Advanced GIS lab 4

This time, you’ve been given multiple datasets that \*should\* be showing the same thing. But, of course, they don’t. The data has been collected/compiled by multiple agencies, multiple people, using different methods, and at varying states of sobriety.

Your job is to figure it out and get things all fixed up so that no matter which dataset is used, it’s as correct as possible. In the real world, you would be sharing the final dataset with all the stakeholders.

This time, you will be working on the west side of Tiger Mountain (just south of Issaquah). I clipped out a ¼ x ¾ mile section of trail that goes from Issaquah up to Round Lake.

There are four line files, representing 4 different versions of hiking trails. They are:

* IssaquahTrails\_clip
* DNR\_trails\_clip
* King\_trails\_clip
* Mtsg\_trails\_clip

Maintained by, respectively, the City of Issaquah, the DNR, King County, and the Mountains to Sound Greenway peeps.

Regarding quality, word I got was:

* Issaquah and DNR (these have each used LiDAR to do high precision mapping of some of the trails while not updating others - so where they have differences you have to figure out which is best.)
* King County (mediocre - composite of data layers not necessarily the most recent)
* Mountains to Sound Greenway - worst, they imported features from multiple layers, getting copies of  the same trails.

Start by downloading and unzipping the lab 4 data file. Open it up in Pro and take a look.

You might also go to <https://lidarportal.dnr.wa.gov/#47.52719:-122.01433:16> and look at the DTM and DSM models of the area. Use the King County 2016 data (but look at the 2003 data. It’s lower resolution and, for some unknown reason, for the DSM they used TINs at some point).

But, you can see roads and some trails on the 2016 DSM. After downloading the lidar data and mucking about, I can’t create a better hillshade than the one they have…. Dangit…. An hour wasted. However, I did download the hillshade and it’s part of your dataset. Surprisingly, you can see a lot of trails on it!

Your mission is to create the very best trails layer possible from these 4 datasets (plus anything you can see on ESRI base layers). Yup, a single layer. You will be tight with the align features tool: <https://pro.arcgis.com/en/pro-app/tool-reference/editing/align-features.htm> Don’t forget the attribute table – therein lies the names of trails. Mayhap you can figure out which should be which from that.

But, you will have to go trail segment by trail segment – don’t try to merge the lot and roll from there. There also look like there are some fantasy trails in there…. Or perhaps they are so generalized that they’re useless? Because there are lines which simply have to be garbage in parts, and in other parts, they almost match up.

Your decision rules are 1) what can you see on the hillshade? Because that’s the closest thing to truth that you can get. 2) the quality order above. 3) your best guess. In an ideal world, you’d go hike these trails and have some actual field knowledge! (*many, many years ago, I was hired to map trails in a bunch of state parks. I strapped a GPS to my mountain bike, set it to auto-record points, and rode every trail. I then converted them to lines and labeled. Great freaking job*)

You’ll start by choosing your “truth” layer. Then you will alter it. Sometimes by straight up editing, other times by aligning bits with another layer. Sometimes you will be adding data – probably the easiest would be digitizing. Be sure to make a backup of whichever layer you start editing. Because if you screw up somewhere, you’ll at least be able to go back to step one. In fact, a good idea might be to make backups every now and then – just to have multiple restore points.

Have fun!

To turn in. I’d like your final “best I can do” layer. Export it from the geodatabase as a shapefile, zip it up, and copy it onto the transfer drive (417 folder) by the due date. Remember, a “shapefile” is really a collection of multiple files with the same name and different extensions. Be sure to get them all!

I will then call the lot up, compare them to the original data, compare them to the DEM, and compare to each other.

One more thing to turn in. Include in that zip file a word document. Give me a few paragraphs telling me generally what you did, lessons learned, what worked, and what didn’t.

Welcome to the wonderful world of data management in the US. Unlike Qatar where one agency alone is responsible for any given dataset, here in the States, everyone is all over it. And making sense of all that varied data is a regular part of any GIS job here.