

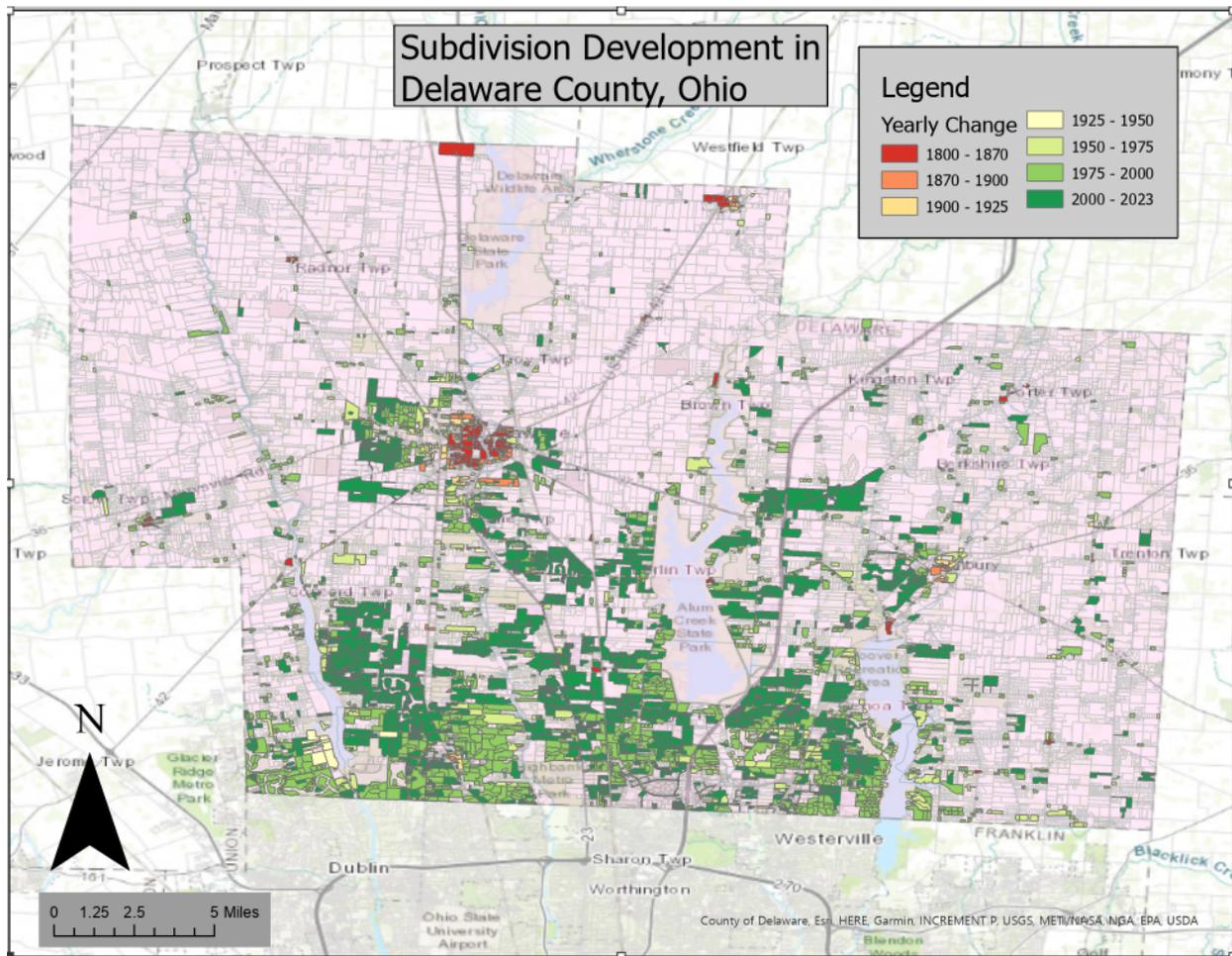
GEOG 191 Final

Gabriel Chlebowski

5. Mapping Change

This was accomplished by inserting the unzipped shapefiles for subdivision and street centerline data layers. I messed around with the initial colors of both to make them more easy on the eyes and then I went into the subdivision symbology tab and played with the graduated color scheme. I made the scheme by REC_DATE and chose seven classes for my classification. I knew there would be plenty data for the newer time periods so I focused my attention on counting and spreading out the data for the older pieces of data so that my classification has good data point distribution in classes (enough that one class does not only have like 5 data points in it) but also for the date classification to be nice and digestible. I really did not want a strange natural breaks classification for the dates that makes it hard to reason what time periods are which (like having a 1926-1958 break is not very appealing to me even if it clusters the data evenly with other breaks). Without spending too much time on the classification, I decided to choose 1800-1870 and 1870-1900 as the two odd interval breaks in my classification, as I roughly counted around 113ish data in 1800-1870 and around 96ish from 1870-1900. From here, I divided the classifications by 25 years: 1900-1925, '25-'50, '50-'75, '75-2000, 2000-2023. This seemed decently neat and when I applied a random 7-break color scheme to it it looked well enough distributed. Knowing me I could pick through color schemes for hours, even making my own pretty classification scheme, but I decided to put the breaks on and just choose a red to green classification scheme for its clarity. I think it's important to choose a scheme that does not start with a very light or pastel color unless you are messing with the background layer's contrast

because then it makes it quite hard to see against the map background. I decided in the end to remove the street centerline layer because it cluttered the map and added little information about the actual change being mapped, as well as I added the parcel map layer and turned down the transparency just to show the outline of Delaware to get viewers a feel for the extent of the county and how it urbanized accordingly. Whoops, almost forgot I also added a title, north arrow, scale bar, and a legend because duh you have to!



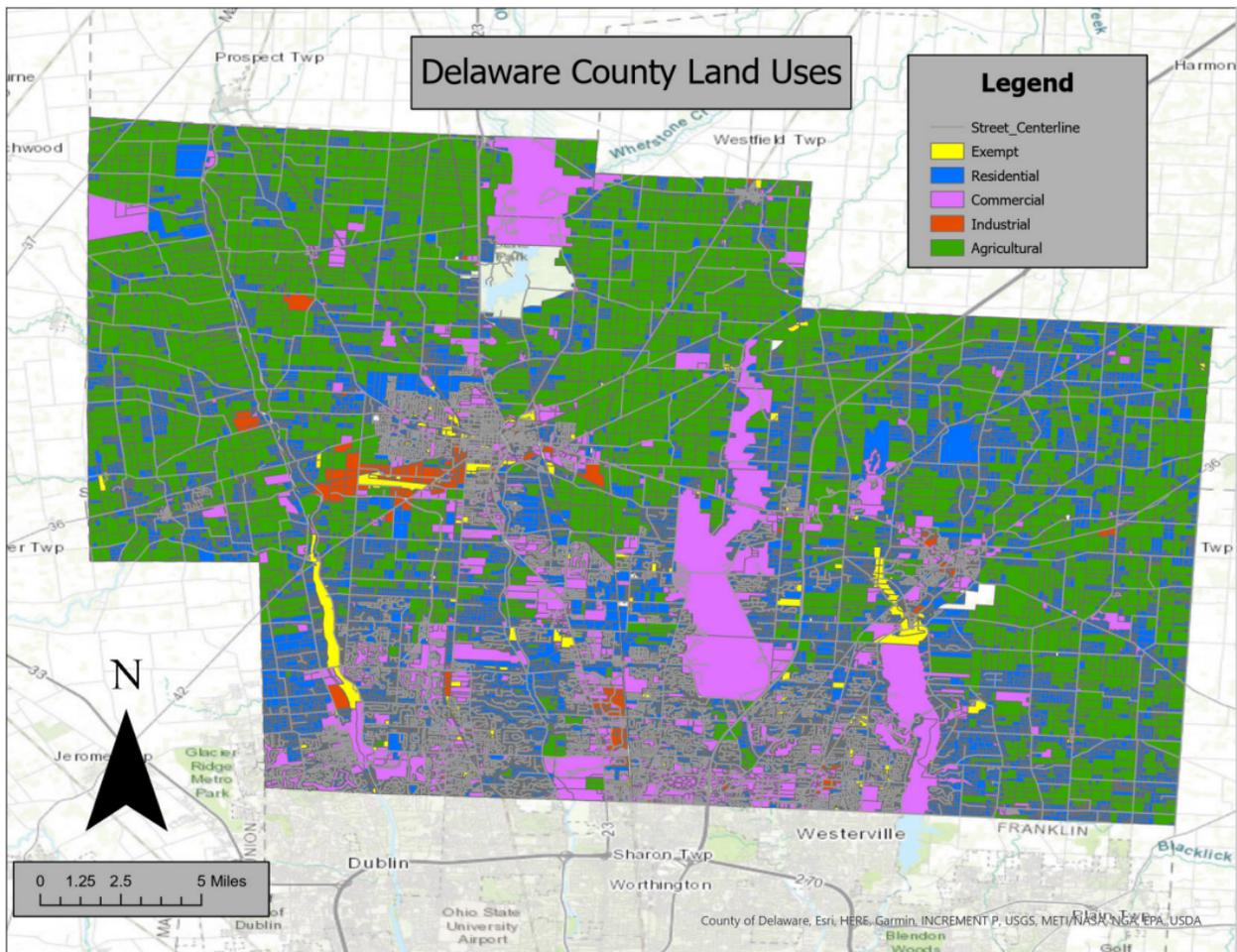
1. Selecting and Classifying Land Uses

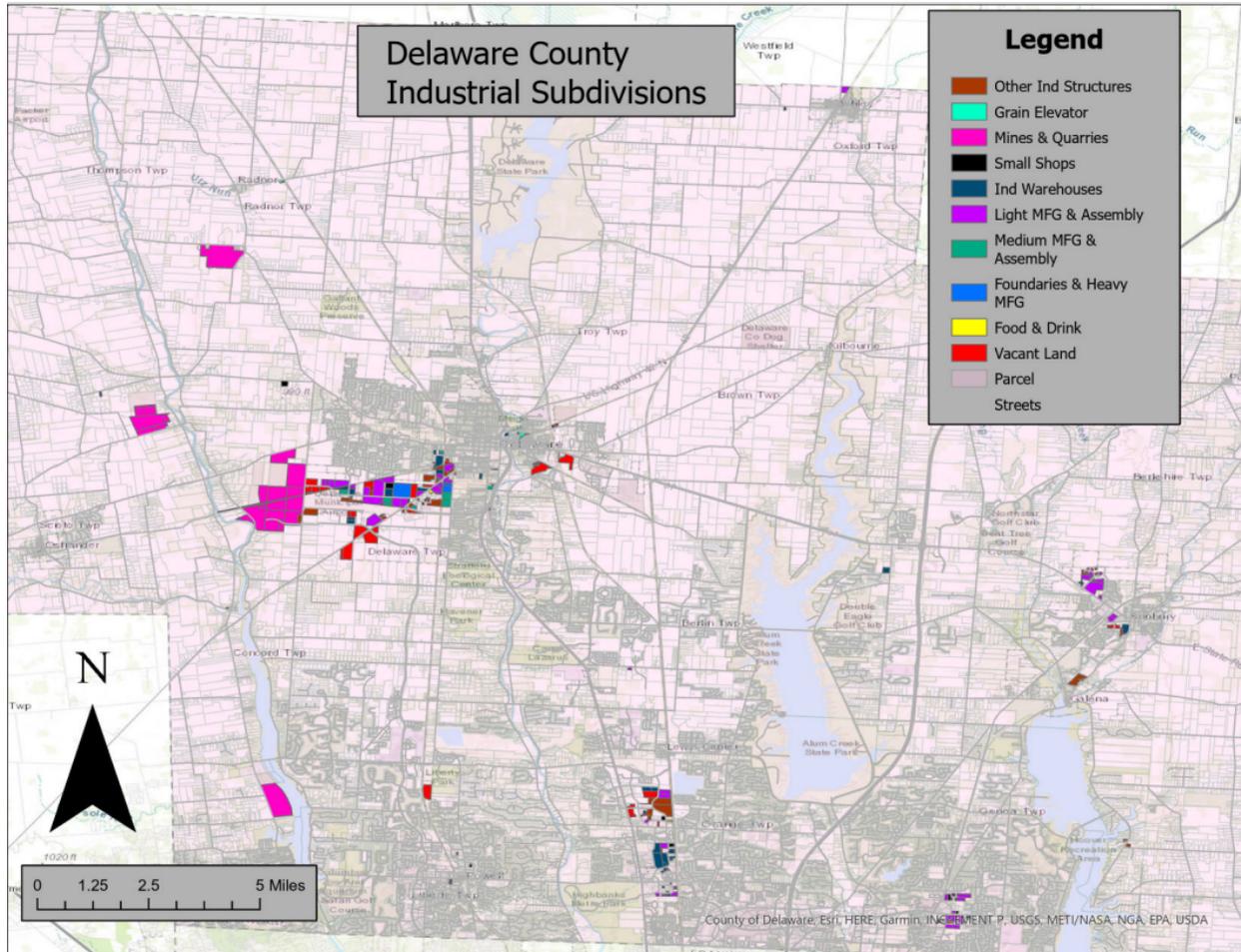
For the major land use map, I added both parcel and street centerline shapefiles. From the parcel layer, I essentially just identified both from the table and from the picture you gave about

the rough identifications in the raw data. From this, I used the geoprocessing tool “select by attributes” to pick out the specific land use types by their assigned class. I found the easiest way to do this was just use the “greater than or equal to” and “less than or equal to” connectors to connect the class type of the data to the numeric values, using their low and high bounds with the “AND” function in the tool. Once the tool was set-up and run, the selected values would have a neon blue boundary, which then I could just select parcel in contents and make a new layer by the selected attributes through the selection tab for the parcel layer. After naming this new layer and assigning a color to it, I repeated this step with the appropriate numbers of the other land uses until I got 5 land classifications, since there was no mineral data. I slapped on a legend, north arrow, scale bar, and title to finish it up. The colors I chose did not really have too much meaning other than obvious green for agriculture, just making sure they are all distinguishable from each other. I turned off the parcel layer just because the outline of the county was well apparent with just the data.

For the second map I initially wanted to do the commercial type but there were way too many subclasses for it so I decided to choose the industrial land type just for fun. I knew that agriculture would have been a better option optically, but I wanted to mix it up. Also, I kind of also wanted to do residential, but the subclassifications kind of confused me in the raw data and the classification list that you provided, so I gave up on it in the end. Pretty much every step for this was the same as the above, except instead of using less than and greater than functions, I used the equal to function for the subcategories of “industrial”, which was nice because they went up in intervals of 10 from 300 to 399. There was some data in the parcel dataset that was in between some of the intervals, so I just ignored them and stayed using the equal to function for the intervals of 10. After adding a title, legend, scale, and north arrow, I definitely realize that the

scale is really messed up, as there is not much industrial over the whole county. Besides some random points of “vacant” and “other” types of industry, essentially every piece of data is shown zoomed in scale, which is the best that I could do realistically. In truth, it was not a great category of land use to map its subcategories over such a large area, but oh well. For this map I actually kept the parcel layer on to keep some integrity of the county lines since there definitely is a lack of data to show the county lines unlike the overall land use map.





2. Making New Shape Files from Existing Shape Files

A general note to start, the map is not perfect by any means. I tried to fit the hydrology and boundary layer farm lots into the township bounds using a bunch of different processes but nothing seemed to stick. I got lucky with the streets as their data actually has bounds for the different township names so I just used select by attributes to pick through these to make the street lines fit nicely in the township area. If I put more time into it (and maybe possibly asked you for help!!!) then I would probably find a pretty simple solution. I spent too much time fidgeting in particular with the append and merge features since they seemed like a good pick and it was two features that I searched up when looking around. I did not get very far with append but I was getting sort of close with the merge feature, except the resulting layer would

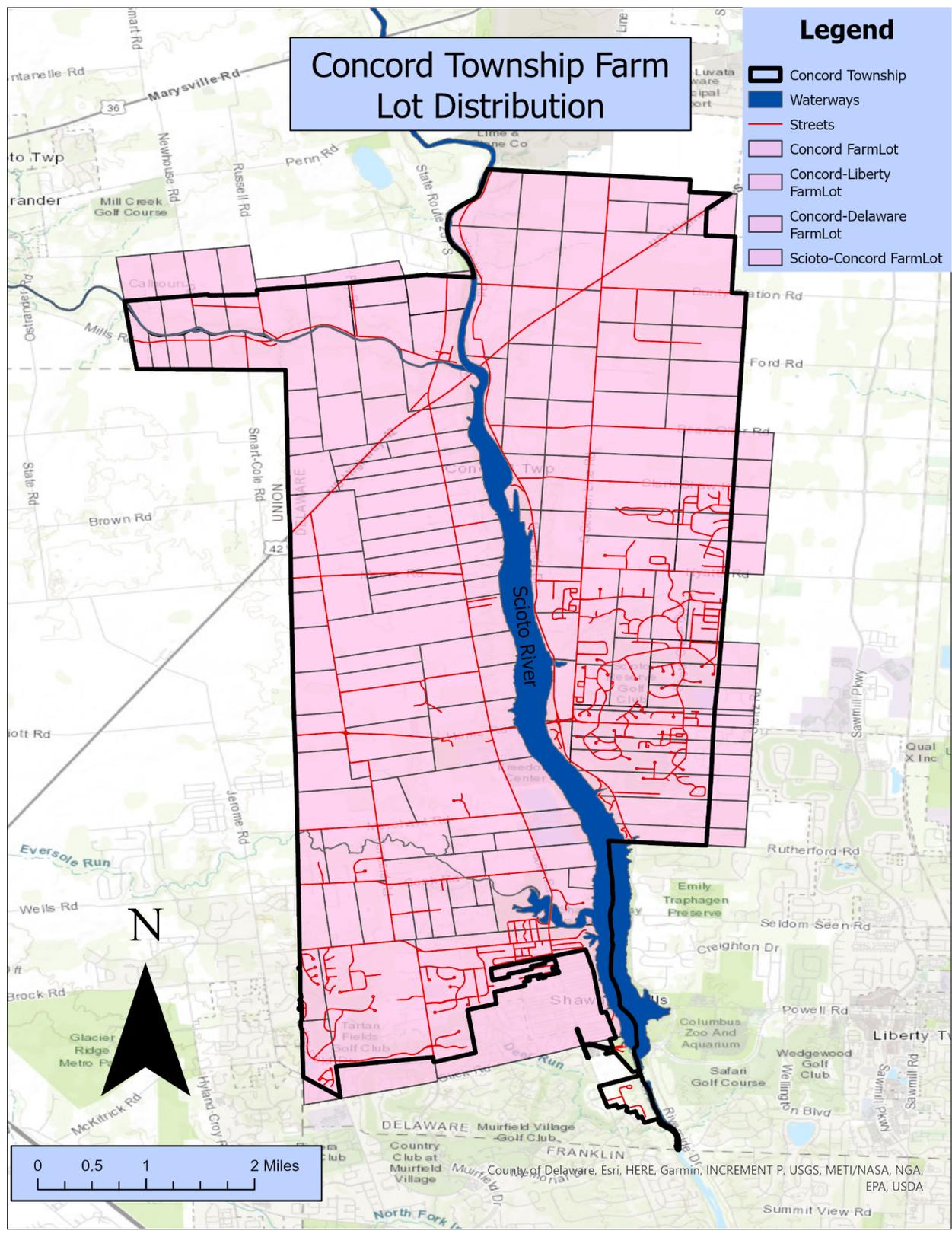
usually just either highlight all of the hydrology layer or fill in all of the township with the hydrology color. Not sure, I'll ask you about it in person when we get back because I am quite curious about this, it seems like a very useful tool to learn. Regardless, the map I came up with is definitely not terrible, it just has some edges of farm lot and the Scioto and a bit of Mill Creek poking out, in my opinion it is not too jarring and I made the township outline really thick to kind of distract people from that point. I actually do not think it looks too bad at all given the circumstances, plus I could not help myself with pink farm lots hehe.

To get started I loaded up the following shapefiles: farmlot, township, street centerline, and hydrology. The goal of my little concoction was to have a map of a township and their farmlots with hydrology added to see how the natural waterways could possibly affect the surrounding farm lots or vice versa. I included streets in the mix to realize the added effect that impervious surfaces can have with water travel in these lots. I looked around at a township that had a nice piece of water in it and decided on Concord Township which is pretty much cut in half by the Scioto River. Cool, now I just selected it by using select by attribute equaling the township ID of "CONCORD" and got it by itself. Next, I looked through the farmlot data table to see if they were IDed by township, they were, very nice. Most of the lots were given by the class ID of just "CONCORD", but some were also boundary lots, like with Concord's boundary with Delaware, Liberty, and Scioto townships. These were also subsequently labeled just as LIBERTY_CONCORD which was pretty easy to interpret and select. Once the farm lots were selected, the street centerline data was selected by their attribute of the township name as well using select by attribute to get the roads in Concord township. I played around a lot with outlines of the township and farm lot areas to make them very apparent to viewers while also not drowning out the other components of the map like the waterways and roads. I made the farm

lots pink because it is a great color, it contrasts well with the blue of the Scioto River, and I made the roads red for contrasting reasons as well. I made the township outline very thick to show the area of focus of the map, and I made the farm lot outlines much lighter but still very distinguishable since I feel it is still semi-important to see where individual ones are in the township even if they are not going to be named. Additionally, I did not bother to distinguish between the boundary farm lots and the ones solely in Concord because for the purpose of this map I did not see its importance. Finally, I added a north arrow, scale, title, and a legend to show viewers what exactly they were looking at. I also added a label to the Scioto since I thought it was apt.

This map could be useful in determining the different effects that the Scioto River could have on farm lots in Concord township. If there is massive rainfall and flooding occurs, what might happen to specific farm lots near the river will be different to farm lots further from the river. Additionally, looking at the use of roads as carriers of washed away water from rivers as well as carriers of runoff into the Scioto river is very important for the health of the waterways in Concord. I think the map is neat as it shows that viewing specific farm lots and their proximity to waterways and impervious surfaces can allow for observations and predictions of future important environmental effects that occur when large amounts of precipitation occurs or when overfertilization on farm plots near the Mill creek or the Scioto occur. One could look at the southeast side of Concord township where there is a large array of roads to the right of the Scioto and say that the rate of potential phosphates from farm land or even oils from cars would be higher in this area than, lets say, in the northeast corner of Concord township near the Scioto. I feel like the implications only go on from here. Overall I feel like the map is very nice on the eyes and gives a fun perspective on how water quality and health in central Ohio can be assessed

and predicted based on farm lot data and impervious surface presence.



BIG NOTE

Thanks so much again for being patient with me through this course. GIS is really fun for when I can mess around with shape files and make cool maps that can have some cool impact or make people think about environmental things it is really cool, it was just unfortunate that so far in this semester I was so busy for like no reason, it was very frustrating because I wanted to really enjoy this process and my busyness kinda expedited that process. Either way, this final was really fun, maps are cool, and thanks again for being cool! Mic drop.