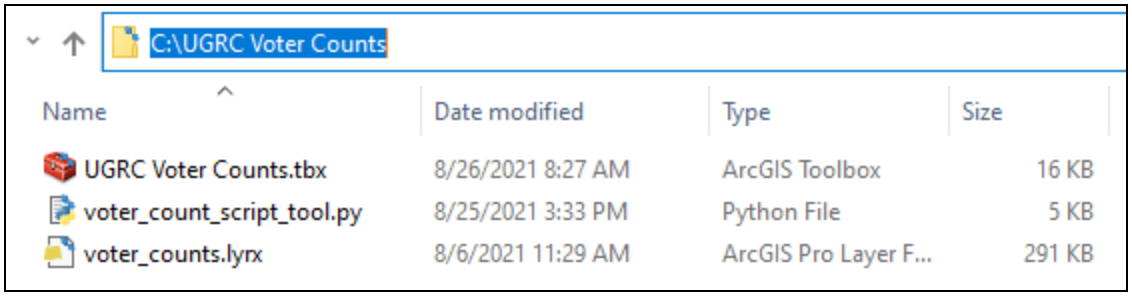
UGRC Voter Count Tool User Guide
(Reprecinting tool)

Overview

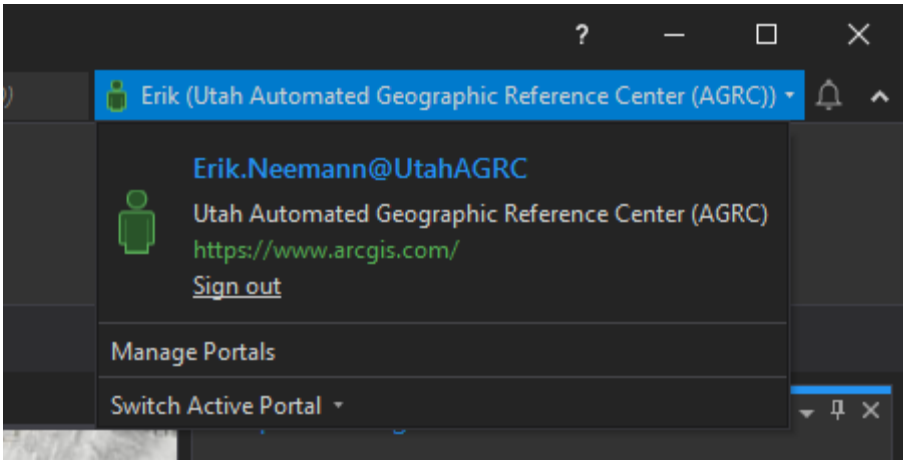
- UGRC has created a Python Script Tool in an ArcGIS Pro Toolbox to help counties with the process of redrawing voting precincts
- The tool allows users to provide a polygon layer and count the number of actively registered voters within each polygon. The primary use case for the tool is to help counties adjust precinct boundaries to optimize the number of voters within their precincts for managing elections. The voter points layer sits in ArcGIS Online (AGOL) and has access restrictions, so only specific AGOL users or groups that have been granted permission, can access it. This means that the user must be logged into AGOL from ArcGIS Pro in order for the tool to work correctly and grant access to the voter points layer.
- The following user guide demonstrates how to setup the tool in ArcGIS Pro and run it within the application
- A few notes up front:
    - The tool operates on file geodatabases and feature classes. The input polygon layer needs to be a feature class within a file geodatabase.
    - The tool modifies the input feature class by adding two fields or overwriting those two fields if they already exist (i.e., if the tool is run several times in a row).
    - The tool saves an 'intermediate' feature class, which allows the user to have a history with several versions of output for each time the tool is run.
- Questions or issues can be directed to Erik Neemann at eneemann@utah.gov.

Setup the Tool (the hard part) - First, we need to download the toolbox and add it to ArcGIS Pro

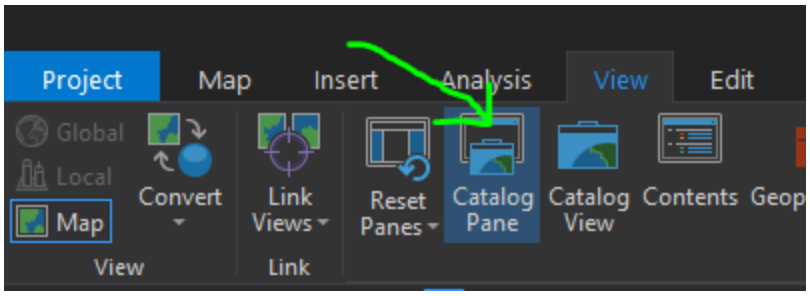
- Download a zipped file with the Toolbox here:
- Unzip the zipped file and place the 'UGRC Voter Counts' folder **directly in your 'C:\' Drive**
    - When you open that folder, it's path should be: '**C:\UGRC Voter Counts**'
    - The contents of the folder will look like this:



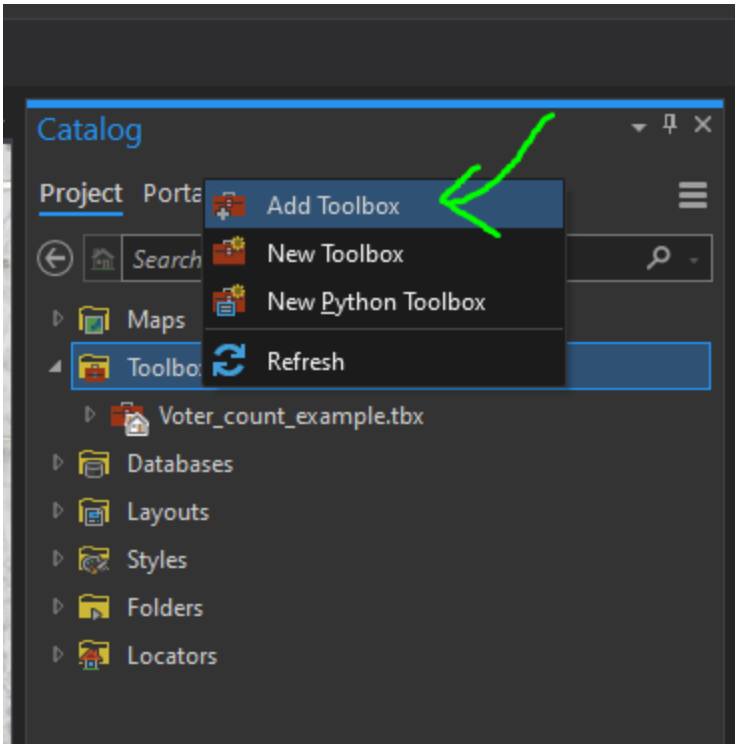
    - **NOTE: placing the 'UGRC Voter Counts' folder directly in your 'C:\' Drive is critical for the toolbox to work correctly, ensuring that the script is in a known location.**
- Open ArcGIS Pro
- If not already logged in, log into your ArcGIS Online (AGOL) account from ArcGIS Pro



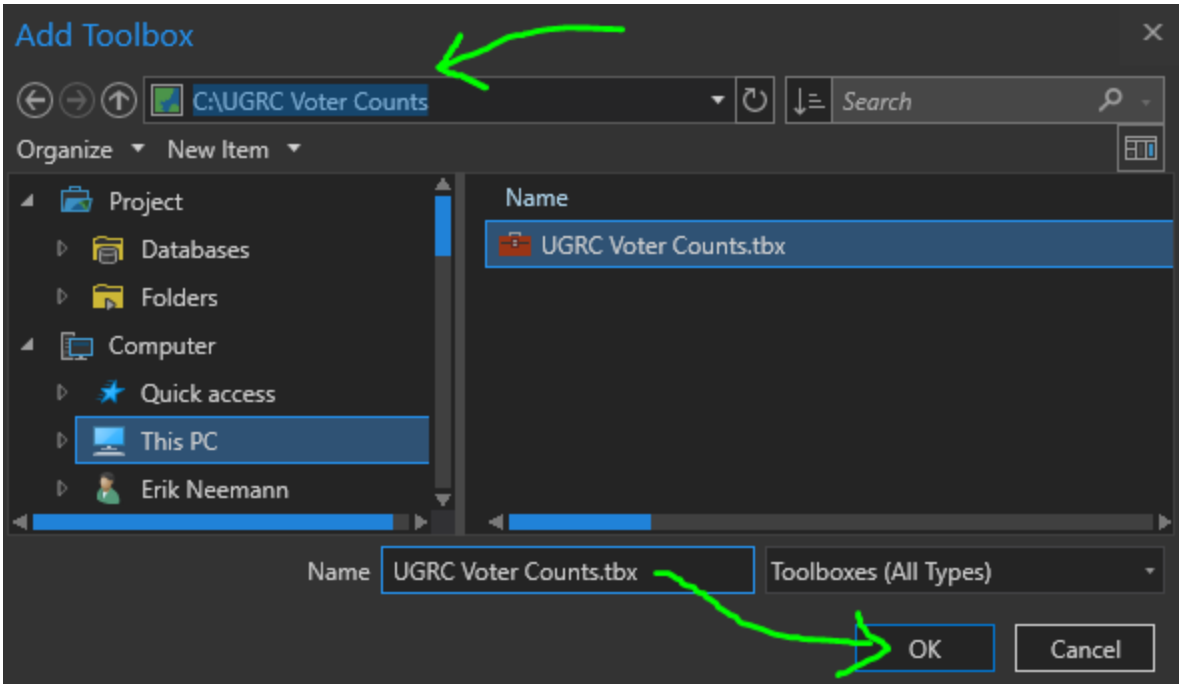
- Add the Toolbox to ArcGIS Pro
    - Open the 'Catalog Pane' from the 'View' tab on the ArcGIS Pro ribbon



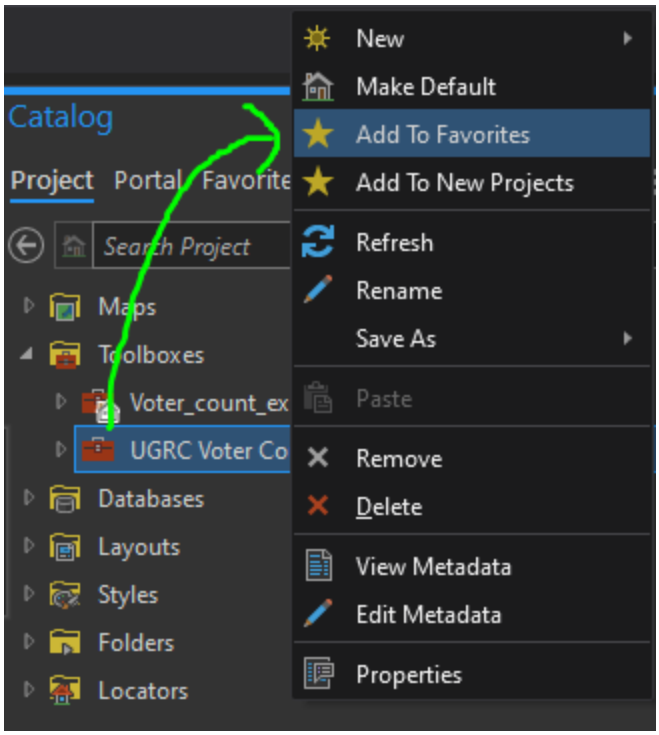
    - Click on the 'Project' tab
    - Right-click on 'Toolboxes' and click 'Add Toolbox'



- Navigate to your 'C:/UGRC Voter Counts' folder and select the 'UGRC Voter Counts.tbx'
  - Click 'OK'

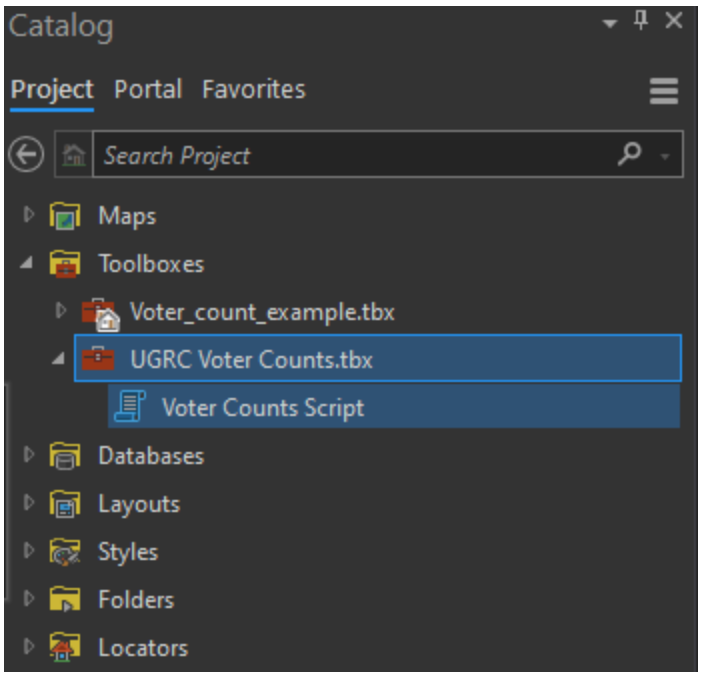


- The toolbox is now part of your ArcGIS Pro Project. To make it available in all of your projects, you can right-click on the toolbox and select 'Add to Favorites'.

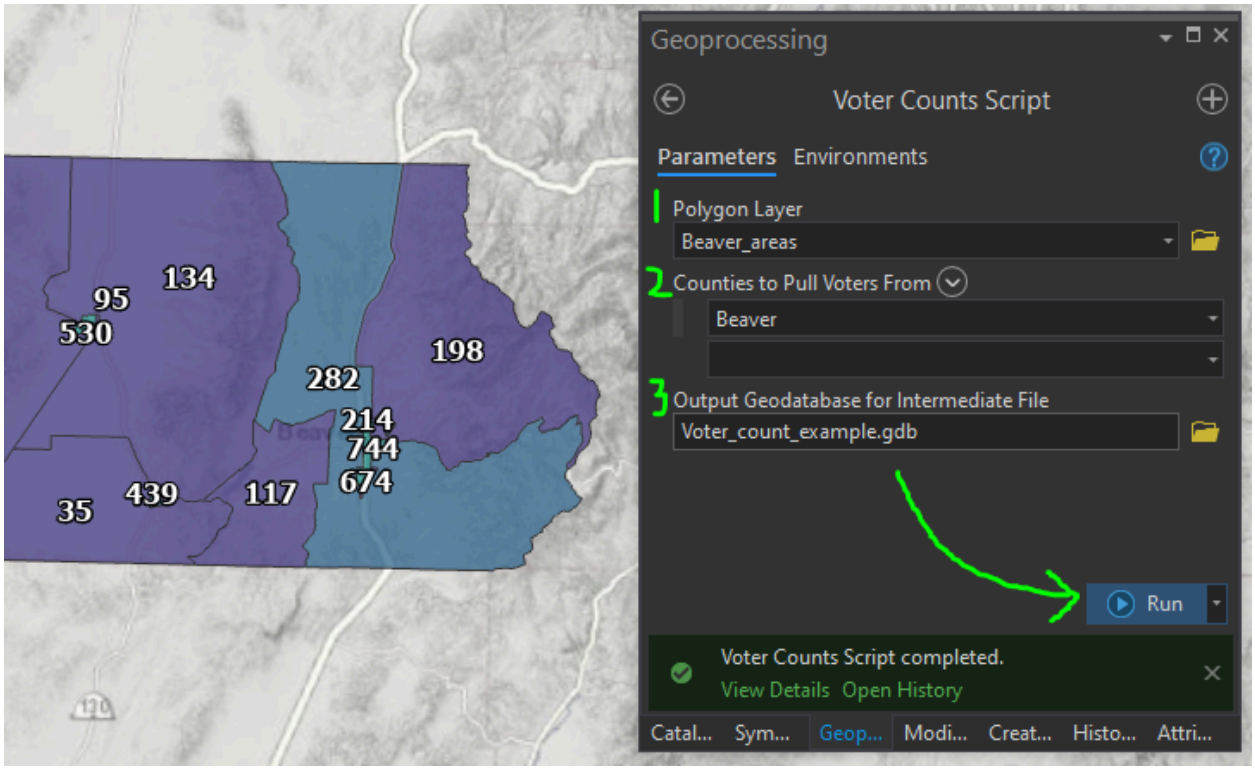


Run the Tool (the easy part) - Now that the toolbox is installed, you can run it in ArcGIS Pro

- Open the tool from the "Catalog" tab
    - Navigate to Project > Toolboxes > 'UGRC Voter Counts.tbx' > Voter Counts Script
    - Or navigate from Favorites > 'UGRC Voter Counts.tbx' > Voter Counts Script



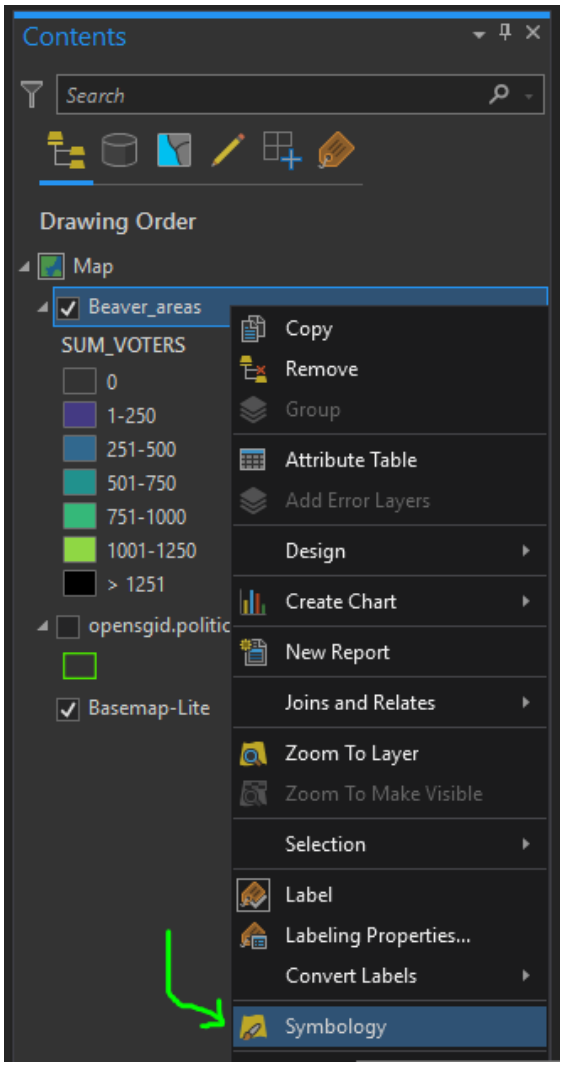
- Double-click on 'Voter Counts Script' to open the script tool
- The tool's Graphical User Interface (GUI) requires 3 inputs
    - 1) Select 'Polygon Layer' - user selects their layer of precinct boundaries
    - 2) Select 'Counties to Pull Voters From' - user selects one or more counties
        - To optimize performance, it is recommended that only one county is selected at a time.
    - 3) Provide 'Output Geodatabase for Intermediate File' - user selects a geodatabase for the output feature class created by the "Summarize Within" tool
- Click the 'Run' button

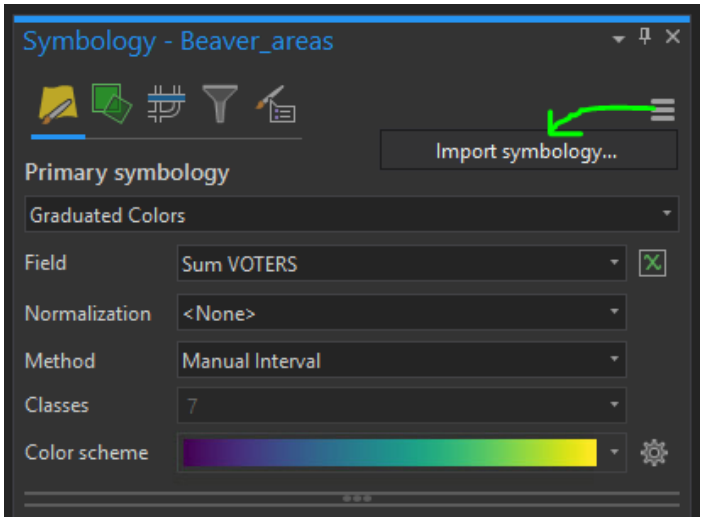


- The tool will complete within a few minutes and the following fields will be added to the input feature class (Polygon Layer)
    - 1) sum_voters - the number of actively registered voters in the polygon
    - 2) Point_Count - the number of voter address points in the polygon
    - These fields typically have different numbers because each voter address point may have 0, 1, 2, or more actively registered voters. The 'sum_voters' field is most important.
- App can also be accessed via the following URL, if you're logged into your AGOL account:

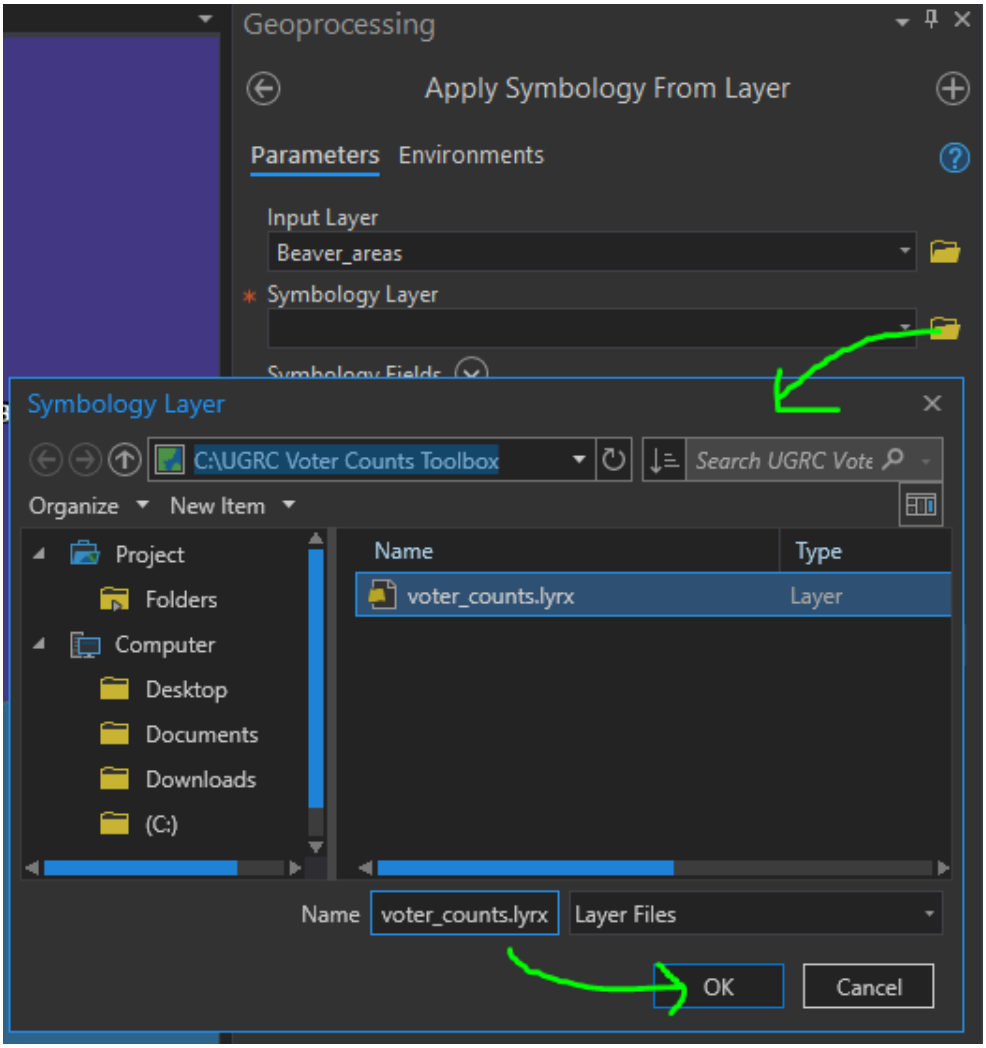
Optional Layer File to Apply Symbology

- A layer file named 'voter_counts.lyrx' is also provided in the 'UGRC Voter Counts' folder and can be used to symbolize your polygon feature class **after the script tool has been run once**:
    - Right-click on your polygon layer in the 'Contents' pane and select 'Symbology'
    - On the 'Symbology' pane click the hamburger menu in the top-right corner and select 'Import symbology…'





- The click the folder icon next to 'Symbology Layer' and browse to your 'C:/UGRC Voter Counts' folder and select the 'voter_counts.lyrx' file



    - Click 'OK', then click the 'Run' button
    - The layer file will apply symbology and labels to your polygon layer, which can be further adjusted using the 'Symbology' pane
- If the 'Voter Counts Script' tool is run multiple times on this polygon layer, the symbology and labels will automatically update after each time the tool completes.

Additional Notes and Tips

- It will take a few minutes for the tool to run on most counties. For Salt Lake county (~1 million addresses), it may take 5-20 minutes depending on the speed of your internet connection. Most counties will run faster, especially those with smaller populations. Keep in mind that it's grabbing the county address points from an AGOL layer, downloading them, and then running geoprocessing tools.
- Typically, the tool will be used in an iterative workflow. You'll make some edits to your polygons, run the tool to get voter counts, make more edits to further tune the polygons, run the tool again, etc.

    - To maximize efficiency, we recommend making all of your edits to many polygons before running the tool. Don't edit one polygon, run the tool, then edit another polygon, run the tool again, edit another polygon, etc. Instead, edit all of the polygons you think need adjusted, then run the tool once and assess the results, and edit all of the polygons again.
- This tool modifies the input polygon layer. However, ArcGIS Pro's out-of-the-box 'Summarize Within' tool is being run by the script behind the scenes, and it's output is saved in the geodatabase that you select in the GUI. That means a snapshot of the results is saved every time that you run the tool, allowing you to look back at several versions of results, if desired. The feature class naming convention for the 'intermediate' file that is saved each run is: 'voter_counts_output_YYYMMDD_hhmmss'