

Environmentally Sustainable Corridor Planning Tool (ESCPT)

Environmentally Sustainable Corridor Planning Tool (ESCPT) is a combination of a large-scale environmental cost surface and optimal pathway tool, used to create a least costly path in terms of environmental, social, and land use factors. In general, it is a suitability surface, combining 65 layers into a single raster, while calculating each cell's environmental impact. It then creates a least cost pathway, connecting as many points as desired - along the least harmful path.

The automated ESCPT model method stages reproject, clip to a specific area, filters each layer according to a unique set of parameters, applying alterations where required, creates a new "Weight" field, and assigns a previously decided values, defining how impactful each area is. Each layer is then transformed to a raster within a consistent Snap grid and uses cell statistics to combine all raster into a single surface where each pixel equals the sum total of impacting "Weight".

Anyone using the tool can supply the model with specific points, between which the optimal regional connection tool devises the most cost-effective route, moving from pixel to pixel along the surface. Within, each pixel's Weight ranges from 0 (original source boundary), to 640. The higher the Weight, the less appealing that pixel becomes regarding optimal traversal, creating a single (or network) of ideal least costly paths between each point.

What makes the ESCPT model so useful is that it can be adjusted easily by applying alterations within each processing stage. One can change the study area by replacing the initial Boundary, change the impact of layers via the WEIGHT value. Layers can be updated, added or removed painlessly. Cell Resolution can be adjusted to be as detailed as desired. Lastly, One can plot least cost pathways (or networked connections) between as many points as they want.

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BIO

I am a GIS Specialist, working for AECOM on their Florida's Turnpike contract in Orlando at the FDOT HQ. Originally from Kentucky, I have obtained two bachelor's degrees – one in Earth & Environmental Science, focusing in Remote Sensing and GIS and another in Studio Fine Art, focusing in Printmaking and Drawing from Murray State University in Murray, KY. I am currently attending the University of Florida, pursuing an online graduate's degree in Sustainable Design in Architecture. My true academic and professional goals lie in Sustainability and Environmental Science, which are only enhanced by working in GIS and Remote Sensing.