

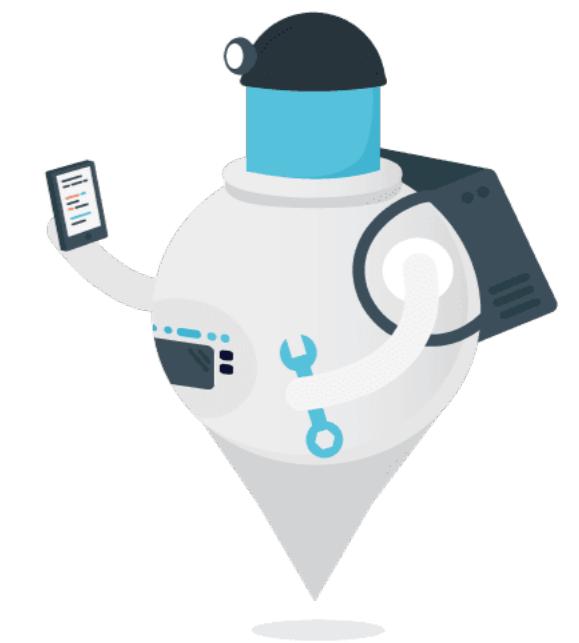
# Designing and Publishing a Map Product with **Mapbox**

Lyzi Diamond, **Mapbox** | March 23, 2015

Who am I?

What is **Mapbox**?

What are we going to do today?



# BEFORE WE START:

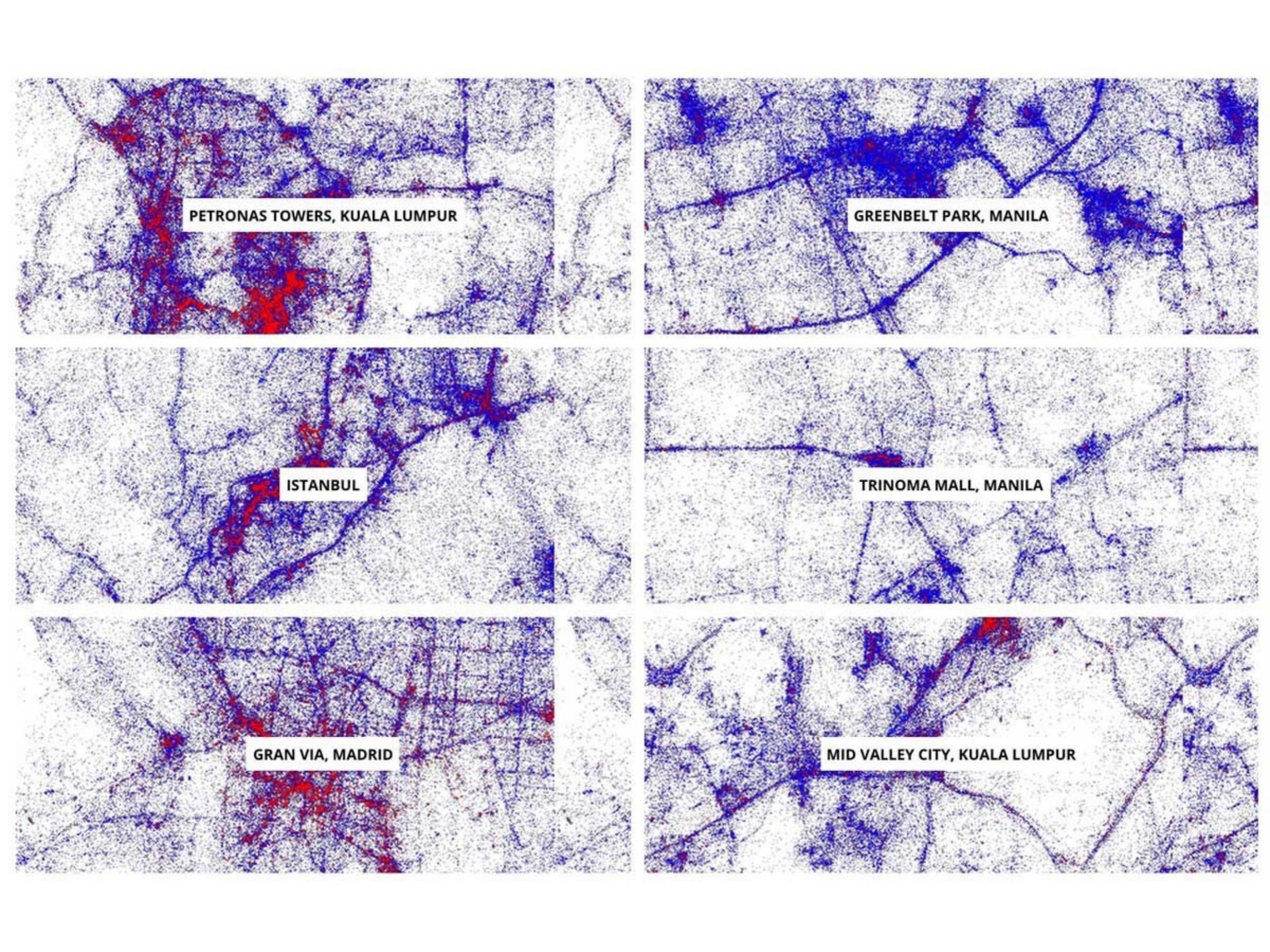


- Did you **register for an account** at [www.mapbox.com](http://www.mapbox.com)?
- Have you **downloaded Mapbox Studio**?  
[www.mapbox.com/mapbox-studio](http://www.mapbox.com/mapbox-studio)
- Use the coupon code **MAPBOXFRIENDS03** to upgrade to a Standard account (free for three months!) at [www.mapbox.com/plans](http://www.mapbox.com/plans)

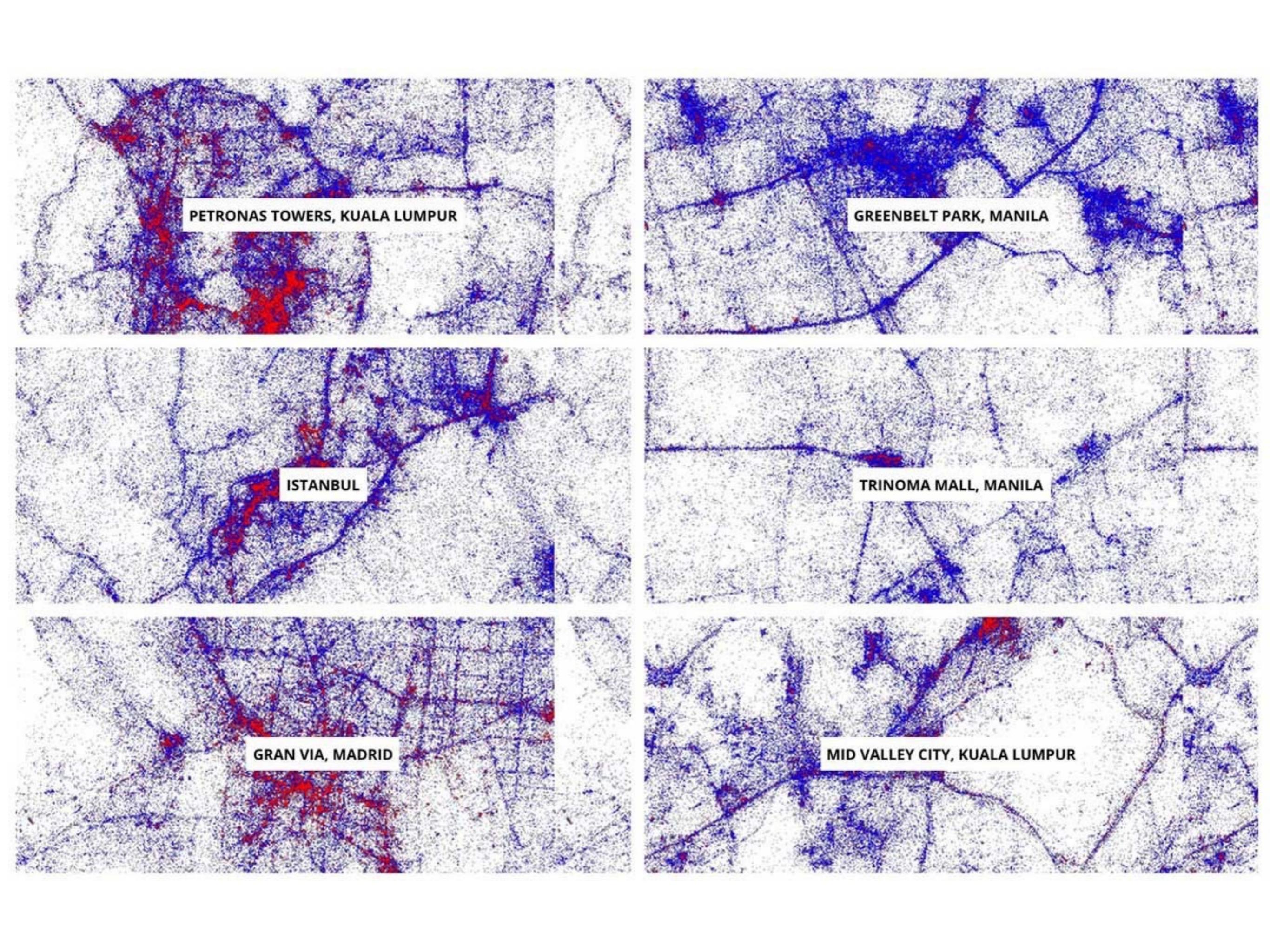
# Mapbox



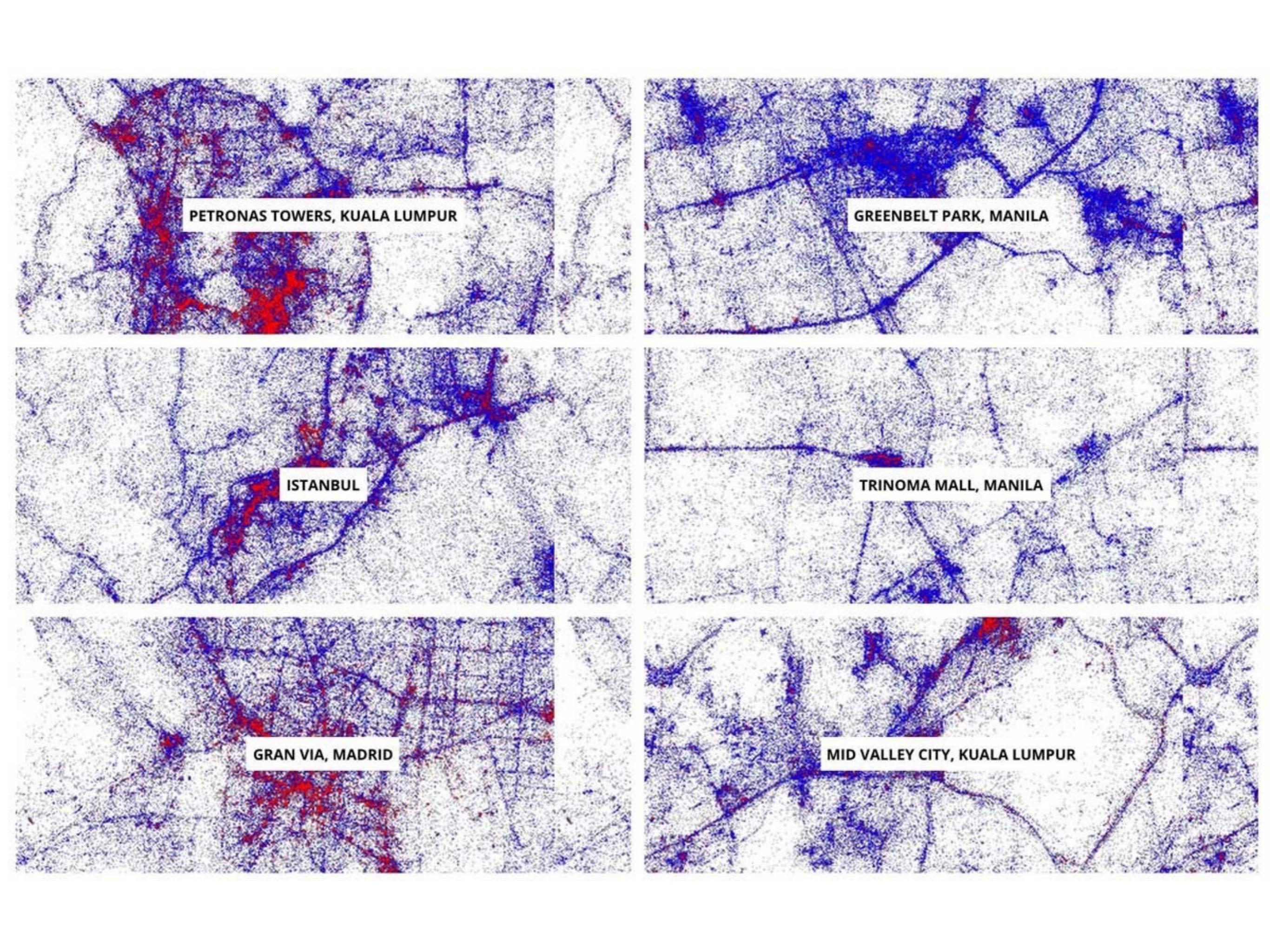
We build developer tools  
for making awesome maps.



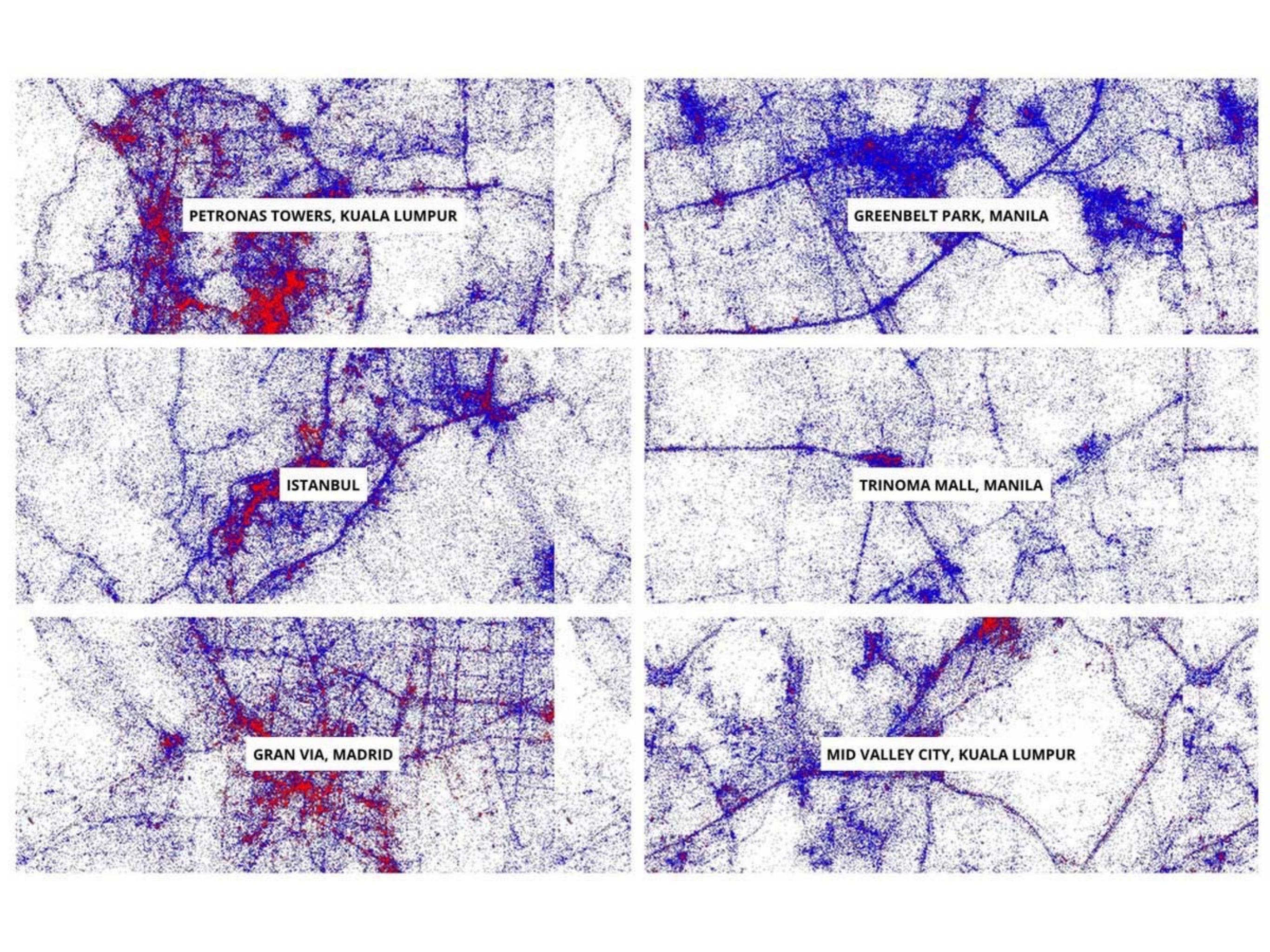
PETRONAS TOWERS, KUALA LUMPUR



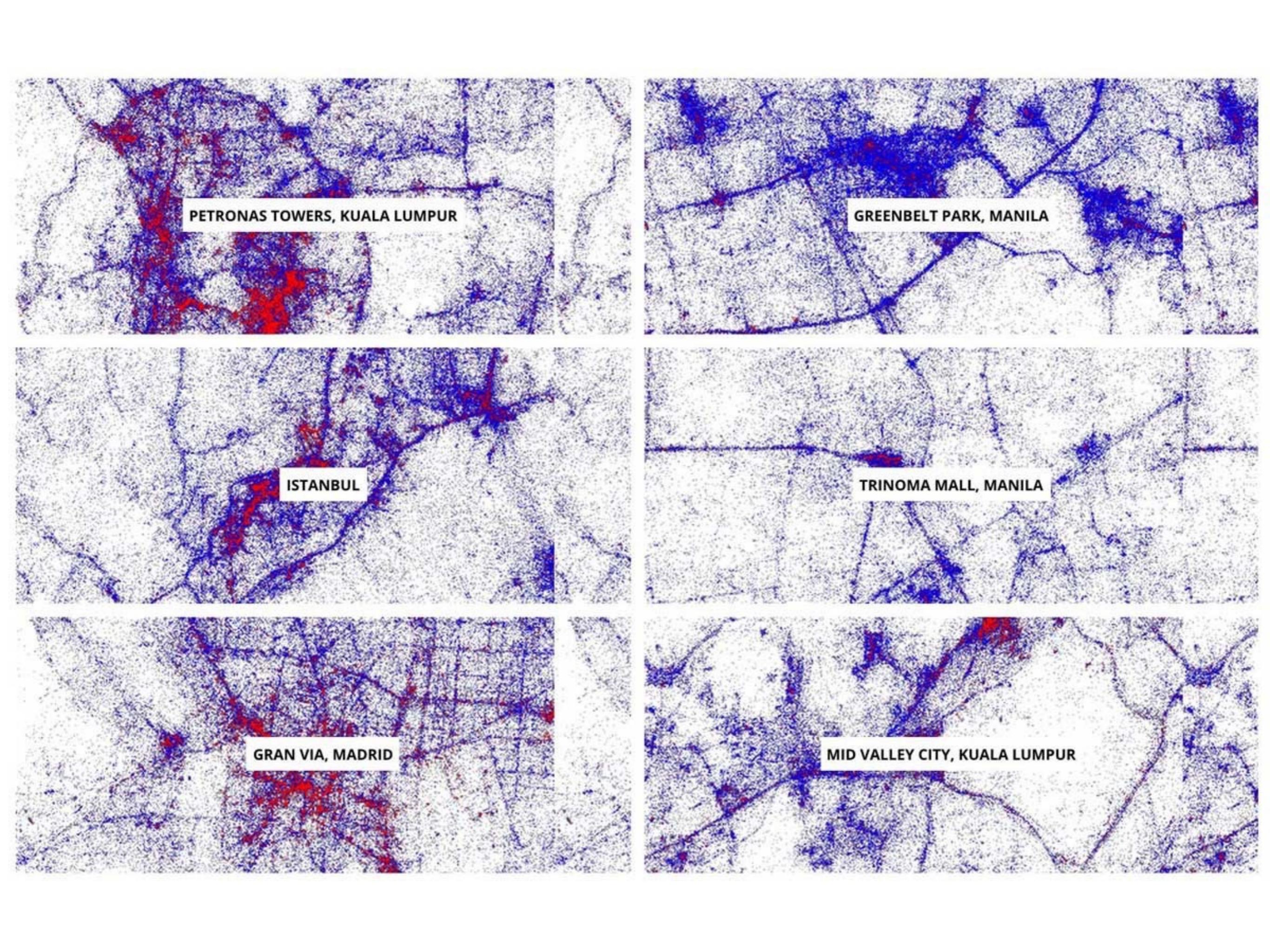
GREENBELT PARK, MANILA



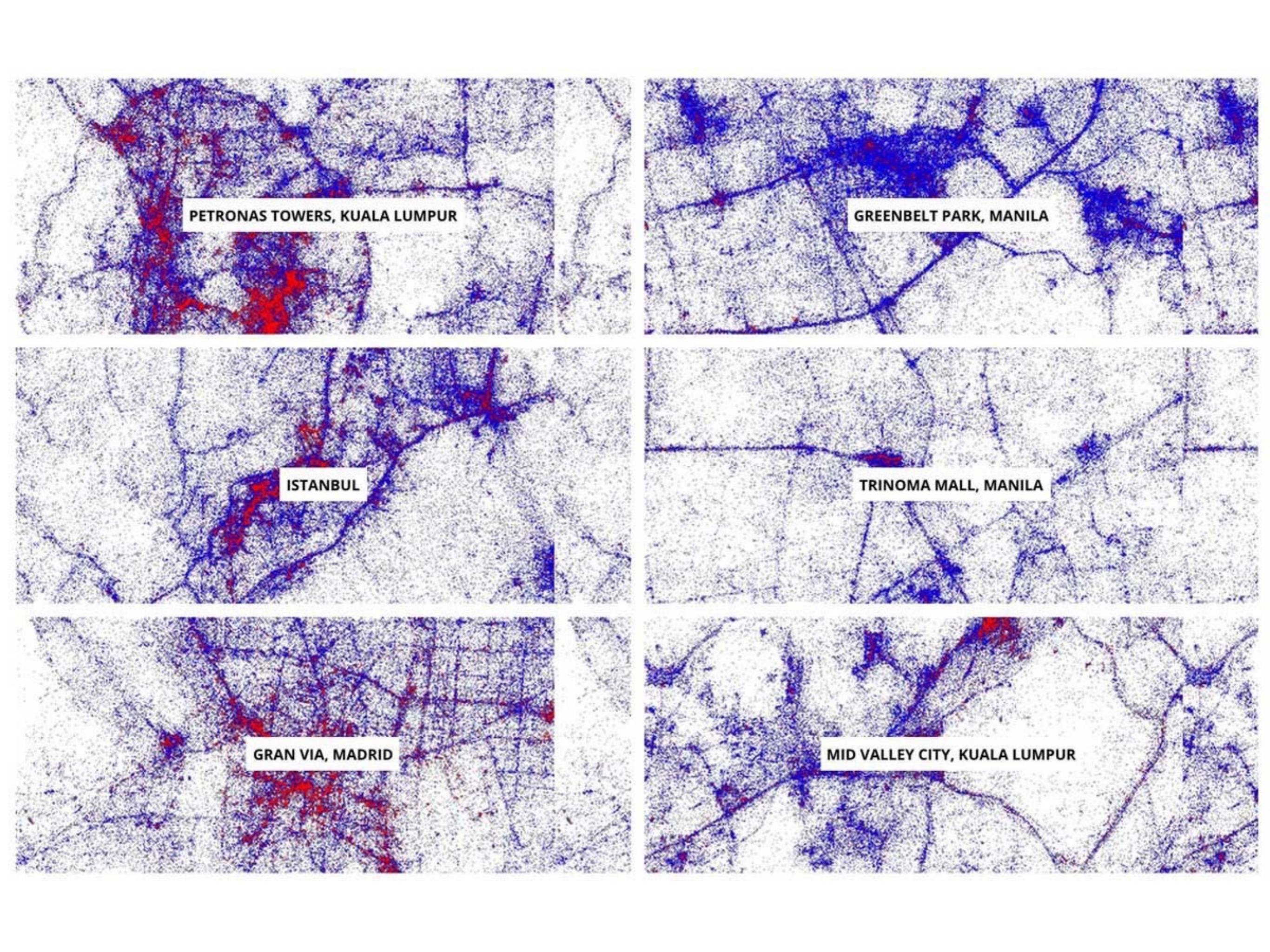
ISTANBUL



TRINOMA MALL, MANILA



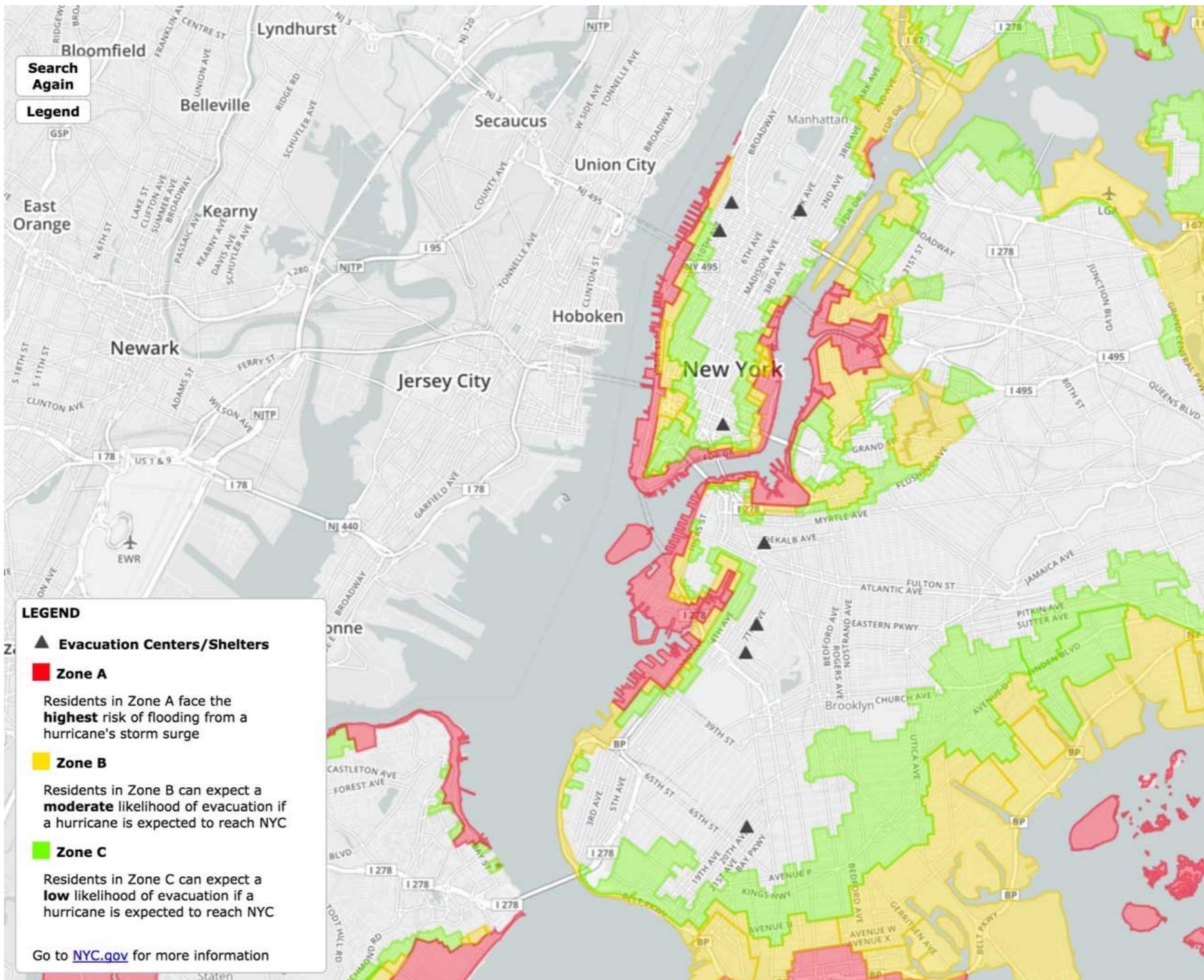
GRAN VIA, MADRID



MID VALLEY CITY, KUALA LUMPUR



[www.mapbox.com/industries/agriculture](http://www.mapbox.com/industries/agriculture)



[www.mapbox.com/nyc-sandy](http://www.mapbox.com/nyc-sandy)

PUBLIC

smartchicago / chicago-atlas

Watch 20

Star 72

Fork 233

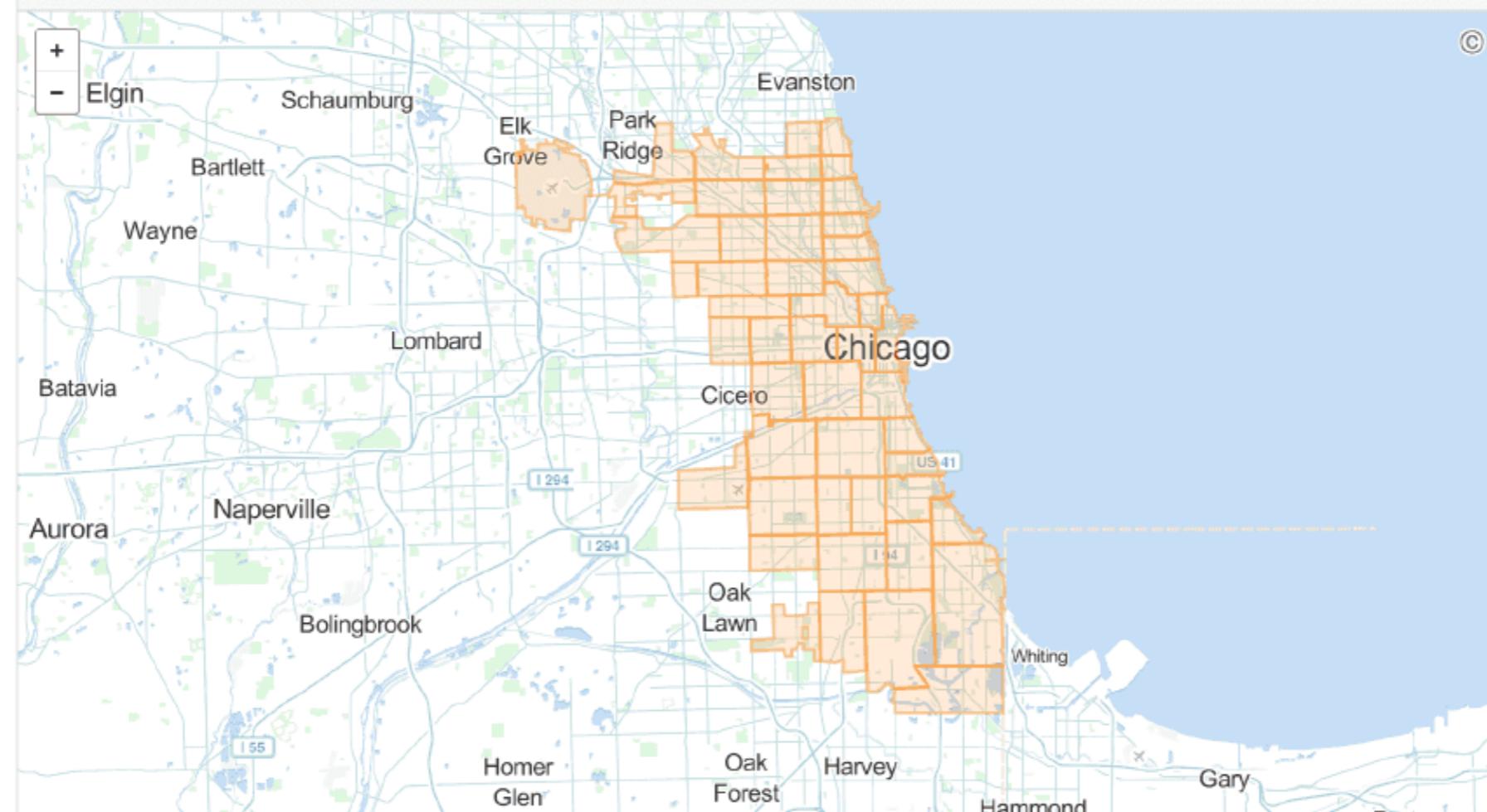
branch: master → [chicago-atlas / db / import / zipcodes.geojson](#)

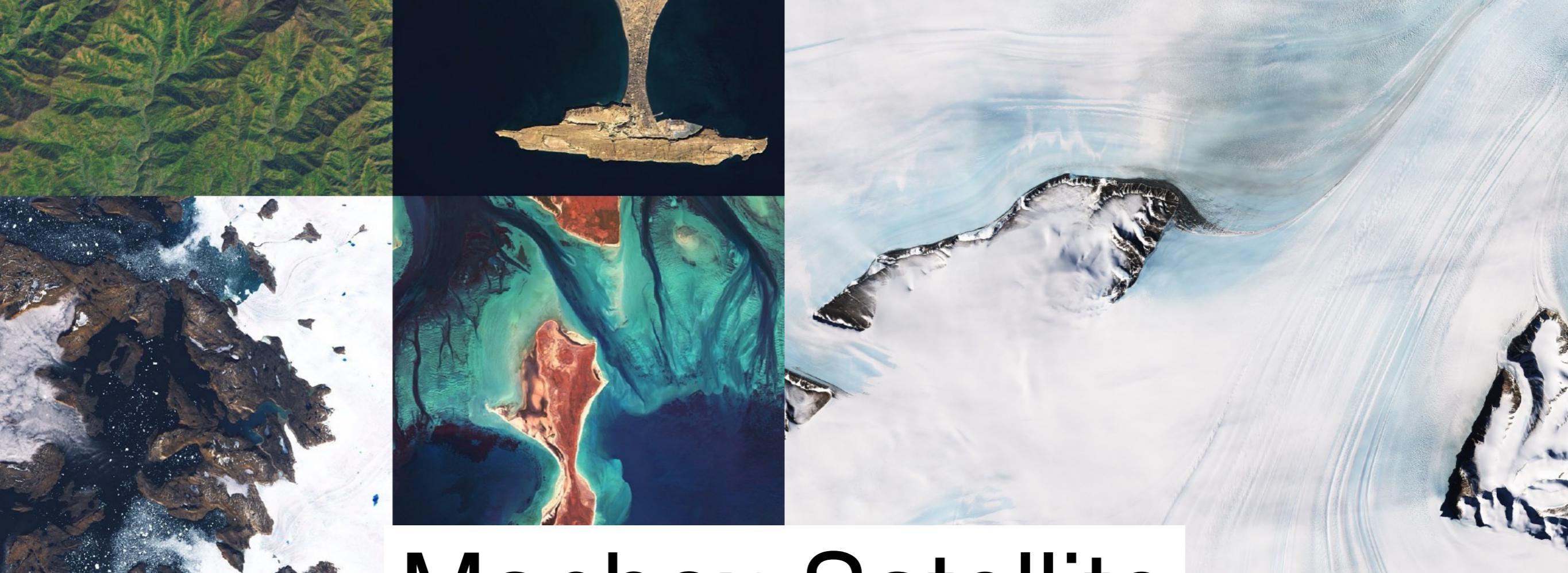
 **derekeder** on May 1 merged 60633 in to 60827, closes [#175](#)

3 contributors   

file | 7182 lines (7182 sloc) | 254.318 kb

 Open Edit Raw Blame History Delete





# Mapbox Satellite



```
1 // Languages: name (local), name_en, name_fr, name_es, name_de
2 @name: '[name_en]';
3
4 // Fonts //
5 @sans: 'Source Sans Pro Regular';
6 @sans_italic: 'Source Sans Pro Italic';
7 @sans_bold: 'Source Sans Pro Semibold';
8
9 // Common Colors //
10 @land: #fff;
11 @water: #c3e6ff;
12
13 Map { background-color: @land; }
14
15 // Political boundaries //
16
17 #admin@admin_level=2][maritime=0] {
18   line-join: round;
19   line-color: #bbe;
20   line-width: 1.4;
21   [zoom>=6] { line-width: 2; }
22   [zoom>=8] { line-width: 4; }
23   [disputed=1] { line-dasharray: 4,4; }
24 }
25
26 // Places //
27
28 #country_label[zoom>=3] {
29   text-name: @name;
30   text-face-name: @sans_bold;
31   text-fill: #66a;
32   text-size: 12;
33   [zoom>=3][scalerank=1],
34   [zoom>=4][scalerank=2],
35   [zoom>=5][scalerank=3],
36   [zoom>=6][scalerank>3] {
37     text-size: 14;
38   }
39   [zoom>=4][scalerank=1],
40   [zoom>=5][scalerank=2],
41   [zoom>=6][scalerank=3],
42   [zoom>=7][scalerank>3] {
43     text-size: 16;
```

# Mapbox Studio

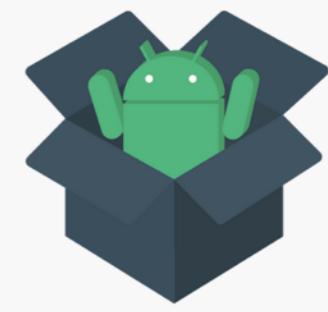
**JavaScript**  
Mapbox.js library



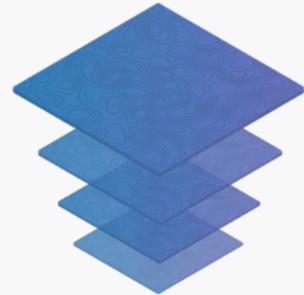
**iOS**  
Mapbox iOS SDK & MBXMapKit



**Android**  
Android SDK



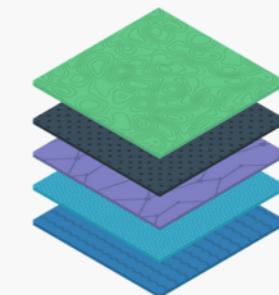
**Mapbox GL**  
JS and Native



**Mapbox Studio**  
Mapbox Studio



**Web services**  
Cross-platform



[www.mapbox.com/developers](http://www.mapbox.com/developers)

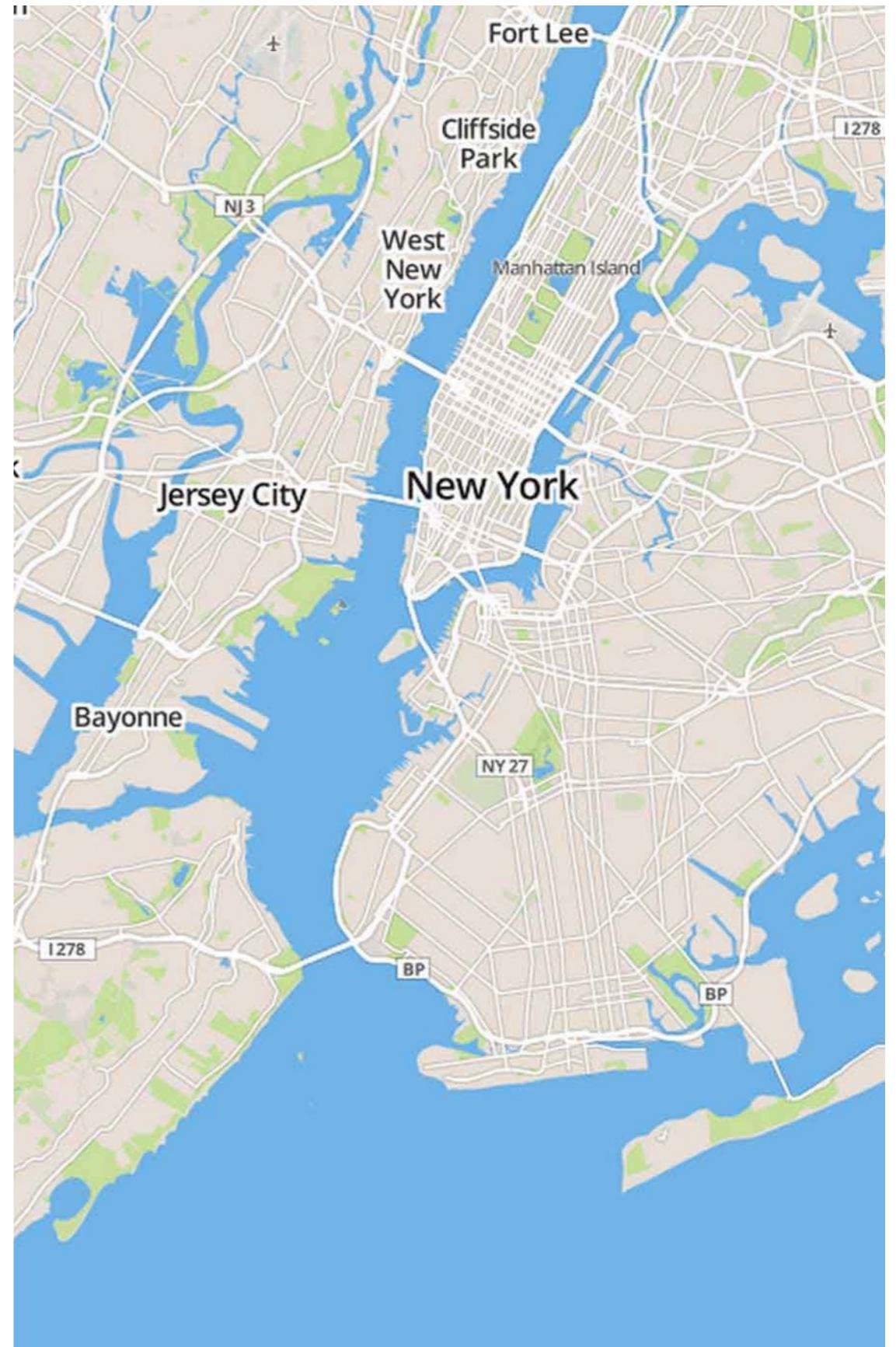
# Today we will:

- Learn about vector tiles
- Get our hands dirty with Mapbox Studio
- Customize a basemap
- Upload it to [mapbox.com](https://mapbox.com)
- Put it on a web page

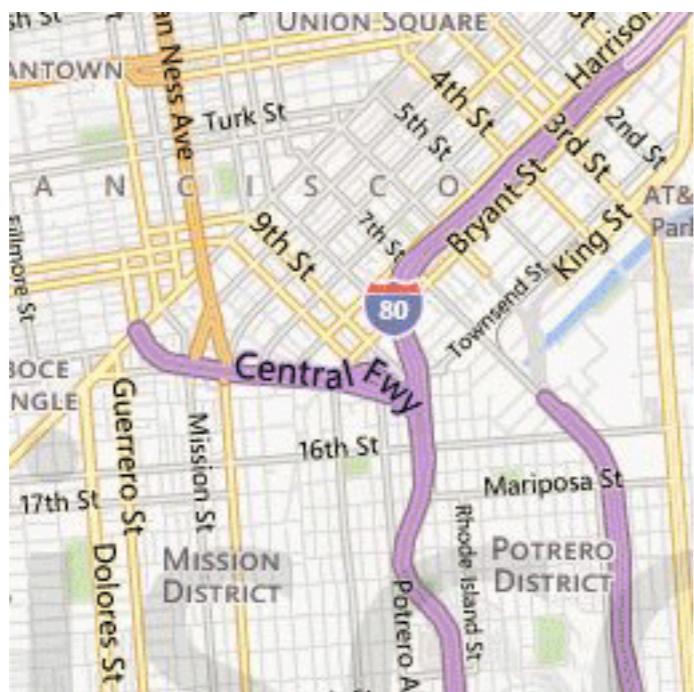


# First things first:

Let's talk about  
**vector tiles**!



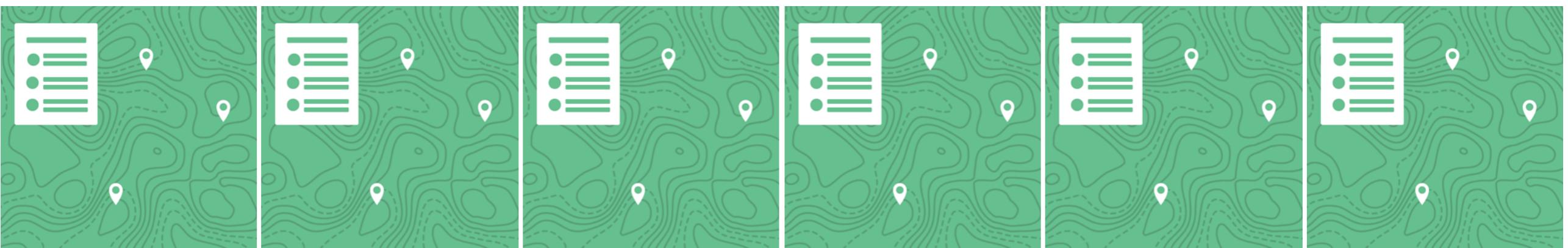
Before vector tiles, there were raster tiles.



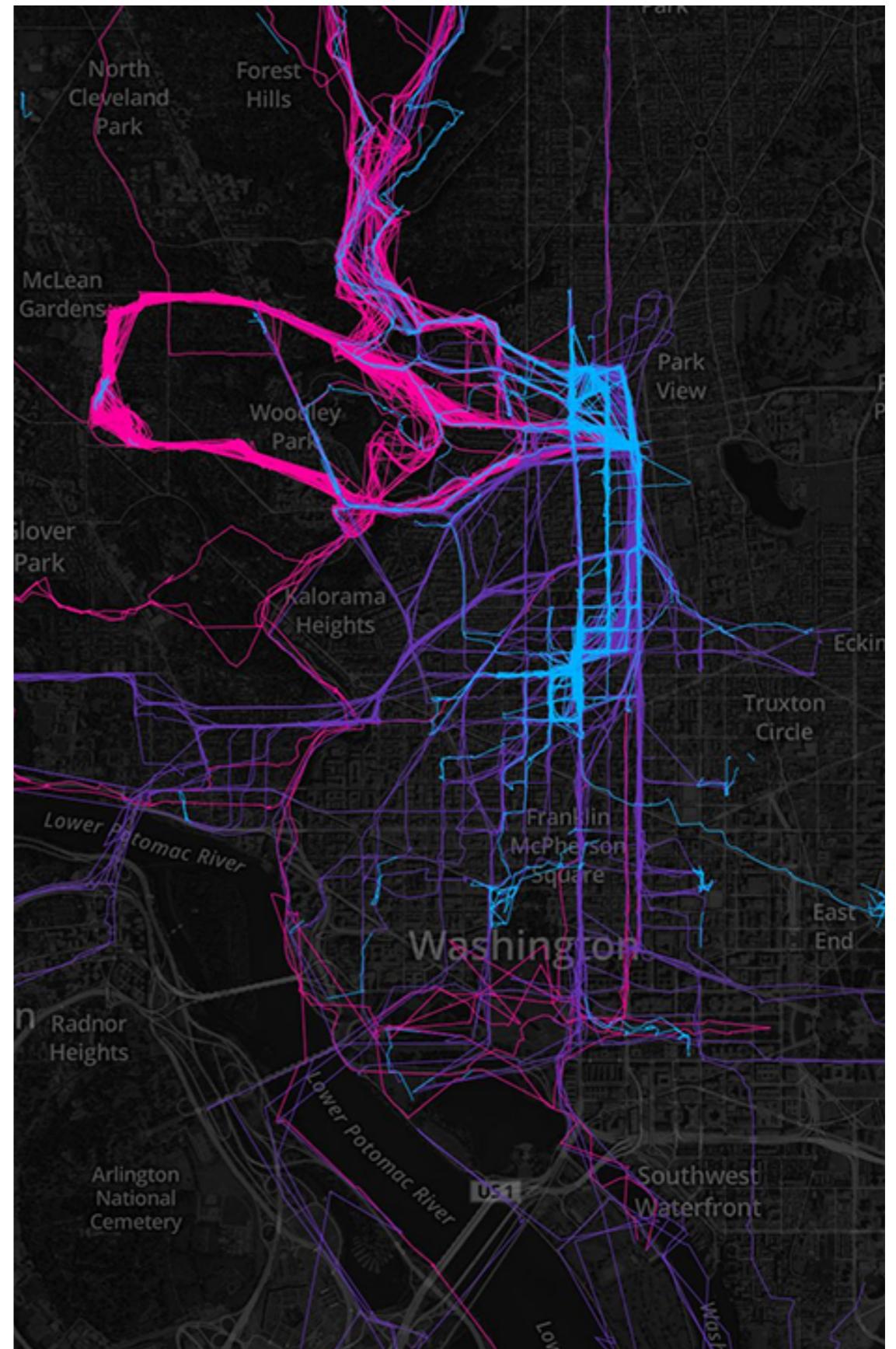
Raster tiles are PNGs that are rendered on the server and then served to the client upon request.

# With raster tiles:

- Use vector data layers
- Style the data with a styling language called **CartoCSS**
- Export data and style to a renderer that creates tiles and stores them in a specific file structure
- Load tiles when they're requested from the client



So how does  
this process  
differ from  
vector tiles?



# With vector tiles:

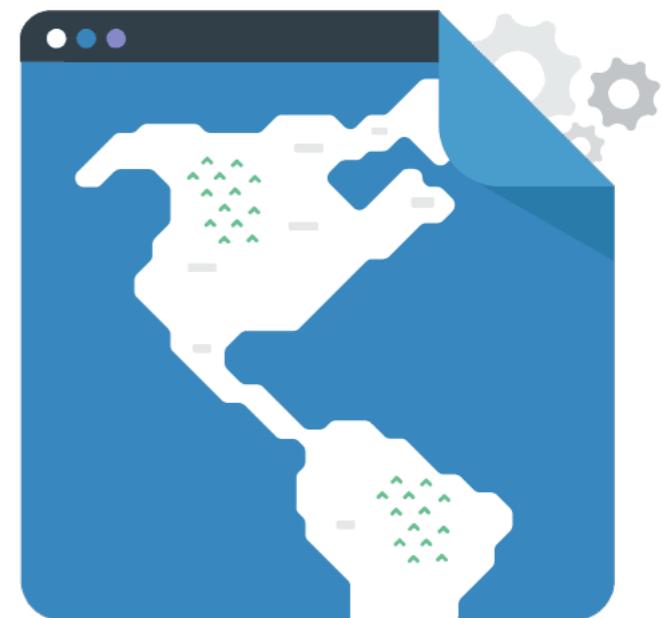
- Use vector data layers
- Style the data with a styling language called **CartoCSS**
- Style and source (vector) data stored separately - renderer only renders vector data
- Load vector data when requested by client
- Style is added in the browser!



Raster tiles only include the image, but vector tiles include all the vector data.

The style determines what is shown on the tile.

Vector tiles are fast and dynamic.



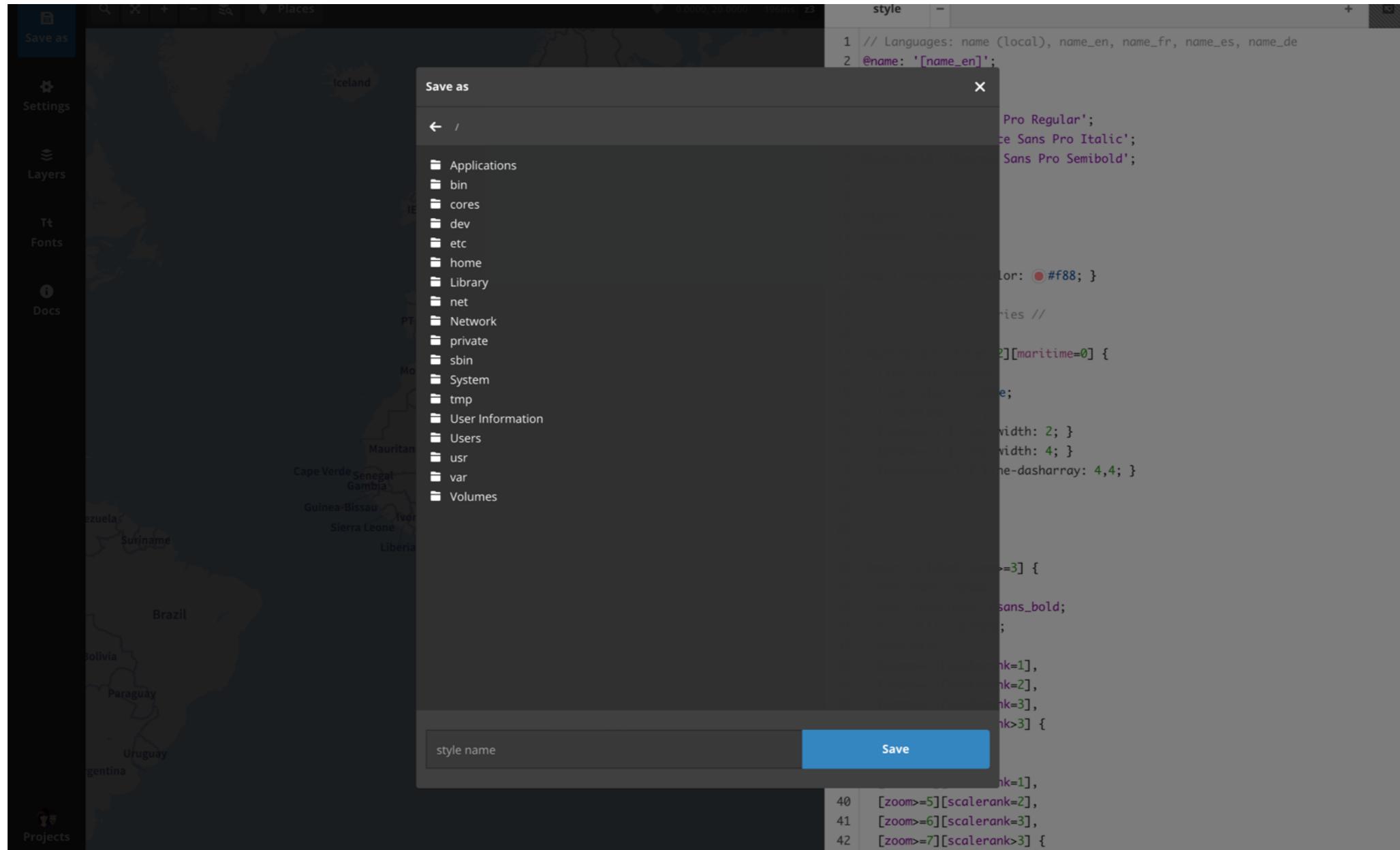


So let's make  
some!

Go ahead and open up  
**Mapbox Studio**.

“Holy carps, that’s a lot of things!”

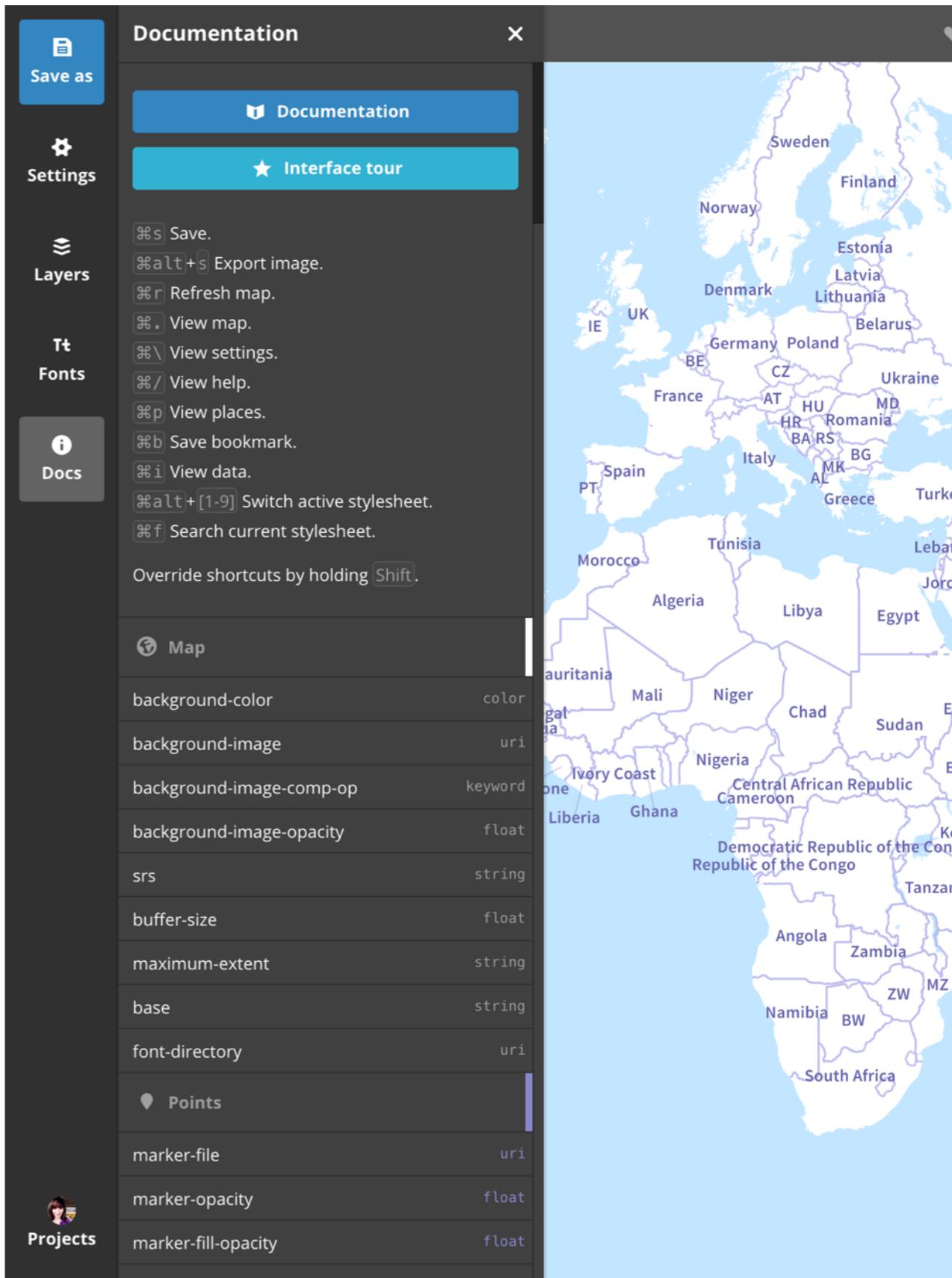
– Me, the first time I opened Mapbox Studio



# Save save save FIRST

If we don't save it, we won't be able to use it later.

In the left column,  
click **Docs** and  
then click  
**Interface Tour**.





```
style - + [ ]  
1 // Languages: name (local), name_en, name_fr, name_es, name_de  
2 @name: '[name_en]';  
3  
4 // Fonts //  
5 @sans: 'Source Sans Pro Regular';  
6 @sans_italic: 'Source Sans Pro Italic';  
7 @sans_bold: 'Source Sans Pro Semibold';  
8  
9 // Common Colors //  
10 @land: #fff;  
11 @water: #c3e6ff;  
12  
13 Map { background-color: @land; }  
14  
15 // Political boundaries //  
16  
17 #admin[admin_level=2][maritime=0] {  
18   line-join: round;  
19   line-color: #bbe;  
20   line-width: 1.4;  
21   [zoom>=6] { line-width: 2; }  
22   [zoom>=8] { line-width: 4; }  
23   [disputed=1] { line-dasharray: 4,4; }  
24 }  
25  
26 // Places //  
27  
28 #country_label[zoom>=3] {  
29   text-name: @name;  
30   text-face-name: @sans_bold;  
31   text-fill: #66a;  
32   text-size: 12;  
33   [zoom>=3][scalerank=1],  
34   [zoom>=4][scalerank=2],  
35   [zoom>=5][scalerank=3],  
36   [zoom>=6][scalerank>3] {  
37     text-size: 14;  
38   }  
39   [zoom>=4][scalerank=1],  
40   [zoom>=5][scalerank=2],  
41   [zoom>=6][scalerank=3],  
42   [zoom>=7][scalerank>3] {  
43     text-size: 16;
```

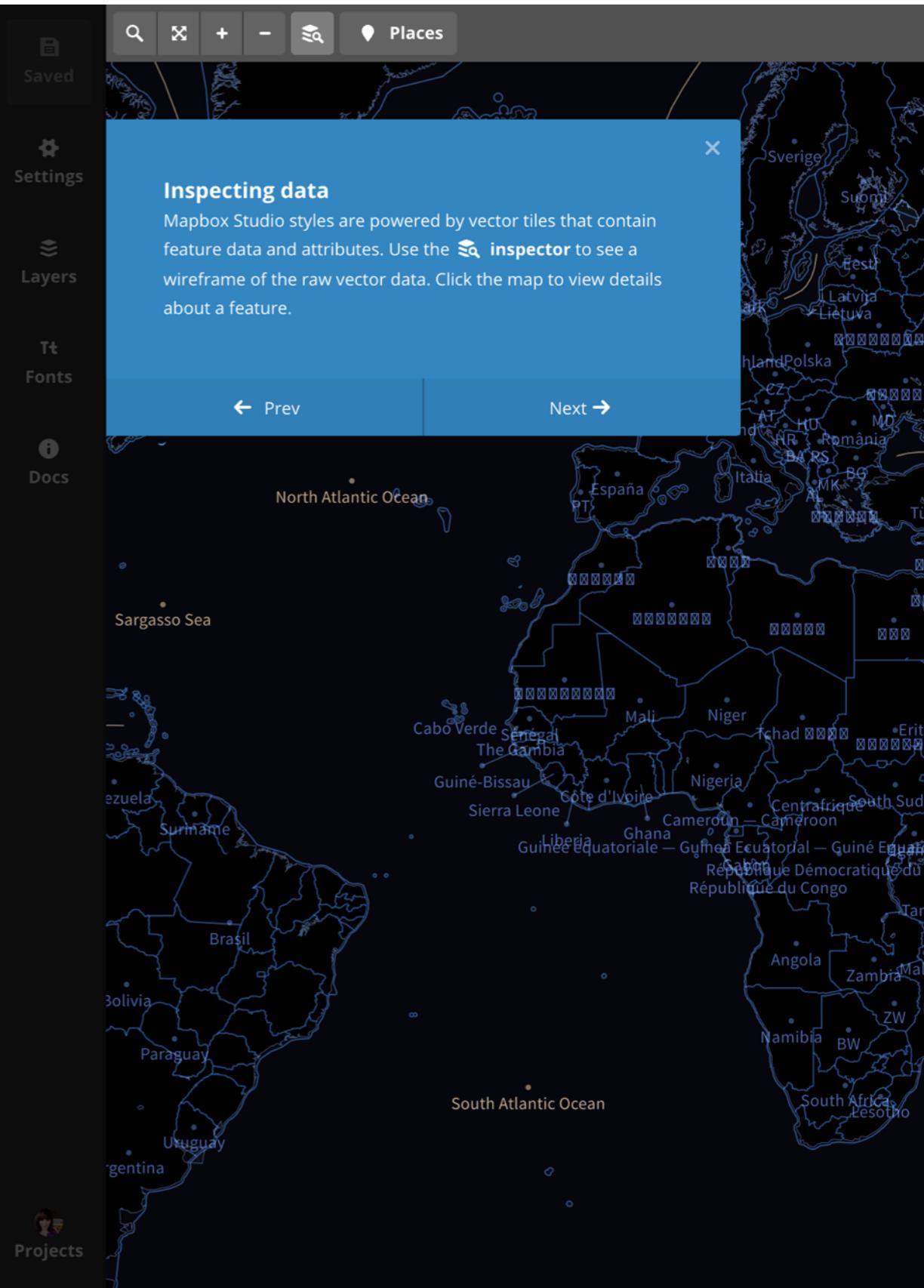
# Style Editor

This is what we're going to be using today.

Mapbox Studio comes pre-loaded with data from OpenStreetMap and Natural Earth!

# This is the vector tile data

that will power our styling today. It's cool to see what's available, and it's especially cool that we don't have to deal with data wrangling!



# CartoCSS is the language of tile styling and Mapbox Studio provides a full reference that's at our fingertips. We also have access to fonts!

The screenshot shows the Mapbox Studio interface. On the left, there's a sidebar with a 'Documentation' tab open, displaying a list of CartoCSS properties and their types. In the center, a map of Europe and Africa is shown with various styling layers applied. A floating documentation drawer titled 'CartoCSS' is overlaid on the map, providing a full reference to the styling language. The drawer includes a code editor with a snippet of CartoCSS code, a description of the language, and navigation buttons for 'Prev' and 'Next'.

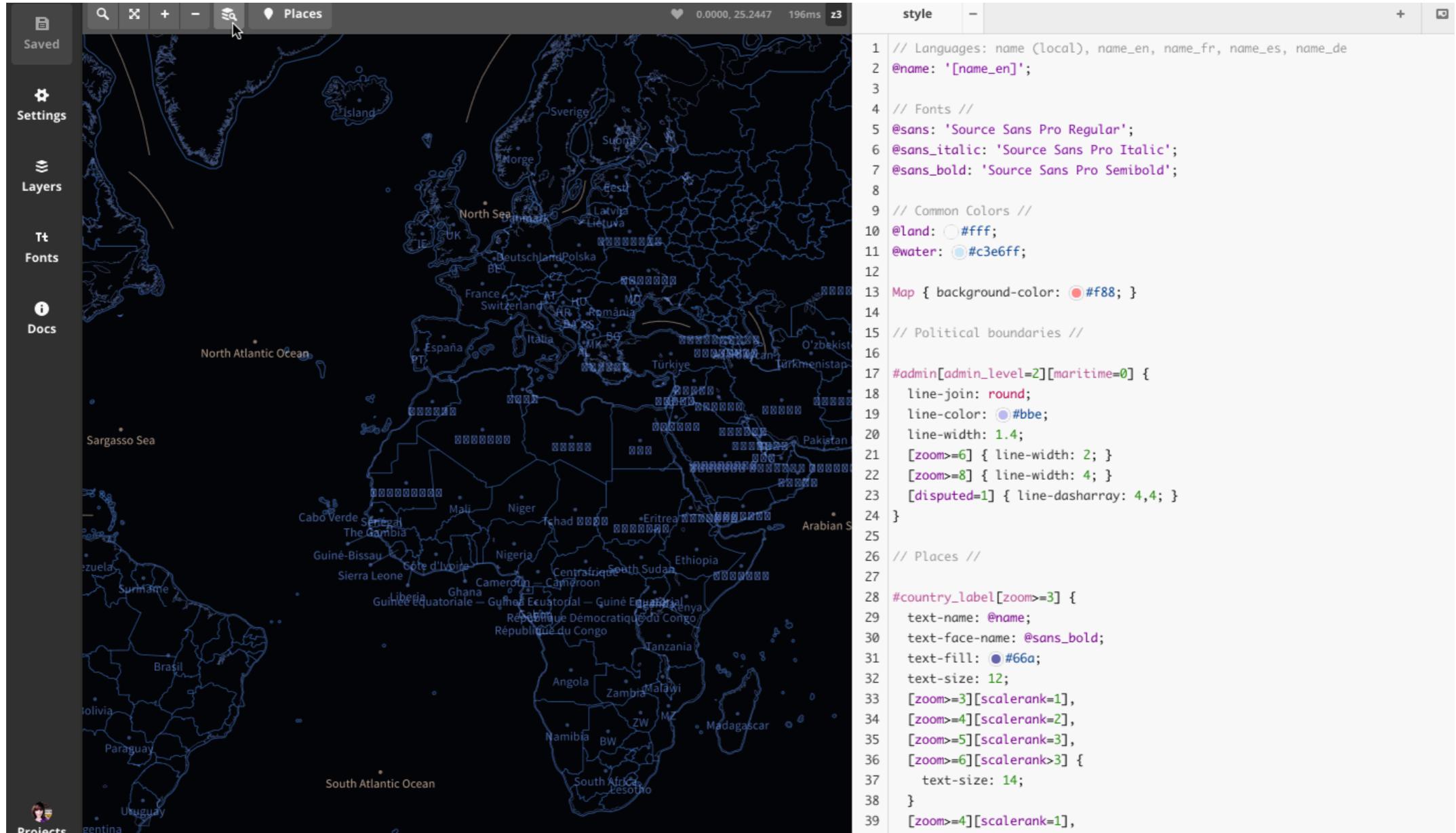
| Property                  | Type      |
|---------------------------|-----------|
| marker-ignore-placement   | boolean   |
| marker-spacing            | float     |
| marker-max-error          | float     |
| marker-transform          | functions |
| marker-clip               | boolean   |
| marker-simplify           | float     |
| marker-simplify-algorithm | keyword   |
| marker-smooth             | float     |
| marker-geometry-transform | functions |
| marker-offset             | float     |
| marker-comp-op            | keyword   |
| point-file                | uri       |
| point-allow-overlap       | boolean   |
| point-ignore-placement    | boolean   |
| point-opacity             | float     |
| point-placement           | keyword   |
| point-transform           | functions |
| point-comp-op             | keyword   |
| Lines                     |           |
| line-color                | color     |
| line-width                | float     |
| line-opacity              | float     |
| line-join                 | keyword   |
| line-cap                  | keyword   |
| line-gamma                | float     |
| line-gamma-method         | keyword   |
| line-dasharray            | numbers   |

# Vector sources tell us how to write our CartoCSS

and since this data is from OpenStreetMap we will use the different feature tags for styling.

The screenshot shows the Mapbox Studio interface. On the left, there's a sidebar with 'Saved', 'Settings', 'Layers' (which is selected), 'Fonts', and 'Docs'. Below that is a 'Projects' section with a user icon. The main area has a 'Layers' panel titled 'Mapbox Streets V5' containing a list of layers with color swatches: #housenum\_label (green), #waterway\_label (teal), #road\_label (blue), #poi\_label (light teal), #water\_label (purple), #place\_label (dark purple), #state\_label (green), #marine\_label (brown), #country\_label (blue), #country\_label\_line (blue), #admin (blue), #bridge (brown), #road (brown), #tunnel (purple), #landuse\_overlay (green), #building (yellow-green), #barrier\_line (blue), #aeroway (pink), #water (blue), and #waterway (brown). Below this is a 'No description.' section with 'class', 'osm\_id', and 'type' fields. To the right is a preview map of Europe and Africa with country labels. A blue sidebar on the right is titled 'Vector sources' with the text: 'Each style is powered by a vector source. Click a layer to see more about the data that can be styled. Use the Change source button to switch out the active vector source for another.' It also has 'Prev' and 'Next' buttons. The bottom right corner shows a code editor with CartoCSS code.

```
11 @water: ;
12 
13 Map { ba
14 // Polit
15 #admin[ad
16 line-j
17 line-c
18 line-w
19 [zoom>
20 [zoom>
21 [dispu
22 
23 
24 }
25 
26 // Place
27 
28 #country_
29 text-n
30 text-f
31 text-f
32 text-s
33 [zoom>
34 [zoom>
35 [zoom>
36 [zoom>
37 text
38 }
39 [zoom>
40 [zoom>
41 [zoom>
42 [zoom>
43 text
```



When you're done with the tour  
click the inspector button to go back to style view.

# Let's walk through the CartoCSS

and take a look at how this  
whole styling thing works.

```
style - + [ ]  
1 // Languages: name (local), name_en, name_fr, name_es, name_de  
2 @name: '[name_en]';  
3  
4 // Fonts //  
5 @sans: 'Source Sans Pro Regular';  
6 @sans_italic: 'Source Sans Pro Italic';  
7 @sans_bold: 'Source Sans Pro Semibold';  
8  
9 // Common Colors //  
0 @land: #fff;  
1 @water: #c3e6ff;  
2  
3 Map { background-color: #f88; }  
4  
5 // Political boundaries //  
6  
7 #admin@admin_level=2][maritime=0] {  
8   line-join: round;  
9   line-color: #bbe;  
0   line-width: 1.4;  
1   [zoom>=6] { line-width: 2; }  
2   [zoom>=8] { line-width: 4; }  
3   [disputed=1] { line-dasharray: 4,4; }  
4 }  
5  
6 // Places //  
7  
8 #country_label[zoom>=3] {  
9   text-name: @name;  
0   text-face-name: @sans_bold;  
1   text-fill: #66a;  
2   text-size: 12;  
3   [zoom>=3][scalerank=1],  
4   [zoom>=4][scalerank=2],  
5   [zoom>=5][scalerank=3],  
6   [zoom>=6][scalerank>3] {  
7     text-size: 14;  
8   }  
9   [zoom>=4][scalerank=1],  
0   [zoom>=5][scalerank=2],  
1   [zoom>=6][scalerank>3]
```

[Lyzi opens Mapbox Studio and walks through it live, not succumbing to the curse of the live demo where things are inexplicably inoperable.]

# We did it!

Super cool awesomesauce.  
Click on the Map ID in  
Mapbox Studio.

Styles ?

Uploads →

 Filter your styles

1 results sorted by name date



lyzidiamond.cec5840a

lyzidiamond.cec5840a  2.2KB

Mar 23 2015



Replace



# Your style is alive!

You can look at metrics, see the map in its own page, and more!

Filter your styles

1 results sorted by

name

date

The screenshot shows a map style configuration interface. At the top, there's a small thumbnail of a map showing streets like Sutter St, Post St, Franklin St, and Gough St. Below it, the style ID is listed as "lyzidiamond.cec5840a". To the right are download and file size ("2.2KB") buttons. Further right are creation date ("Mar 23 2015"), signal strength, location, and a "Replace" button. A trash can icon is at the far right.

**Zoom levels**  
z0 - z22

**Description**  
No description

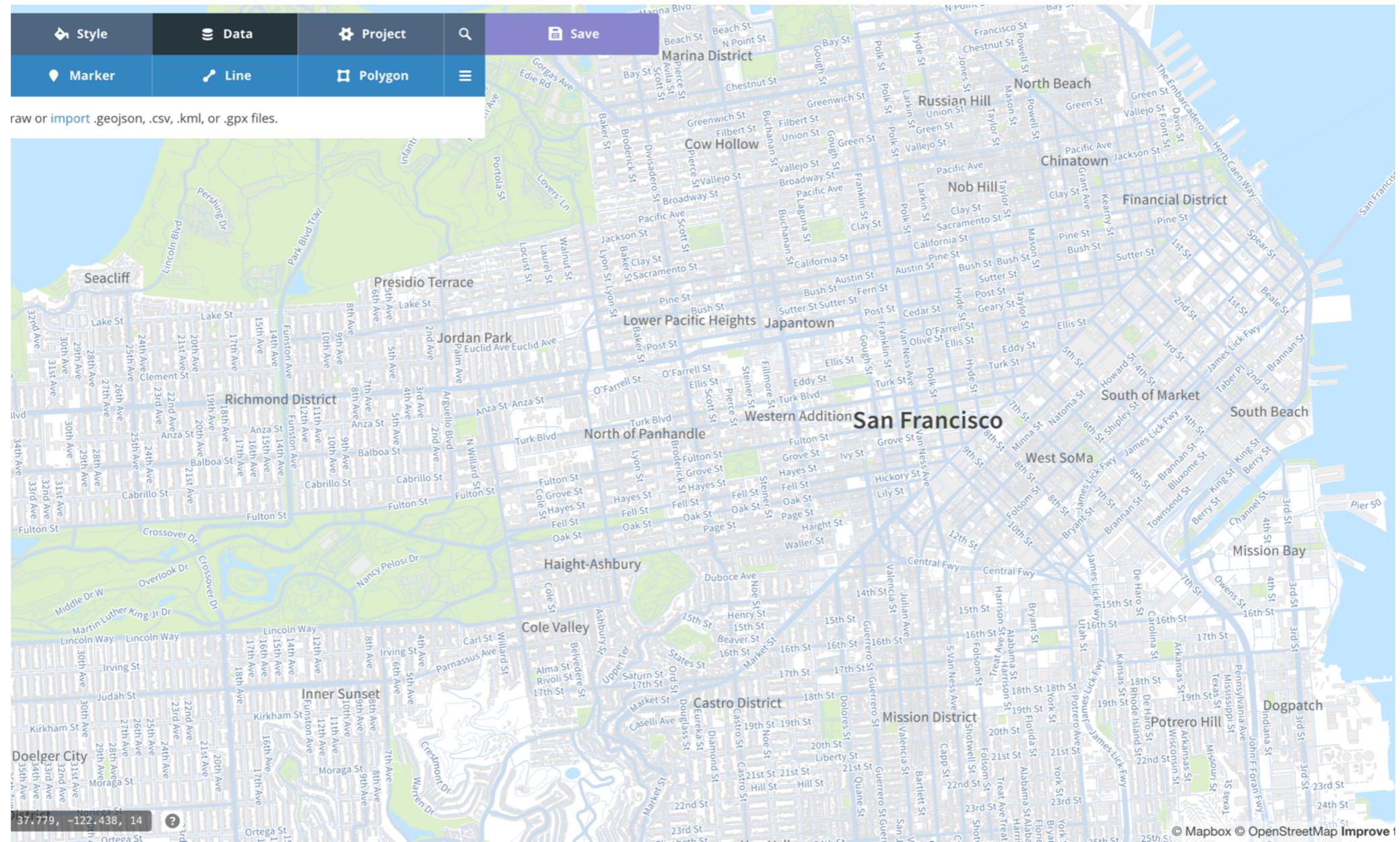
**New project**  
Start with lyzidiamond.cec5840a as a layer in a new Editor project.

Visible to public API

A large map of San Francisco is displayed, showing a grid of streets and neighborhood names. The map includes labels for Japantown, Western Addition, and parts of San Francisco. The San Francisco Bay is visible in the background.

# Let's make a new project.

Click on your style ID, then click New project.



# Woohoo! Our style is on a map!

This is exciting because now we can add interactive data on top of our style and make something interesting.

# Past Day

Updated every minute.

Significant earthquakes

[Atom](#) [CSV](#) [GeoJSON](#) [GeoJSONP](#)

M2.5+ earthquakes

[Atom](#) [CSV](#) [GeoJSON](#) [GeoJSONP](#)

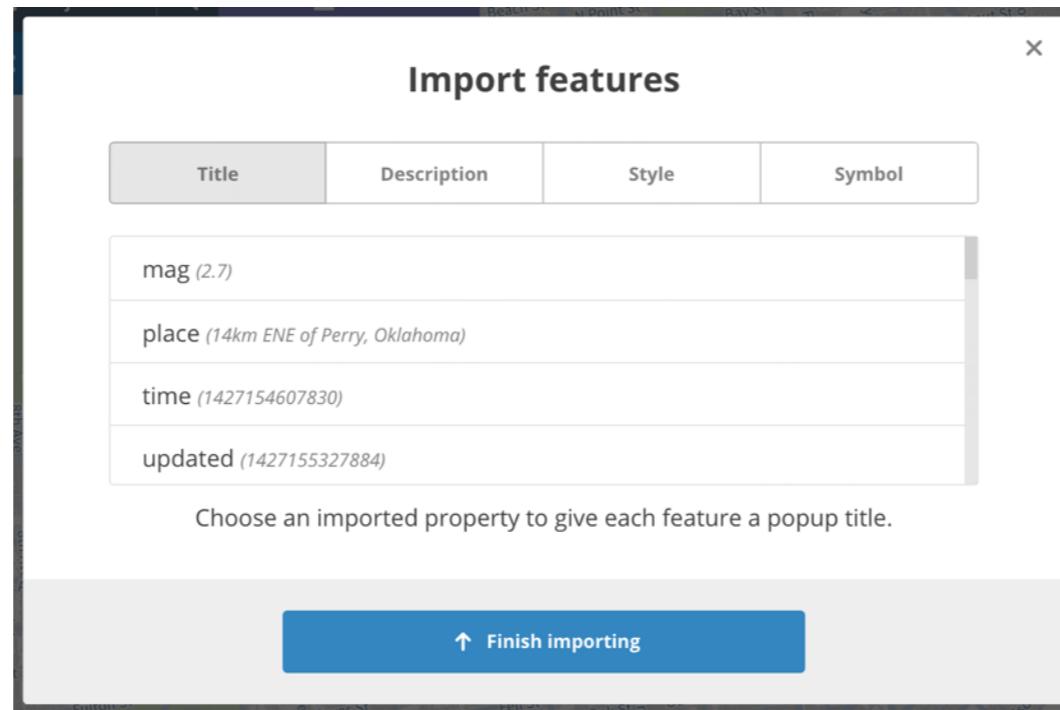
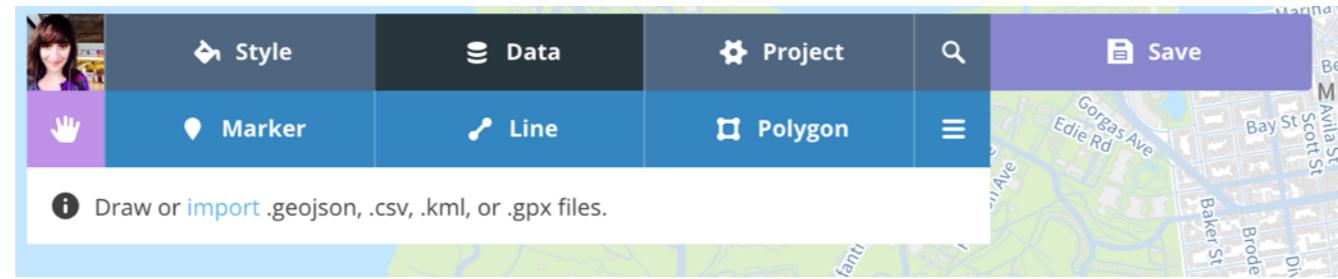
M1+ earthquakes

[Atom](#) [CSV](#) [GeoJSON](#) [GeoJSONP](#)

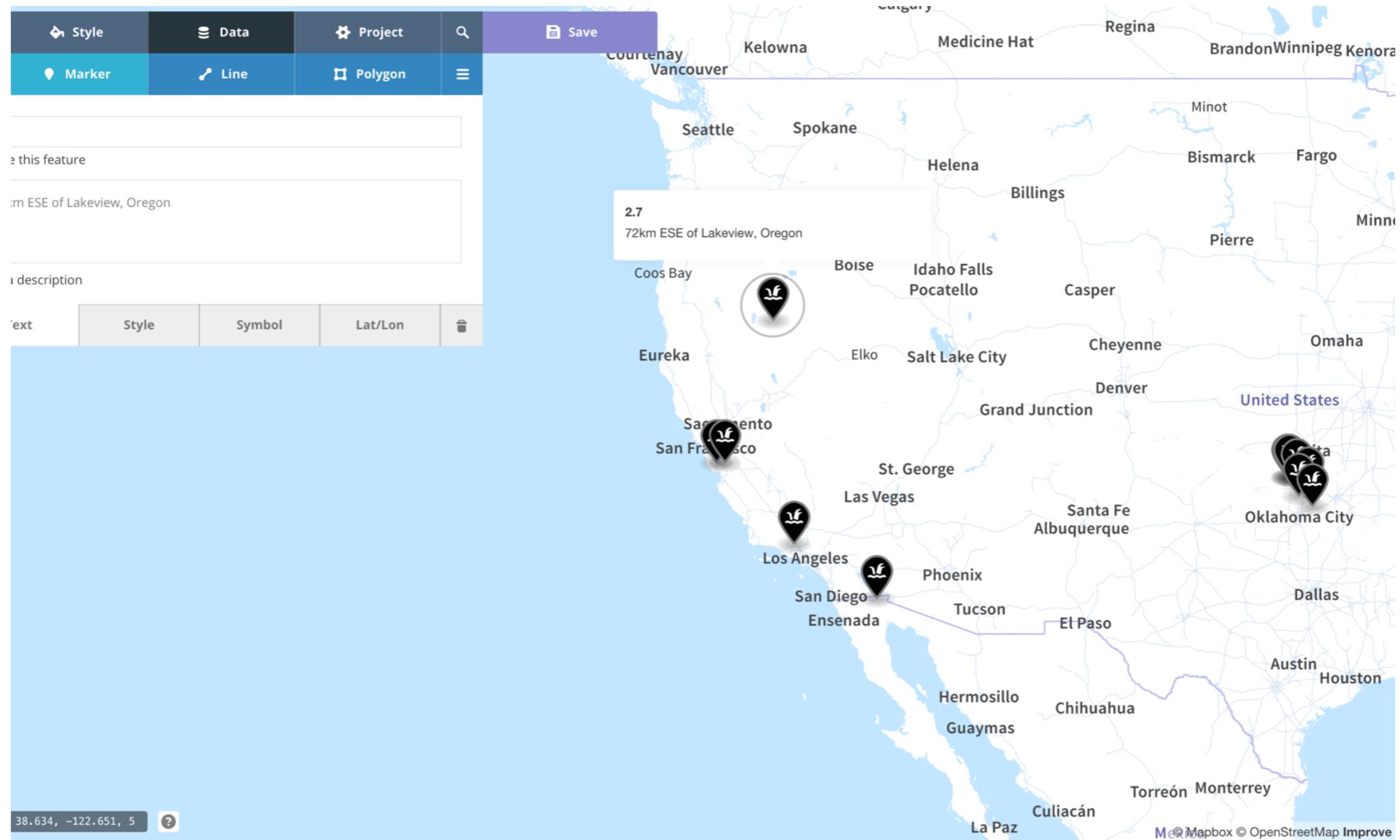
All earthquakes

[Atom](#) [CSV](#) [GeoJSON](#) [GeoJSONP](#)

- Head to [bit.ly/earthquake-data](http://bit.ly/earthquake-data)
- Find and download the **GeoJSON** file of **Past Day M2.5+ Earthquakes**



- Back on your [mapbox.com](https://mapbox.com) project page, click **Data** and then click **import**
- Select the **2.5\_day.geojson** file
- Select fields for a **popup title** and **popup description**, and then **style** the markers.

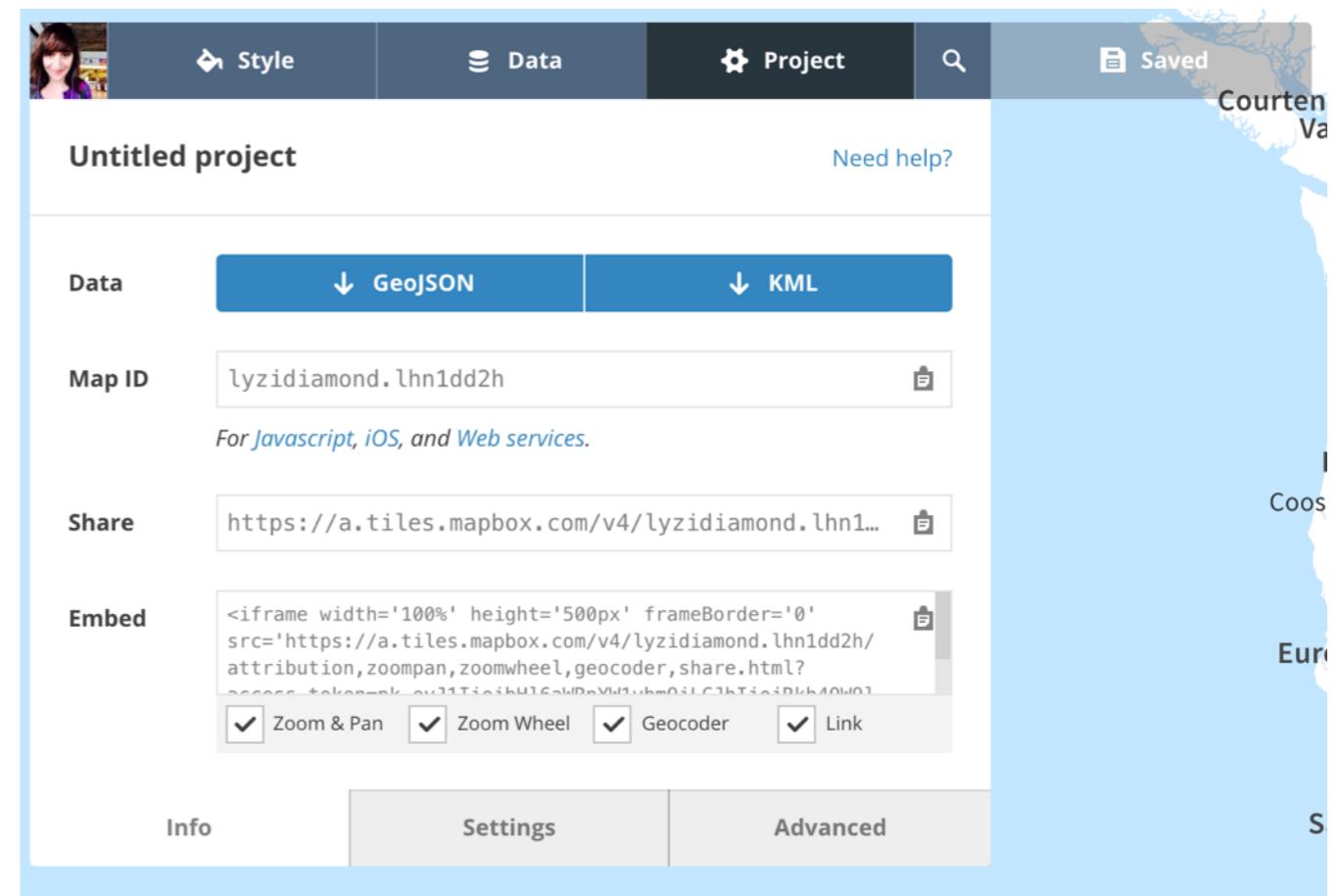


# You made a map of earthquakes!

Click Save to save the project.

# Now, under **Projects**, you have an embed code.

You can use this code to  
embed the map in other  
sites.



API v2.1.6

Map Object  
[L.mapbox.map](#)

Layers  
[L.mapbox.tileLayer](#)  
[L.mapbox.gridLayer](#)  
[L.mapbox.featureLayer](#)

Geocoding  
[L.mapbox.geocoder](#)

Controls  
[L.mapbox.infoControl](#)  
[L.mapbox.legendControl](#)  
[L.mapbox.gridControl](#)  
[L.mapbox.geocoderControl](#)  
[L.mapbox.shareControl](#)

Markers  
[L.mapbox.marker.icon](#)  
[L.mapbox.marker.style](#)

Simplestyle  
[L.mapbox.simplestyle.style](#)

Utility  
[L.mapbox.sanitize](#)  
[L.mapbox.template](#)

Configuration  
[L.mapbox.accessToken](#)  
[L.mapbox.config.FORCE\\_HTTPS](#)

API Examples Plugins



**<script>**  
// Provide your access token  
L.mapbox.accessToken = 'pk.eyJ1IjoibHl6aWRpYW1vbmQiLCJhIjoiRkh40W';  
// Create a map in the div #map  
L.mapbox.map('map', 'examples.map-zr0njcqry');  
**</script>**

**Build anything with Mapbox.js,  
a library for fast & interactive maps.**

 Built on top of [Leaflet](#), an open source library.

 Open source and available on [GitHub](#).

 Browser tested with IE8+ and all [modern browsers](#).

# Also: Mapbox.js

[www.mapbox.com/mapbox.js](http://www.mapbox.com/mapbox.js)

# Next Steps:

- Embed your project into a web page with provided embed code
- Use your style in a Mapbox.js map
- Keep exploring style options in Mapbox Studio
- Play with other Mapbox tools

# Additional resources:

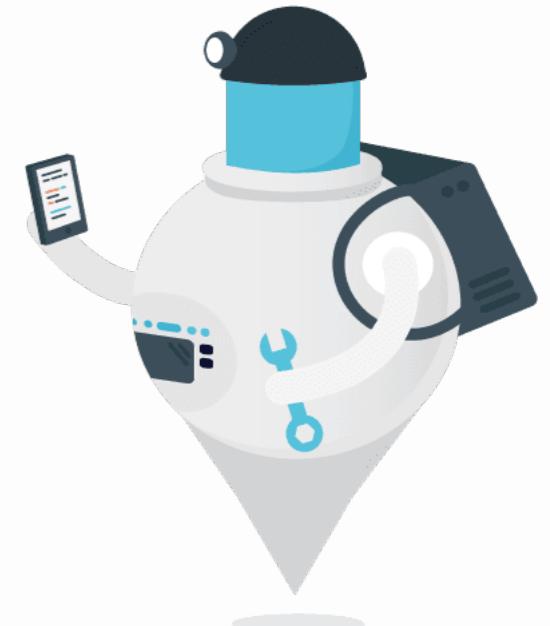
- Mapbox Studio documentation and guides:  
[www.mapbox.com/mapbox-studio](http://www.mapbox.com/mapbox-studio)
- Mapbox Guides: [www.mapbox.com/guides](http://www.mapbox.com/guides)
- Mapbox.js Documentation: [www.mapbox.com/mapbox.js](http://www.mapbox.com/mapbox.js)
- Mapbox Web Services: [www.mapbox.com/developers/api](http://www.mapbox.com/developers/api)

# Thanks!

Lyzi Diamond, **Mapbox**

@lyzidiamond | [lyzi@mapbox.com](mailto:lyzi@mapbox.com)

Slides: [lyzidiamond.com/mapbox-parisoma/slides.pdf](http://lyzidiamond.com/mapbox-parisoma/slides.pdf)



# If there's time...

- Head to [staticmapmaker.com](http://staticmapmaker.com)
- Click on **Mapbox**
- Fill in the fields with your **Access Token** and **Map ID**
- **Embed** the image in a web page, **post** it on Twitter and Facebook, etc!