ArcMap - Changing or Transforming a Coordinate System for a Map Layer

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In order for multiple map layers to work properly together, they must all use the same Coordinate System. The following directions will walk you through the process of checking your Map Layers/Shapefiles to find out which Coordinate System they are using and how to change them if they are different.

Checking for a Coordinate System

1. Right click on the title of your Map Layer in the Table of Contents of ArcMap. Choose Properties at the bottom of the pop up menu.
2. Click on the Source tab.
3. In the Data Source section, there should be a label that says Geographic Coordinate System or Projected Coordinate System. This tells you which Coordinate System this map layer uses.
4. Check all of your other Map Layers to make sure that they are using the same Coordinate System. If not, use the directions below to change the Coordinate Systems to match one another.

Change a Coordinate System in a Map Layer

1. Open ArcToolbox
2. Open Data Management Tools   Projections and Transformations Feature Project. The Project dialog box will appear.
   a. Under Input Data Set or Feature Class, choose the Map Layer for which you want to change the Projection. It can be an entirely new Map Layer or Shapefile or one that is already being used in a Map Project.
   b. Under Output Data Set or Feature Class, check to make sure that the file is being saved in the same folder as the rest of your Map and Data Layers. If you have your data in a Geodatabase, you can save the newly projected Map Layer directly into the Geodatbase by browsing to its location. Rename the new Map Layer so that you will recognize it and be able to distinguish it from the Map Layer you are changing.
   c. Under Output Coordinate System, click on the Properties button (looks like a sheet of paper with a pointing finger hovering over it). The Spatial References Properties dialog box will appear. Click the Select button. The Browse for Coordinate System dialog box will appear.
3. Choose the Projected Coordinate System folder or the Geographic Coodinate System folder, depending upon the Coordinate Systems of your other files and how you want to match them.
   a. For assistance in chosing a Coordinate System, contact Dr. Catherine Riihimaki at x3349 or via email.
   b. Choose the correct Coordinate System from the available options and appropriate region. Once you've selected the desired Coordinate System, you'll be taken back out to the Spatial References Properties dialog box.
4. Click the Apply button to apply the chosen Coordinate System. Then click OK twice.

By changing the name of the Shapefile/Map Layer in the Projection process, you've created a new Map Layer/Shapefile with the desired Coordinate System. You will need to add this new Map Layer to your map and/or Geodatabase, and remove the old Map Layer that uses the incorrect Coordinate System.