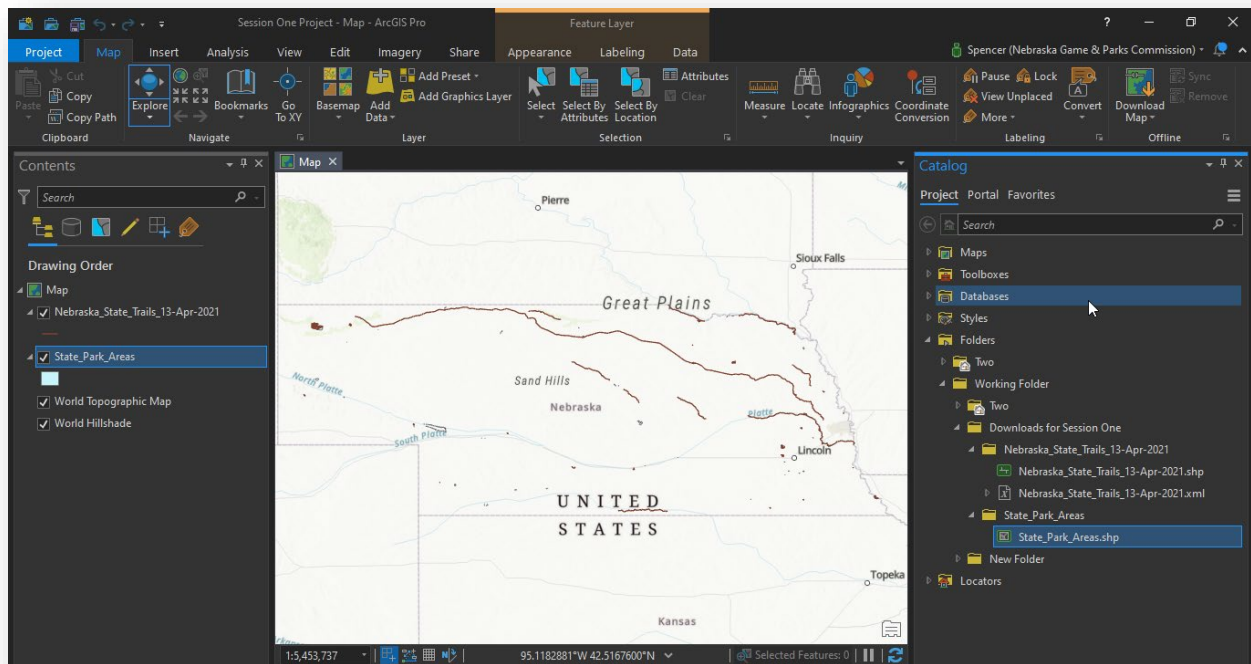
57. Right-click on the Feature Dataset created earlier. Then hover on "Import" and choose "Feature Class(es)".
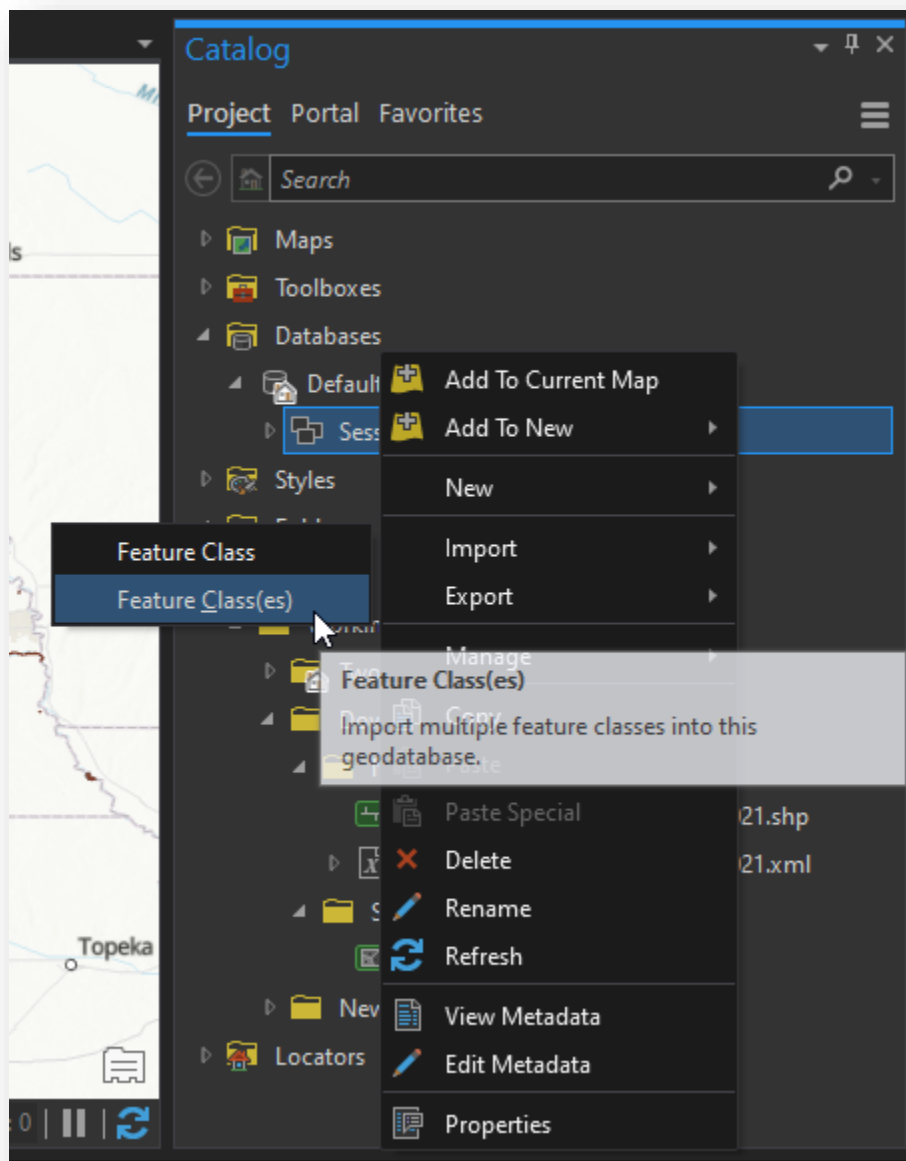
58. Using the drop down arrows in the Geoprocessing tab, choose each of the Layers already added into the Table of Contents then click Run at the bottom right of the screen.
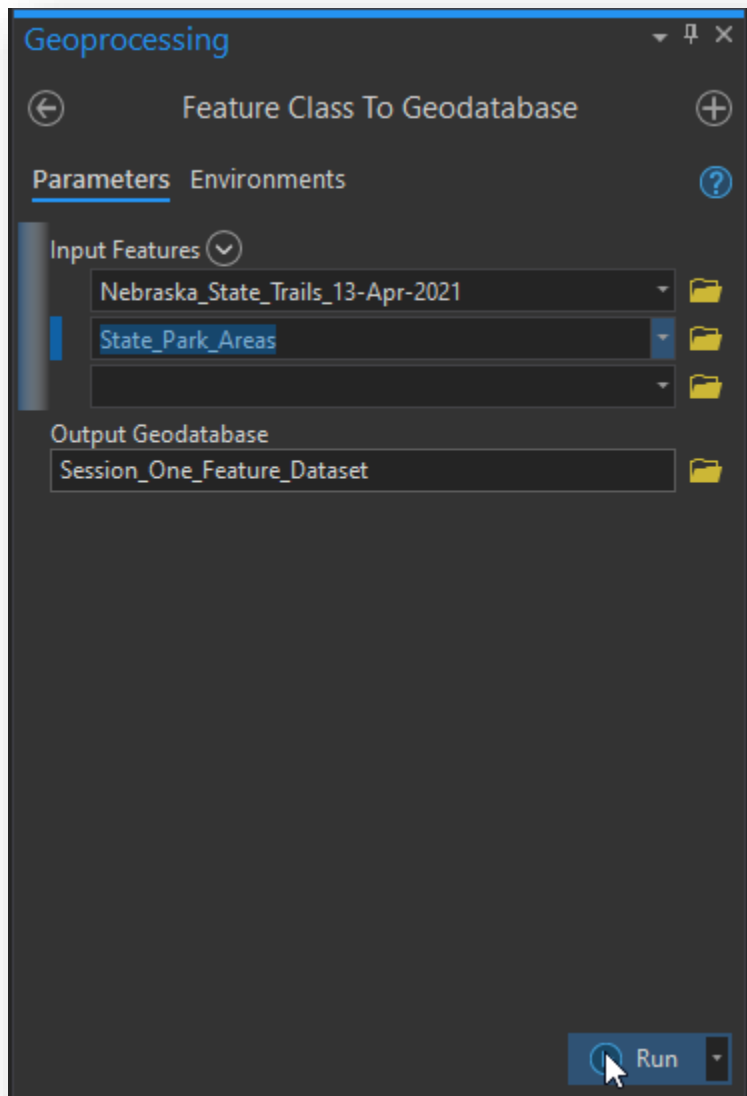
59. Once the import process completes there will be two new "Feature Classes" inside the Feature Dataset. These are no longer 'shapefiles'.
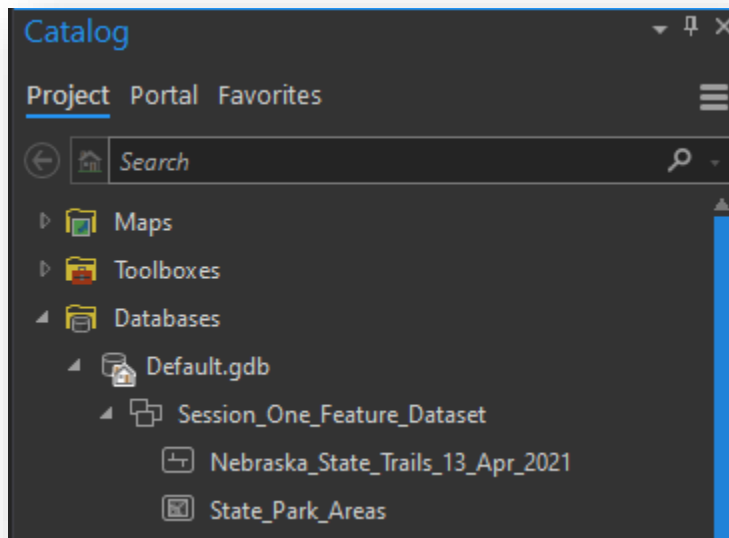
60. Select both of these "Feature Classes" then right click and choose, "Add to New" – then choose Map.
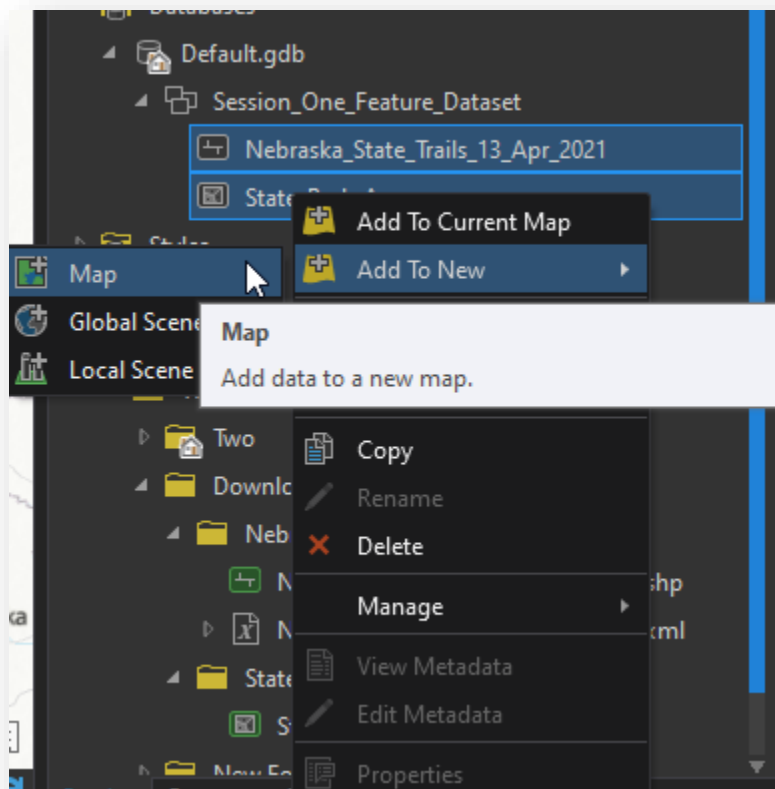
61. Notice this Map View, "Map1", is projected and has those Feature Classes from the Feature Dataset. The Feature Classes inherit the Projection from the Feature Dataset.
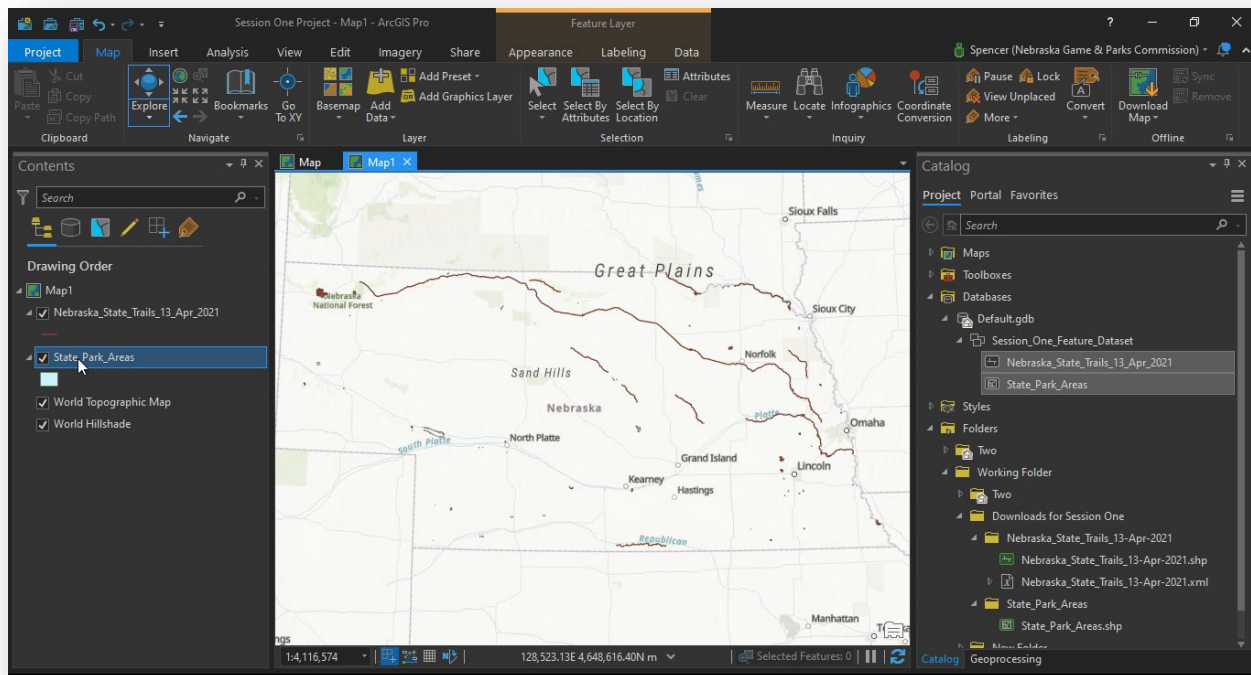
62. Zoom to Fort Robinson State Park in the northwest portion of Nebraska. Notice there is already a 'Base Map' below the feature layers that have been added.

Also notice that the Area Feature of State_Park_Areas is below the lines of Nebraska_State_Trails. If we had added any point features they would have been placed above the lines. This is usually the order in which items are placed into the Table of Contents, but they can be rearranged as needed.
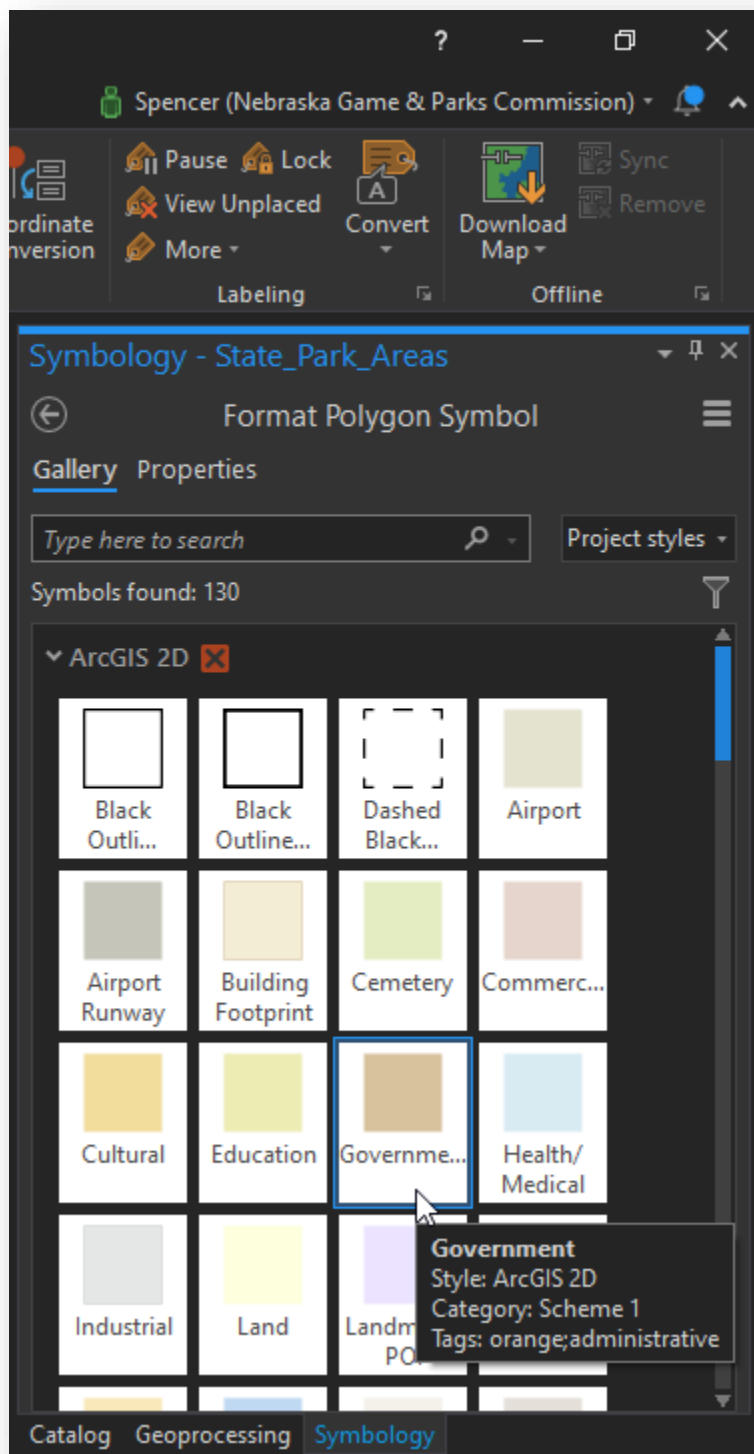
Please Note: Some items may be hidden from view if placed underneath other features in the Table of Contents on the left side of the screen.
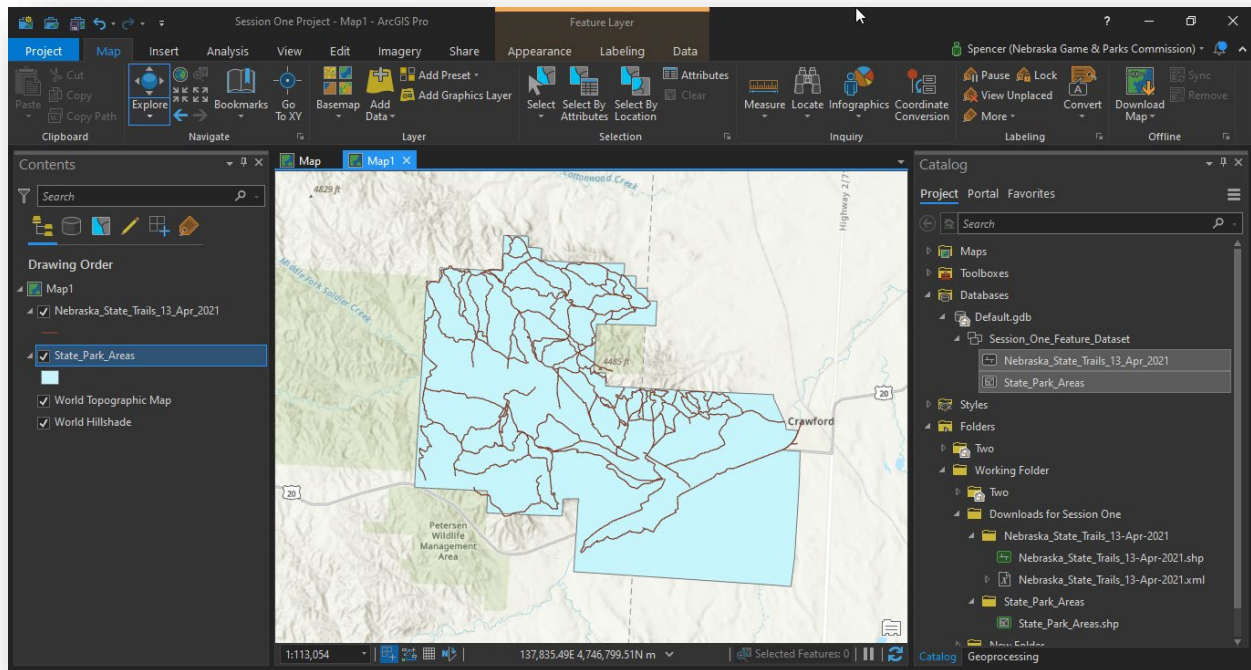
63. Click the small colored square underneath the layer for "State_Park_Areas". A new tab on the right side of the screen will appear.
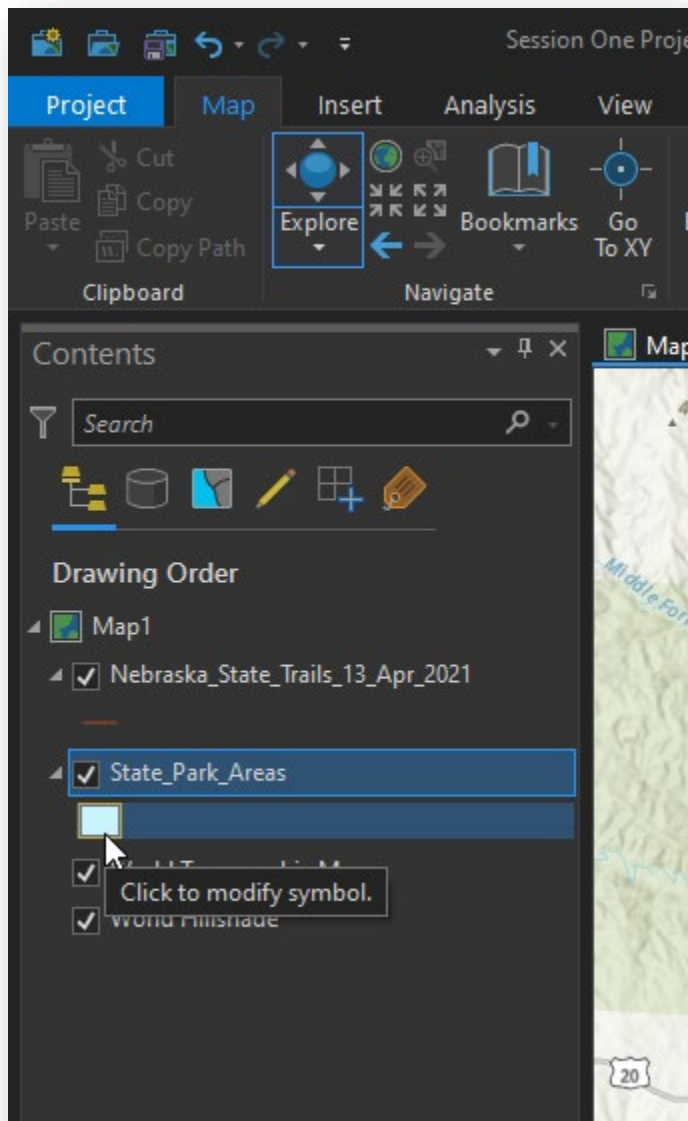
64. The Symbology Tab appears and there are many default color styles to choose from in the "Gallery".

65. Clicking on Properties shows the various color schemes and overall appearance of the layer. Items such as Opacity and Stroke Width can be changed here using the small wrench icon or the icon that appears like "layers".
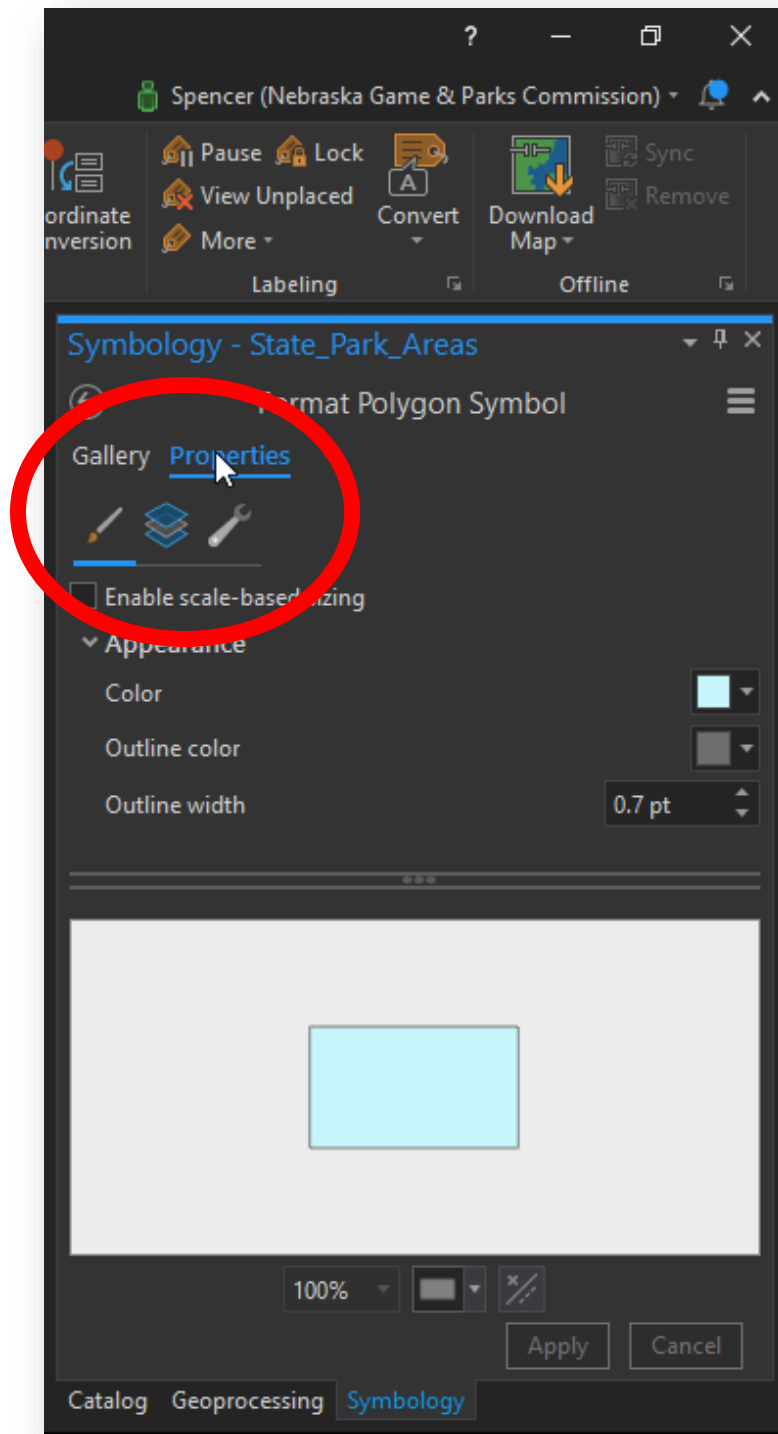
66. Notice the stroke style here for the trails layer has been altered to be a 'Multi-line' layer. This allows for a 'casing' to be displayed around each of the lines.

Again, clicking on Properties shows the various color schemes and overall appearance of the layer. Items such as Opacity and line thickness can be controlled. Or, click on Gallery and choose a preexisting style.

Experiment with the styling options of the layers.

Once you are satisifed with the color, thickness, and opacity you may save this to your 'Favorites' by clicking the 'Hamburger' icon at the right corner. Even unique color options can be saved to a color pallette and shared with others.
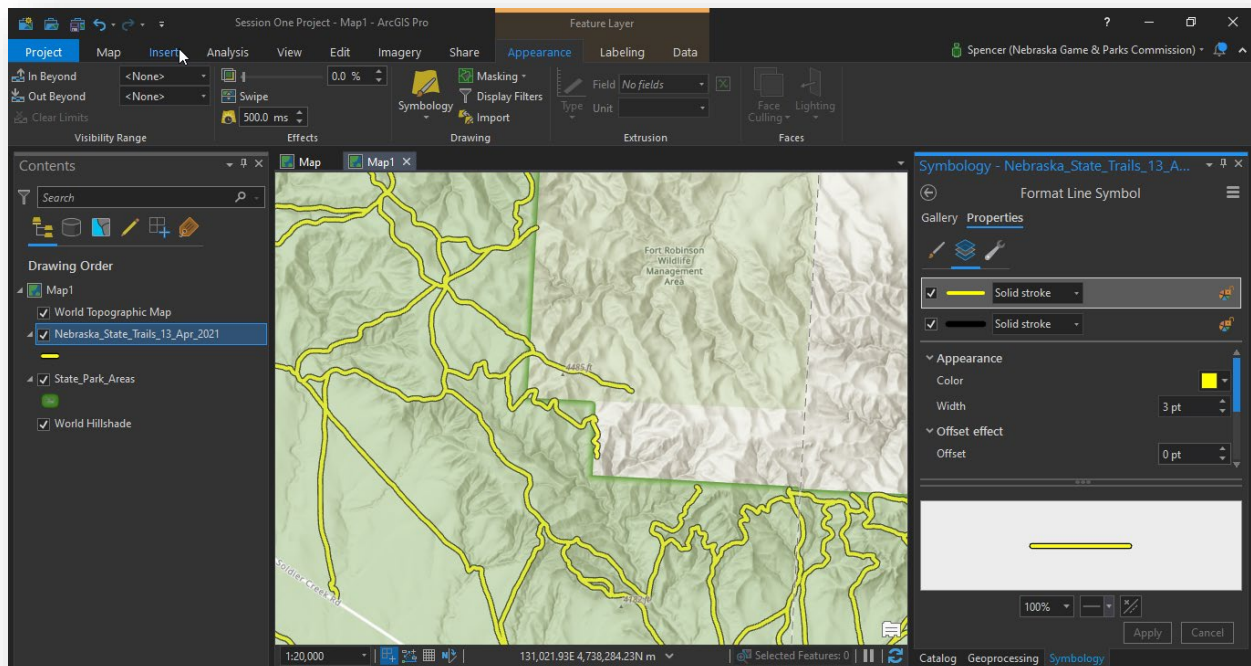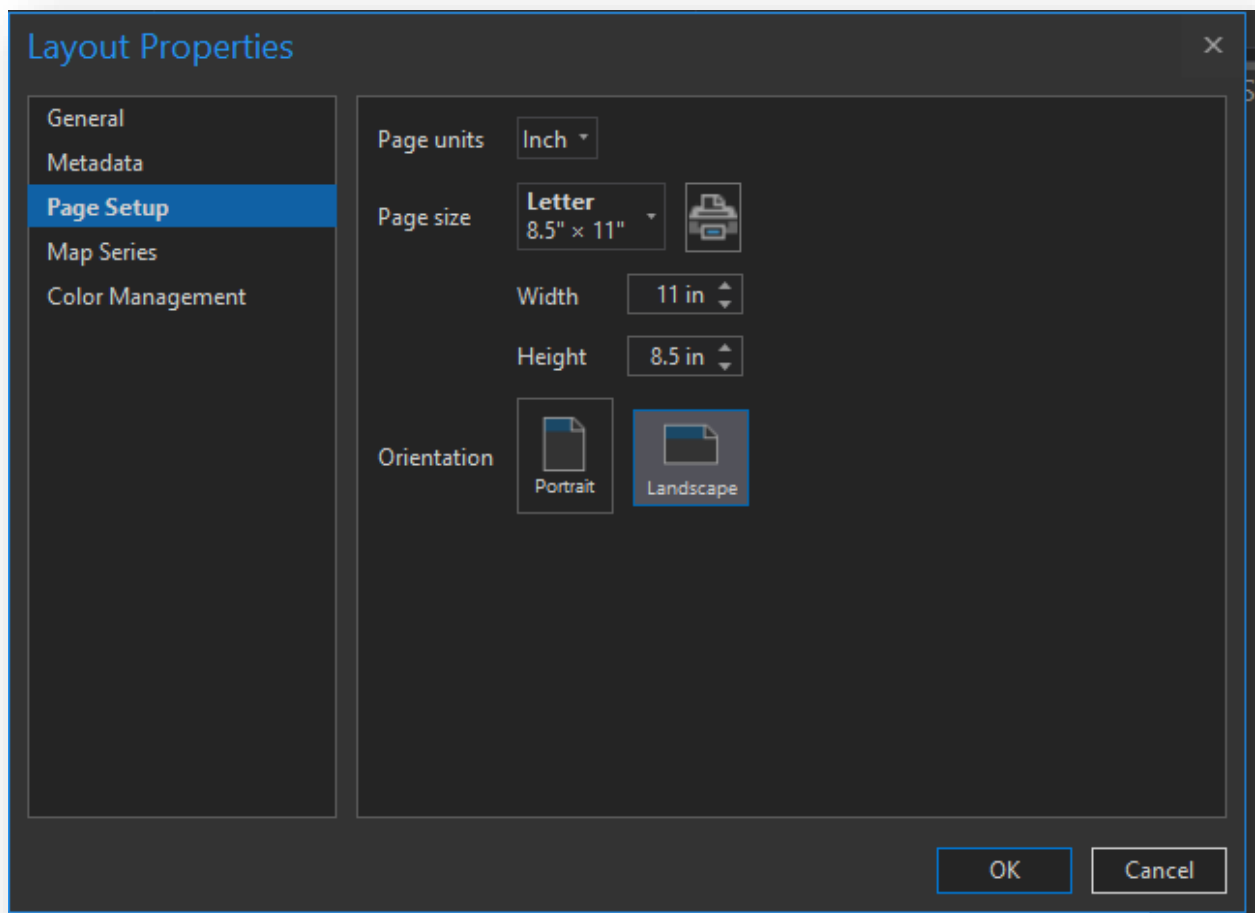
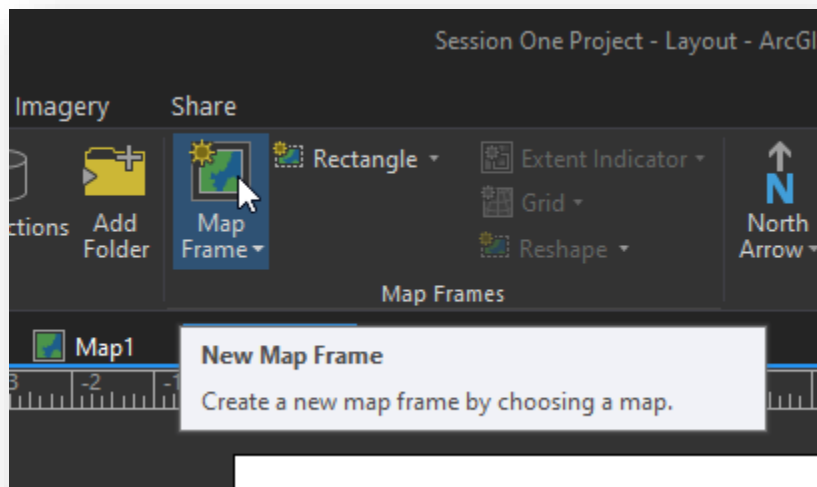67. Select the Insert tab at the top near the left and choose "New Layout".
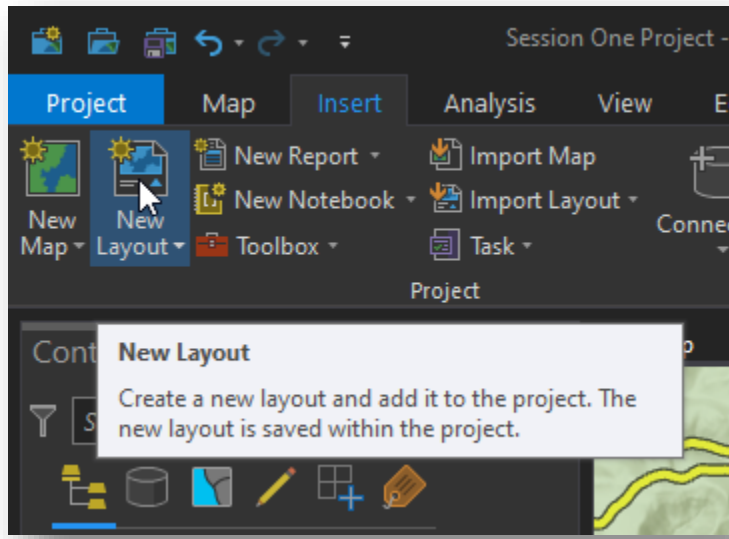
68. Pick a size for the finished artwork. This can be altered layer, if needed, but please note that any size can be printed 'to fit' any size of paper if needed.
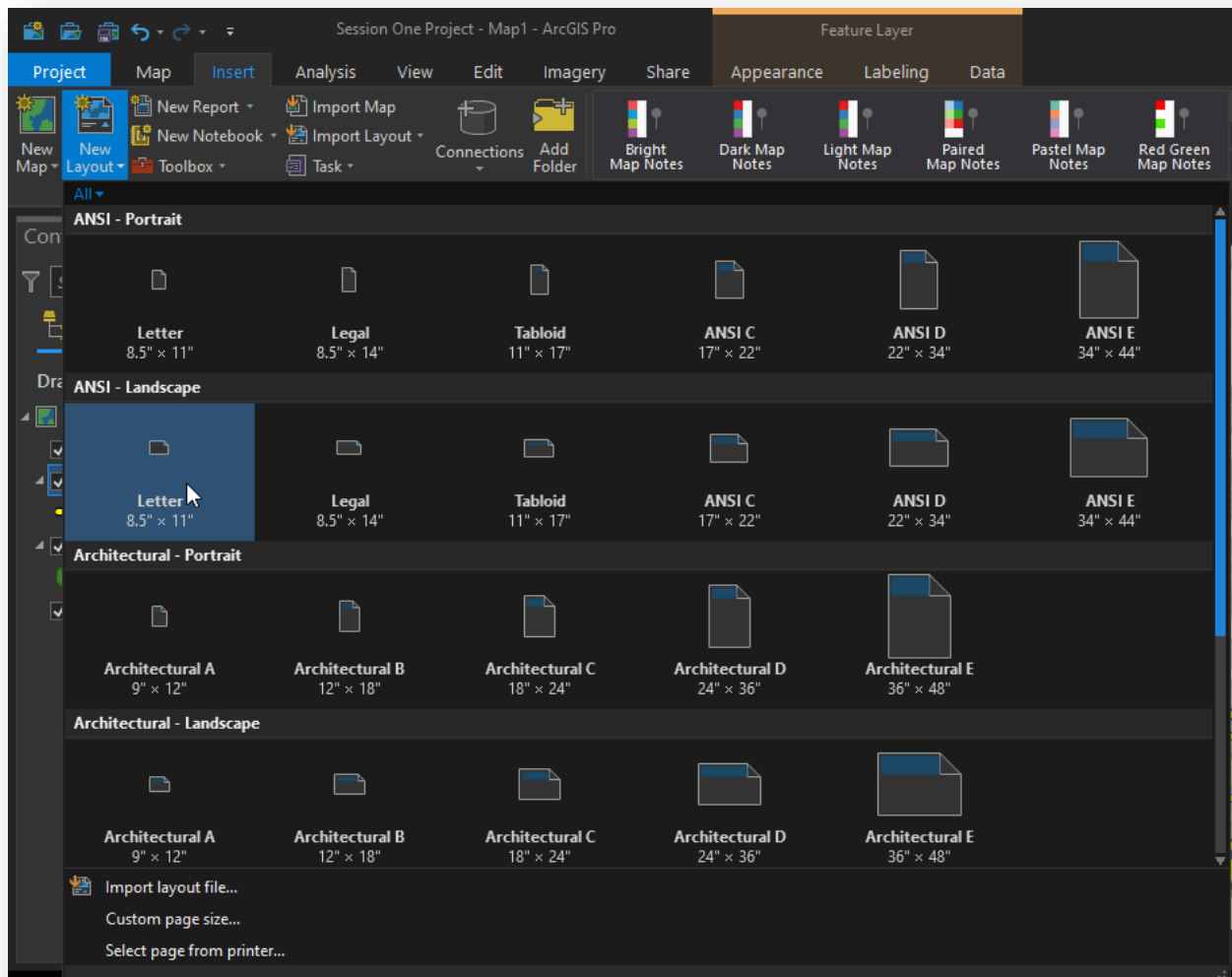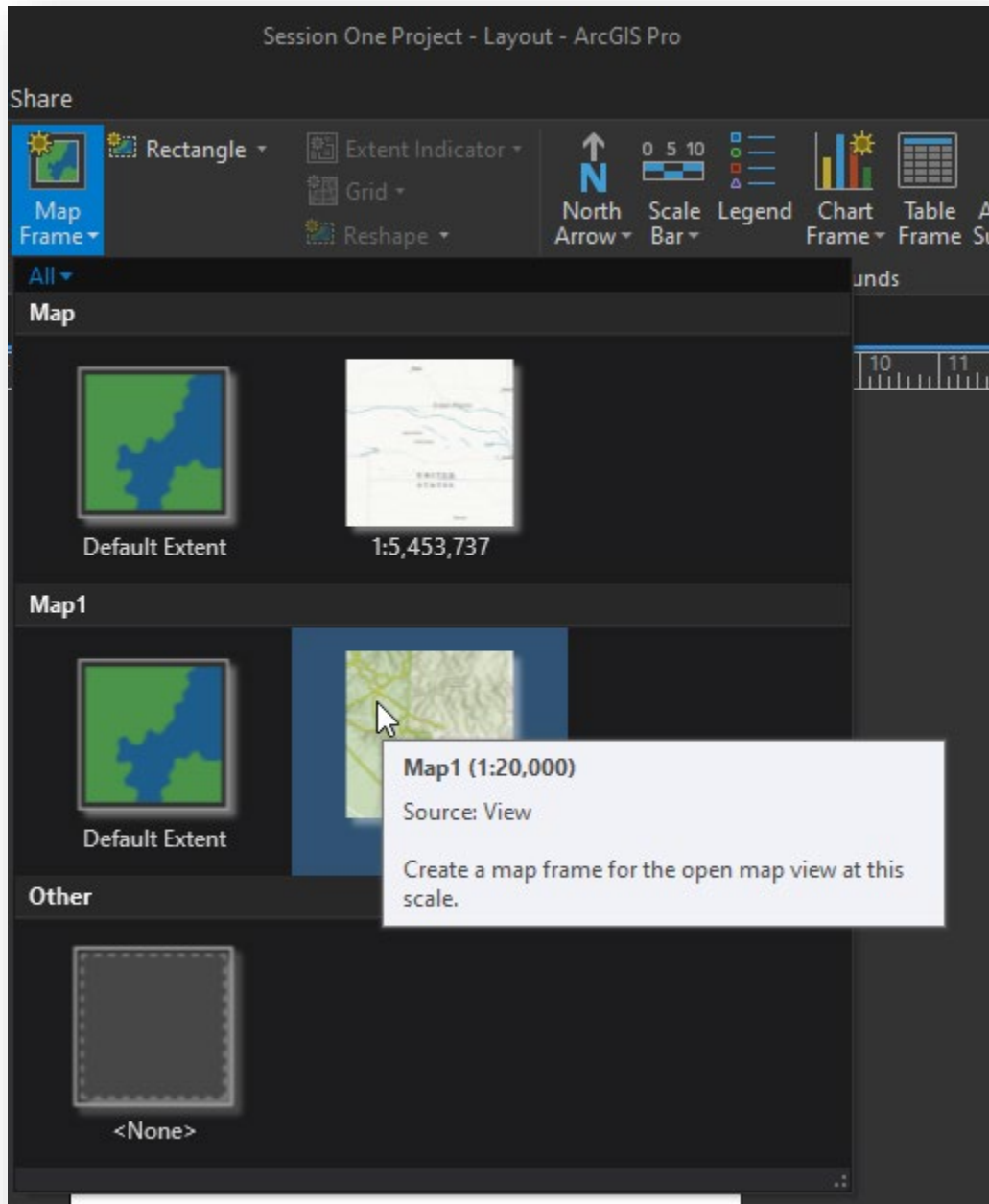
69. Fine tune the Layout Properties as needed. Portrait orientation and Landscape are easily swithched here.

Layout Properties   ×

General

Metadata

Page Setup

Map Series

Color Management

Page units   Inch ▾

Page size   **Letter** 8.5" × 11" ▾   🖨

Width   11 in ▴▾

Height   8.5 in ▴▾

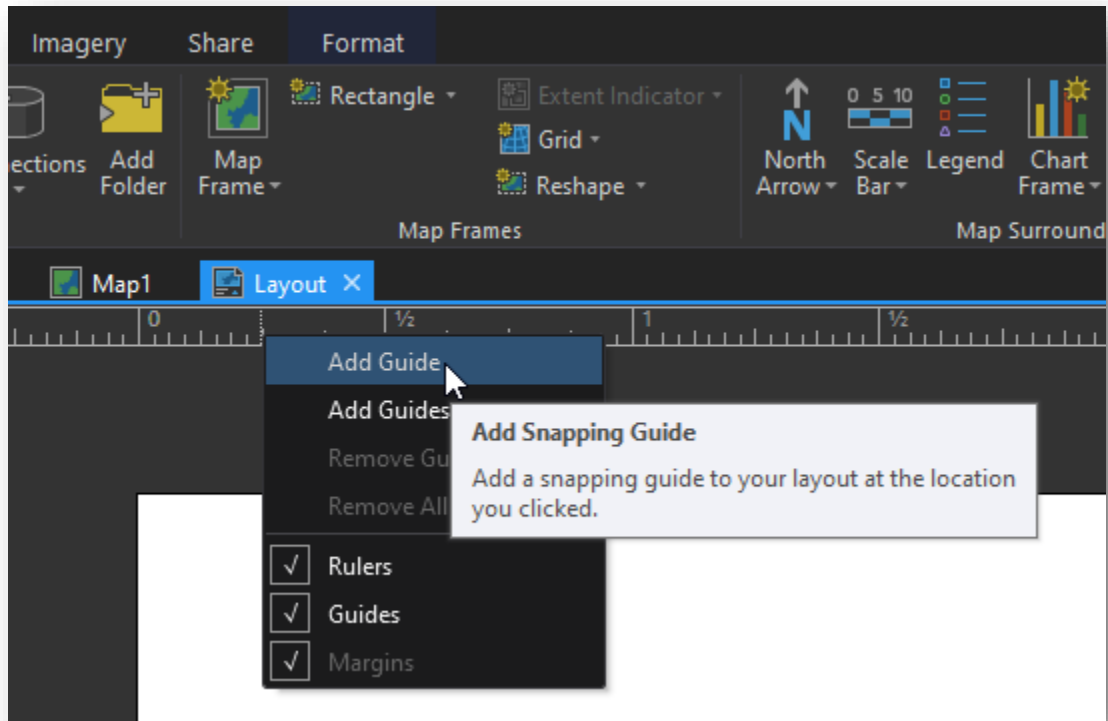Orientation   Portrait   **Landscape**

OK   Cancel

70. Once the Layout View is created click Map Frame at the top.

71. Choose "Map1", not "Map" – While the layers are similar, they do not display the same data any longer. We have imported those layers to a new Feature Dataset and Geodatabase, and reprojected them, but this was done in the "Map1" Data Frame. We have also spent time styling those layers as needed.

72. Click and Drag a Box on the Layout View. Once you release the mouse button a general map will be placed. Do not worry about placement, size, or scale at this time. All of these properties can be adjusted later. For now we just need something on the Layout to work with.

73. Right-clicking on the rulers lets you place guide lines to help with a Layout.

74. The guides here are placed at 1/8 inch and 1/4 inch on all four sides, and another guide was placed at 1/2 inch along the top.
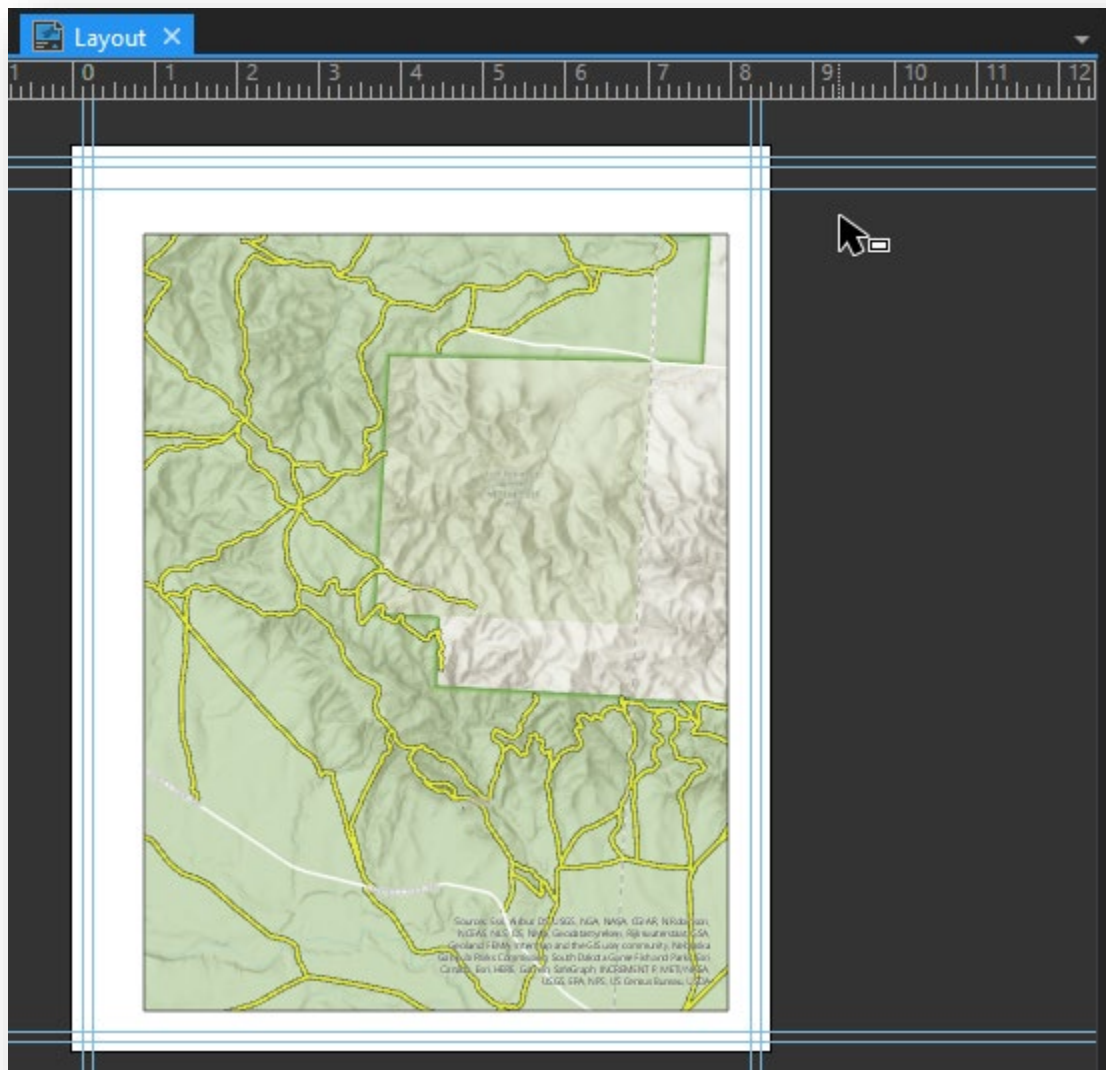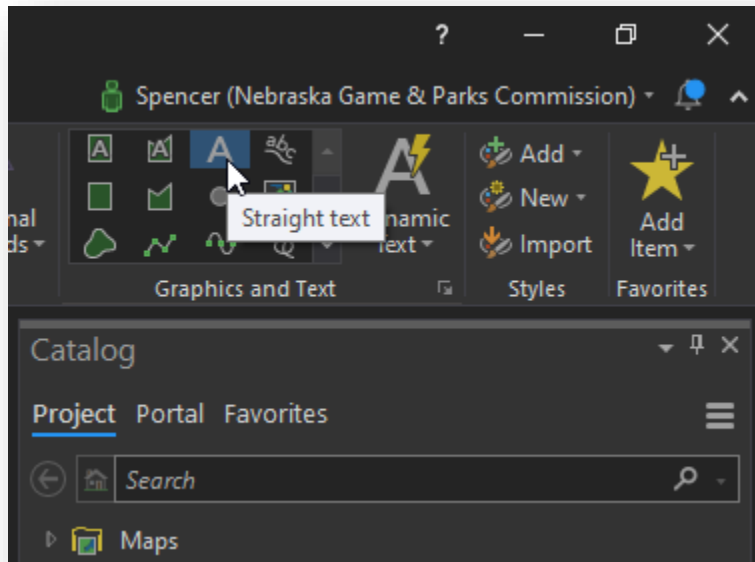
75. On the Insert Tab, look to the right and select "Rectangle". Then draw a rectangle to act as a neatline around the map. Click and drag the mouse to do so. Again, do not worry too much about placement, it will be adjusted later.
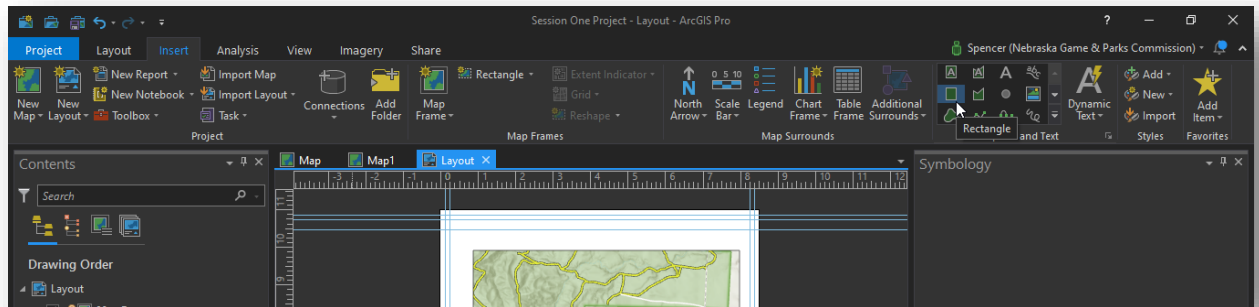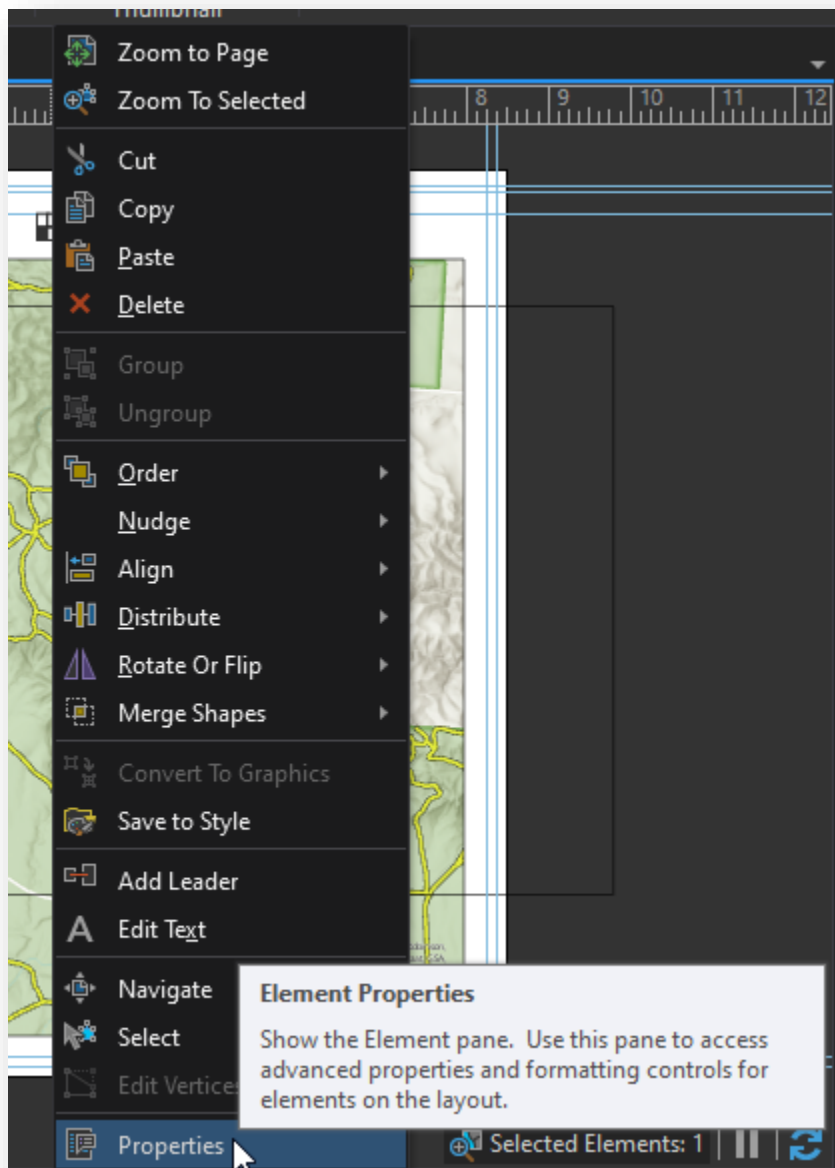

76. Here the map is placed completely off of the Layout sheet. It will be adjusted later.
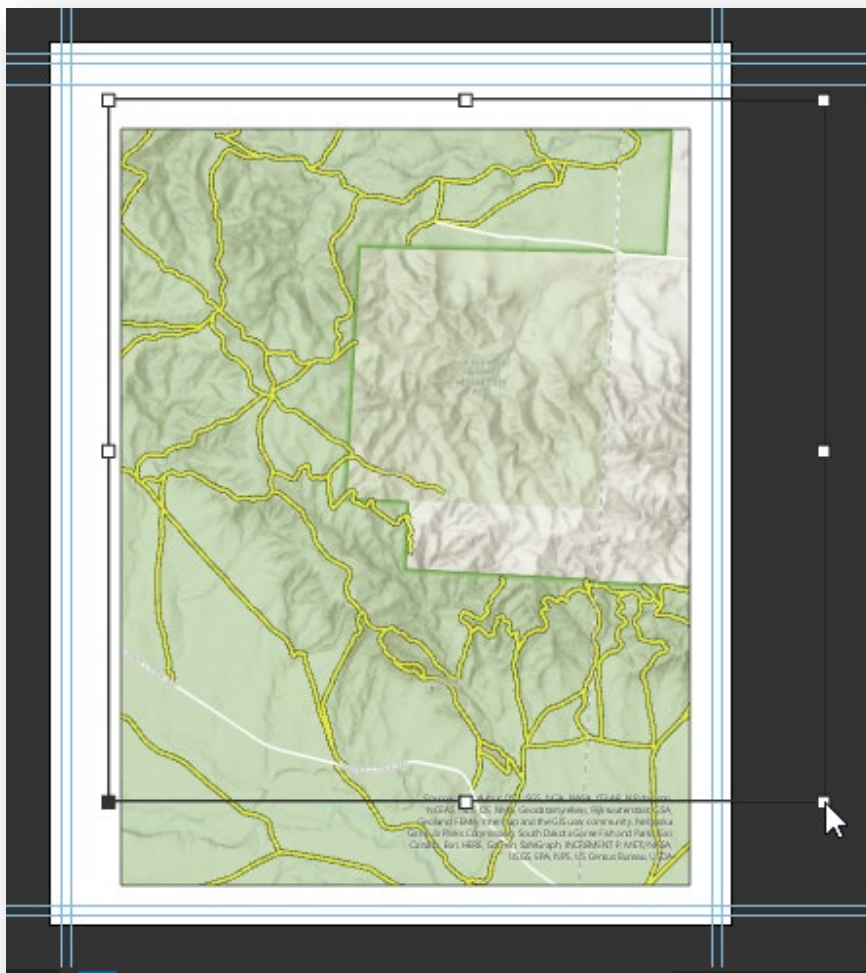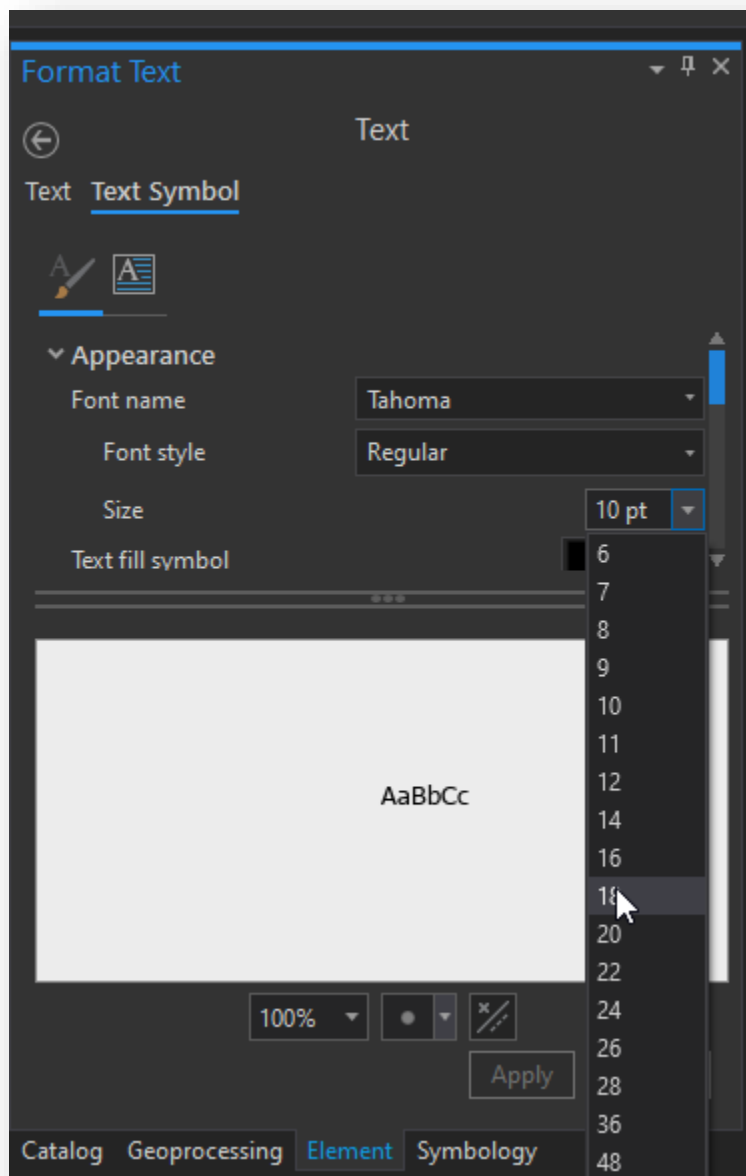
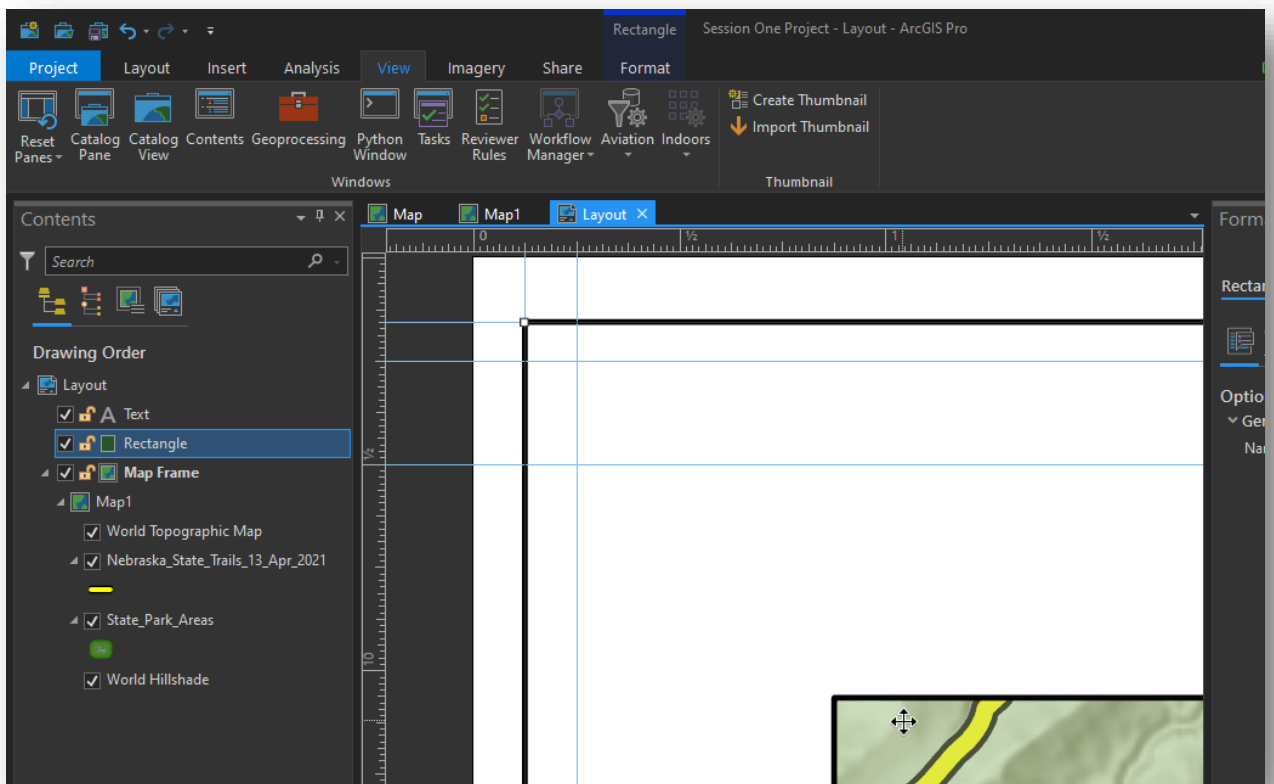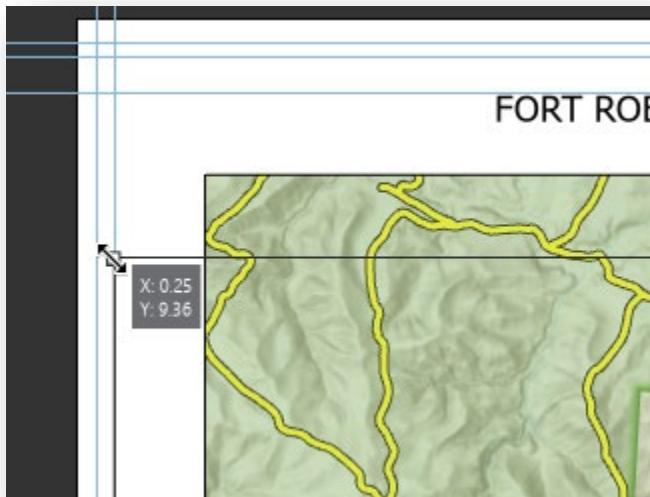77. Click on "Straight Text" option to then place a Title.

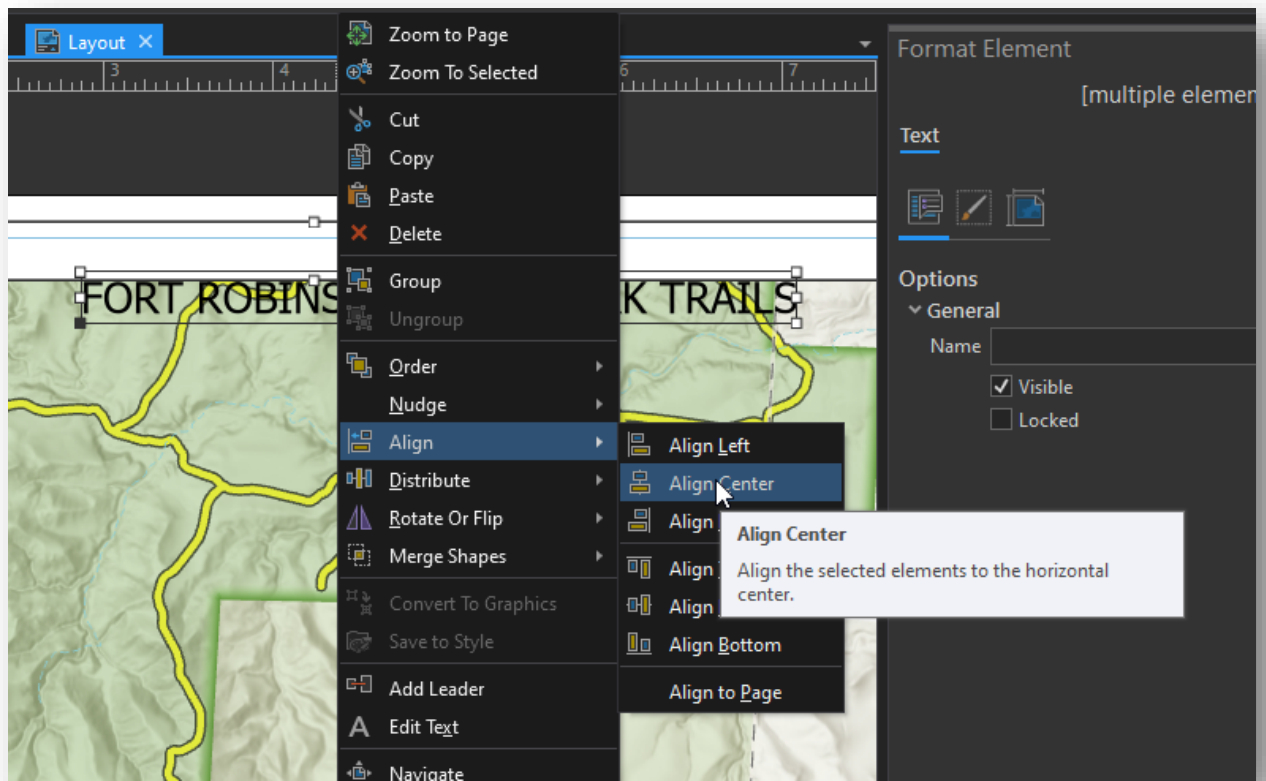78. Once a feature is selected, its properties can be adjusted.

79. Selecting a size for the text. Notice this is under the "Text Symbol" option near the top of this window.
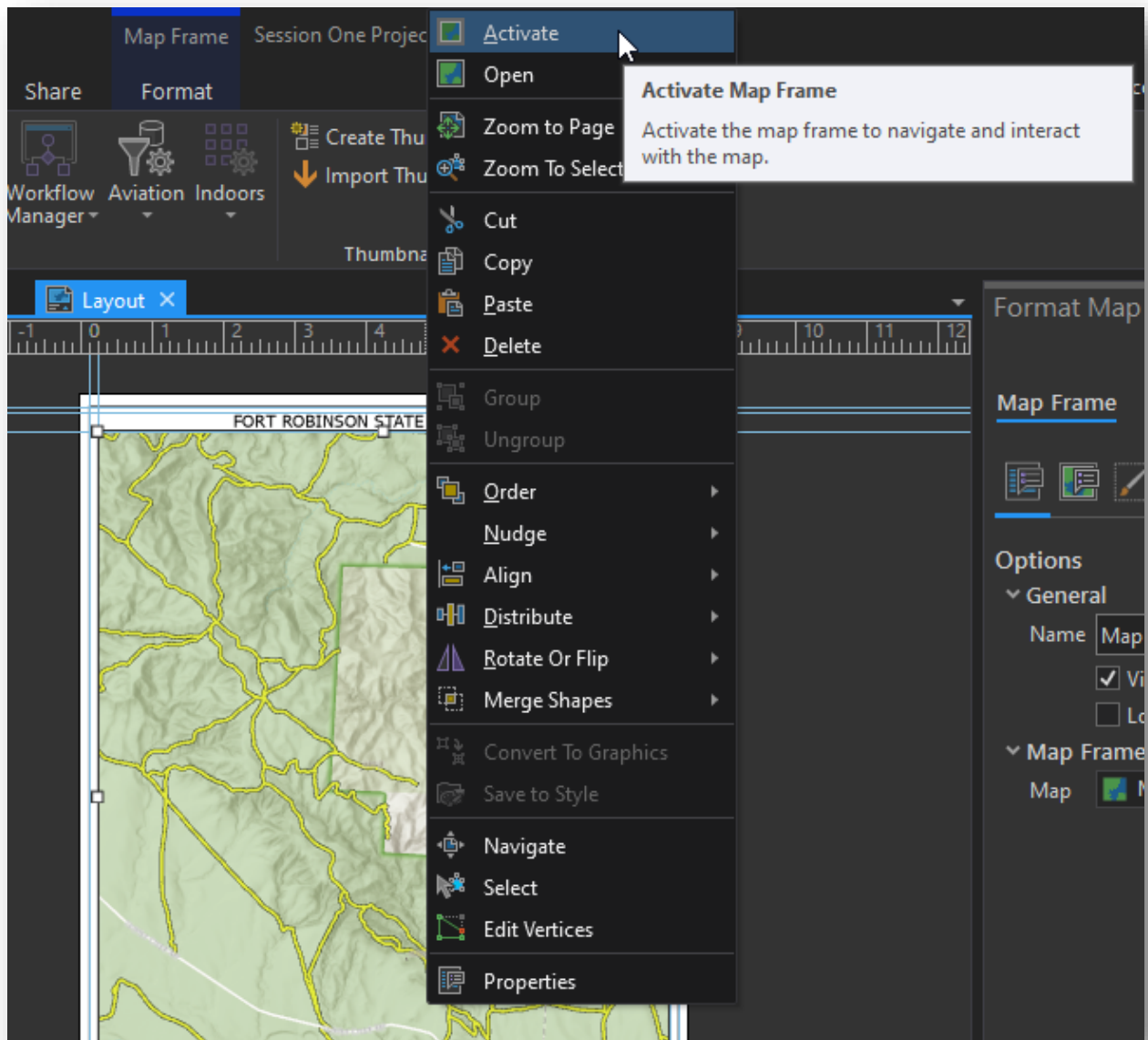
80. Clicking the corners of the rectangle allows for dragging to the guide line corners.
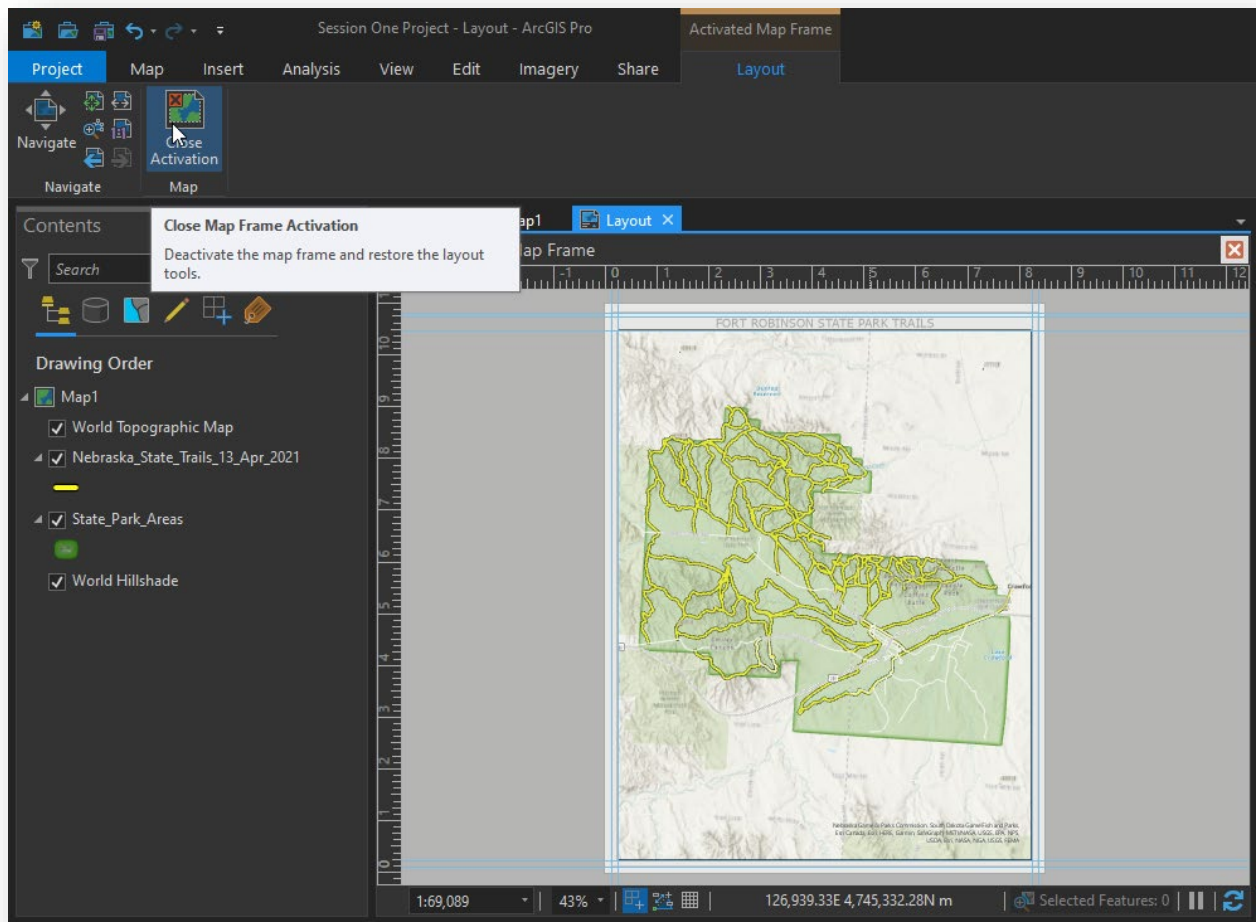
81. Select all of the features on the map followed by a right-click. One can align to the center easily.
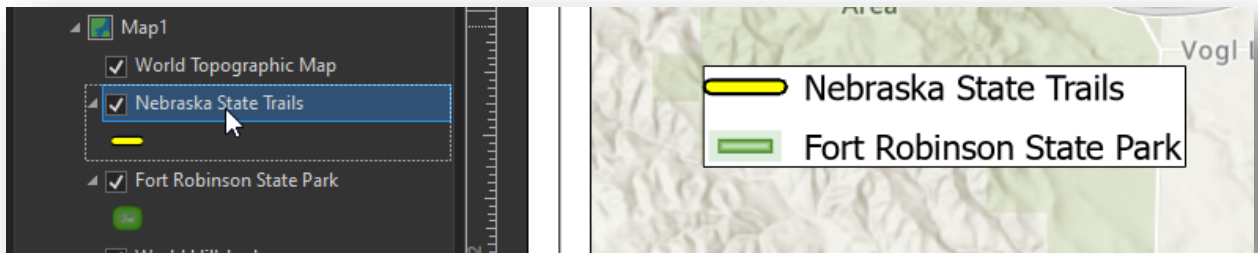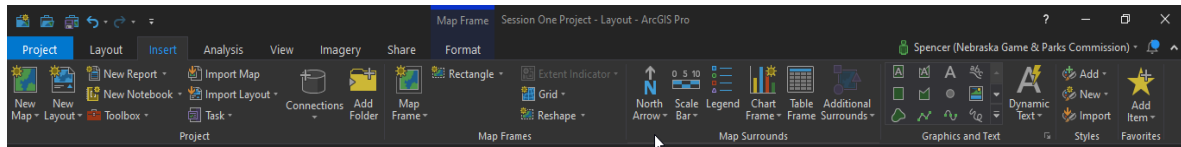
82. Once the map frame is selected, it can be activated for panning and zooming after a right-click.

83. To close the activated map, you must navigate to the Layout Tab followed by the selection of "Close Activation".

84. Make sure the Map Frame is selected then add in a North Arrow, Scale Bar, and Legend.


85. Press Save. Please note that Pro will continually 'back up' your progress, but that feature should NOT be depended upon. Please save often. The shortcut to save, like many other software programs is 'control-s'.
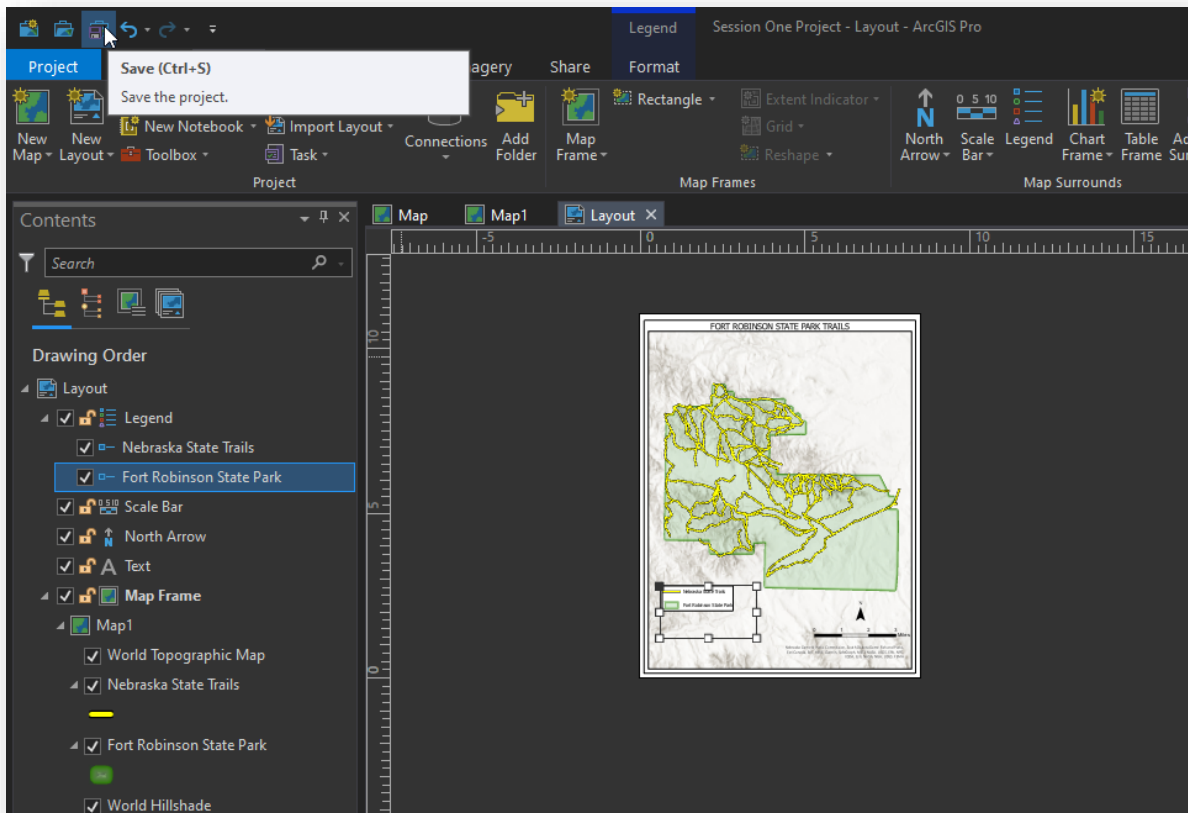
86. Double-click the Trails layer and choose "Definition Query". This option allows for the filtering of data. You may create a Query by using the drop down arrows and that Graphic User Interface (GUI), or by typing in Spatial Query Language.

Here, only the features that have the attribute "shape_length" of greater than 5000 units will be displayed.
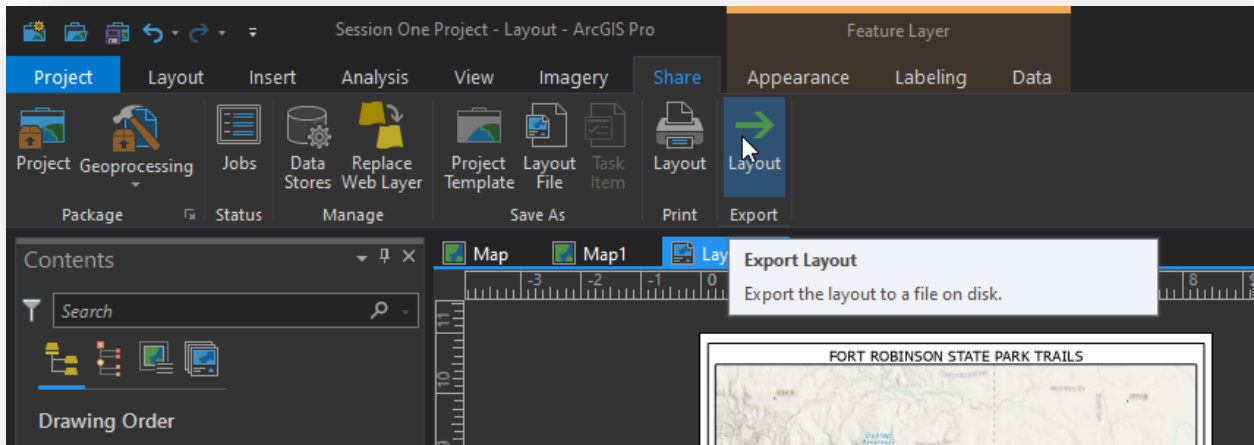
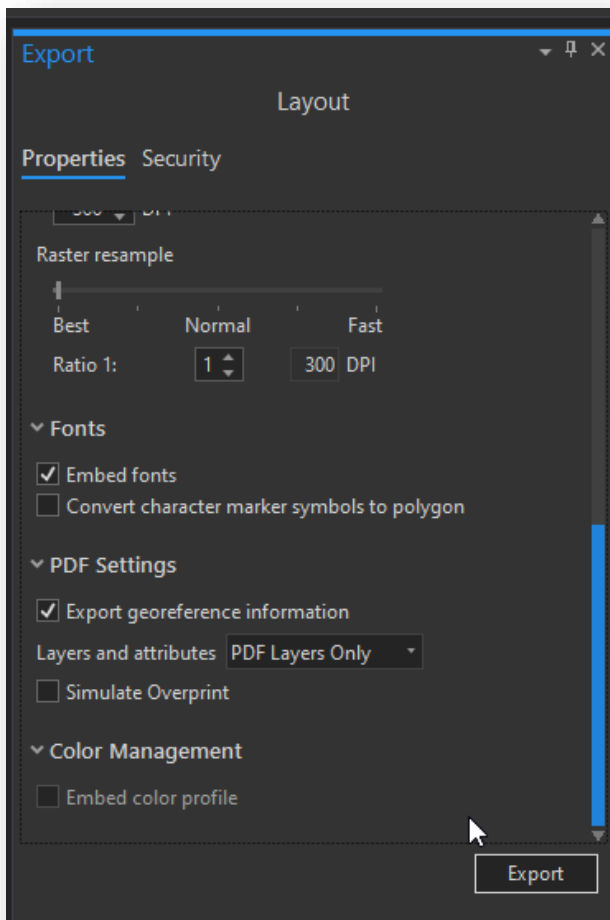At a later time we will cover the Attributes in more detail.
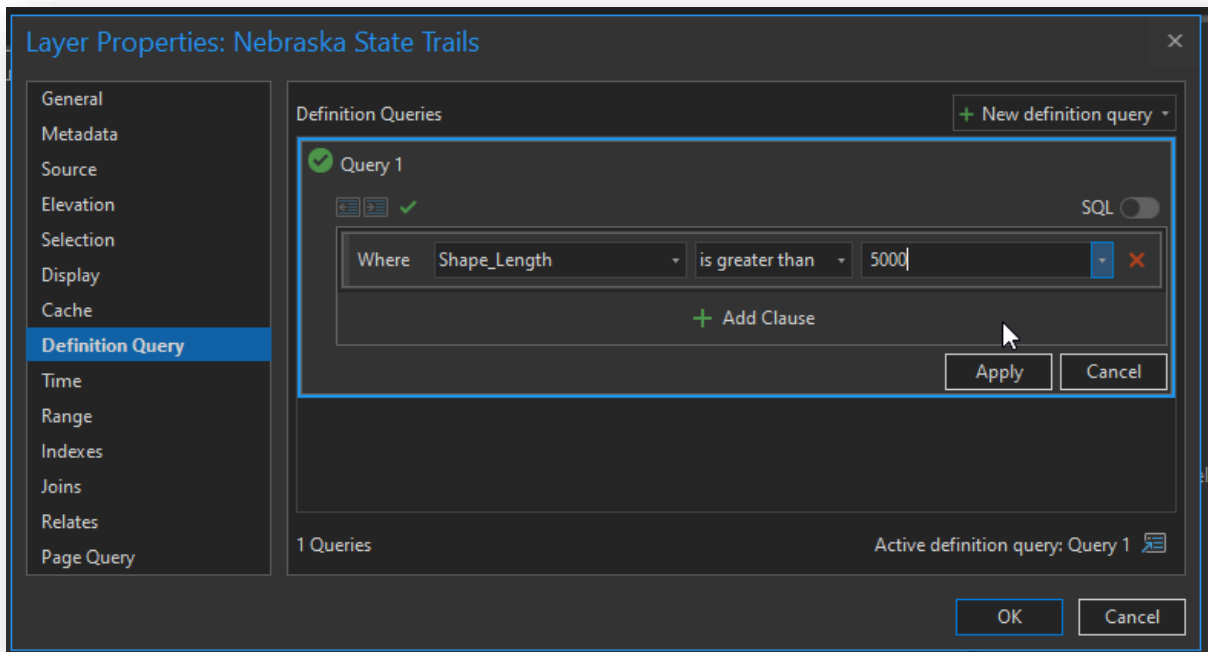
87. Fewer Trails are displayed.
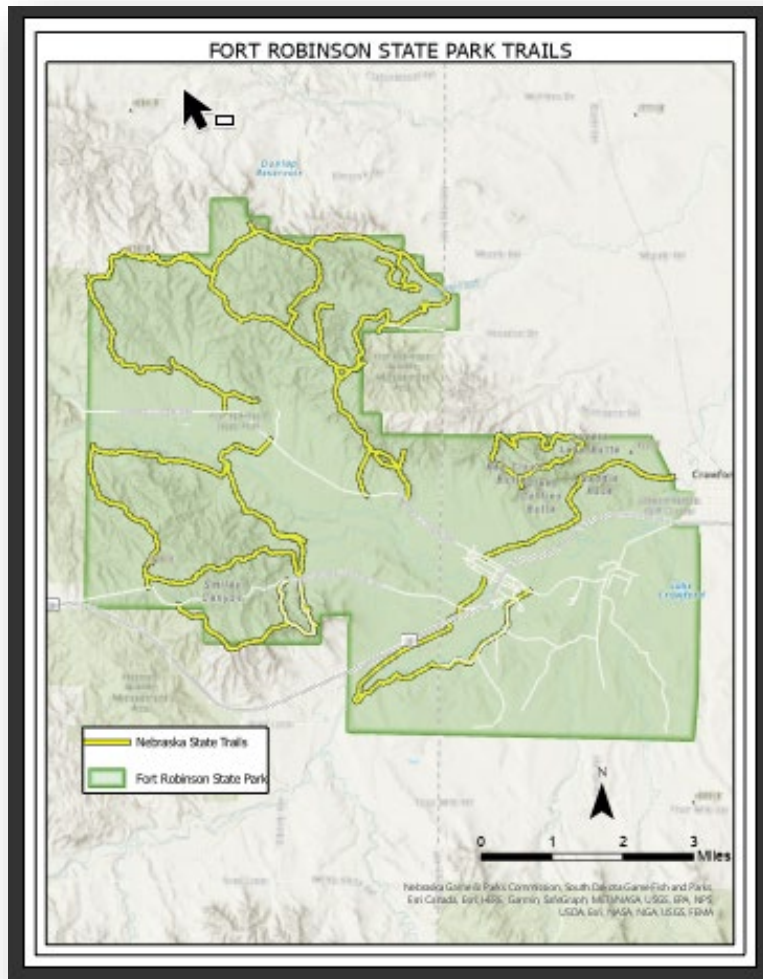
88. After clicking the Share Tab at the top you may export your layout to a variety of formats.

89. Here, 'PDF' is selected as the export format.

90. Save and Close Pro.

91. Locate your exported PDF and open the document.

FORT ROBINSON STATE PARK TRAILS

Legend:
- Nebraska State Trails
- Fort Robinson State Park

Nebraska Game & Parks Commission, South Dakota Game Fish and Parks, Esri Canada, Esri, HERE, Garmin, SafeGraph, MET/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

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