How to Re-Project Shapefiles

Software used: ESRI ArcGIS 10.6

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To begin, open **ArcToolbox**, which can be found in the **Standard Toolbar** in the drop-down menu under **Geoprocessing**.

Expand **Data Management Tools** and **Projections and Transformations**, then click **Project**.
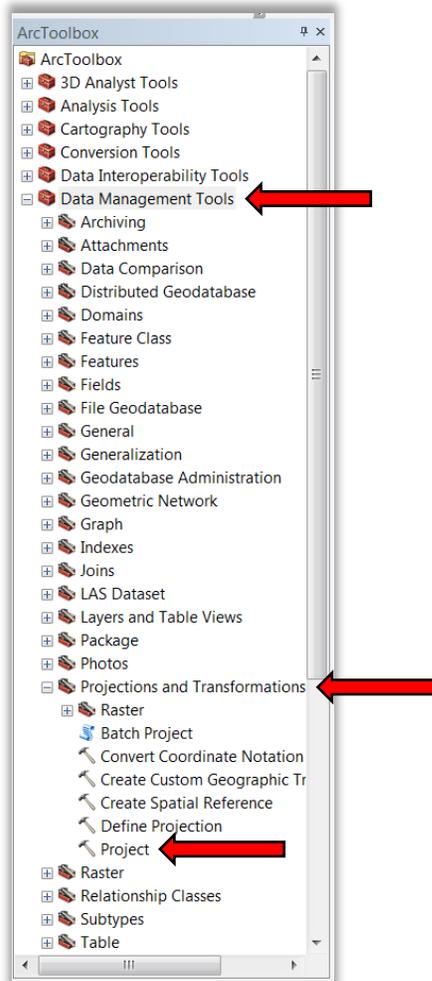
Figure 1. ArcToolbox Dialog Box

The following **Project** dialog box will open.
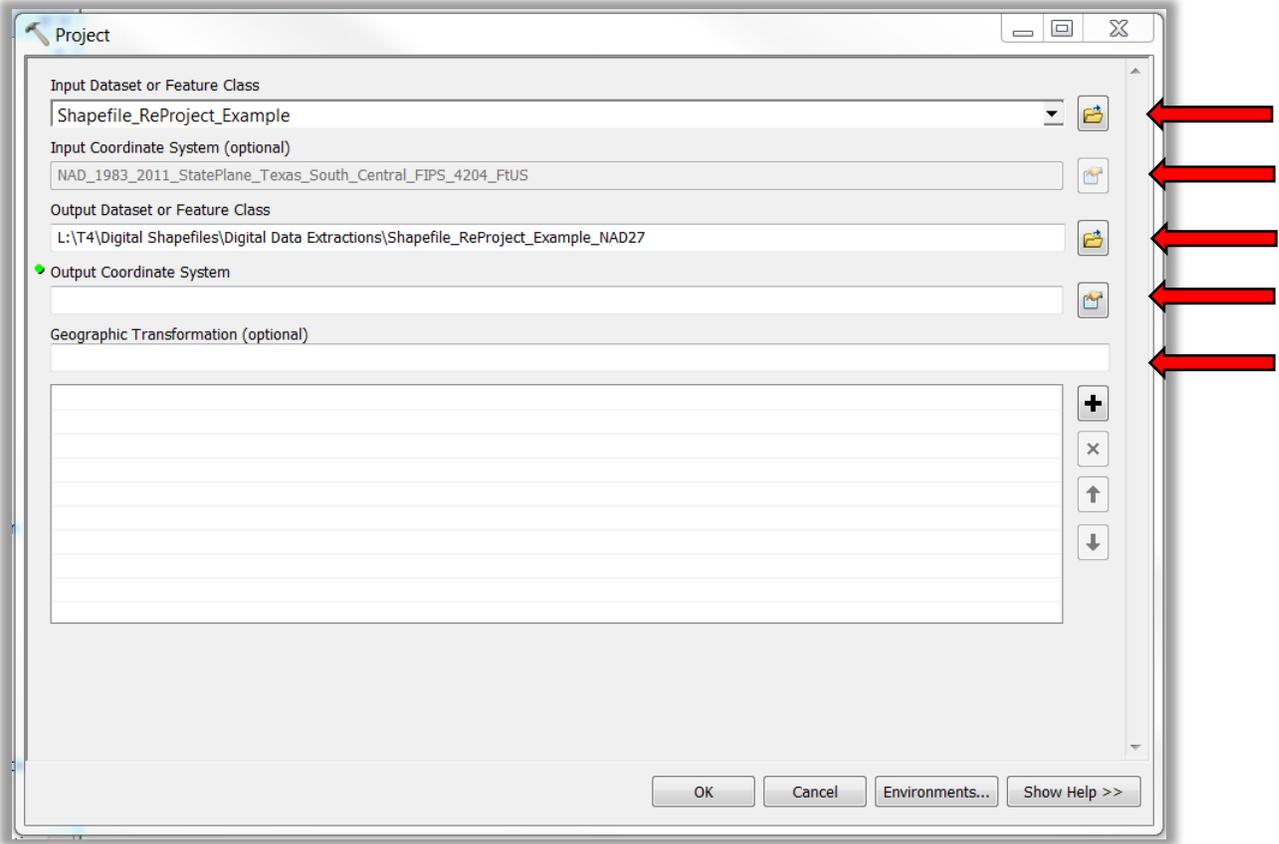
Figure 2. Project Dialog Box

This dialog box, shown in Figure 2, will contain the following fields in order.

Field	Description
Input Dataset or Feature Class	Your shapefile that you will need to re-project (such as with Shapefile_ReProject_Example).
Input Coordinate System (optional)	Your current map projection that was rejected due to wrong projection.
Output Dataset or Feature Class	Where you will save your new and re-projected shapefile. You can click on the **Folder** icon to navigate to your directory. You may rename your shapefile. Remember to use your permit number. (The name you see below is only an example.)
Output Coordinate System	Your new coordinate system to which the input data will be projected.
Geographic Transformation (optional)	A method that can be used for converting data between two geographic coordinate systems or datums. (We won't use this in this guide.)

Table 1. Project Dialog Box Field Descriptions

When you click the **Output Coordinate System Icon**, the **Spatial Reference Properties** dialog box opens.

Figure 3. Output Coordinate System Icon

The **Spatial Reference Properties** dialog box allows you to change the coordinate system.
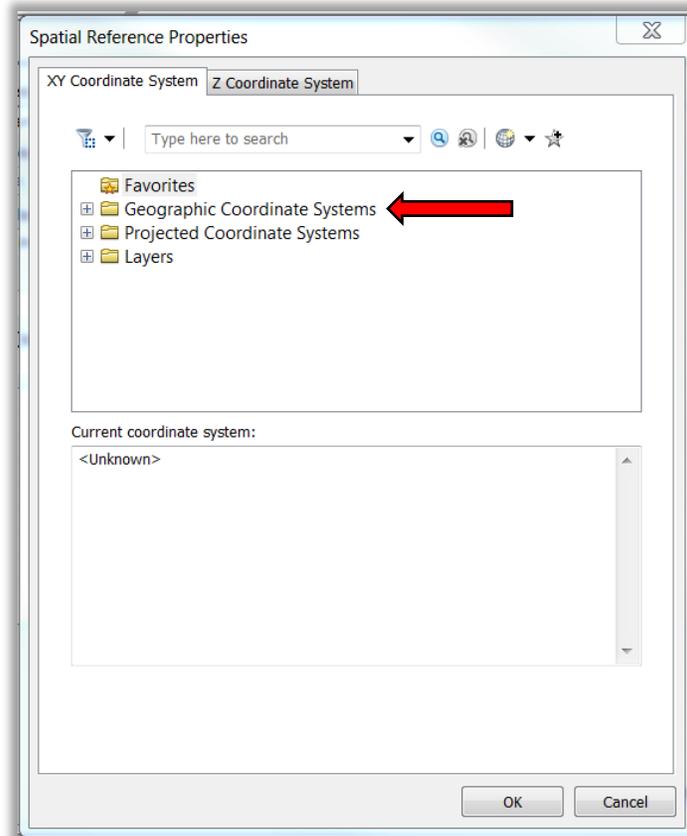
Figure 4. Spatial Reference Properties Dialog Box

In this dialog box, you will first expand the **Geographic Coordinate System Folder**.

Next, expand the **North America Folder**. Scroll down until you see the **USA and Territories Folder** and expand that.

When you scroll within the **USA and Territories Folder**, you will find either the **NAD 1927** or **NAD 1983** coordinate systems. Select **NAD 1927**. (If it's not available for you, **NAD 1983** will work.) Click the **OK** button.
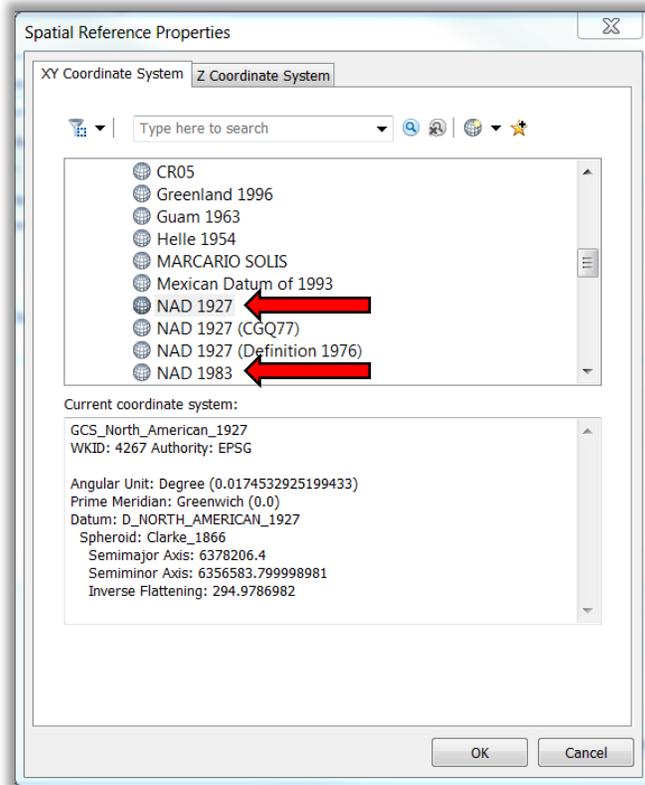
Figure 5. Choosing a Coordinate System

After clicking the **OK** button, it will take you back to the **Project** dialog box, and you should see what **Output Coordinate System** is selected. You can ignore what appears in the open space at the bottom of the dialog box. Whatever appears here came from the **Input Coordinate System (Optional)** selection.

Click the **OK** button.
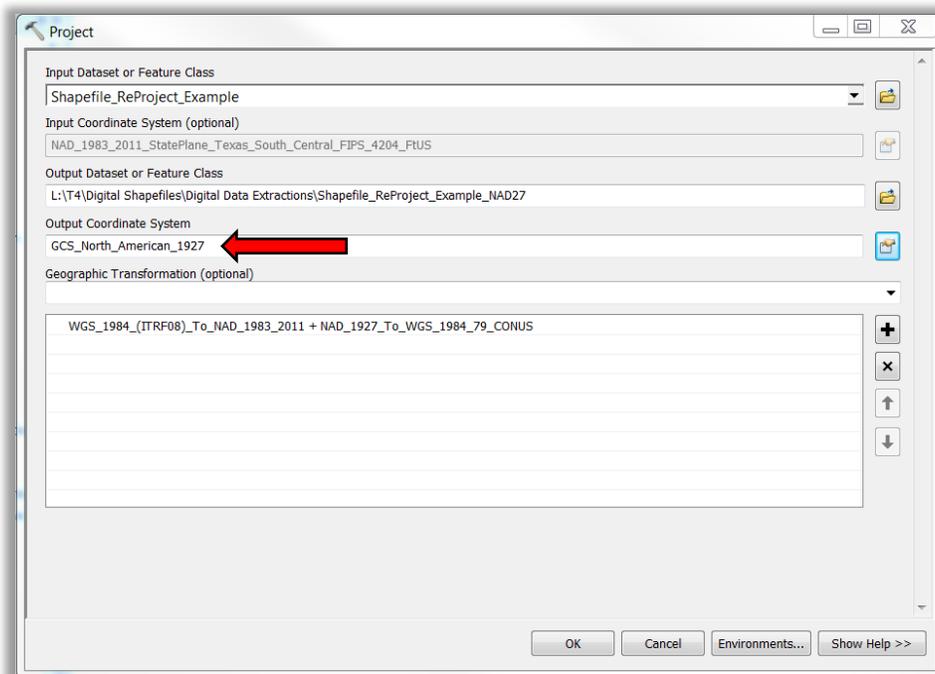
Figure 6. Updated Project Dialog Box

After you click the **OK** button, you can find the shapefile you just re-projected by navigating to your directory, selecting your layer, and checking its `Layer Properties`. After selecting either **NAD 1927** or **NAD 1983**, the `Source Tab` should display the updated coordinate system.
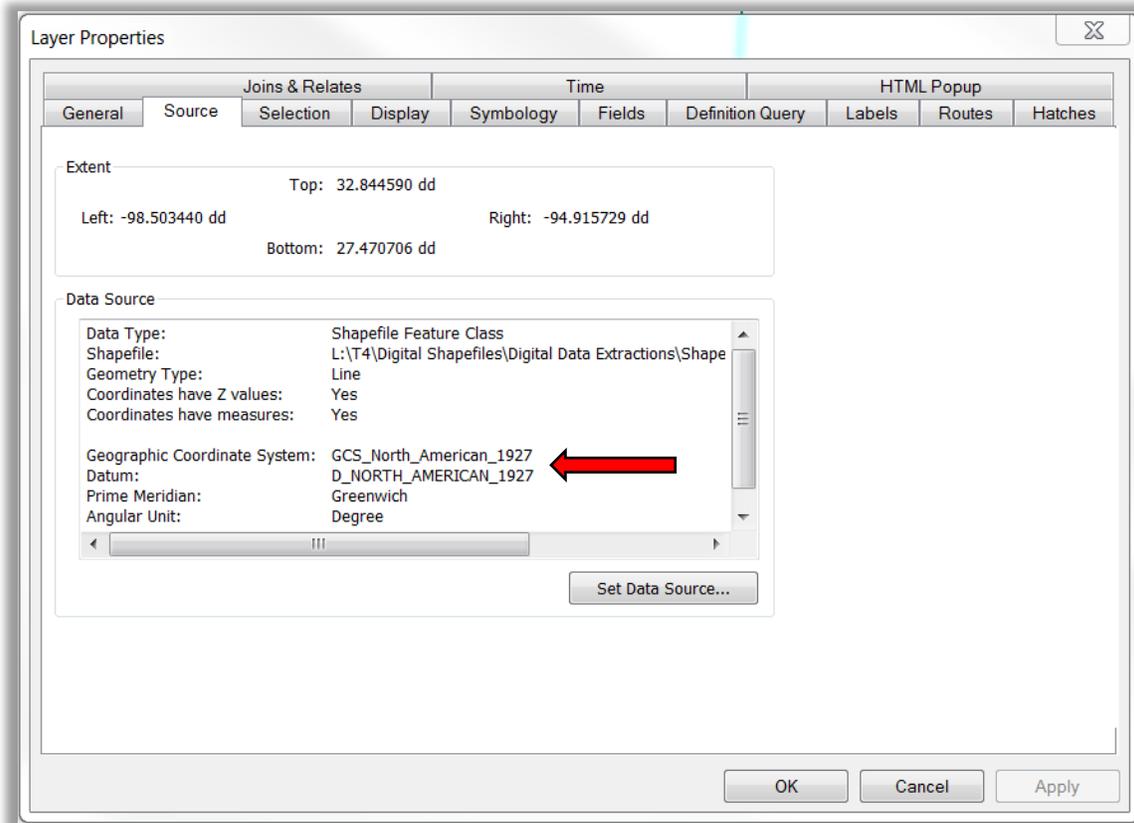
Figure 7. Source Tab of the Layer Properties Dialog Box