University of Virginia – Open Space Preservation GIS Tool Instructions

1. Understand the Community Rating System (CRS), its Open Space Preservation (OSP) Activity, and the purpose of the GIS tool:

If you are unfamiliar with any of these items, please refer to the Supplemental Resources document provided in the GitHub repository. Links to a variety of resources are provided to help you understand the purpose and scope of this project.

Note: If at any time you are experiencing trouble, or have questions about the project, please reach out to the developers. We are happy to help.

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2. Collect input data.

The tool is designed to accept nationally available GIS datasets, with the option to provide supplemental local data. At this time, we encourage communities to use only local tax parcels represented as polygons. If you would like to replace any other dataset with your own, please contact the developers.

Required datasets are as follows. For detailed download instructions, refer to NOAA's "How-To" guide for mapping OSP. It is highly recommended to download datasets directly onto your machine (as opposed to external drives or cloud storage), as this will significantly decrease processing time. You will want to remember the stored locations of your input datasets for later.

- FEMA's list of CIDs
  The community identification number, also known as the CID, corresponds to the jurisdictional boundaries of each community, as outlined in FEMA's National Flood Hazard Layer (NFHL). You need to enter the CID(s) of the specific community or communities you wish to run the tool for.

- FEMA's NFHL
  The next 2 inputs must be downloaded from FEMA, and are contained within the "The National Flood Hazard Layer" (files named S_POL_AR.shp and S_FLD_HAZ_AR.shp)

- The National Hydrography Dataset
  The next 2 datasets come from USGS's National Hydrography Dataset (NHD): NHD Areas and NHD Waterbodies. These are in a geodatabase downloaded from NHD.

- National Land Cover Database
  The tool requires land cover data from the National Land Cover Database (NLCD). This should be downloaded as a .tif file containing raster data. The tool require two NLCD rasters, one of land cover types and one of percent impervious area.

- Protected Areas Database of the United States
  Data may be downloaded from USGS's Protected Areas Database of the US (PAD-US), which is nationally available

If Virginia is your chosen state, you will need to download the following datasets:

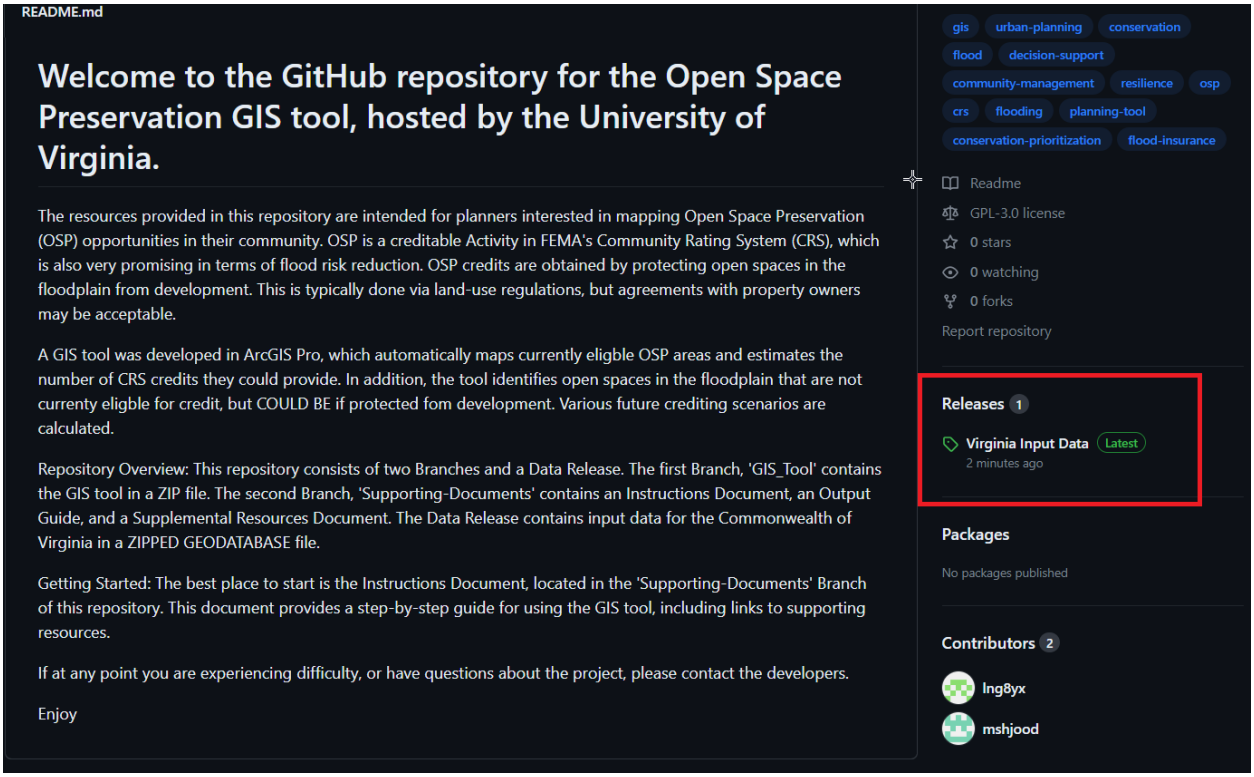
- Virginia Department of conservation and Recreation (Conslands)
- Virginia Department of conservation and Recreation (Easements)

Note: If you are in Virginia, we have prepared the data for you and provided it as a 'Release' in the GitHub repository. See the screen-capture below. This is a large ZIP file containing a geodatabase; please be patient when downloading and unzipping.

It is important to note that the datasets mentioned above undergo constant updates. Therefore, it is possible to encounter slight variations between the results obtained from your downloaded datasets and those provided in the GitHub repository. Refer to the table below for the most recent version dates.

Version Dates Presented on GitHub

Dataset	Version Date
FEMA's NFHL	05/05/2023
The National Hydrography Dataset	05/08/2023
Protected Areas Database of the United States	January 2022
DCR (Conslands & Easements)	03/27/2023



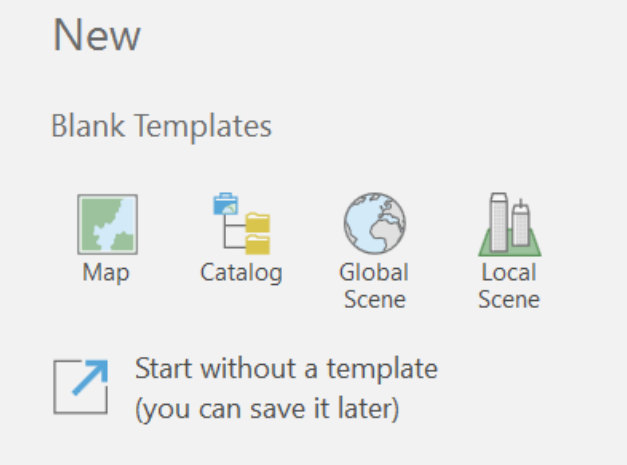
Screen-capture of the CRS GitHub repository. Virginia input data are provided as a Data Release (outlined in red)

3. Set up the GIS tool

The GIS tool is comprised of two files, which are provided in the GitHub repository as a ZIP file. Download and extract them to the same folder. The two files are:

1. CRS_Toolbox.tbx
2. OSP_Script.py

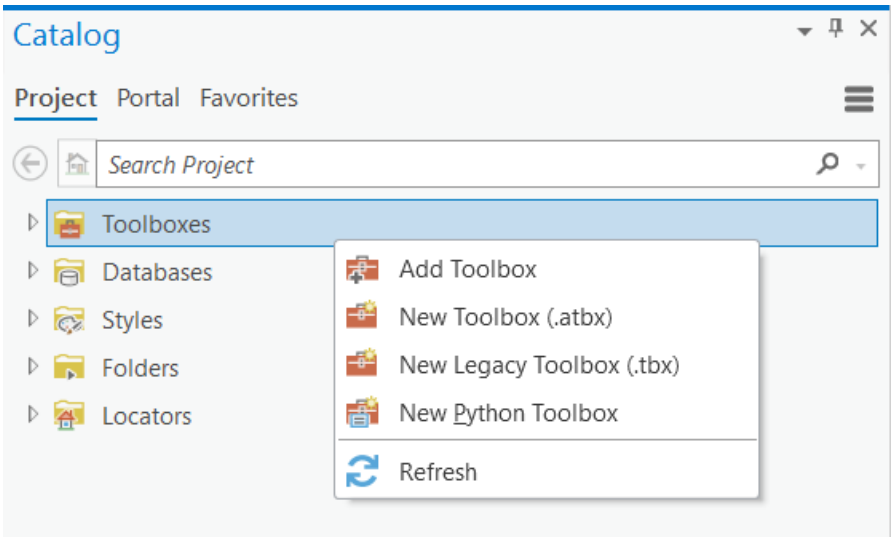
Start ArcGIS Pro and open a new map. Similar to the input data, we recommend saving this new project to your local storage. Note the location of the new project in your storage.



Screen-capture of ArcGIS Pro startup screen. Open a new project by clicking ‘Map’

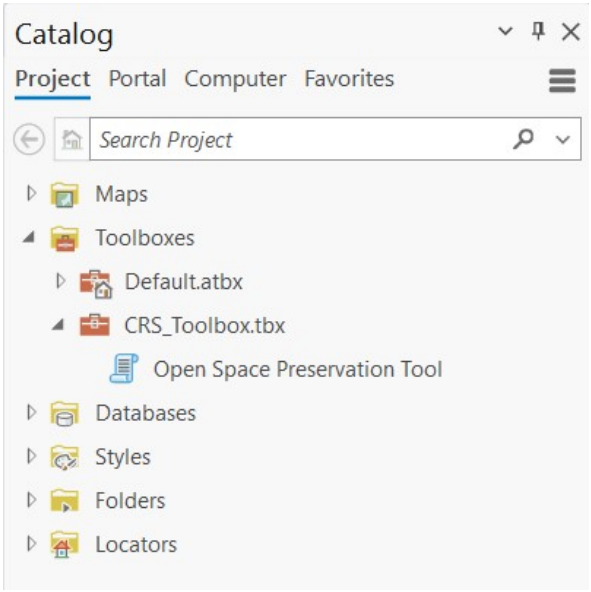
Make sure the Catalog Pane is visible. If it does not open automatically, click the ‘View’ tab at the top of the screen, and click ‘Catalog Pane’.

In the Catalog Pane, right click on ‘Toolboxes’ and click ‘Add Toolbox’. Navigate to the CRS_Toolbox.tbx file and add it.



Screen-capture of the ArcGIS Pro Catalog Pane. Click ‘Add Toolbox’ to add the GIS Tool to your project.

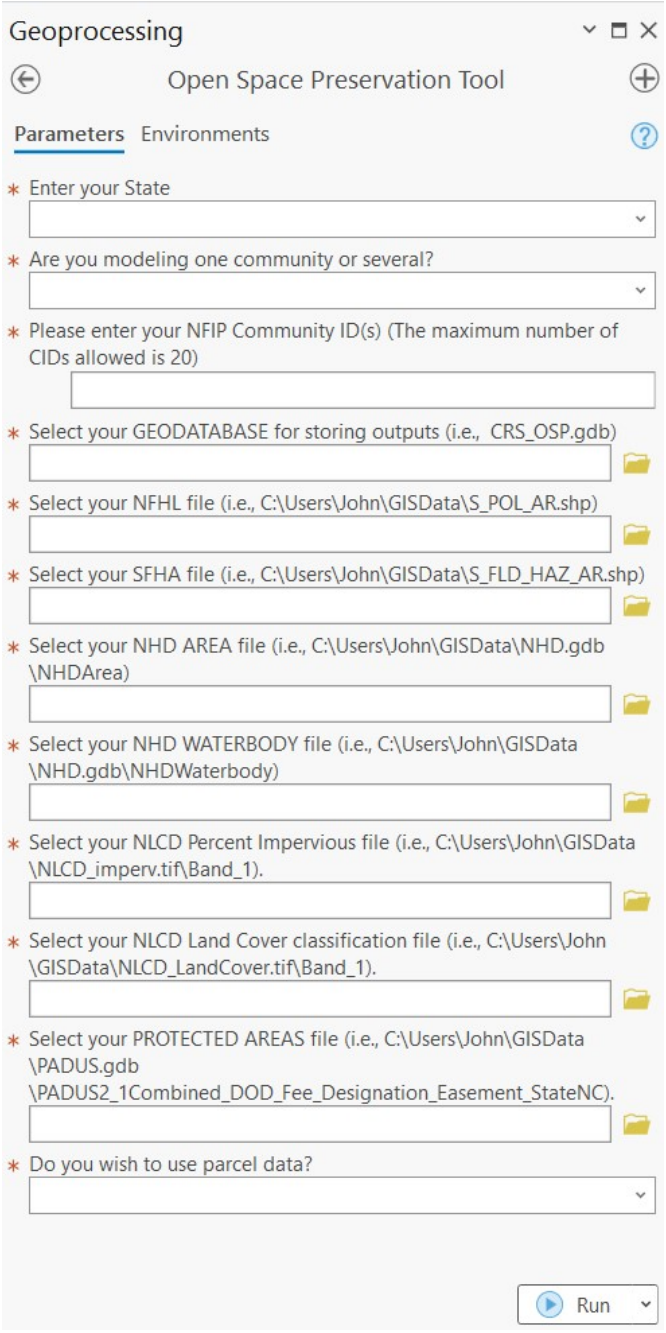
Double click on the newly added Toolbox and double click on the OSP Tool icon to open the GIS tool.



Double-click on the Open Space Preservation Tool icon to open the GIS tool

4. Select input data and run the tool

Required fields are denoted with a red asterisk. To select input files, click the folder icons and navigate to the datasets. For storing outputs, you will likely want to use the geodatabase that was automatically generated with your new ArcGIS Pro project. It will be located where you saved the project. Once required fields are filled, you may click ‘Run’. Sit back, and let the tool go!



Screen-capture of the GIS tool user interface, open in the ArcGIS Pro Geoprocessing Pane

5. Interpret the output

As the tool runs, it will add various layers to the project. Interpreting these outputs may not be intuitive at first; therefore, we have prepared a comprehensive output guide to help you.