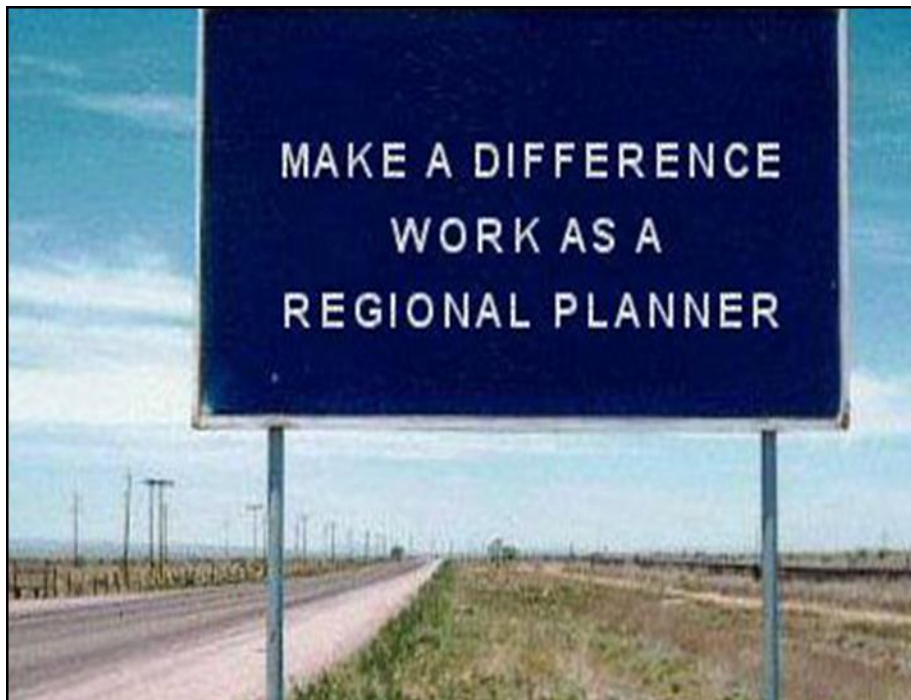


Cookbook 30 September 2013 *GIS Analysis (Part 3)*

Overview

1. What is GeoDesign?
2. What is Spatial Analysis?
3. The Site Selection Project
4. Project Organization
5. Assignment for Wednesday



1) What is GeoDesign?

GeoDesign is a systematic methodology for geographic planning and decision making.

GeoDesign starts by incorporating all the geographic knowledge that users collectively build and maintain = layers of information, measurements, and analytic models - and plugging it into a new interactive process where one can design alternatives and get geography-based feedback on the consequences of these designs right away. "What if we do this here?" "What is the impact of that alternative versus this alternative?" This iterative design/evaluation process is fundamentally how the human brain works; we try something, evaluate the results, and move on.

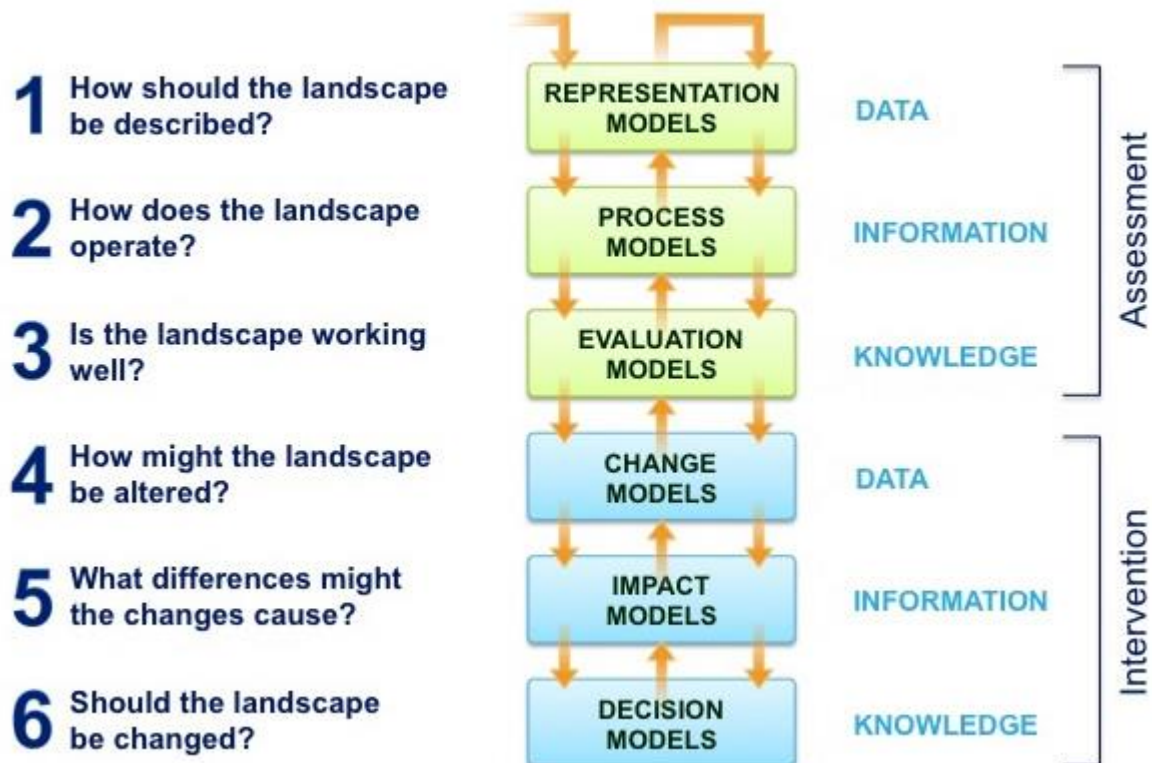
Jack Dangermond (ArcUser Fall 2009)

Source: <http://www.esri.com/news/arcnews/fall09articles/gis-design-and.html>

More Information

- <http://www.esri.com/technology-topics/geodesign/index.html>
- <http://spatiallyadjusted.com/2010/01/09/thoughts-on-the-geodesign-summit/>
- Introducing Geodesign: The Concept
<http://www.esri.com/library/whitepapers/pdfs/introducing-geodesign.pdf>

The geodesign framework – by Carl Steinitz






Example: Citizen Cartography For Action!

<http://publiclab.org/>

Here you can discover how to acquire your own aerial photographs using balloons, kites, or inexpensive remote-controlled airplanes.

They also provide the software needed to organize your images, to stitch/ortho-rectify your images, to analyze your images, and to export your images into GIS data sets (for example GeoTIFF, etc.).

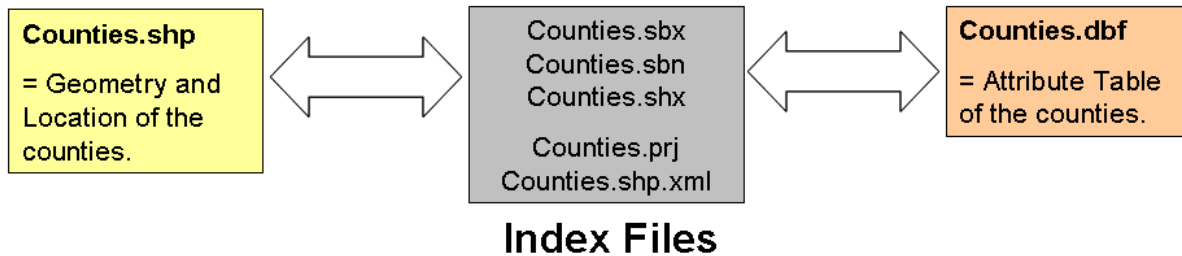
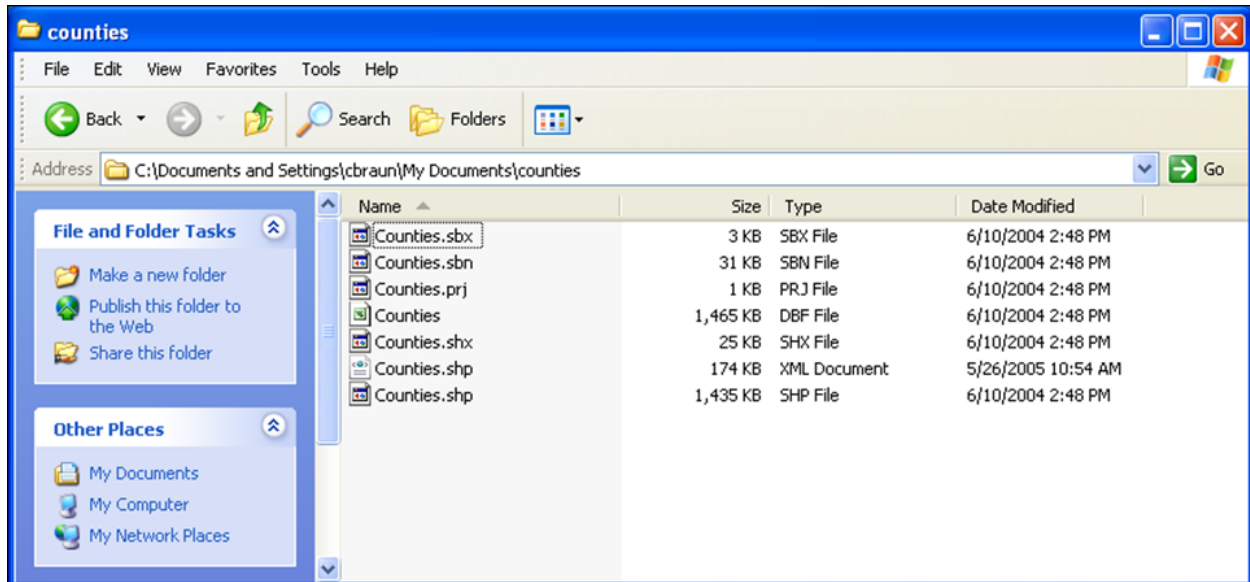
Public Lab is made up of:

 <p>An open community of contributors</p> <p>Learn about and help to develop cheaper, more open environmental testing.</p> <p>Join today »</p>	 <p>A set of experimental tools</p> <p>Browse and freely download the designs, or purchase a kit to get involved today.</p>	 <p>A network of local groups</p> <p>Find a nearby chapter or start one yourself to find local collaborators and support.</p>
 <p>An open data archive</p> <p>A permanent home for environmental data from grassroots groups and individuals.</p>	 <p>Free and open source software</p> <p>From map making and publishing to spectral analysis, with more new tools in development.</p>	 <p>A platform to build collaborations</p> <p>Our online and offline events and systems bring together activists, technologists, scientists, educators, and local residents to solve problems.</p>

2) What is Spatial Analysis?

Remember: A GIS uses geospatial data that contains spatial information (= where a feature is located) and attribute information (= what a feature is).

This sounds trivial, but allows us to perform meaningful quantitative analysis!



- The spatial information (= location and geometry) is connected to the attribute information via a series of index files.

→ Therefore, we can select features based on their location and/or based on their attributes.

For example, you can select land use polygons based on their land use code in the attribute table and calculated the total area for certain land use classes in 1971 and 1999.

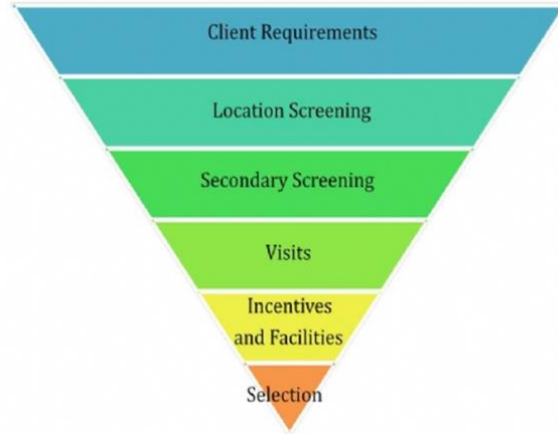
We can take this further and use ArcGIS tools to quantify how spatial features are located relative to one another on Earth based on their location, geometry, and attribute information.

3) The Site Selection Project

You are a team of GIS Specialists working for the City of Westfield Planning Department.

The major wants to stimulate the local economy by creating a new industrial park for Bio-Tech industry based on 3 criteria:

1. The parcel has to be at least 10 acres in area.
2. The parcel has to be at least 100 feet from any wetland or water body.
3. The parcel has to be already industrial or commercial zoned to avoid a contentious rezoning process.



Prepare a meaningful map showing the suitable parcels, the industrial or commercial zoned sections, the roads, and the city limits.

Your map can show only features within the Westfield city limits!


Your report has to document your selection process and discuss the results and alternatives.

4) Project Organization

GIS Project: Organize Project, Data, and Deliverables (= map and more)


Project Organization

1. Budget and Resources.
2. Workflow (= flowchart)
3. Collaborators and Dependencies.
4. Timeline, mile stones, deadlines.
5. Deliverables: What? To whom?
6. Backup!




Data Organization

1. Data Sources (free?)
2. Data Creation?
3. Data Manipulation
4. Data Storage , Organization, Backup.



Deliverables Organization

1. Map setup.
2. Visualization: graphs, tables, etc.
3. Written Report.
4. Website, meetings, etc.



GIS Project Documentation: Formal and Informal!

5) Assignment for Wednesday

Team 1

John, Nicole, Catherine

Team 2

Renee, Mike H., Tori, Jeffrey

Team 3

Mike F., Cindi, Olivia

Exchange Email addresses, phone numbers, Twitter names, become Facebook friends, start a Google+ circle, etc. and decide on a communication strategy!

My Advice: Create a shared document on Google Drive!



1. Check-out simplemapper.org and cmap.ihmc.us and see if they are useful for you.
2. Poke around MassGIS for useful data layers.
3. Carefully review the data layer description for data organization, data content, data structure, and attribute fields.
4. Download the data layers as needed into dedicated folders.
5. Explore your downloaded data layers.
6. Create a file geodatabase for this project and import your shapefiles.
7. Start your map!
8. Start your data manipulation and analysis!
9. Start your report!

Come prepared to share what you found and to continue to work on the project!