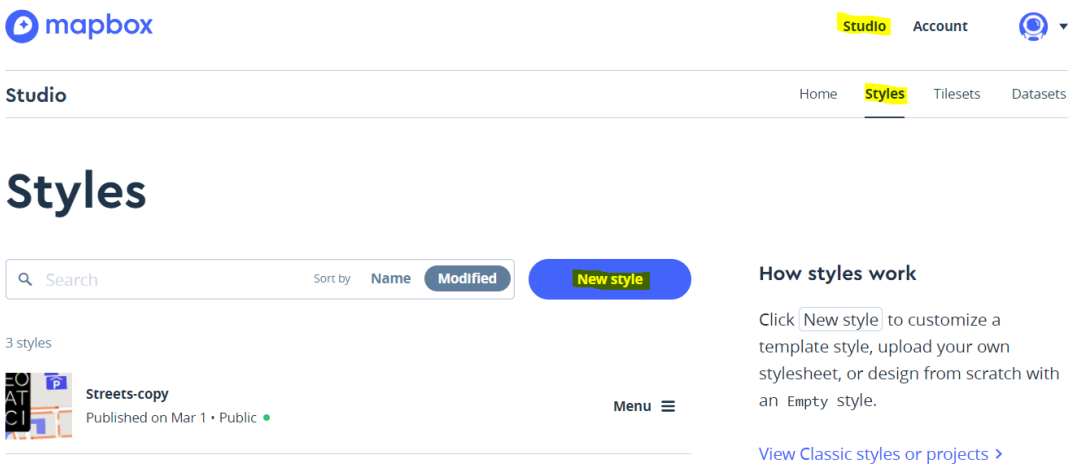
Mapbox – Mapping Impervious Surface % in 3D

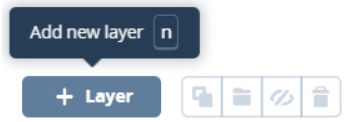
1. Create a Mapbox account: https://www.mapbox.com/signup/
2. Click on "Studio".



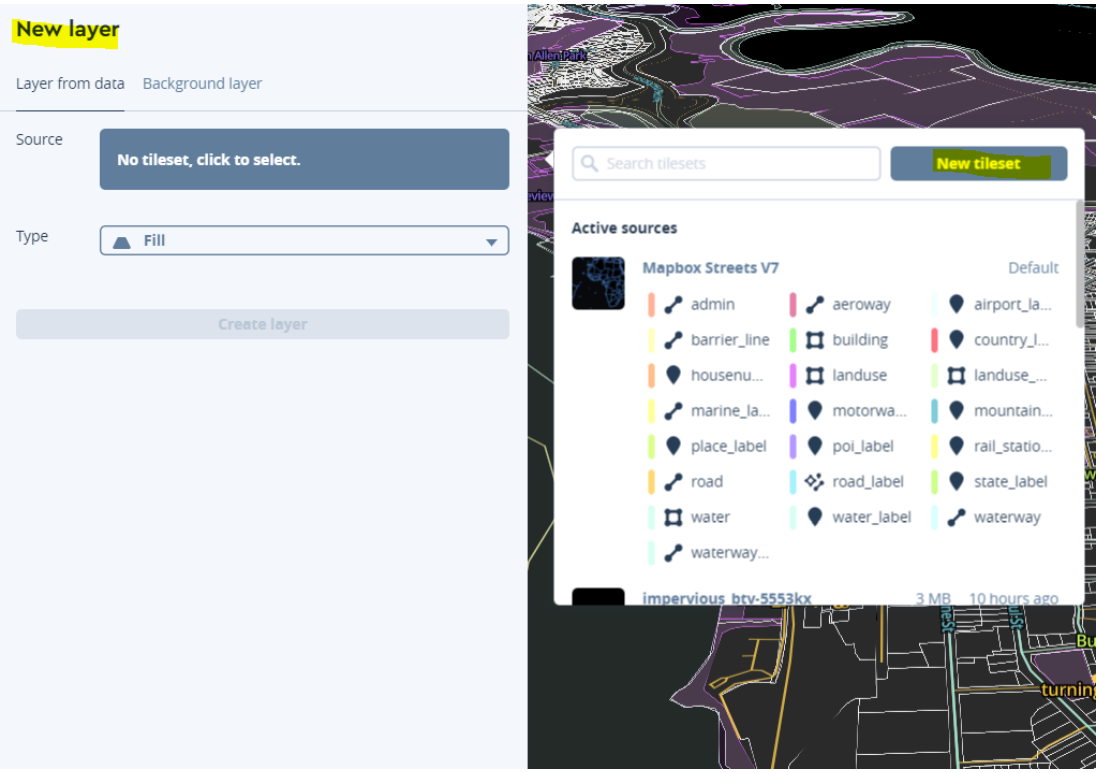
3. Pick a template style to start from (one of the free ones)!

   Once you're in, notice the layers that comprise the template map. You can change the symbology of any of these layers or add/remove as you wish.

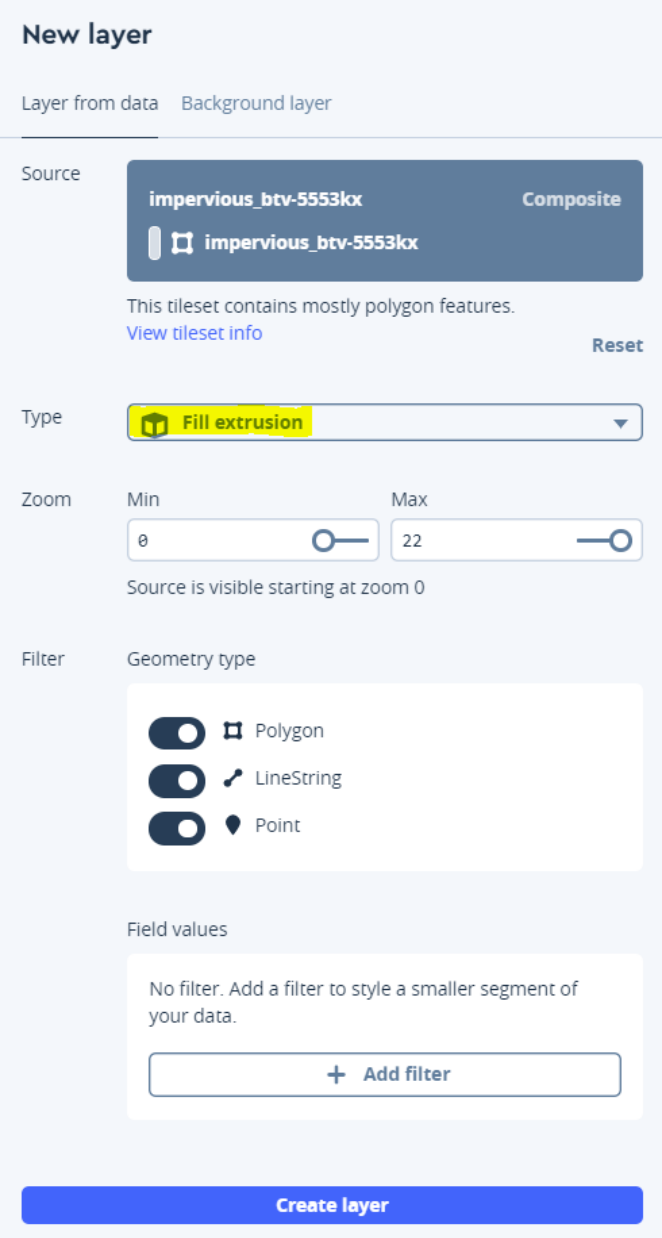
4. Click on "+ Layer" in the upper left.



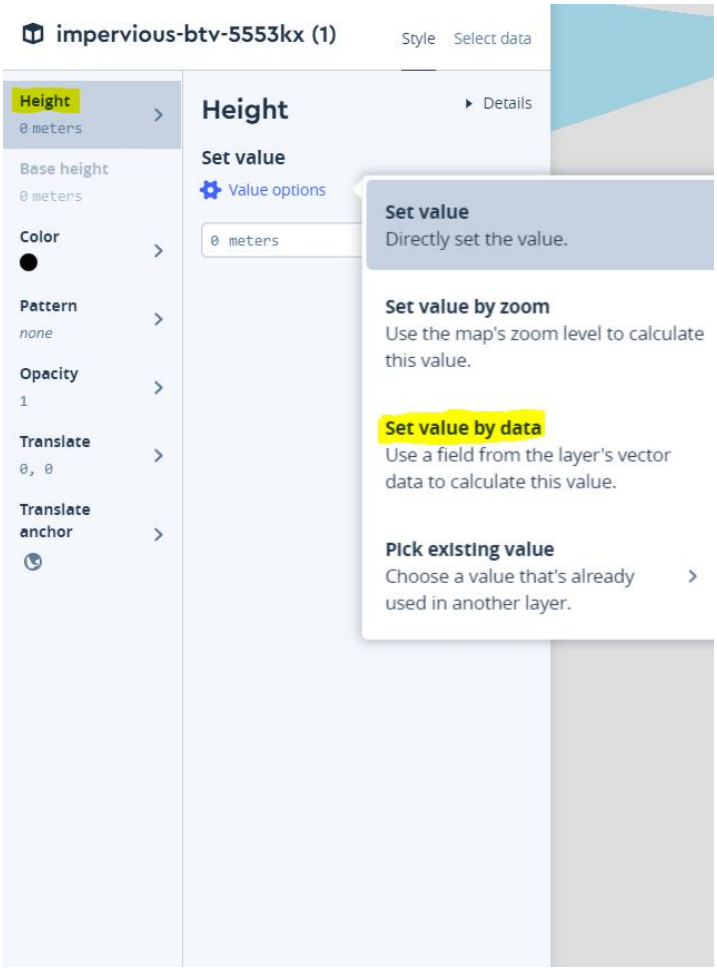
5. Then, click on "No tileset, click to select." This will open a dialogue that allows you to click "New tileset." Upload the zipped shapefile titled **impervious_btv.zip**. It should then show up below the template style as an "active source" (probably with a new confusing name like in the example below).



6. Congratulations, you made your first tileset! Now we need to turn it into a layer (symbolize it and make it 3D). Under "type," select "Fill Extrusion," since we want to use the height attribute to symbolize the percentage of impervious surface in each parcel. Notice some of the other attributes possible – they may look confusing, but are very helpful to developers (setting the zoom level affects when the layer shows up, and you can filter based on geometry type, etc.).

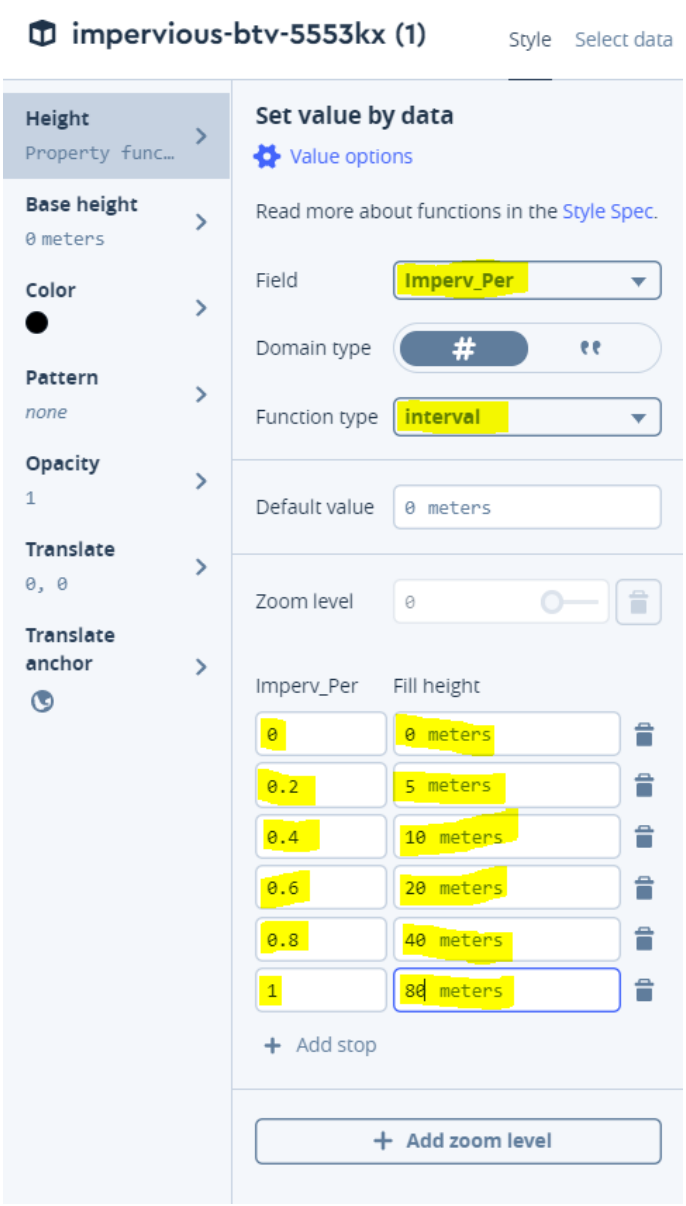


7. Okay, now we can set the height attribute in our data. Click on “Value Options” to set the value by data.

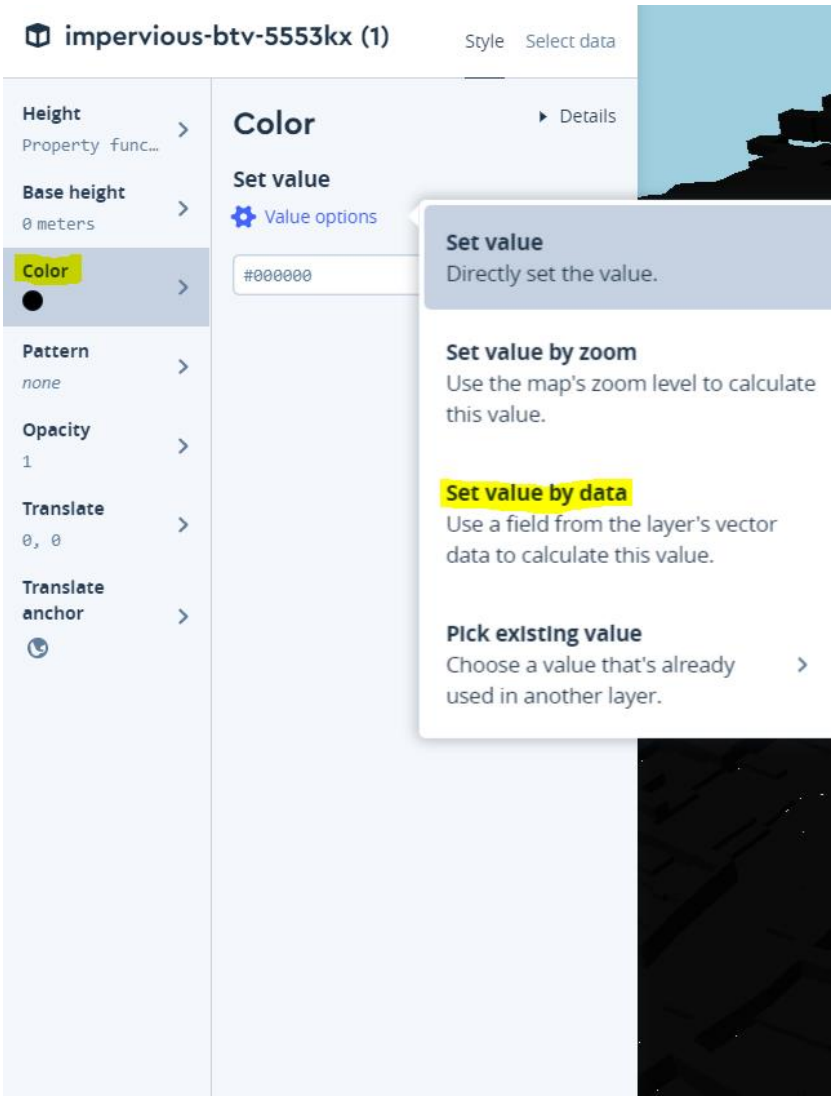


8. Now select the attribute (field) that you want to use to extrude (pop out) the polygons. I'm not quite sure what the function type does yet, so just select "interval" – this works. And set your levels using the ones I've predefined. Since the attribute reflects the percent impervious surface, our breaks correspond to percentiles: 0.2 = 20% and so forth. I've graded the heights to make the higher percentiles stick out exponentially more, but you can play around and set what works for you.

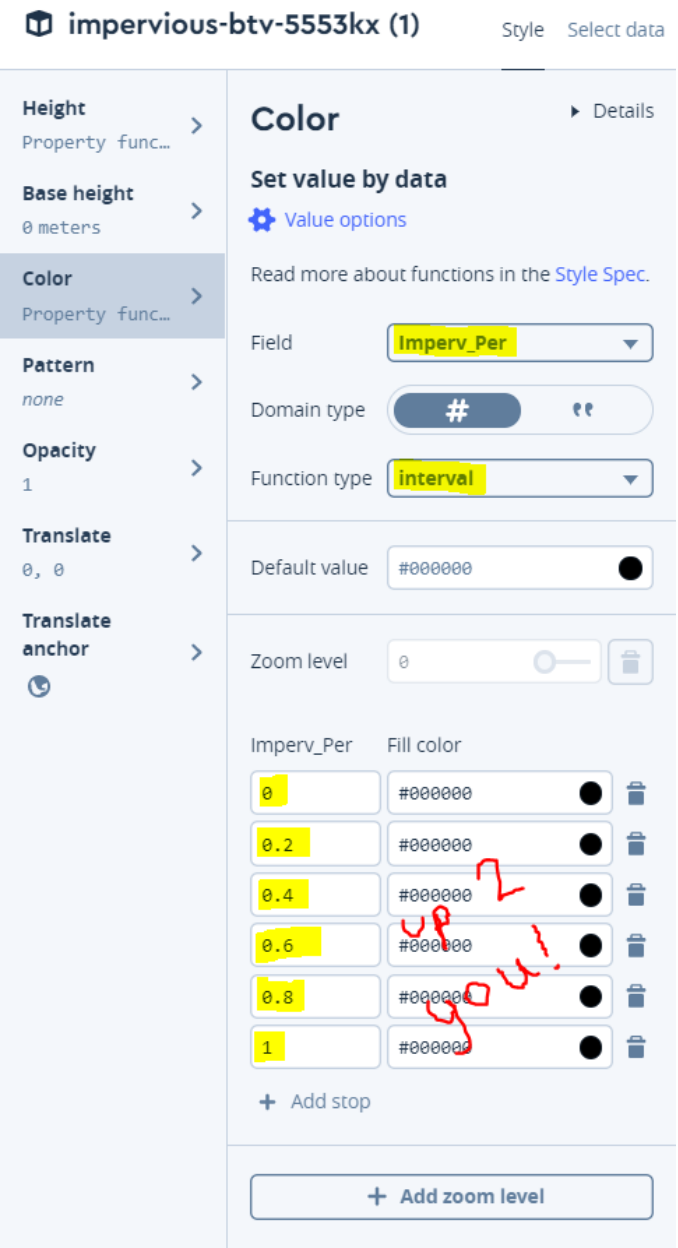
   You'll notice your data is still completely black, so take me at my word when I say the height attribute has now been set. Maybe I should have switched this step with the color symbology one? Oh well.


impervious-btv-5553kx (1)
Style
Select data
Height
Property func…
Base height
0 meters
Color
Pattern
none
Opacity
1
Translate
0, 0
Translate anchor
Set value by data
Value options
Read more about functions in the Style Spec.
Field
Imperv_Per
Domain type
#
Function type
interval
Default value
0 meters
Zoom level
0
Imperv_Per
Fill height
0
0 meters
0.2
5 meters
0.4
10 meters
0.6
20 meters
0.8
40 meters
1
80 meters
Add stop
Add zoom level

9. On to color! We're also going to set this as "value by data", since we want our colors to match the percent impervious surface as well.



10. Unfortunately, we have to re-type the breaks in manually. Bummer. Set the field, function type, and then the breaks. As for the color, here we have an opportunity to get creative!



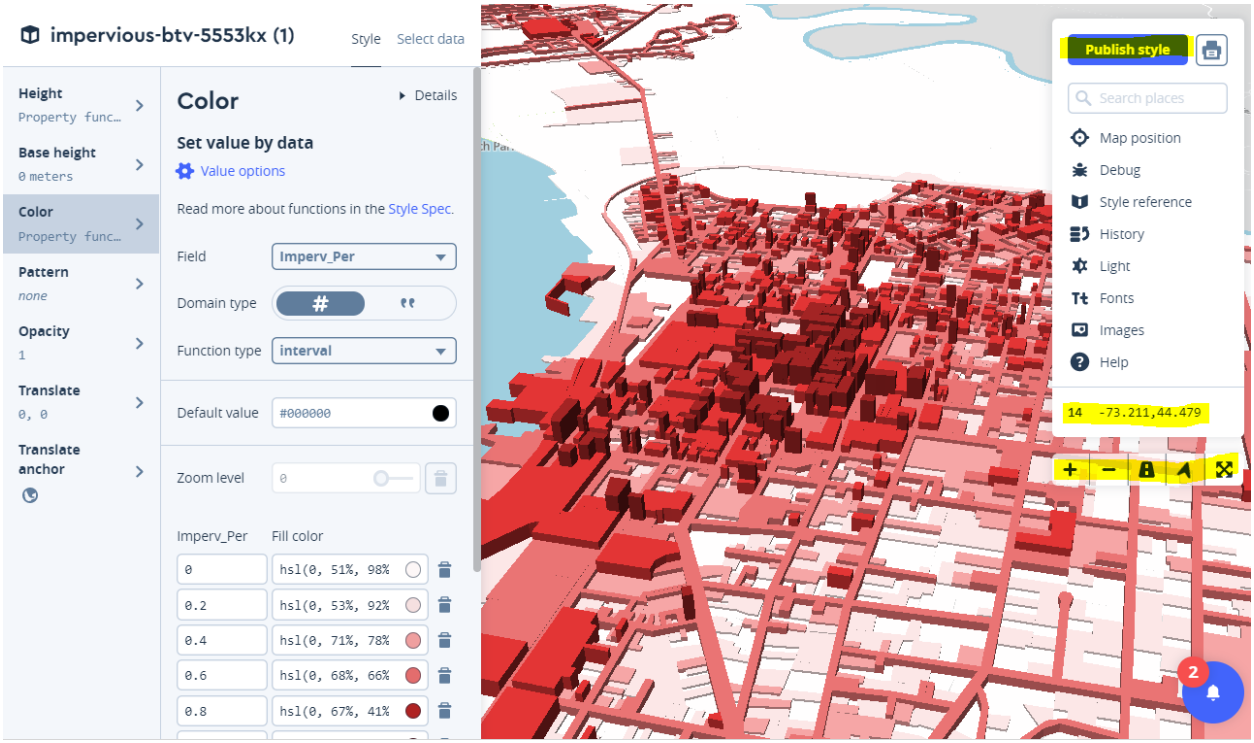
Because I could spend hours obsessing over colors (and end up with not very good colors, to boot), I prefer to use a color assistant. Some handy resources are below.

http://colorbrewer2.org/ (best for accessibility)

http://colormind.io/ (machine learning??)

https://www.canva.com/color-palette/ (upload a selfie and generate a color palette)

11. Okay, now that you've set your colors, we've got a map! You can now publish or print your style. First, let's move around to look at our data.



Move around:

- Click + drag to pan
- Right click + drag to change the tilt (perspective)
- Scrolly wheel zooms like usual
- Mini-controls under the coordinates and zoom level also perform these functions

Questions:

Visually, what type of parcels stand out as having the highest per-parcel impervious surface percentage?

What type of parcel probably has the most total impervious surface?

Why isn't the road parcel 100% impervious?