

Selecting by "Attribute" and "Expression" & Exporting

Description:

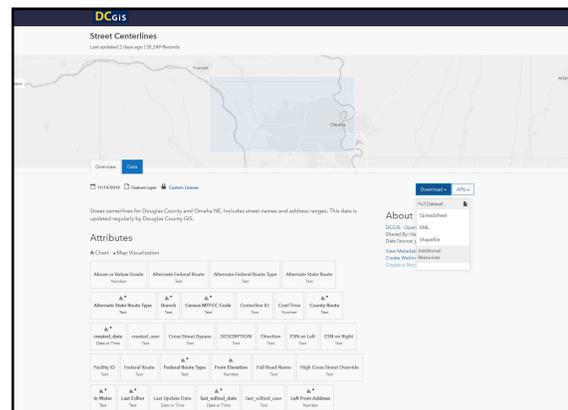
One of the basic functions of GIS is the ability to select *portions* of large vector datasets and removing all unnecessary data. This allows you to focus your work on only those places or those attributes (characteristics) that you're interested in. This tutorial shows you how to take a large dataset of roads, select SOME types of roads, and "export" that data into its own layer.

Sources

For current road data, you can use Douglas County's GIS Open Data Portal. <https://data-dogis.opendata.arcgis.com/>

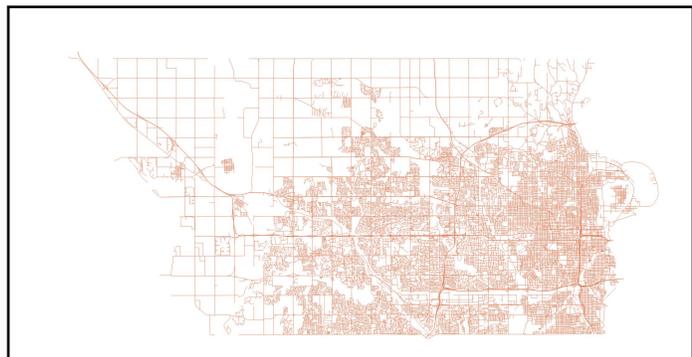
Click the "transportation" icon and find the "street centerlines" file on the subsequent search screen. <https://data-dogis.opendata.arcgis.com/datasets/street-centerlines>

Click "download" and "shapefile". You have now downloaded a shapefile layer that include all roads in Douglas County/Omaha



Selecting by Attribute

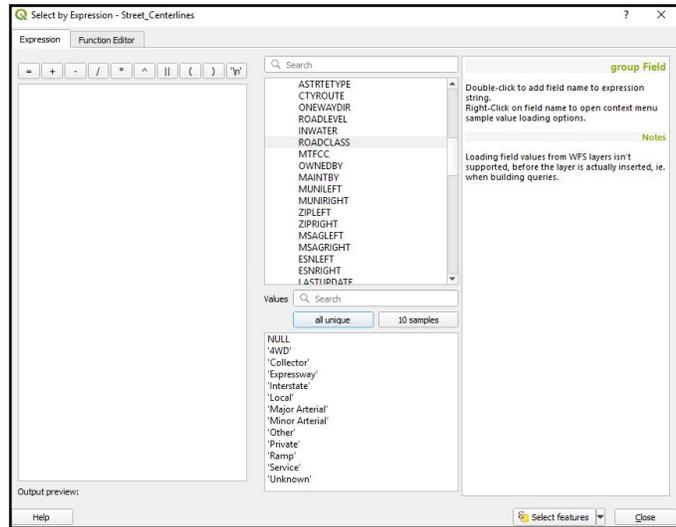
1. Add your "street centerlines" shapefile layer to QGIS.
2. It should look like this -->
3. We don't need all of the data, however. We only want our analysis to focus on a few important roads.
4. Open the attribute table.
5. Note: the FULLNAME column lists the names of roads and ROADCLASS lists scale of roads. We will select information based on these characteristics.



6. Let's see if ROADCLASS captures all of the information we're interested in. In the attribute table, click the "select features by expression" button



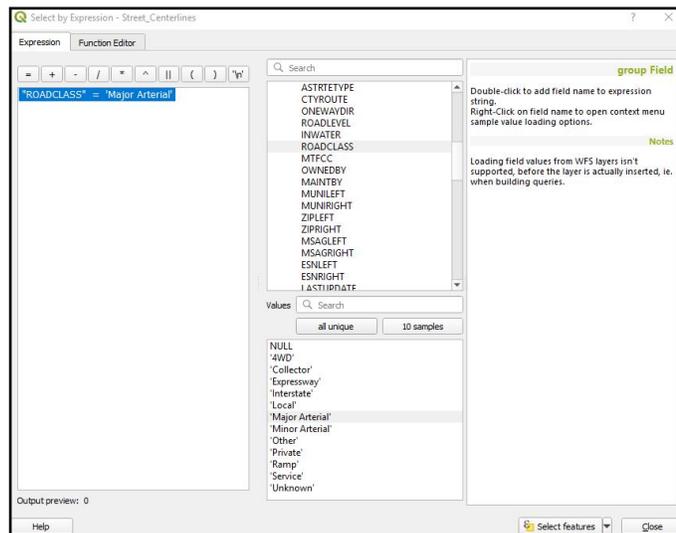
7. We can use this window to select features from our map layer using dozens of variables. We're only interested in using the "attributes" from our attribute table. I want to know what the road classes are. To find out, click the triangle in the middle column beside "fields and values." This reveals all of our attribute table columns. Find ROADCLASS and click it.



8. With "ROADCLASS" selected, a new option appears beneath it to visualize all of the values contained in that column. To see what they are click "all unique".

9. We now see all of the roads types or "classes" that might interest us. We want this map to include the roads that are MOST used on a daily basis. We're not interested in interstates or expressways. Perhaps "major arterial"? Let's see.

10. To see what the major arterial roads are on your map, double click "ROADCLASS." It should now appear in your "expression" window on the left. Then click the "=" sign. Now click the "Major Arterial" value. Your "expression" should now read "ROADCLASS" = 'Major Arterial'. Click "select features" at the bottom right of the window.



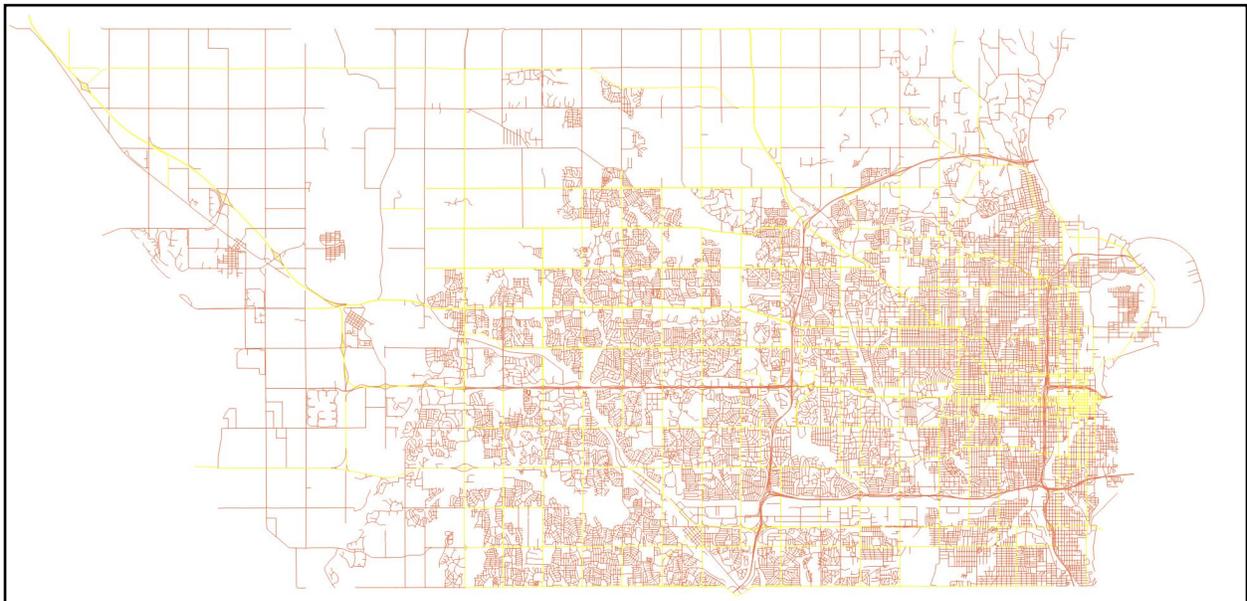
11. We should now see major arterial roads appear in yellow on our map.

12. It turn out, this doesn't capture ALL of the roads we're interested in. Perhaps if we add minor arterial roads? This is simple. Go back to your select by expression window.

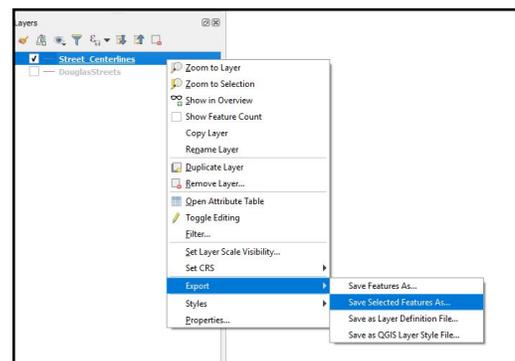
13. We can use boolean operators (AND, OR, NOT) to tell the GIS how to select variables from our dataset. We want to add more data, so we should use the boolean operator "OR". Our expression should read:

"ROADCLASS" = 'Major Arterial' OR "ROADCLASS" = 'Minor Arterial'

14. Click select features



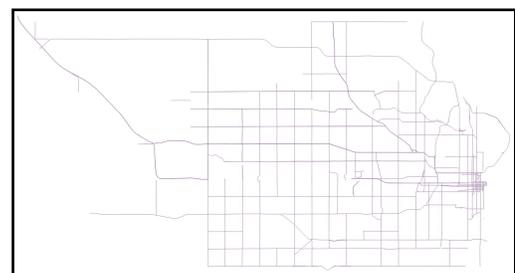
15. This is more reasonable. Let's create a new layer that ONLY includes these roads. Its simple. In your layer panel, right click "Street Centerlines", "export" , "save selected features as..."



16. In the subsequent screen, make sure you save your new roads layer (perhaps calling it DouglasMajorMinor) to your project folder by clicking the elipses. Click "ok"

17. Our map is now far more simple (and useful)

18. **NOTE, you could also simply use your "select by expression" dialogue to select the names of all of the roads you are interested in if you have a list**



For instance, an expression might look like this:

"FULLNAME" = 'Dodge St' OR "FULLNAME" = 'Douglas St' OR "FULLNAME" = 'Farnam St' OR "FULLNAME" = 'Florence Blvd' OR "FULLNAME" = 'Fontenelle Blvd'

19. Selecting by expression, using boolean operators, and exporting your data is NOT limited to road layers of course. Any time you want to examine PART of a large dataset, you should select and export to do this.