

Developing the Cincinnati-Area Environmental Mitigation Model to Support Regional Efforts

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Purpose



Reduce negative and costly environmental impacts Result in better decisions for improving transportation and how development occurs







Participating Agencies to Date

In Lieu Fee Programs

- Army Corps
- The Nature Conservancy- Ohio
- Northern Kentucky University
- Kentucky Fish and Wildlife
- Indiana Department of Natural Resources

Local Partners

- Cardinal Land Conservancy
- Building Industry Association of Northern Kentucky
- Boone County Soil and Water Conservation District
- Sanitation District 1
- Green Umbrella (Metro Sustainability Alliance)

Other State Partners

- Ohio EPA
- IDEM
- ODOT



Layers included in the Model

OKI Layers

- Parcels with Half Mile Stream
- Natural Heritage
- Parks and Protected Areas
- Forested Areas
- Steep Slope
- Mitigation Projects

State Layers

- Conservation Opportunity Areas
- State Conserved Areas
- Significant Streams

USDA- NRCS

- Prime Farmland
- Hydric Soils

EPA EJ Screen

- Low Income
- Minority
- Traffic Exposure
- Respiratory Health Index
- Cancer Rate

Other Federal Layers

- NWI- Wetlands
- FEMA- Flood
- USEPA- Impaired Stream

The Nature Conservancy-Resilient Land Mapping

- Climate Connectivity
- Recognized Biodiversity
- Resiliency



Weighted Raster Overlay





Things mentioned in the documentation...*but* things that should probably be expanded on...

Must add the tag: *weightedrasteroverlay* when sharing the image to your server: Without this tag, the raster will not appear among the list of WROs if you're using Geoplanner, and it may come up as a *feature* rather than *image* in your folder when sharing to your Portal.

ALL rasters must be in the same format, and that format is TIFF.

It is also better if all the rasters are either clipped/snapped to a similar area and have same cell size. Use a layer as a mask and a scratch workspace to keep all of the reworked rasters contained.

♥ Raster Analysis	
Cell Size	Maximum of Inputs 🔹 🧎
Cell Size Projection Method	Convert units •
Mask	
Cell Alignment	Default
Snap Raster	

Rasters need to be within the same geodatabase that will contain the WRO.

And if you will run the **Create Mosaic** tool more than once, either delete the old raster or use a scratch workspace, because you will get an **Error** if another WRO is within the database as the rasters.



Things mentioned in the documentation...but things that should probably be expanded on...

Create Mosaic Tool did not work *unless* signed in to **Super Portal 2**.

Additional tools to run:

- Set the environment settings to assist masking and snapping
- Clip Rasters & Calculate Cell Size Ranges
- Add Rasters to Mosaic Dataset
- Set Mosaic Dataset Properties → this is useful if you have more than 20 rasters
- Analyze Mosaic Dataset → Run this tool before you share to web

Grab the image server URL from your layer & validate within suitability widget.



The Suitability Modeler helps you find the best location for an activity, predict susceptibility to risk, or identify where something is likely to occur. This widget allows you to combine and weight different layers so you can evaluate multiple factors at once.

The Suitability Modeler uses fast, web-based Weighted Raster Overlay to generate models from a service. You can start from a blank state of a Weight Raster Overlay (WRO) Service or a pre-configured WRO model. Choose layers, assign weights and adjust layer classification values to define your analysis. Then, run the modeler, visualize results, and optionally save the result as an item in your organization/portal.

Starting state:

🔘 Blank model

Pre-configured model

Image Service URL

https://portal2.oki.org/server/rest/services/Suitability_WRO_Update2/ImageServer

https://example.com/arcgis/rest/services/Example/ImageServer

https://utility.arcgis.com/usrsvcs/servers/24b7c7752170431a95719323a9e71a5e/rest/services/WRO_World_Ecophysiographic_Data/ImageServer https://landscape3.arcgis.com/arcgi/rest/services/Landscape_Modeler/USA_Weighted_OverlangeServer https://geeninfastructuremapadew.arcgis.com/arcgis/rest/services/GreenInfastructure/WeightedOverlay_Geoplanner/ImageServer

Allow Export

OK Cancel



Workflow to get from rasters to WRO

Step 1

Download WRO Toolbox

Prep Workspace

Set up Environment to ensure similar cell size and area for all rasters.

Prep Rasters

Put all rasters in Contents. Change all to geotiff. Use Weighted Overlay tool to figure out scale and weights.

Step 2

Run Create Mosaic

Dataset

Run Set Dataset

Properties

Run Reclassify Data layers: All the edits here will appear in the final version of the Suitability Modeler.

Update WRO Layer Info

Share as weblayer from the geodb in the Catalog pane with tag attached.

90 % of time spent here

e/okircog

ArcPro

Enterprise Step 3

In **Webapp** Builder, bring in the suitability widget

Bring in the image service URL and validate within the widget

Assess all layers, and check model run.

In **Geoplanner**, search for your Organizations WROs and upload to scenario.

10.%



Mitigation Model Development





