How to Re-Project Shapefiles

Software used: ESRI ArcGIS 10.6 Revised: December 1, 2020

To begin, open **ArcToolbox**, which can be found in the **Standard Toolbar** in the dropdown 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.

V Project	
Input Dataset or Feature Class	^
Shapefile_ReProject_Example	
Input Coordinate System (optional)	
NAD_1983_2011_StatePlane_Texas_South_Central_FIPS_4204_FtUS	
Output Dataset or Feature Class	
L:\T4\Digital Shapefiles\Digital Data Extractions\Shapefile_ReProject_Example_NAD27	
Output Coordinate System	
Geographic Transformation (ontional)	
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OK Cancel Environme	nts Show Help >>

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.



The **Spatial Reference Properties** dialog box allows you to change the coordinate

system.

Spatial Reference Properties	X
XY Coordinate System Z Coordinate System	
🚡 🔻 Type here to search 🔹 🍳 🔬 🎯 💌 😤	
 Favorites Geographic Coordinate Systems Projected Coordinate Systems Layers 	
Current coordinate system:	
<unknown></unknown>	•
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ОК	Cancel

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.

Spatial Reference Properties	X
XY Coordinate System Z Coordinate System	
Type here to search	
 CR05 Greenland 1996 Guam 1963 Helle 1954 MARCARIO SOLIS Mexican Datum of 1993 NAD 1927 NAD 1927 (GQ77) NAD 1927 (GQ77) 	▲ III
	Ŧ
GCS_North_American_1927 WKID: 4267 Authority: EPSG Angular Unit: Degree (0.0174532925199433) Prime Meridian: Greenwich (0.0)	
Datum: D_NORTH_AMERICAN_1927 Spheroid: Clarke_1866 Semimajor Axis: 6378206.4 Semiminor Axis: 6356583.799998981 Inverse Flattening: 294.9786982	÷
ОК	Cancel

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.

Project	
Input Dataset or Feature Class	^
Shapefile_ReProject_Example	- ≧
Input Coordinate System (optional)	
NAD_1983_2011_StatePlane_Texas_South_Central_FIPS_4204_FtUS	<u> </u>
Output Dataset or Feature Class	
L:\T4\Digital Shapefiles\Digital Data Extractions\Shapefile_ReProject_Example_NAD27	2
Output Coordinate System	
GCS_North_American_1927	
Geographic Transformation (optional)	
	•
WGS_1984_(ITRF08)_To_NAD_1983_2011 + NAD_1927_To_WGS_1984_79_CONUS	+
	×
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OK Cancel Environments	Show Help >>

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.

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General	Source	Selection	Display	Symbology	Fields	Definition Query	Labels	Routes	Hatches
Extent									
Extent		Top: 3	2.844590 dd						
Left: -98	3.503440 dd			Right: -94.9	915729 dd				
		Bottom: 2	7.470706 dd	, C					
Data Sour	ce								
Data Ty	pe:	S	napefile Featu	re Class					
Shapefi	le:	L	\T4\Digital Sh	apefiles\Digital Da	ta Extraction	s\Shape			
Geomet	ry Type:	Li	ne						
Coordin	ates nave Z v	alues: Ye	es						
Coordin	ates nave me	asures: Ye	es			=			
Geogra	phic Coordinat	te System: G	CS North Am	erican 1927					
Datum:		D	NORTH AME	RICAN 1927					
Prime N	1eridian:	G	reenwich						
Angular	Unit:	D	egree			-			
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					Set Data	Source			

Figure 7. Source Tab of the Layer Properties Dialog Box