**Postal Data Geoprocessing Script Tool**

**Instructions**

**June 2018**

**Revision 1**

**Python Script Purpose:**

This script is designed to process monthly USPS Postal Carrier Route (PCR)“raw data” text files to produce geographic centroids and polygons at both the carrier route and ZIP Code levels. The centroids and polygons will be separated into individual state boundaries with unique names for proper state identification.

A user-specified personal geodatabase will be created to hold the spatial data and the ZIP Code and carrier route data will be segregated into appropriately labeled feature datasets.

These Feature Datasets Include:

**PCR\_Centroids:** This feature dataset holds the individual state carrier route centroids

**PCR\_Polygons:** This feature dataset holds the individual state carrier route polygons

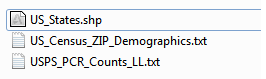
**ZIP\_Centroids:** This feature dataset holds the individual state ZIP Code centroids

**ZIP\_Polygons:** This feature dataset holds the individual state ZIP Code Polygons

**US\_States:** This feature dataset holds individual US state boundaries provided for user convenience and general reference.

**Raw Data Use in Python Script:**

**Files Used in Script to Produce USPS Postal Centroids and Polygons**

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The ***US\_States.shp*** US Census Bureaushapefile used for clipping operations and general reference.

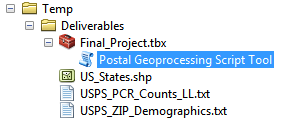
The ***US\_Census\_ZIP\_Demographics*** text file contains 70 demographic variables such as Median Household Income. This will be joined to the ZIP Code polygons and centroids.

The ***USPS\_PCR\_Counts\_LL*** text file is a list of every USPS Carrier Route in the United States. At present, that is 41,264 carrier routes. The file has latitude and longitude fields that will be used to create a XY Event Layer. This layer will be the basis of all subsequent geoprocessing operations once it has been created in the Personal Geodatabase (PGDB). In addition to latitude and longitude, the file also contains the total number of Single Family Dwelling Units (SFDU), Multi-Family Dwelling Units (MFDU), and Businesses in each carrier route.

**Script Tool Instructions:**

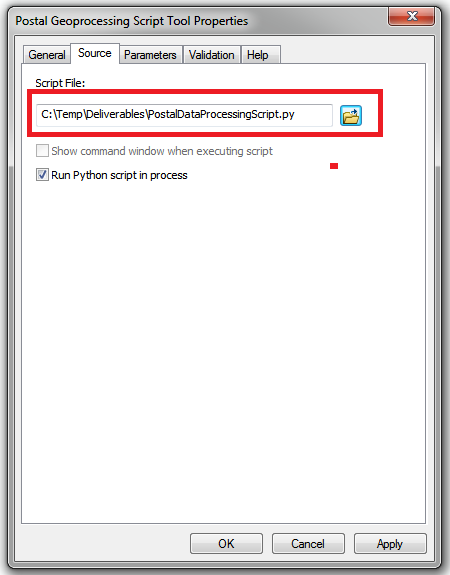
**Step 1.**

In ArcMap or ArcCatalog, browse to the location where the script tool was downloaded and extracted to. Expand the Final Project.tbx Toolbox to expose the Postal Geoprocessing Script Tool.

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**Step 2.**

Right Click on the Postal Geoprocessing Script Tool to open the script tool properties dialog Box and click on the Source Tab.

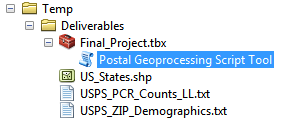
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**Step 3.**

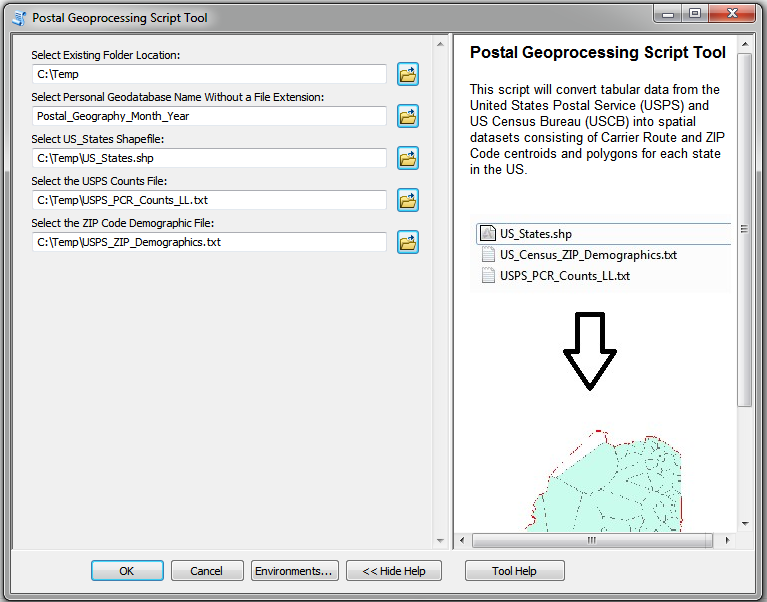
Browse for and select the Python Postal Geoprocessing Script **PostalDataProcessingScript.py** that was provided with the Final Project.tbx toolbox to load it into the script tool. This file exists in the same location where the toolbox was extracted to. Select “Apply” and the select “OK” to close the dialog box.

**Step 4.**

In the Final\_Project Toolbox, double click the Postal Geoprocessing Script Tool to launch the script’s input dialog box.

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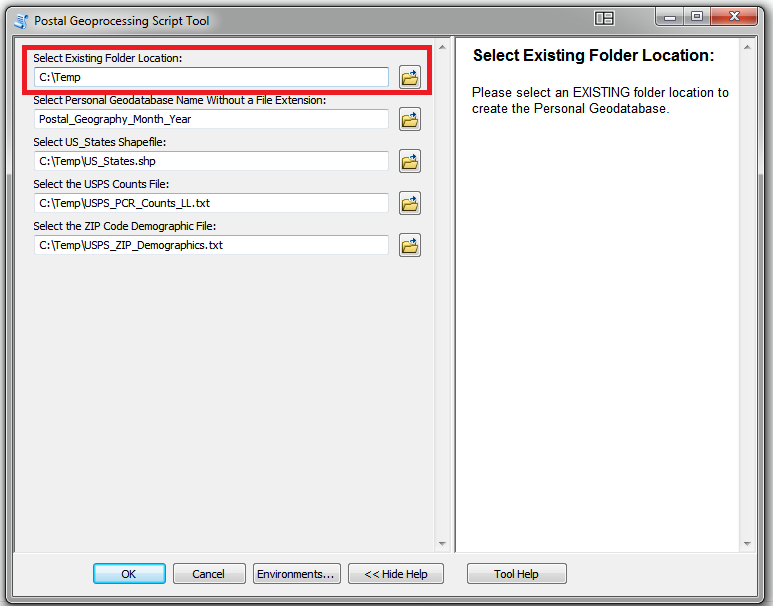
**Script Tool Input Dialog Box**



**Step 5.**

Select an EXISTING file system directory. The script tool does not create a new folder location to create the Personal Geodatabase in.

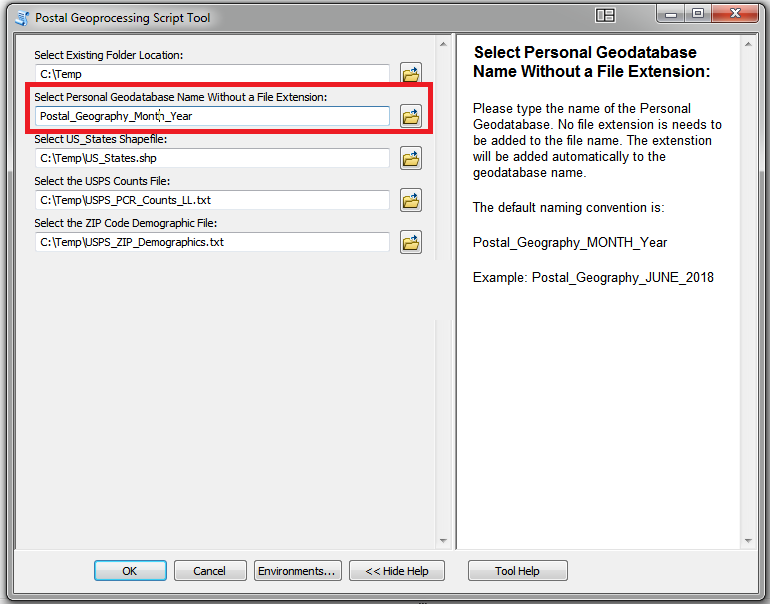
**Select Existing Folder Location**

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**Step 6.**

Specify a name for the Personal Geodatabase. The recommended naming convention is Postal\_Geography\_Month\_Year i.e. (Postal\_Geography\_JUNE\_2018) no spaces, use underscores. It is only necessary to provide the geodatabase name. The .mdb file extension is not necessary. The script will add the proper extension.

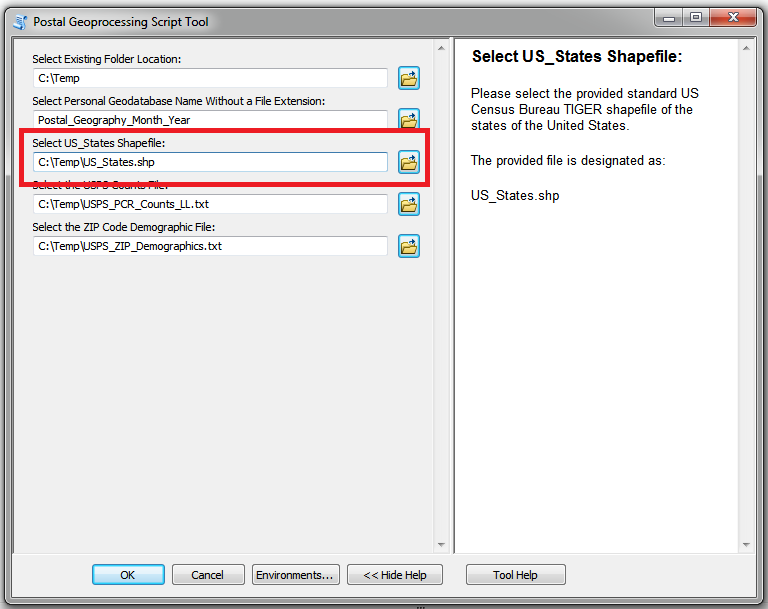
**Select Name for Personal Geodatabase**



**Step 7.**

Select the US\_States shapefile file that was provided with the script tool. This file exists in the same location where the toolbox and Python script were extracted to. This is input data that will be used for clipping operations and general reference. This file is designated as “US\_States.shp”. This file is the standard United States Census Bureau shapefile.

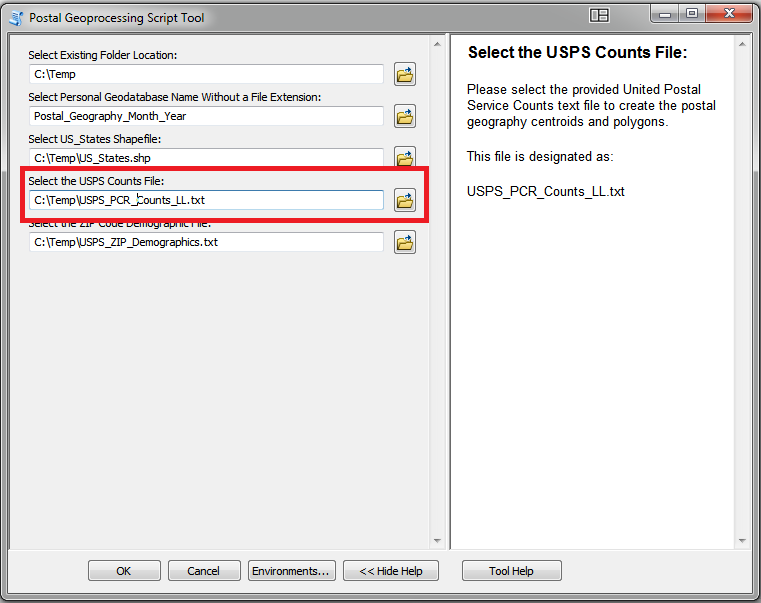
**Select US Census Bureau US\_States.shp Input Shapefile**

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**Step 8.**

Select the USPS Counts text file that was provided with the script tool. This file contains that latitude and longitude coordinates for all the postal carrier routes for the United States. For the sake of expediency, only the states of Maine, Vermont and New Hampshire are being provided with this final project script. This input file is designated as **“USPS\_PCR\_Counts\_LL.txt”**

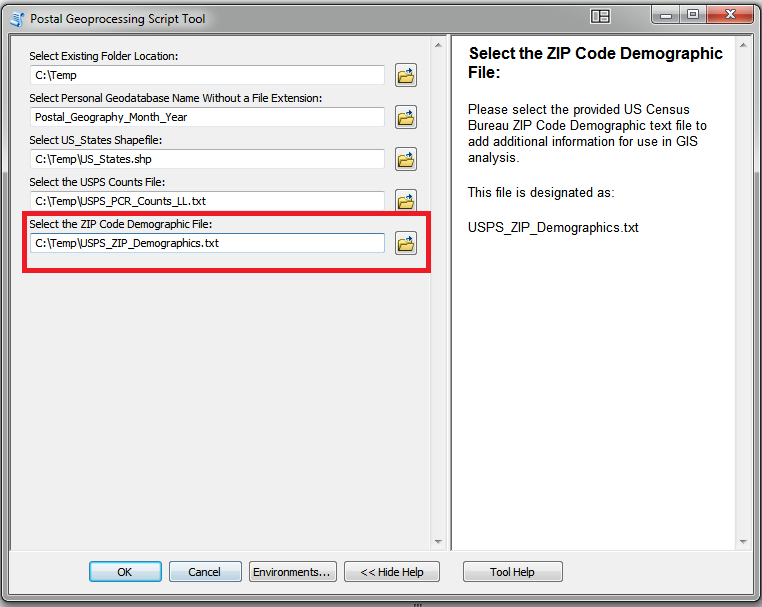
**Select USPS Carrier Routes “Counts” Input Text File**

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**Step 9.**

Select the US Census Bureau ZIP Code Demographic text file that was provided with the script tool. This file contains 70 demographic variables that will be appended to the ZIP Code centroid and polygon spatial data. This will add additional information for GIS analysis. This input file is designated as **“USPS\_ZIP\_Demographics.txt**”

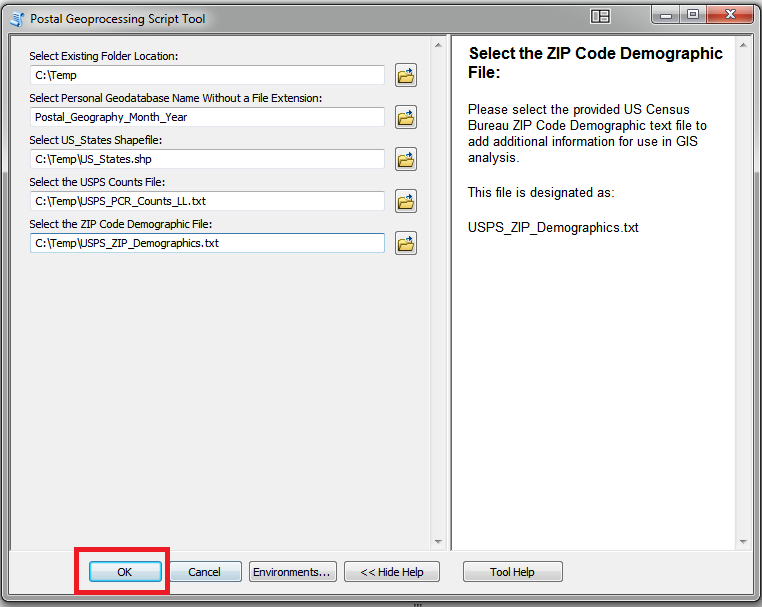
**Select US Census “Demographics” Input Text File**



**Step 10.**

Once the directory location, personal geodatabase name and input files have been specified, click “OK” to run the script tool.

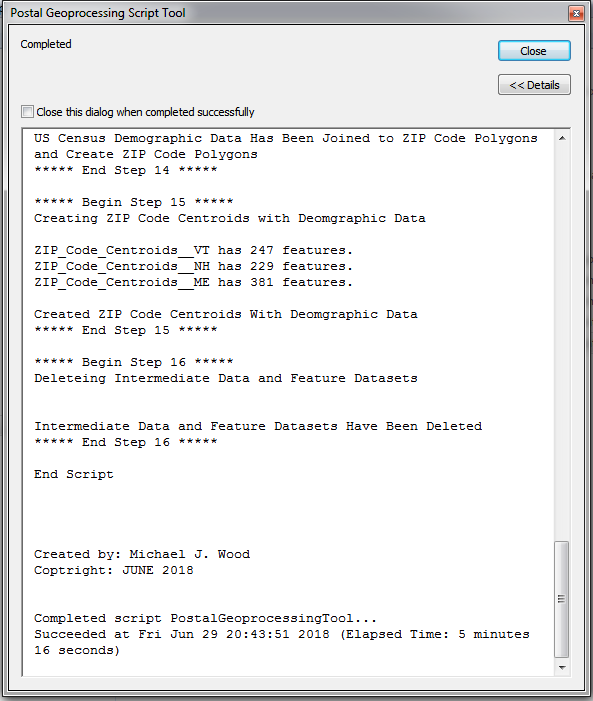
**Run the Script Tool**

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Due to the abridged dataset provided with the script tool, the processing operations should complete in under 5 minutes.

When the script is finished a dialog displaying the results will be displayed

**Script Completed Dialog Box**



Click Close to exit the script and inspect the resultant data organized in the personal geodatabase that was previously specified.

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