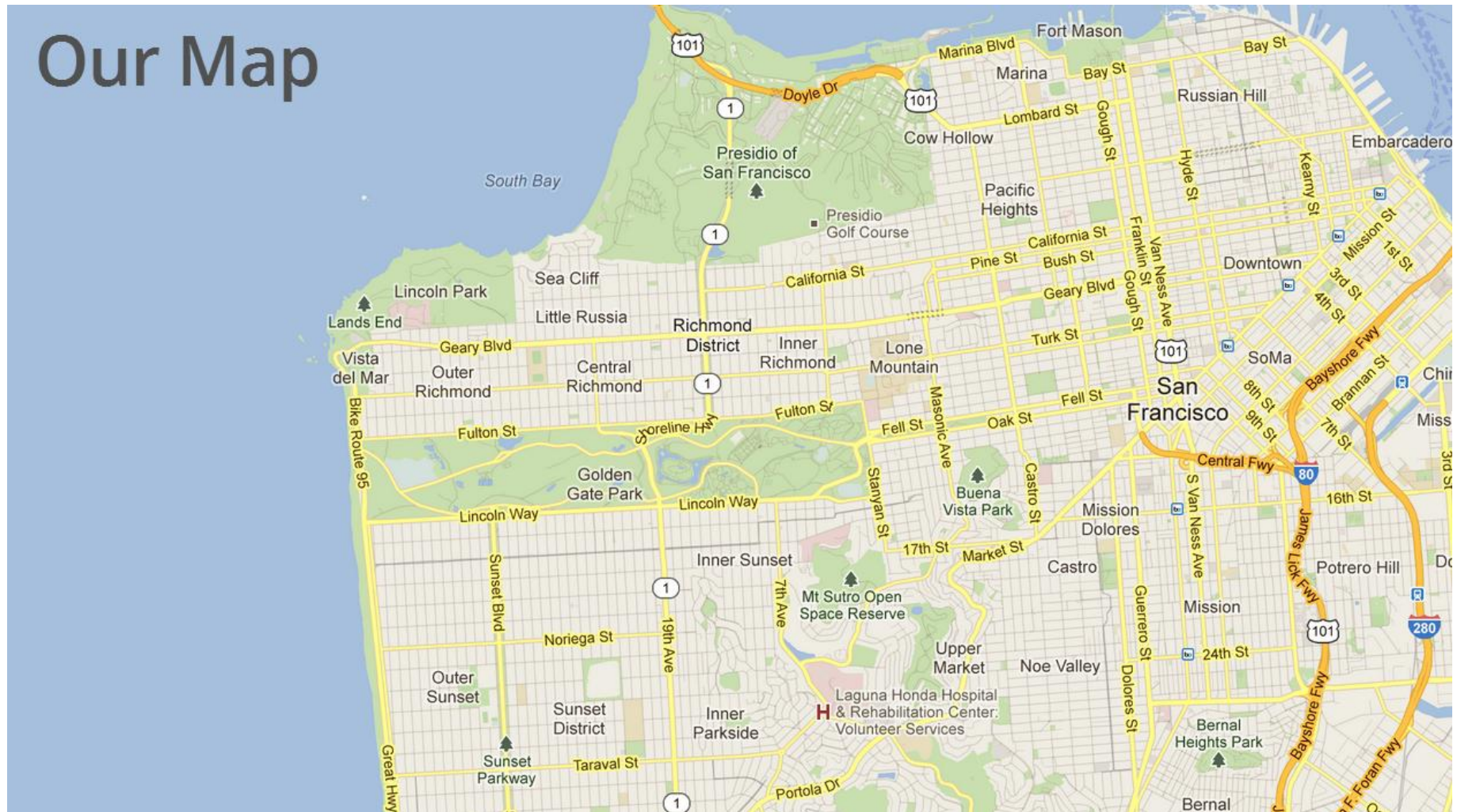




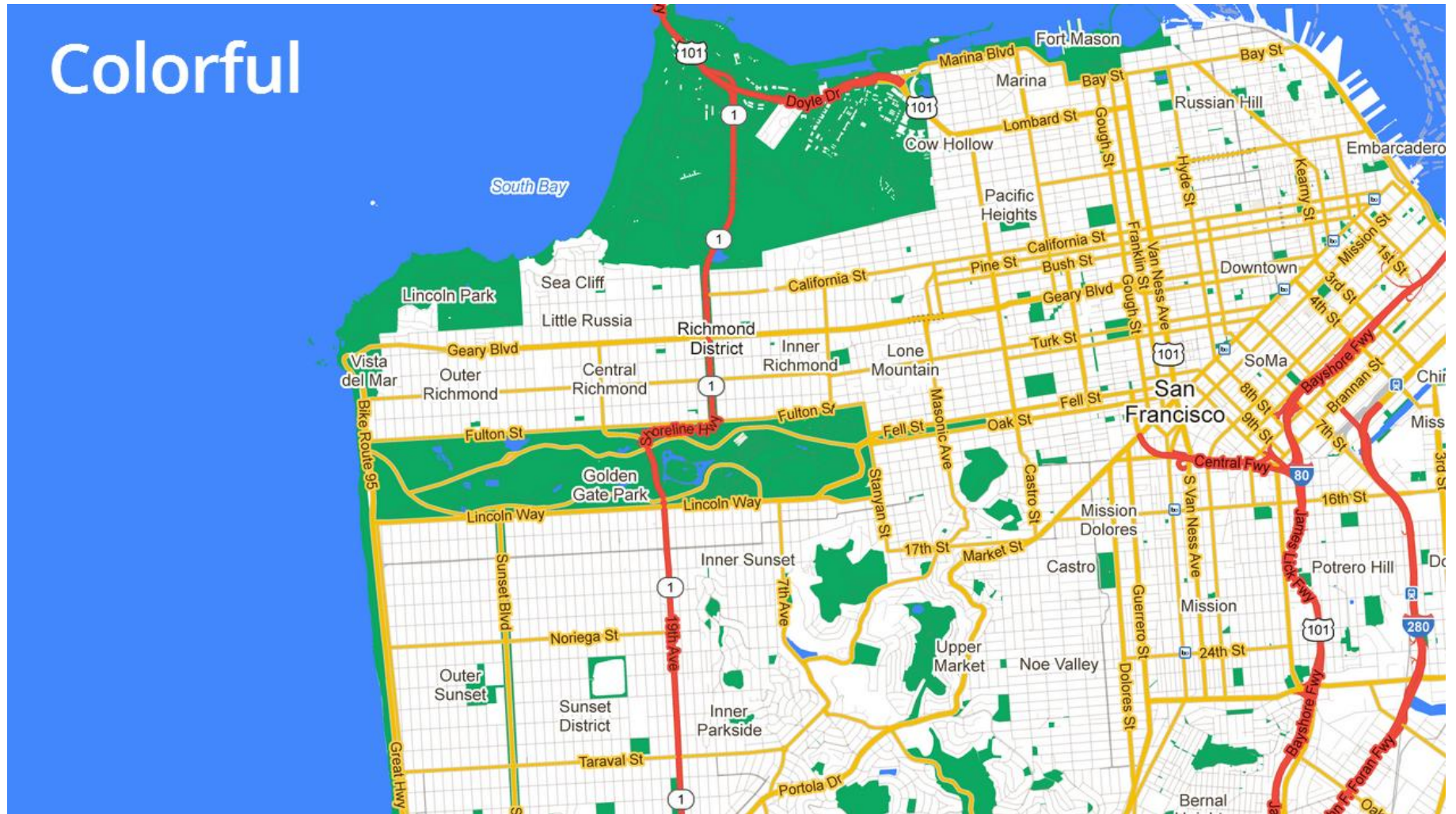
A Master Class In Map Styling

Scott Shawcroft - Software Engineer
Jonah Jones - User Experience Designer

Our Map



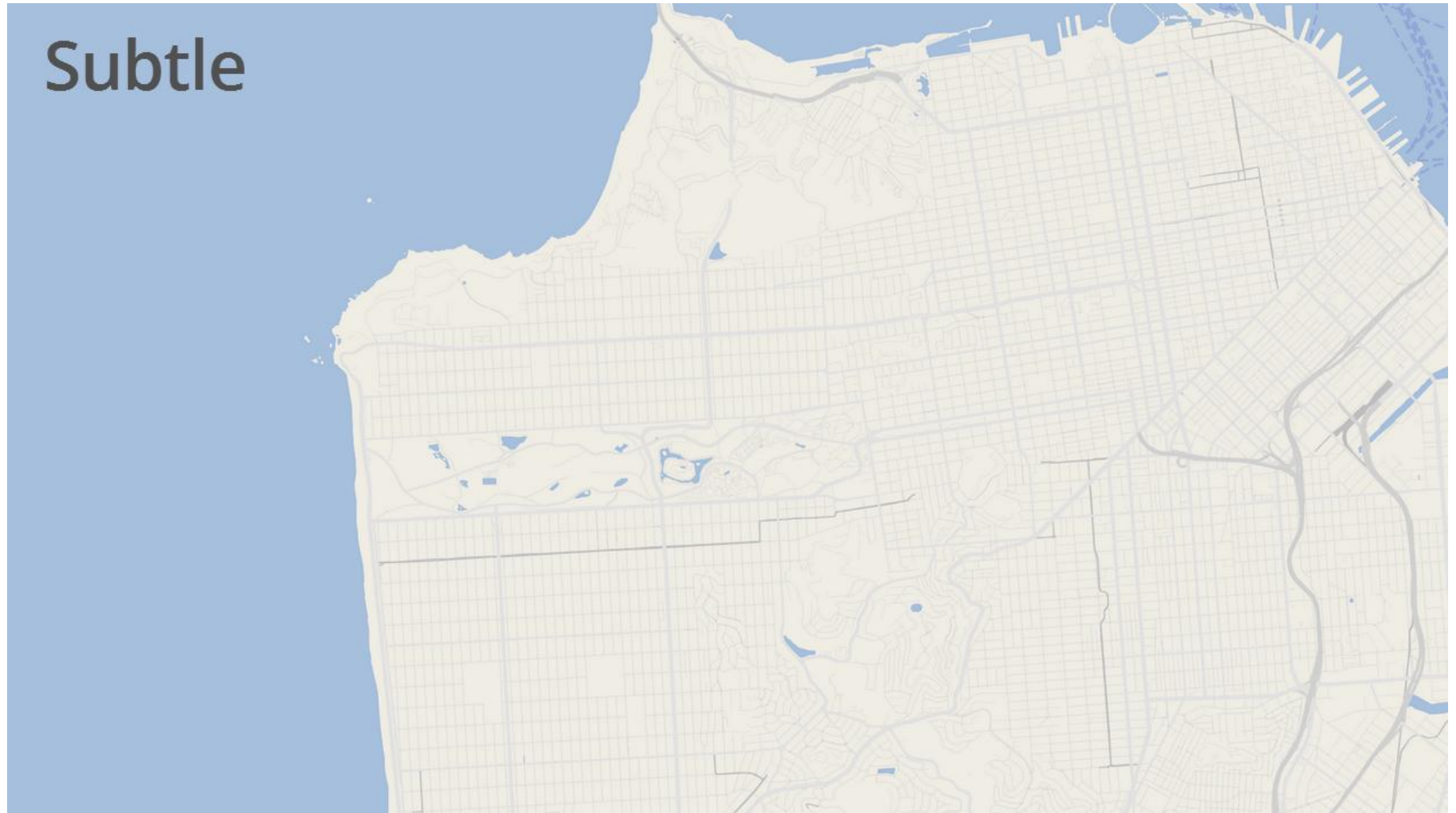
Colorful



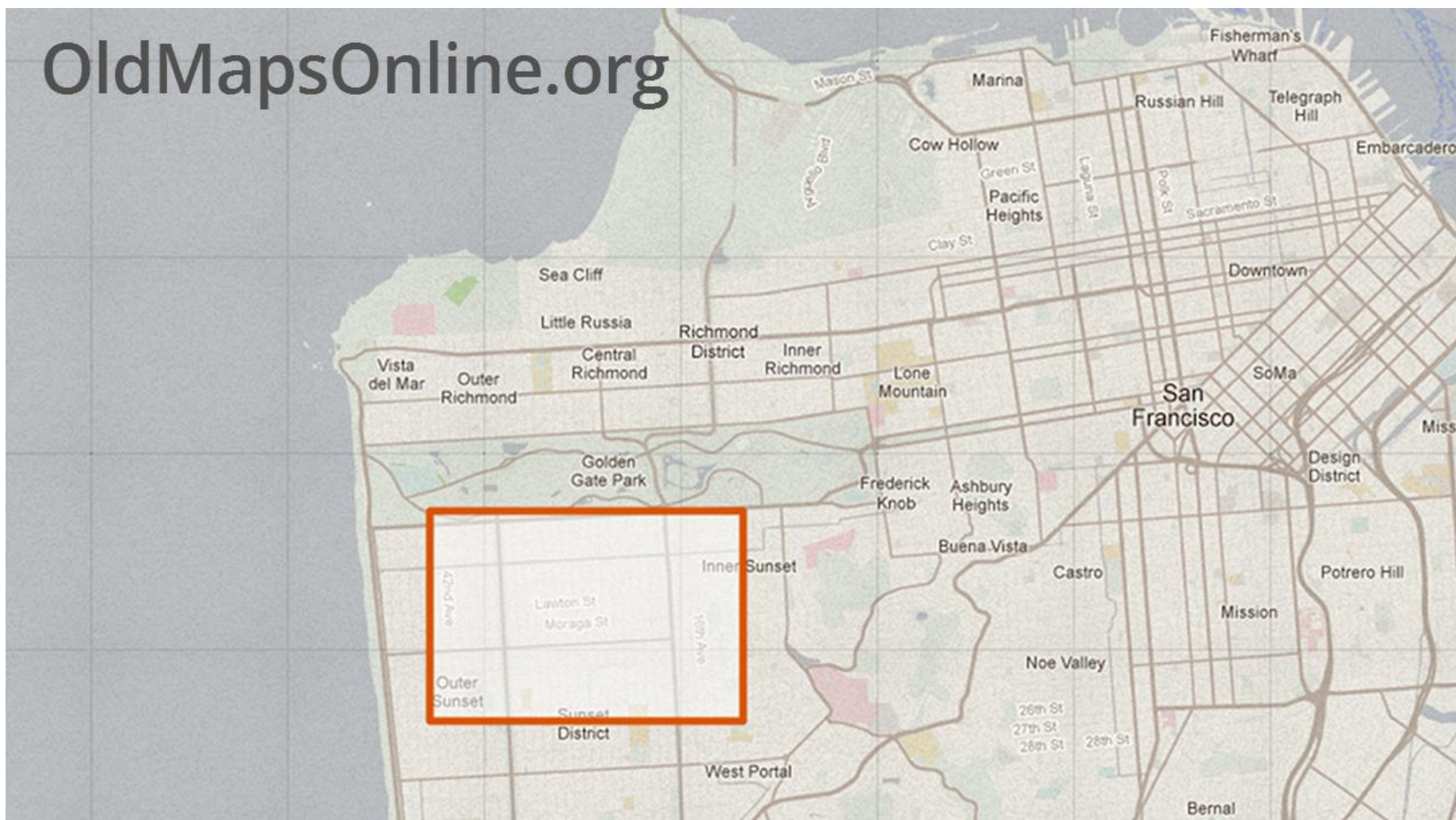
Monotone



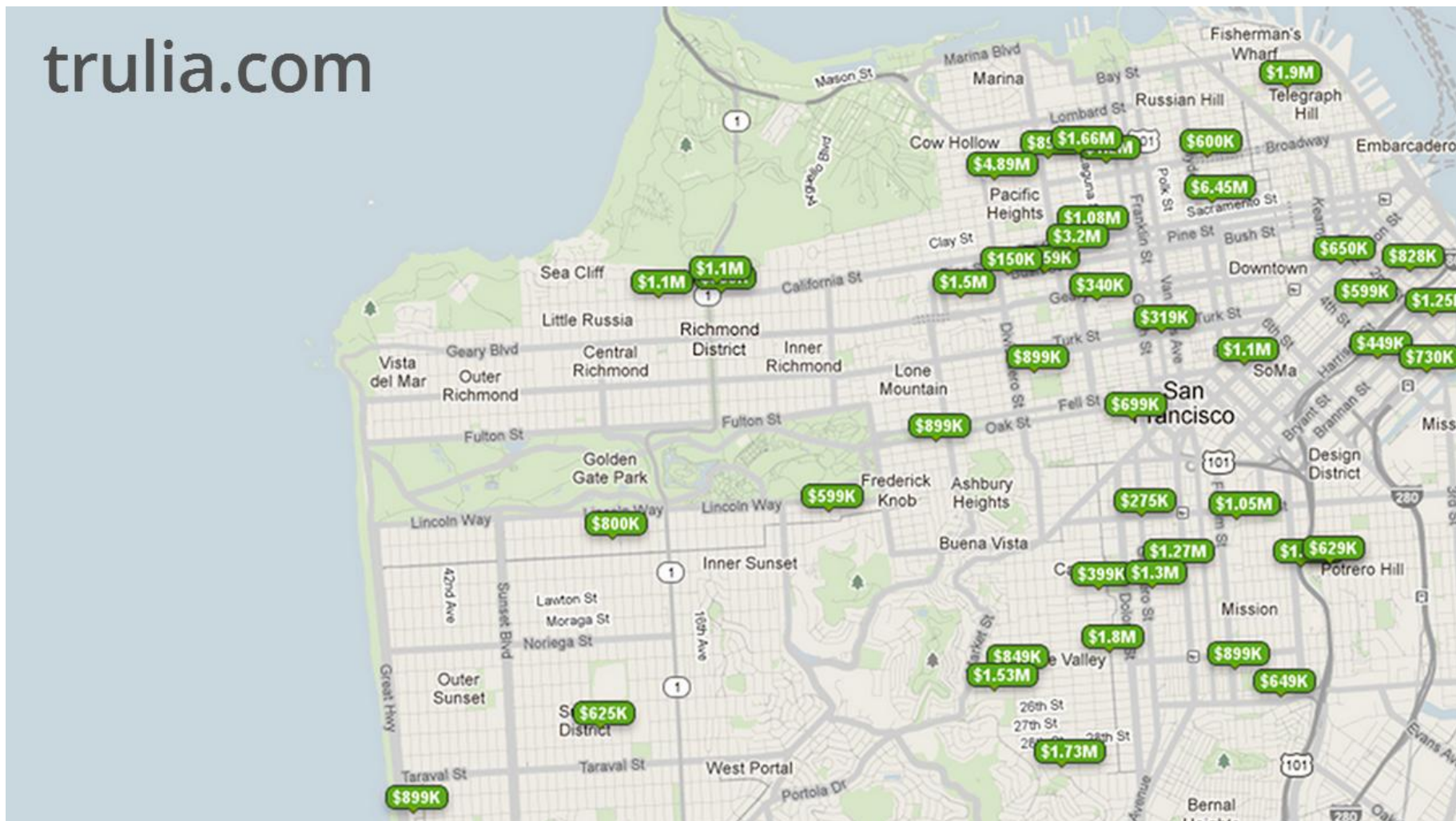
Subtle



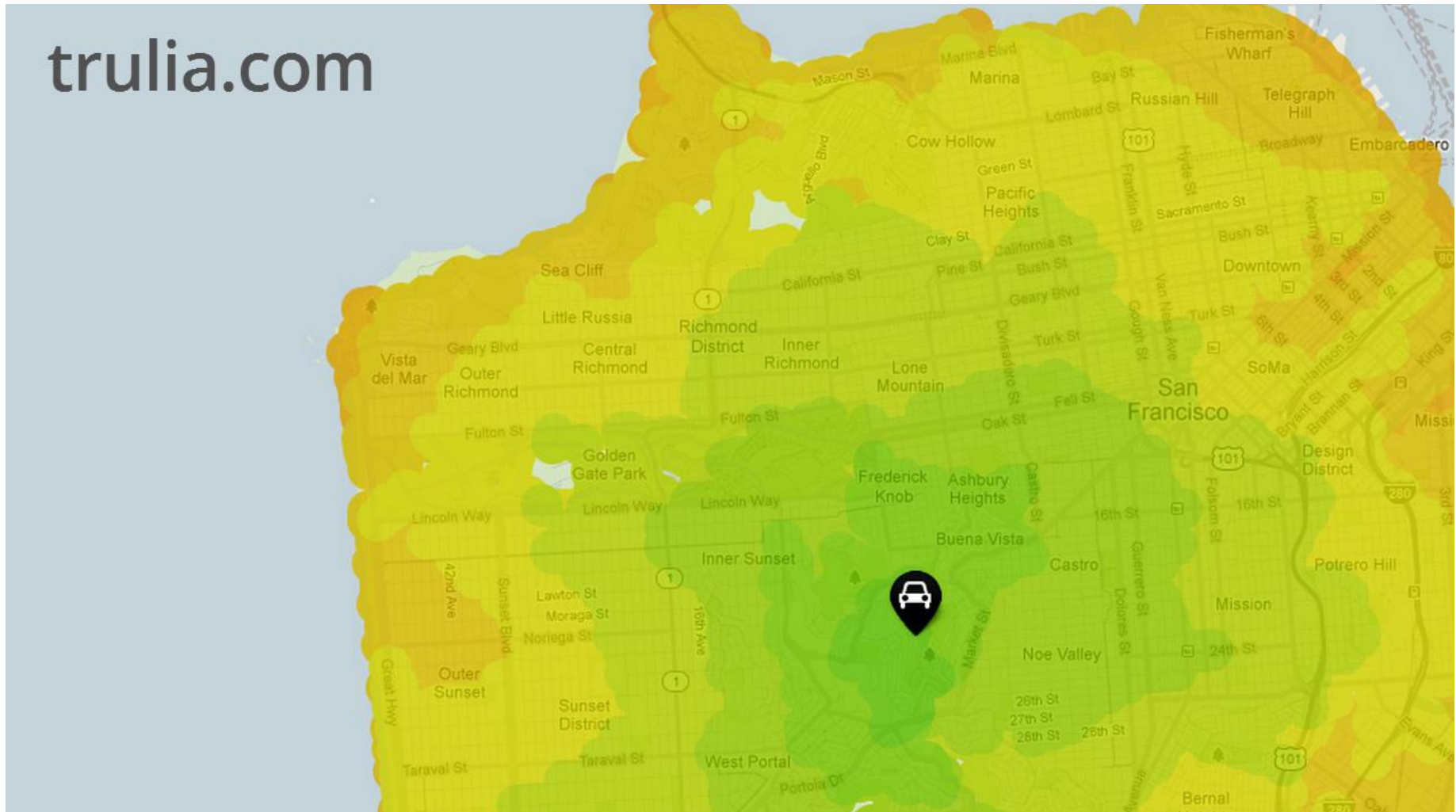
OldMapsOnline.org



trulia.com



trulia.com





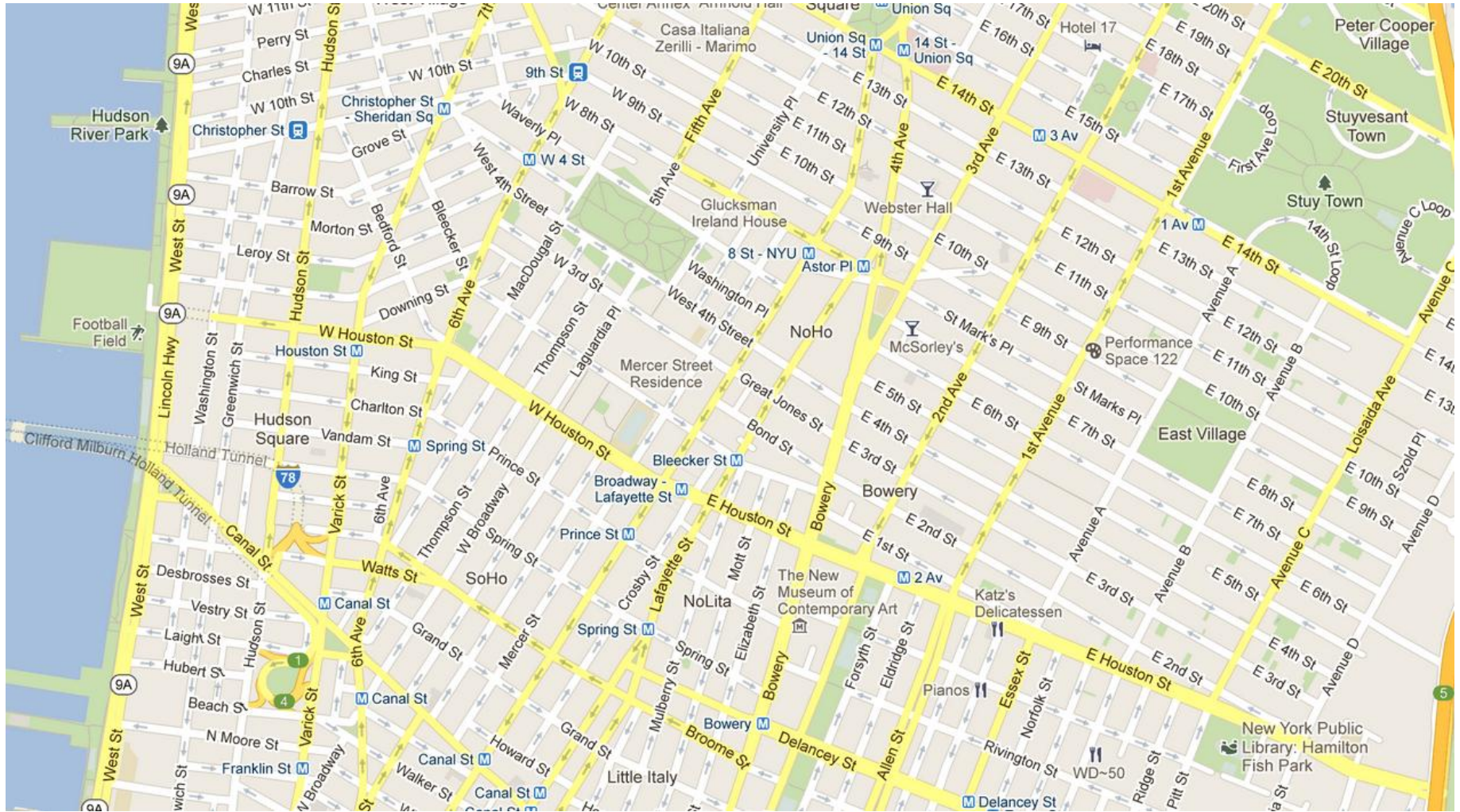
Three things to consider

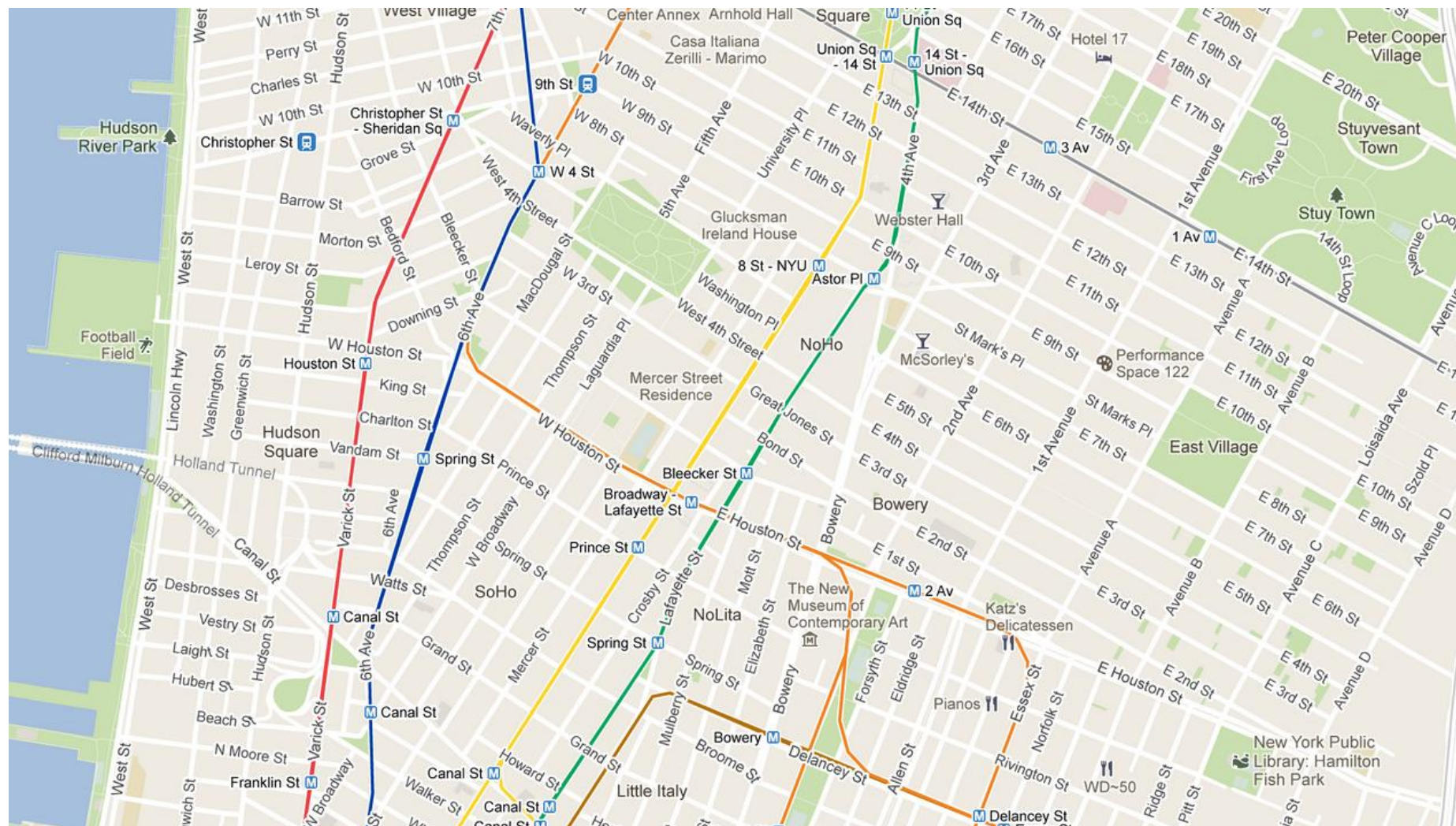
- Remove unnecessary information
- Refine the remaining data
- Test multiple zooms and regions



- Remove unnecessary information
- Refine the remaining data
- Test multiple zooms and regions









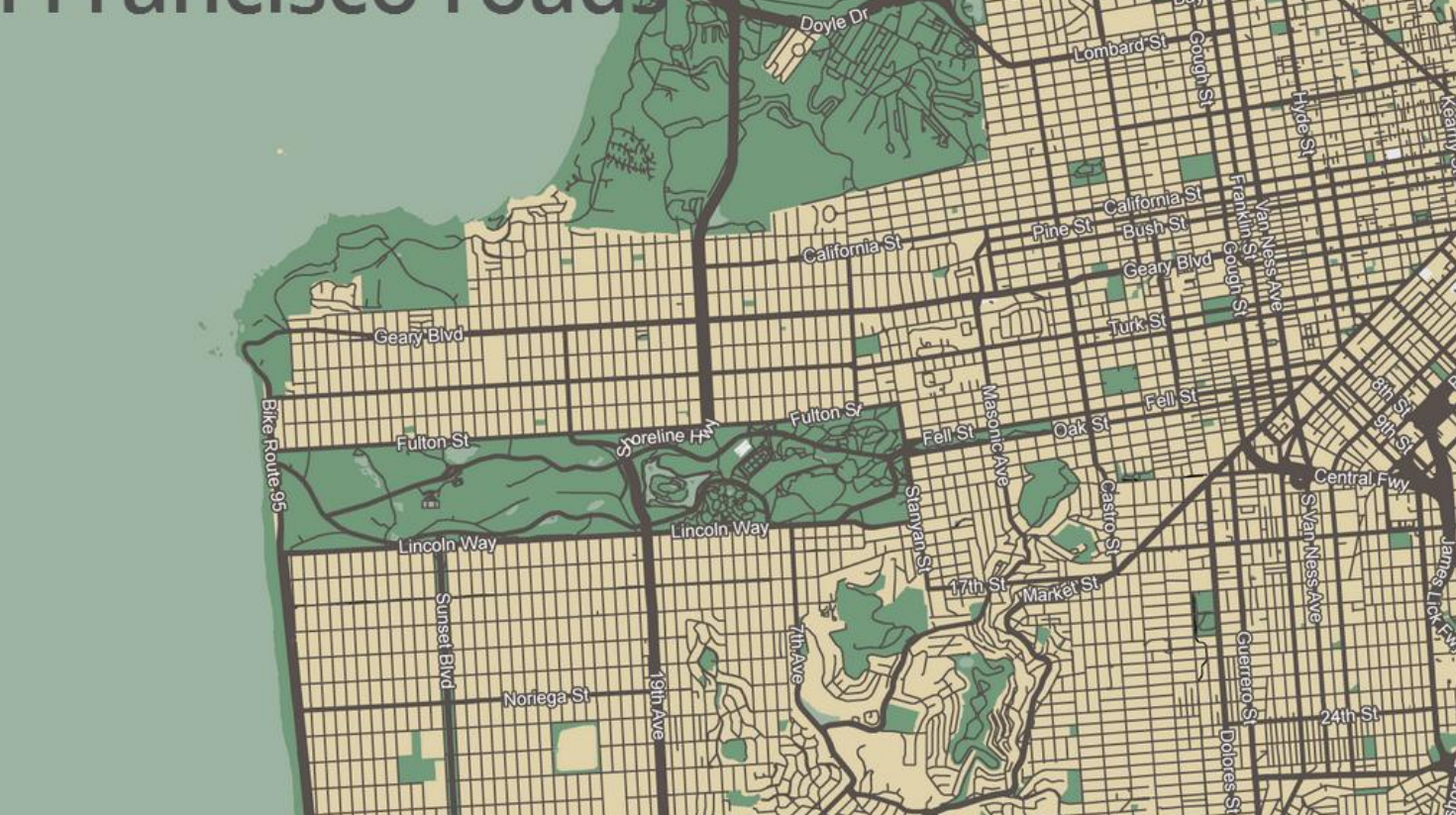
- Remove unnecessary information
- **Refine the remaining data**
- Test multiple zooms and regions



San Francisco parks



San Francisco roads

A detailed map of San Francisco roads, showing a dense grid of streets and major highways. The map includes labels for various streets such as Geary Blvd, Fulton St, Lincoln Way, and major highways like Highway 95 and Highway 101. The map also shows the city's coastline and surrounding areas.



1000

1250

1500

1750

2010

Search

[Search](#) [Collections](#) [Blog](#) [About](#)

Instant Search Results: [Fulltext](#)



Panama Canal.
1:92 000 000
1922 - Philip, George



**Grossbritannien's
saemmtliche
Besitzungen mit
Angabe ihrer
Erwerbungszeit.**
1:97 000 000
1854 - Spruner von
Merz, Karl



Map of The World.
1:1
1886 - Colton, G.W.



World Mercators proj.
1:65 000 000
1871 - Higgins & Ryan



Ubersicht der Erde.
1:100 000 000
1892 - Rohrbach, C.



Mountain View, CA

HOMES ▾ 🔍

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Mortgage

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List



Map

Mountain View Real Estate & Homes For Sale

Save this Search

Mountain View, CA

+ Add more locations

☐ Search within map☒ For Sale ☐ Recently Sold

Price

Any ▾ to Any ▾

Beds

Any ▾

Baths

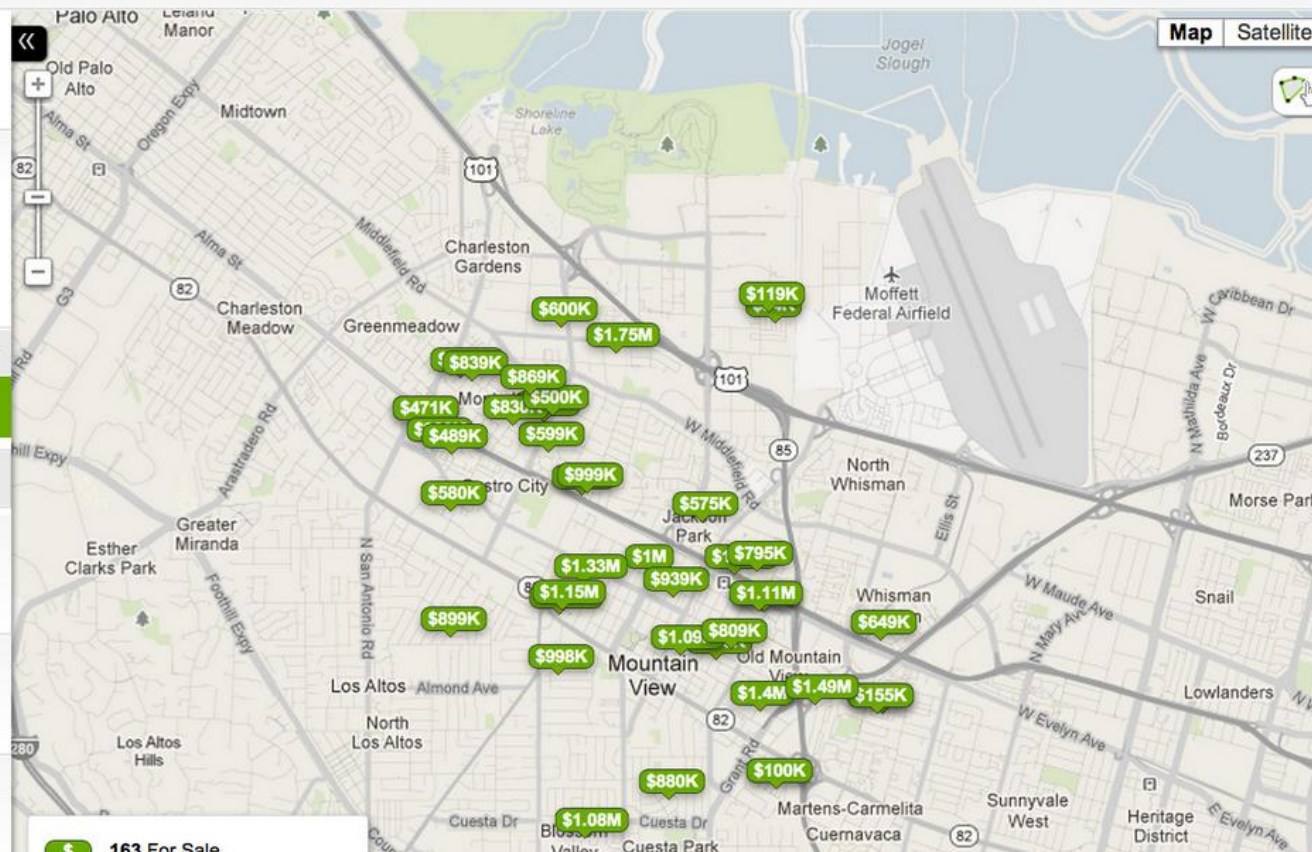
Any ▾

Reset options

+ More search options

🏠 Results (163)

Sort by Featured ▾

**\$794,500**218 Jason Way
2 br / 2 ba / 1,389 sqft
Single-Family Home**\$489,000**49 Showers Dr #J227
2 br / 2 ba
Condo**\$998,888**106 Beacon St
3 br / 2 full, 1 partial ba / 1,720 sqft
Single-Family Home

- Remove unnecessary information
- Refine the remaining data
- Test multiple zooms and regions



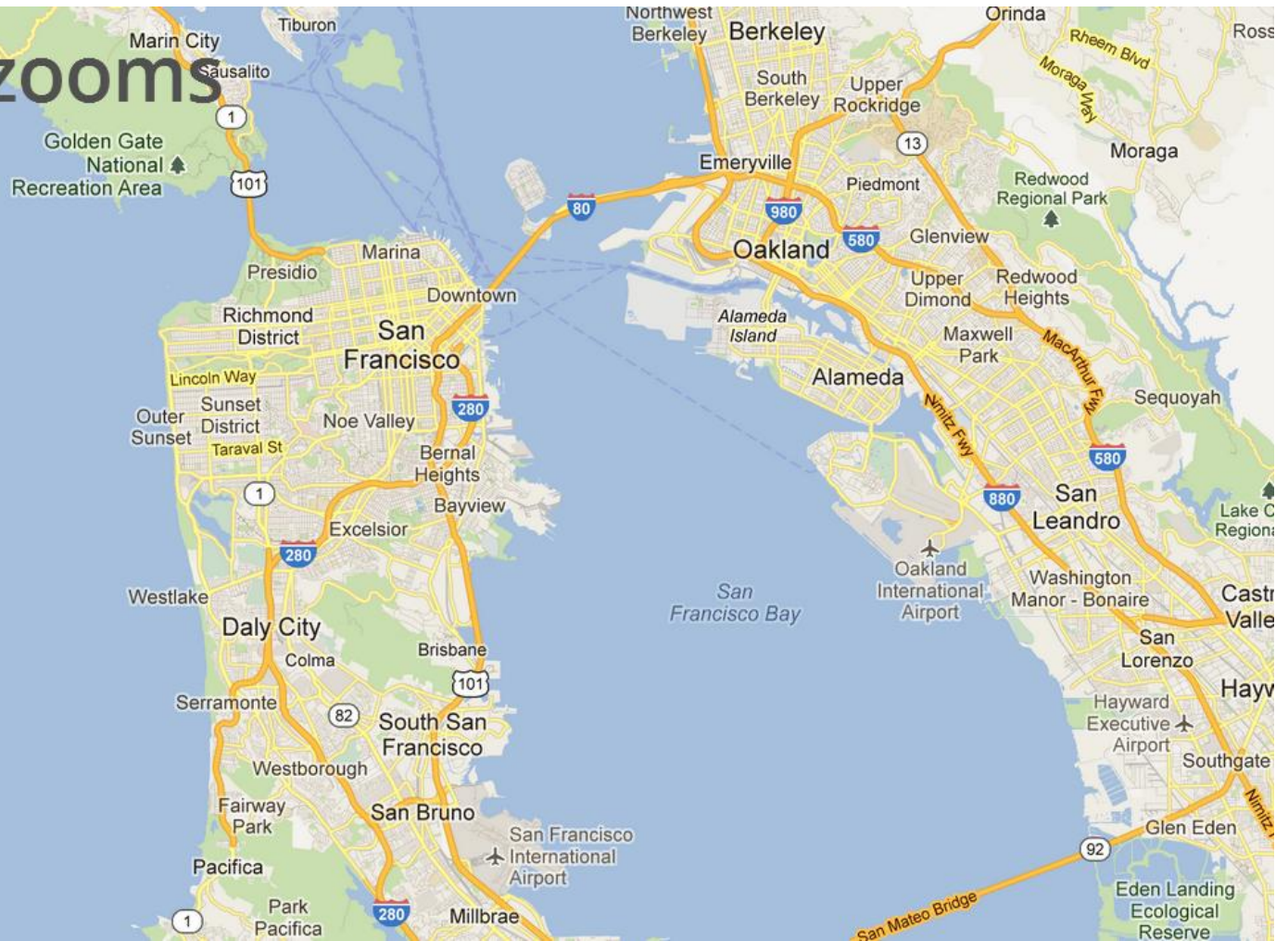
Far zooms

Map data ©2012 Google, INEGI, MapLink, Tele Atlas

Far zooms

Map data ©2012 Google, INEGI, MapLink, Tele Atlas

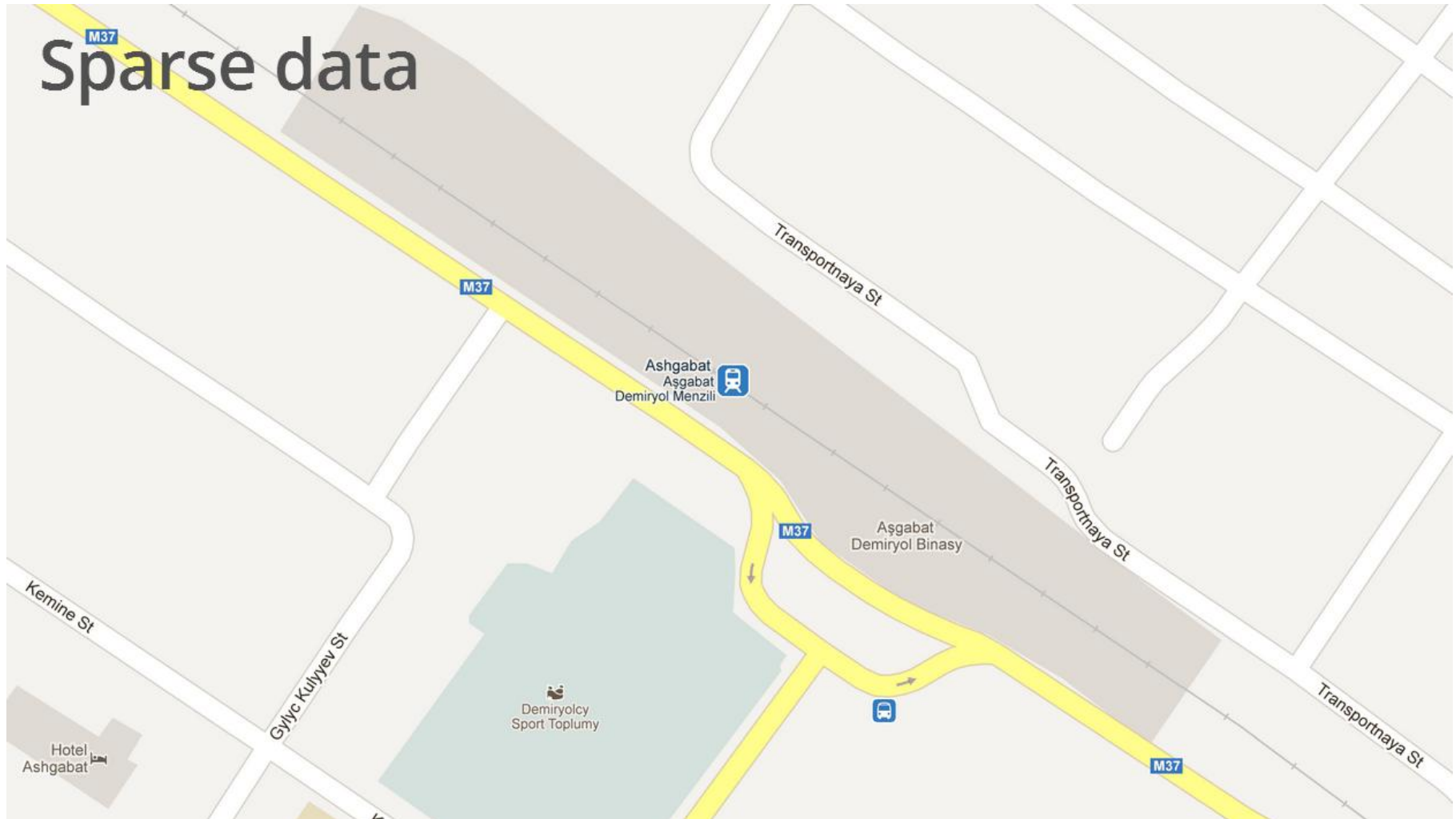
Medium zooms

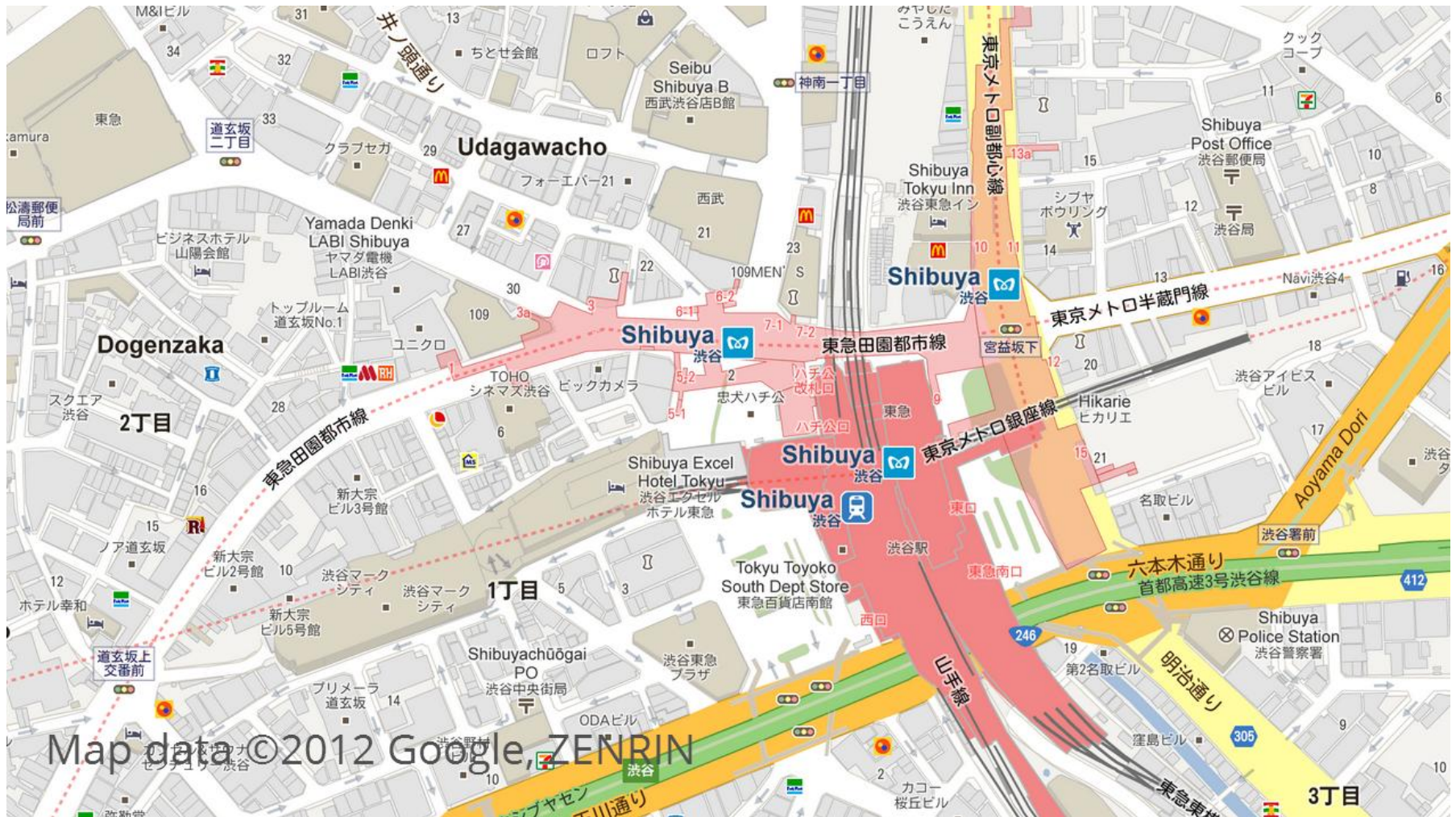


Deep zooms

This is a detailed street map of a section of San Francisco, specifically the area around Chinatown. The map shows a grid of streets with various landmarks and businesses labeled. Key streets include Jackson St, Washington St, Merchant St, Clay St, Commercial St, Sacramento St, and California St. Landmarks such as the Bank of America, Tommy Toy's Cuisine Chinoise, and the Empress of China restaurant are visible. The map also shows the San Francisco Public Library and the San Francisco Public Library. The map is oriented with North at the top.

Sparse data











Building Blocks

- Stylers
- Feature type
- Element type

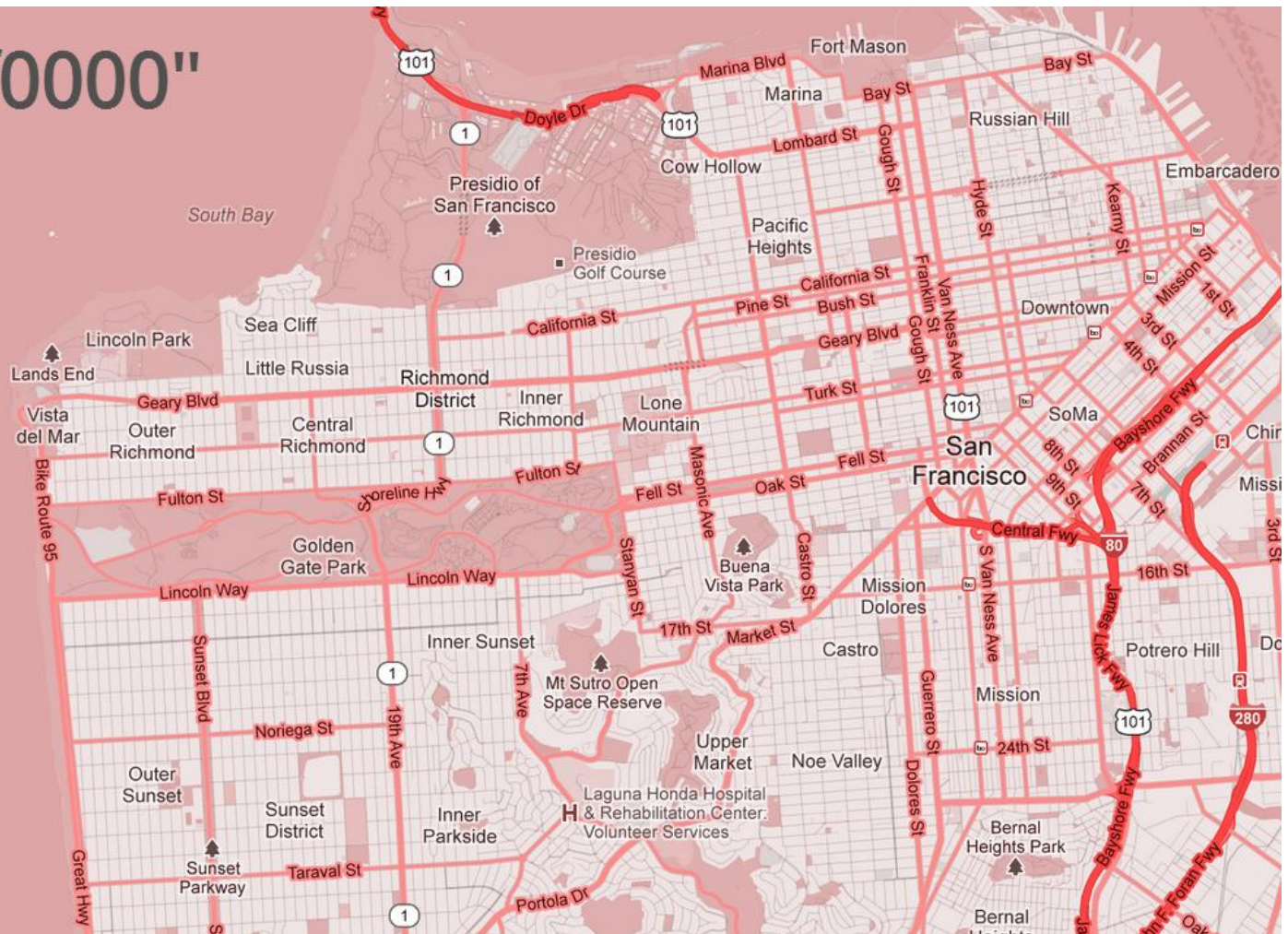




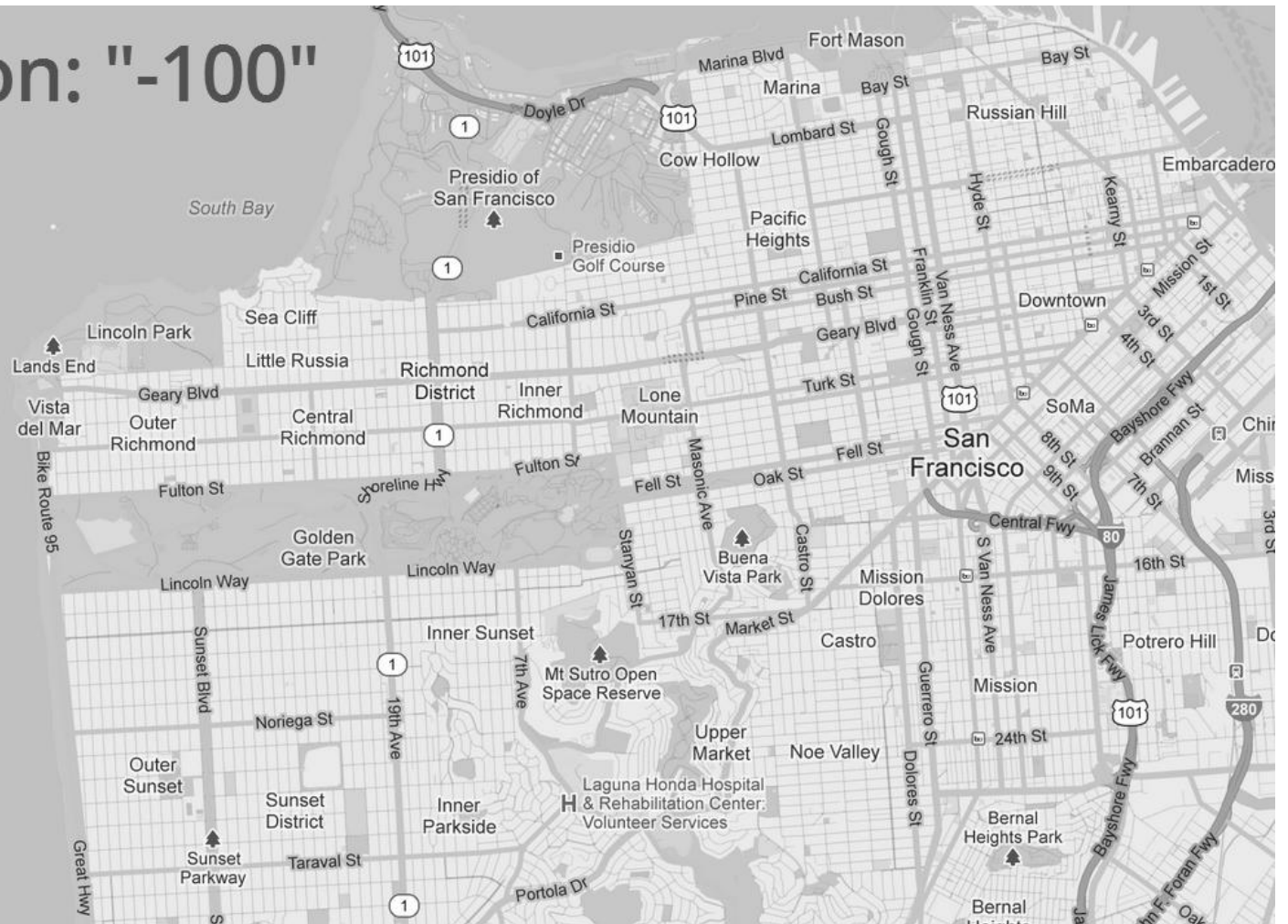
Styler

Mutates the existing style of the map

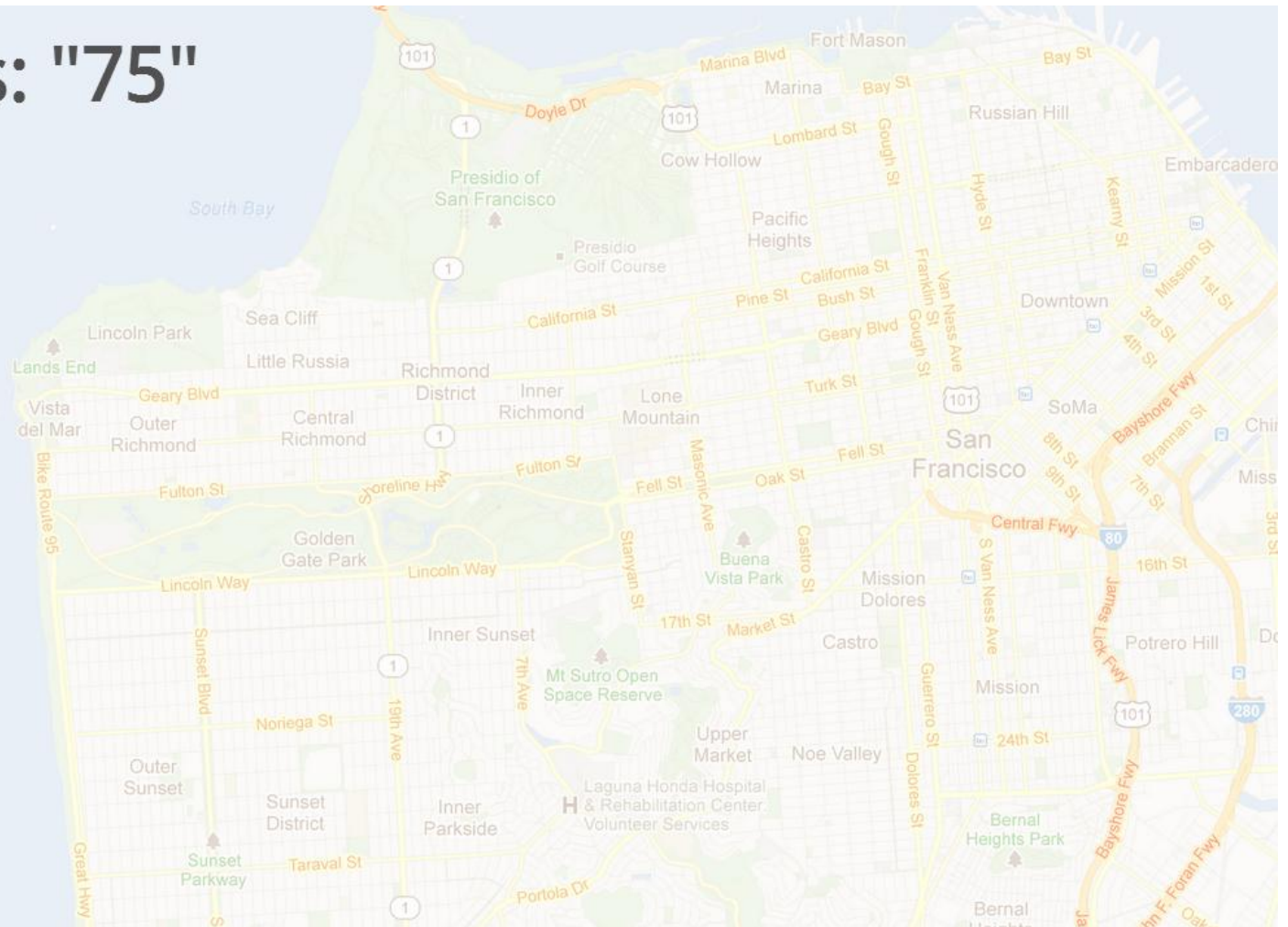
hue: "#ff0000"



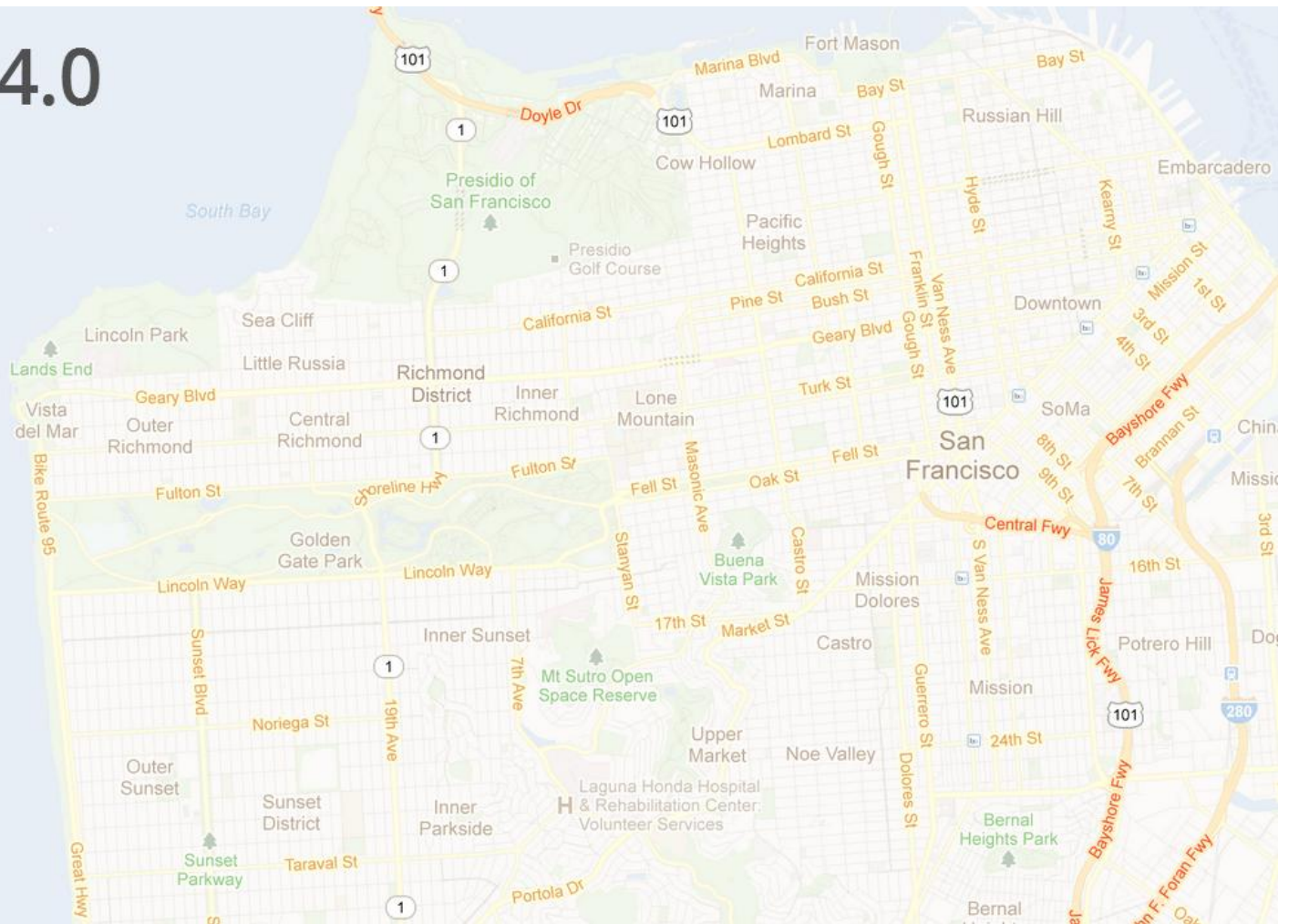
saturation: "-100"



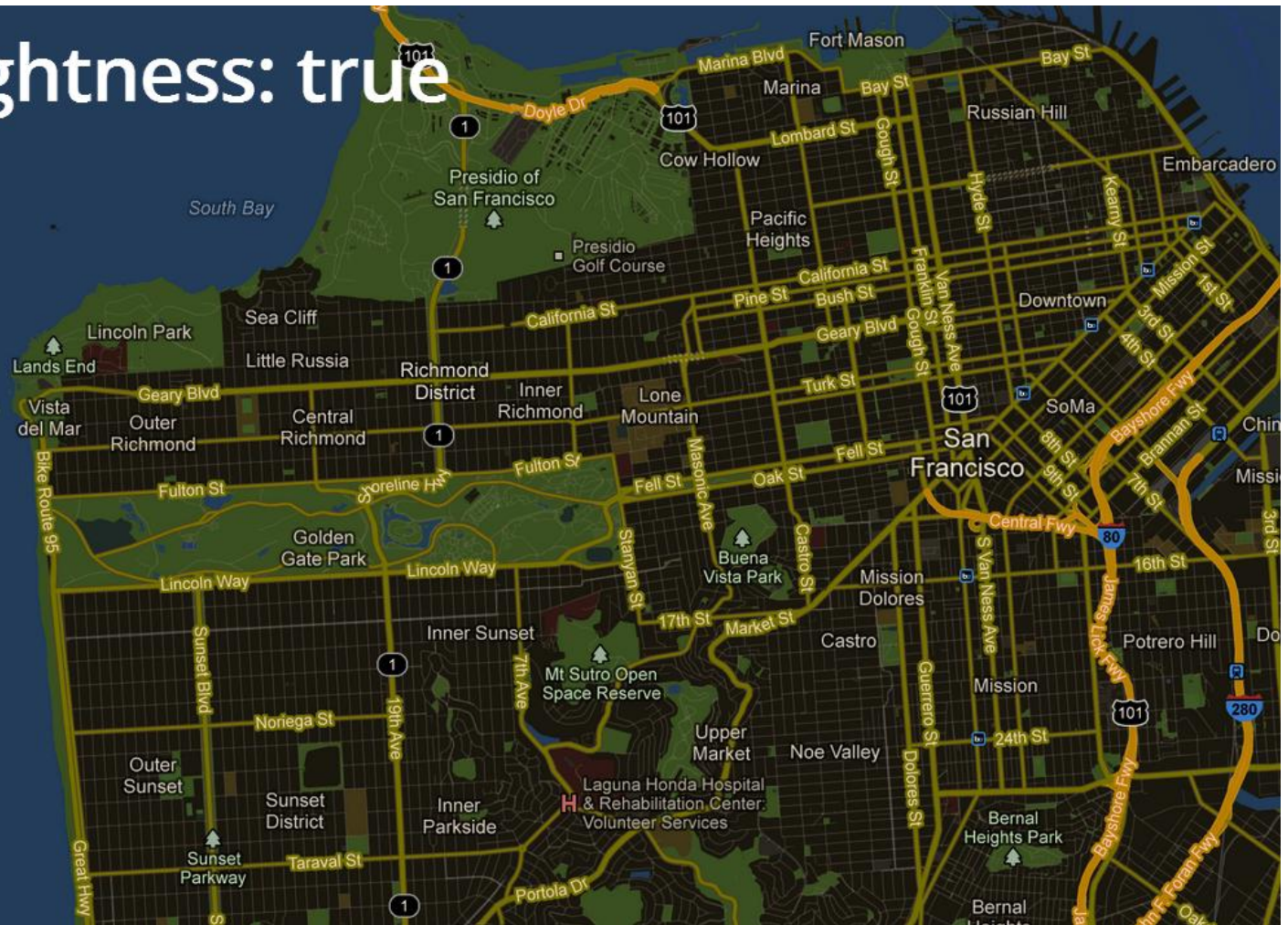
lightness: "75"



gamma: 4.0

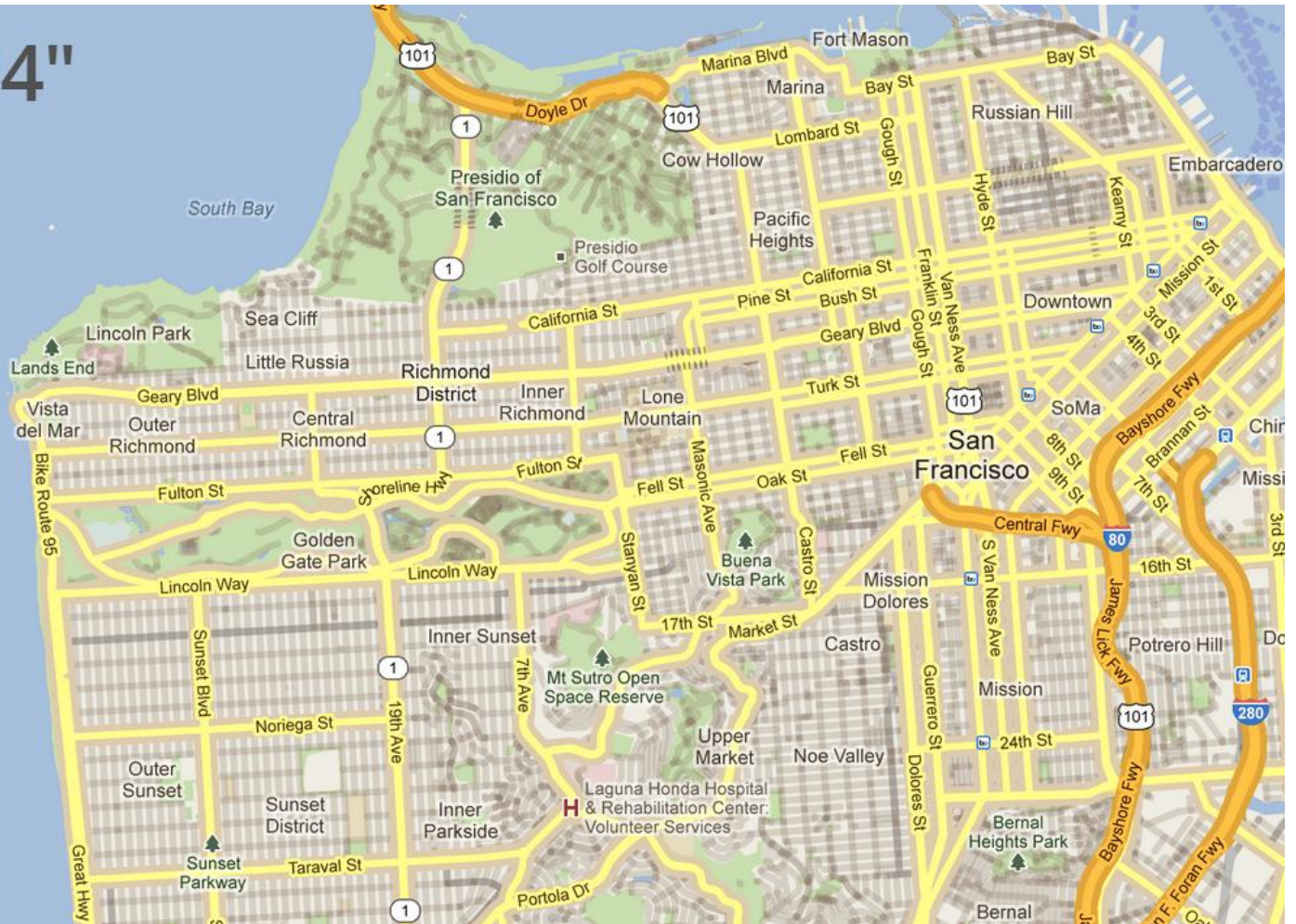


invert_lightness: true



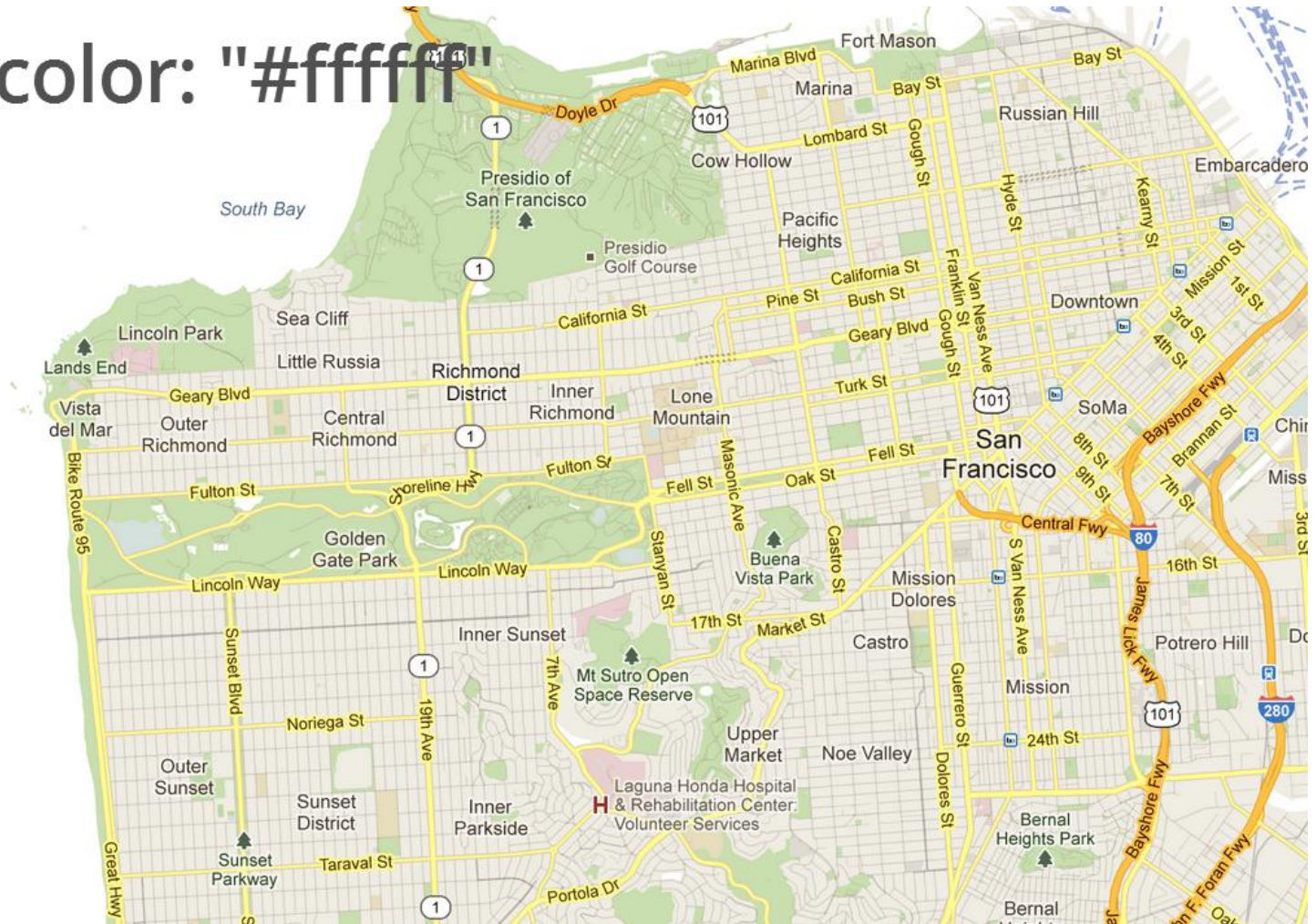
visibility: "off"

weight: "4"



color: "#ff0000"

(water) color: "#ffffff"

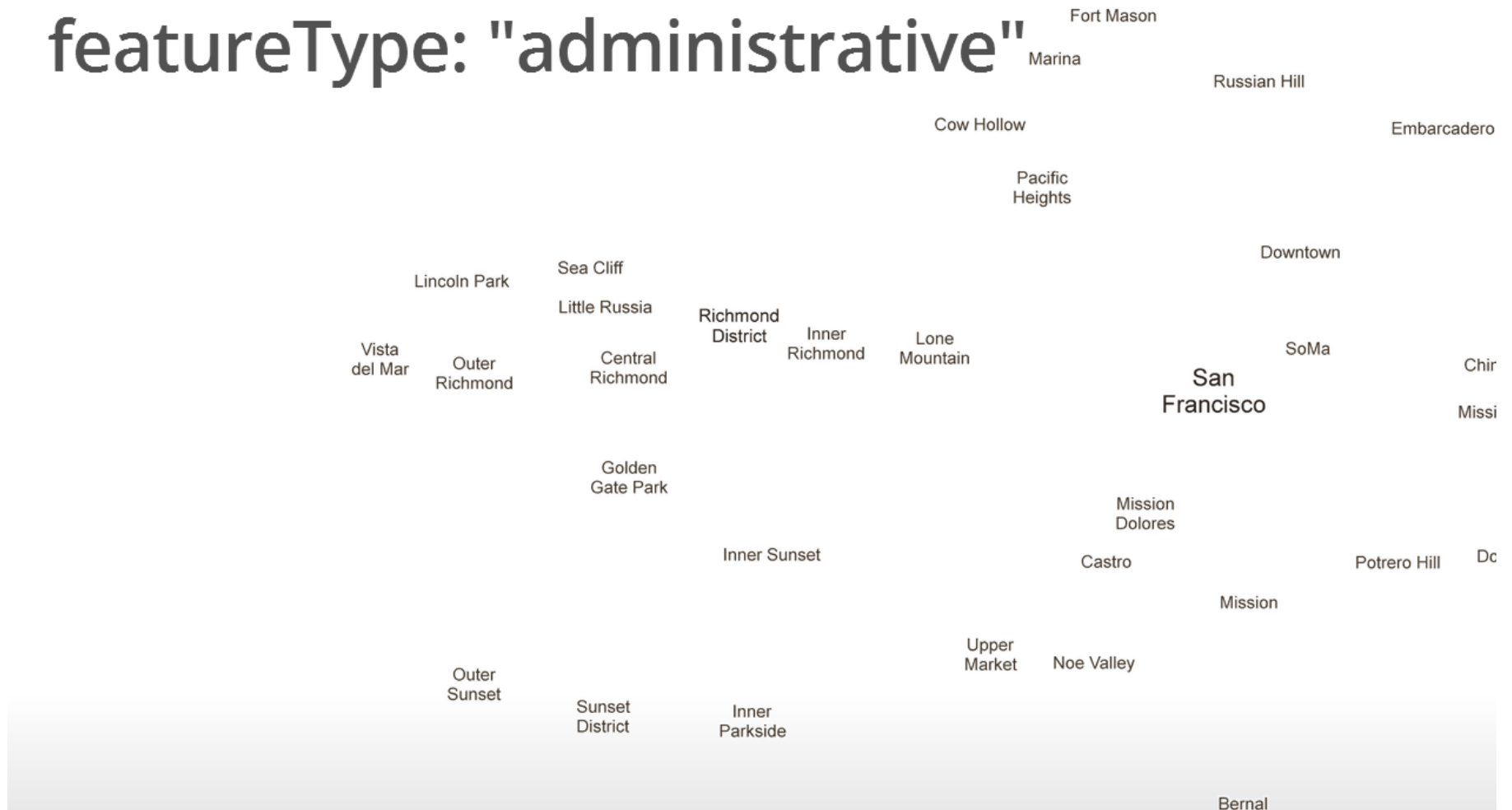




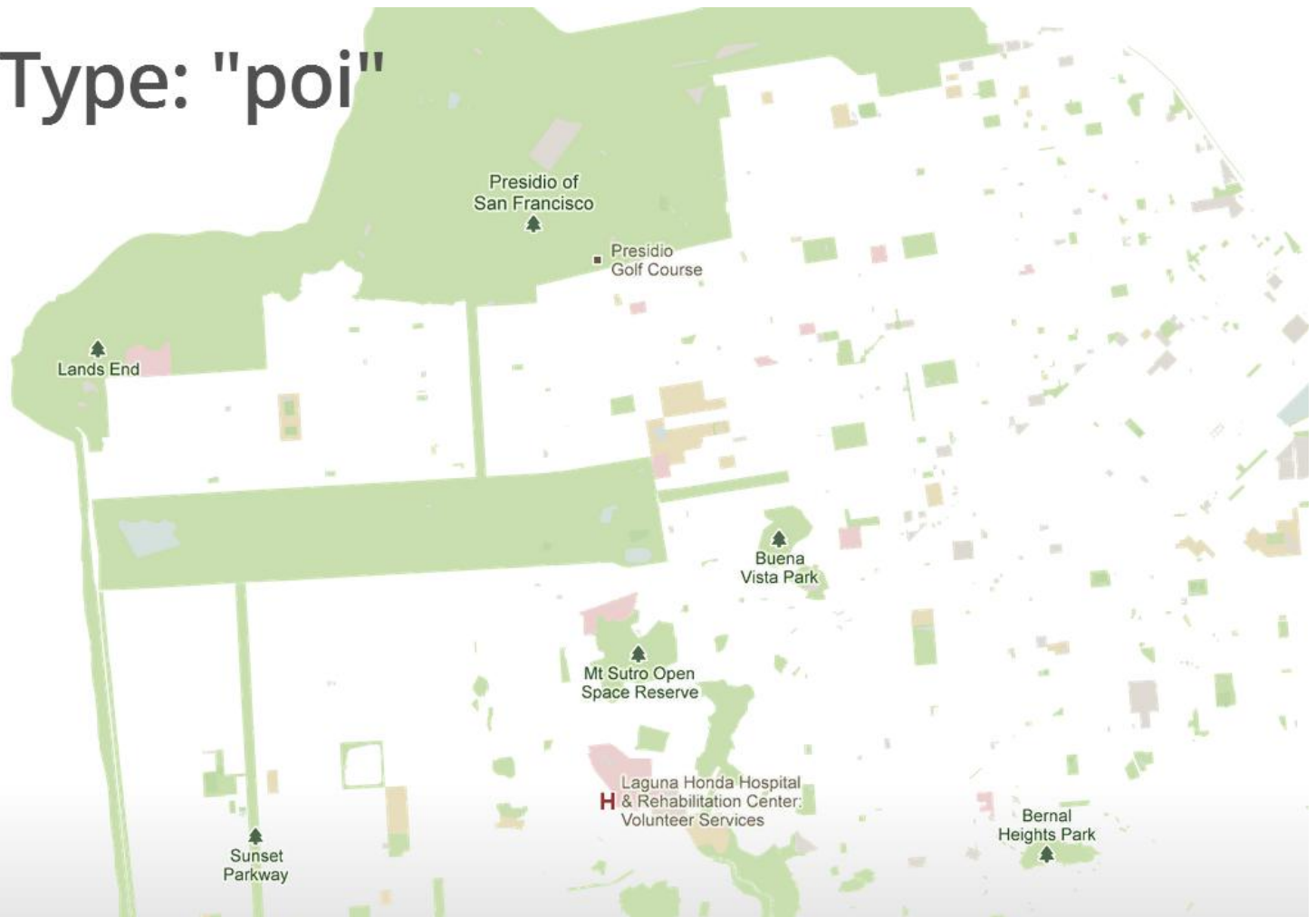
Feature

Geographic entity

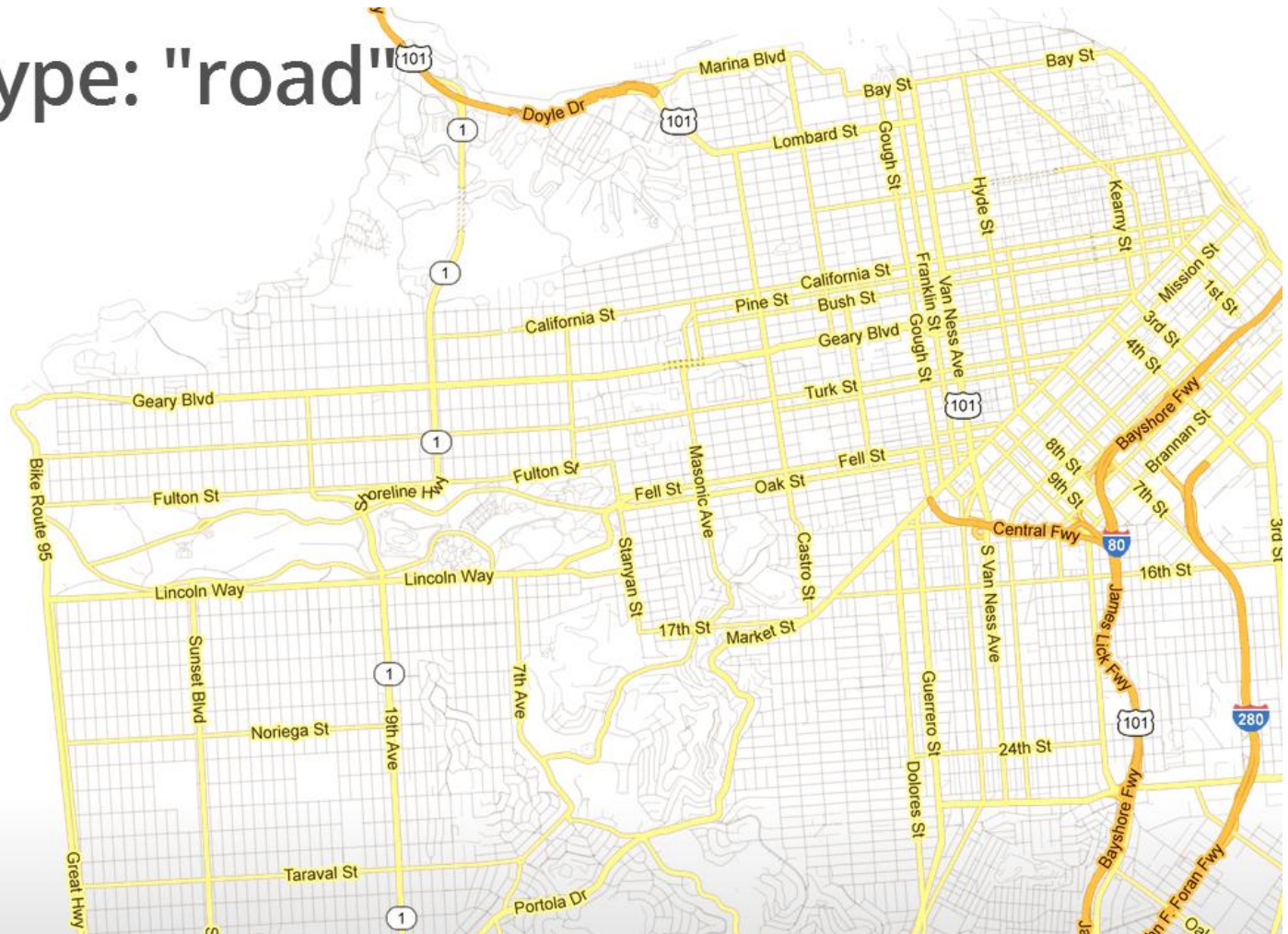
featureType: "administrative"



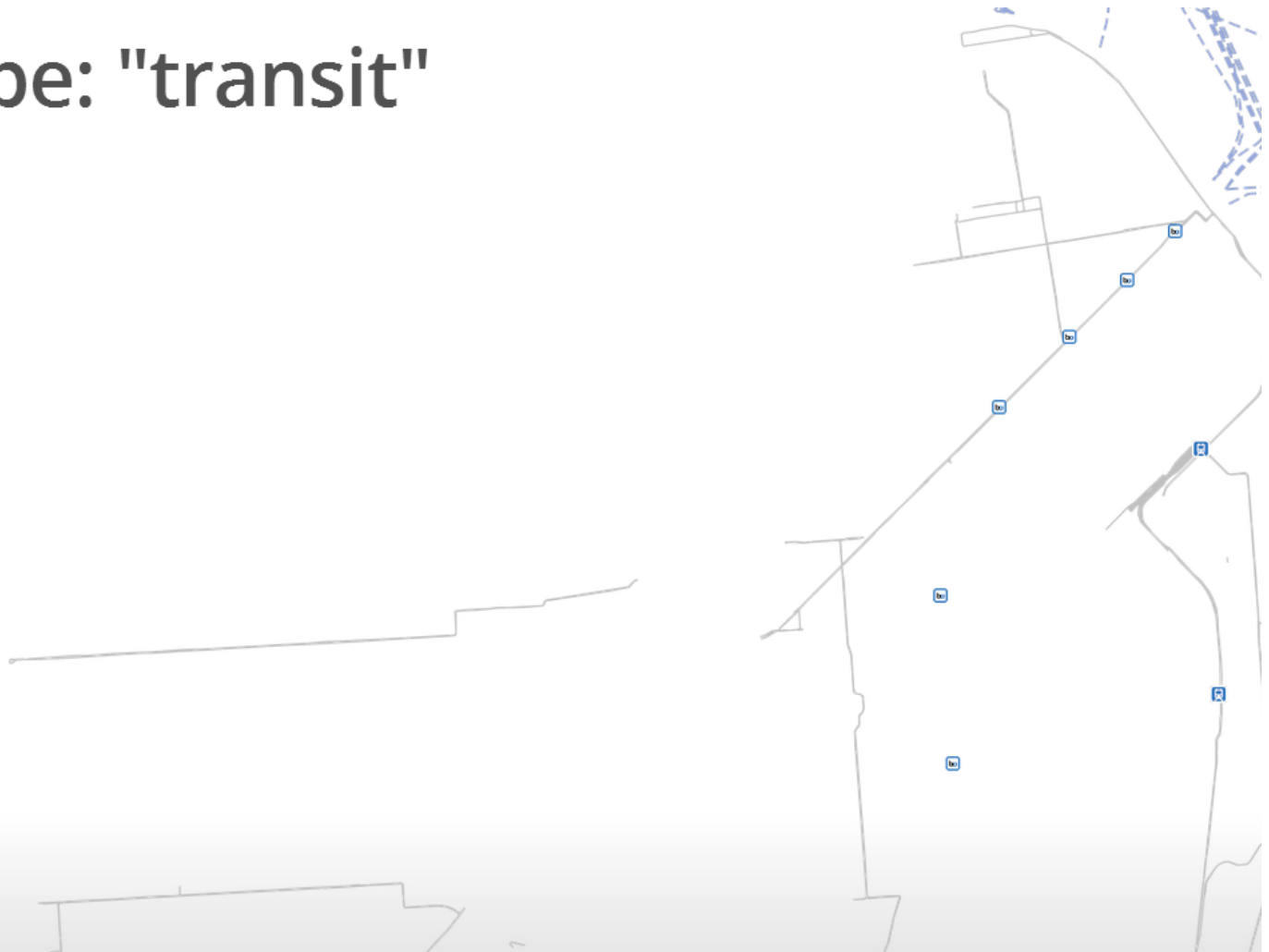
featureType: "poi"



featureType: "road"



featureType: "transit"

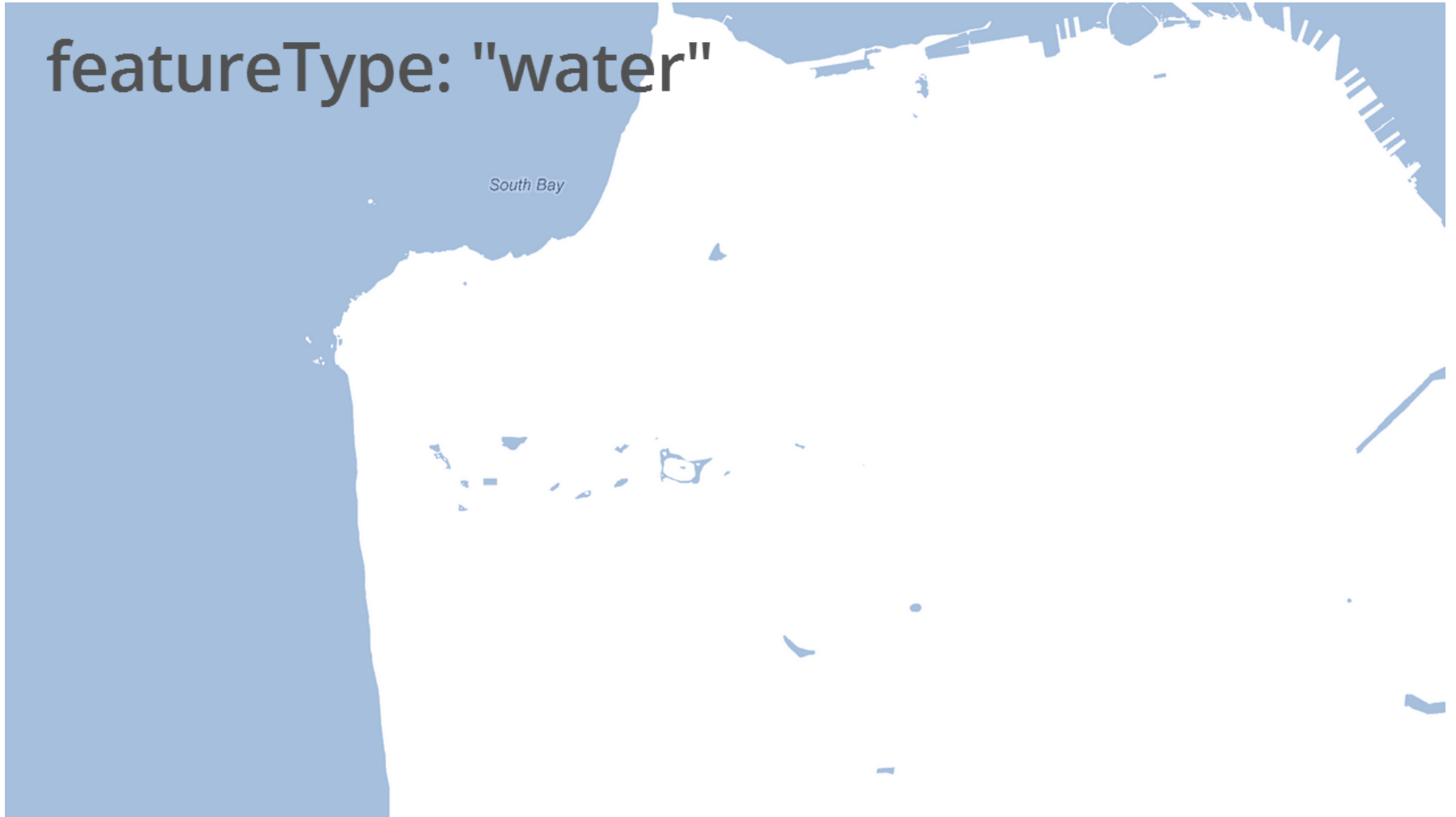


featureType: "landscape"



featureType: "water"

South Bay

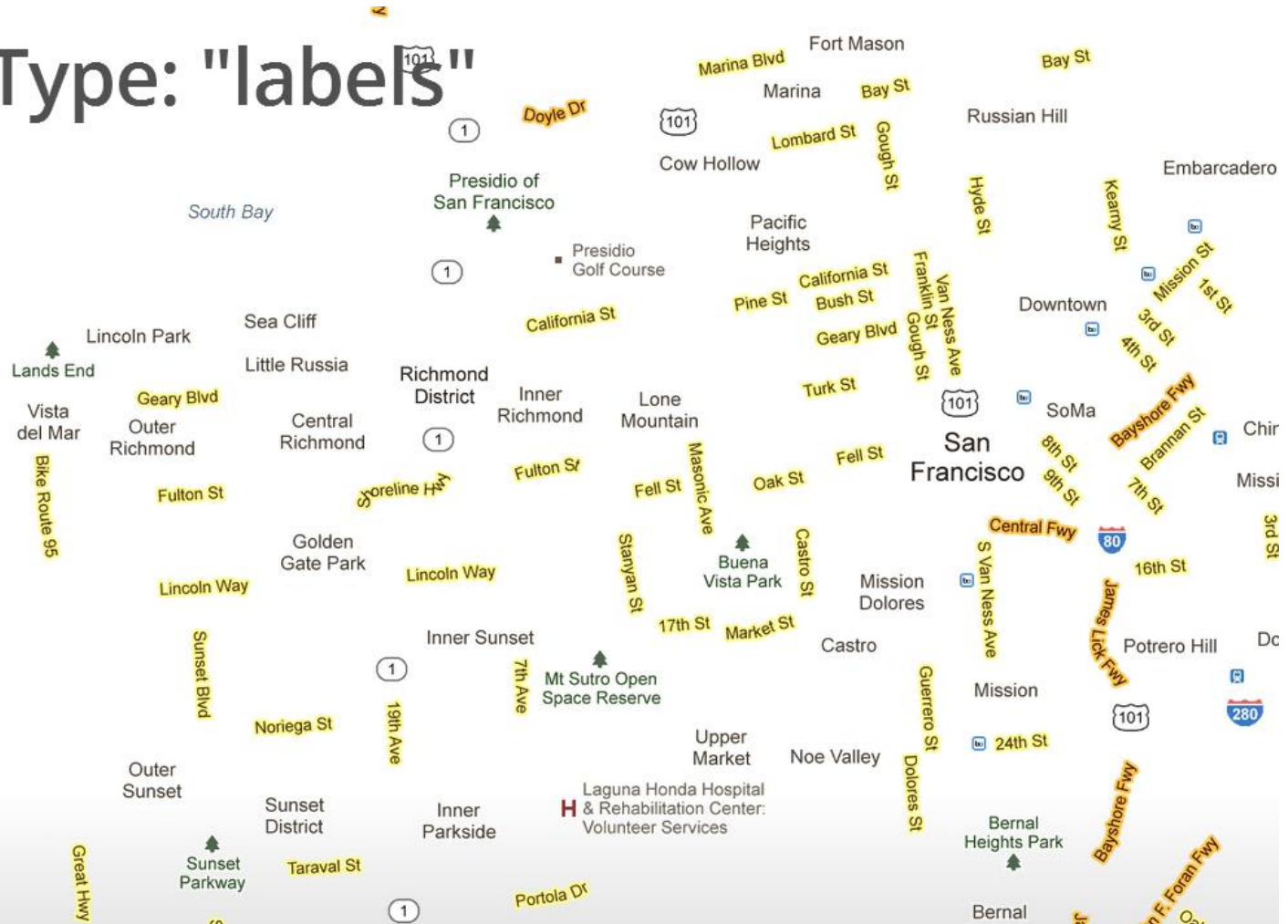




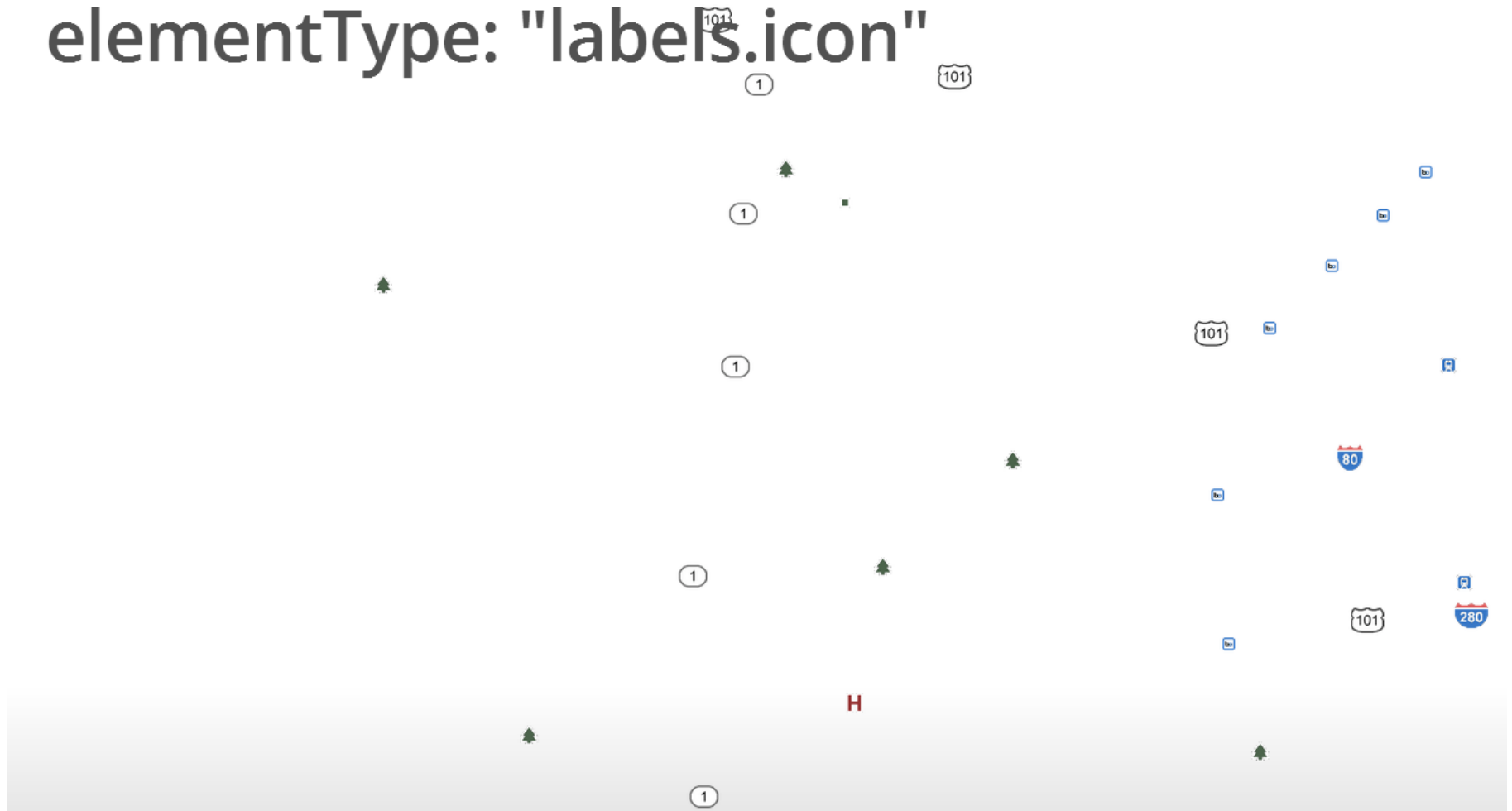
Element

Graphical form used to represent a feature

elementType: "labels"



elementType: "labels.icon"

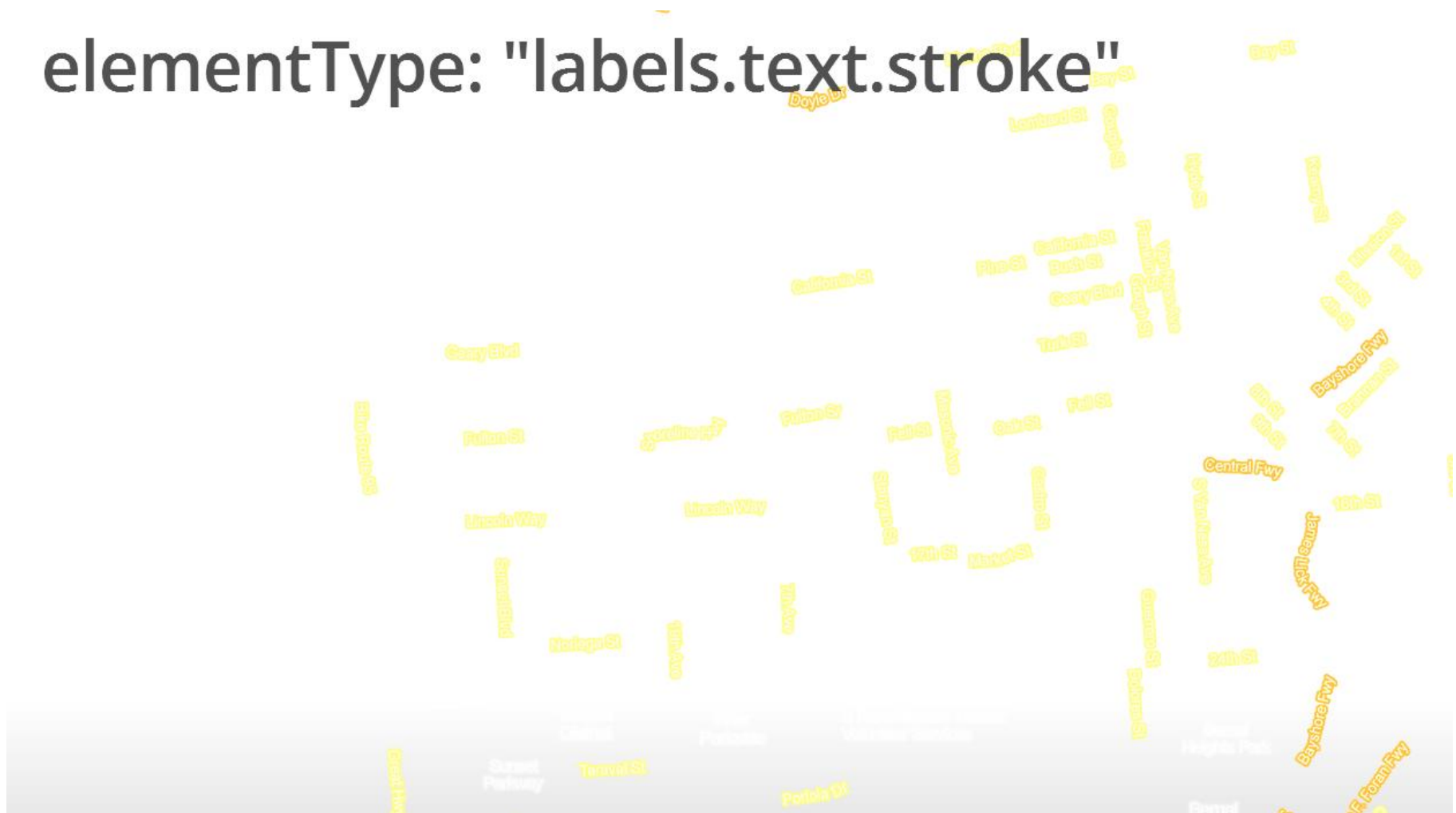


elementType: "labels.text"

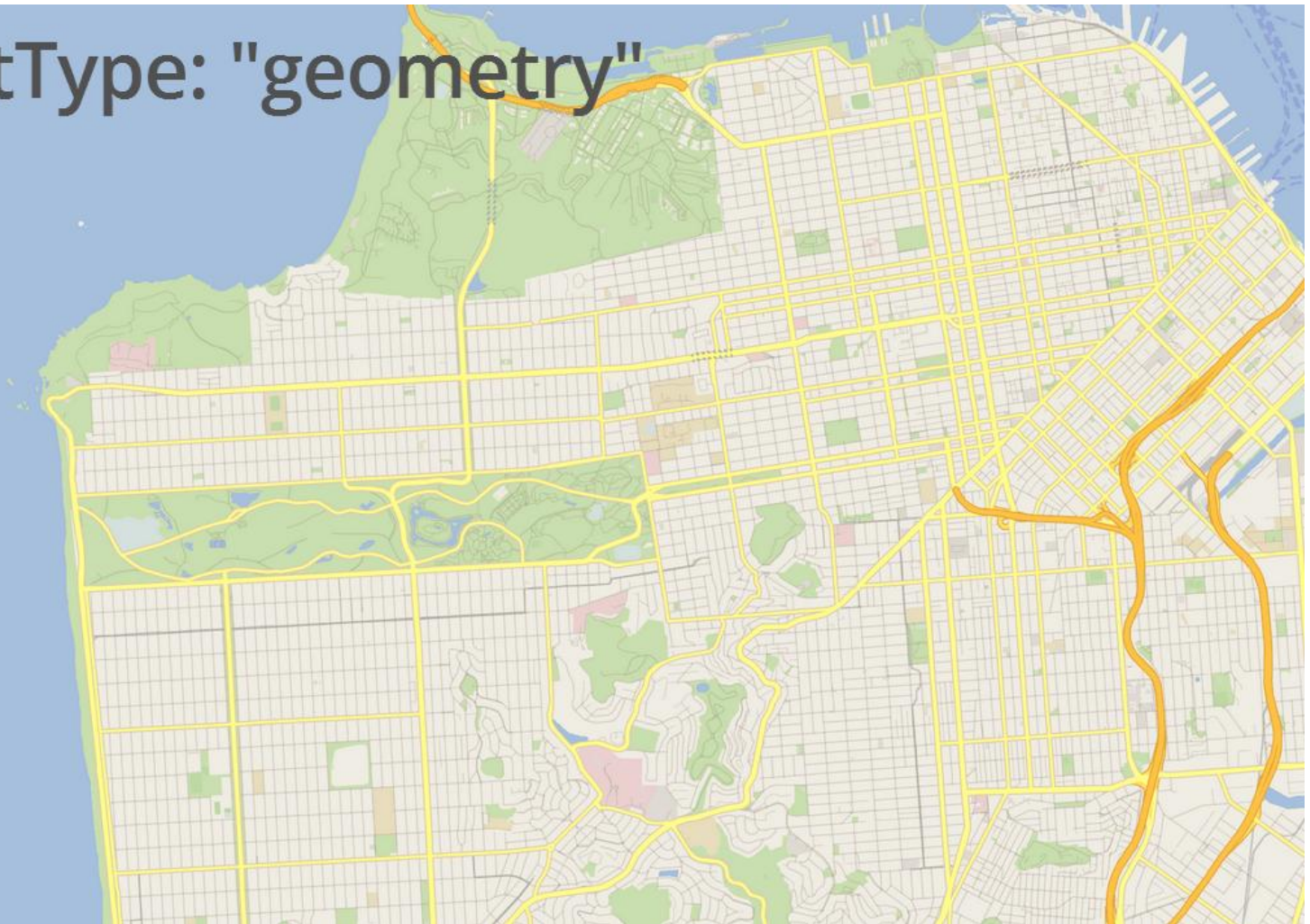


elementType: "labels.text.fill"

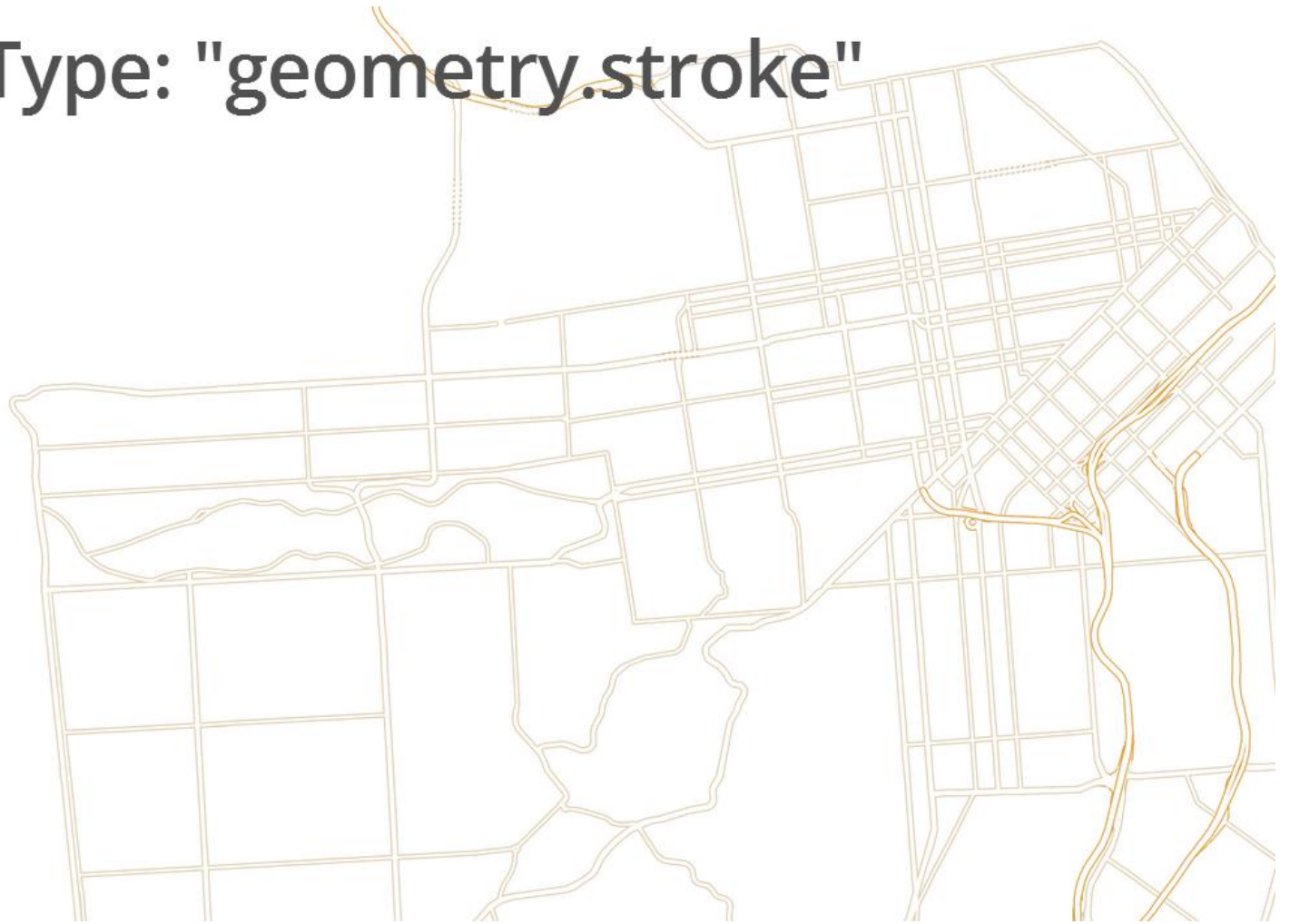
elementType: "labels.text.stroke"



elementType: "geometry"



elementType: "geometry.stroke"





Putting it into practice

Showing a map

Here is sample HTML to embed a map in your webpage.

```
<html>
  <head>
    <script type="text/javascript"
      src="https://maps.googleapis.com/maps/api/js?sensor=false"></script>
    <script type="text/javascript">
      ...
    </script>
  </head>
  <body>
    <div id="map" style="width: 640px; height: 480px;"></div>
  </body>
</html>
```

HTML

Showing a map

Use this javascript.

JAVASCRIPT

```
var map;
function init() {
  var mapOptions = {
    zoom: 13,
    center: new google.maps.LatLng(37.774,-122.47),
    mapTypeId: google.maps.MapTypeId.ROADMAP
  };
  map = new google.maps.Map(document.getElementById('map'), mapOptions);
}

google.maps.event.addDomListener(window, 'load', init);
```

Adding a styled map

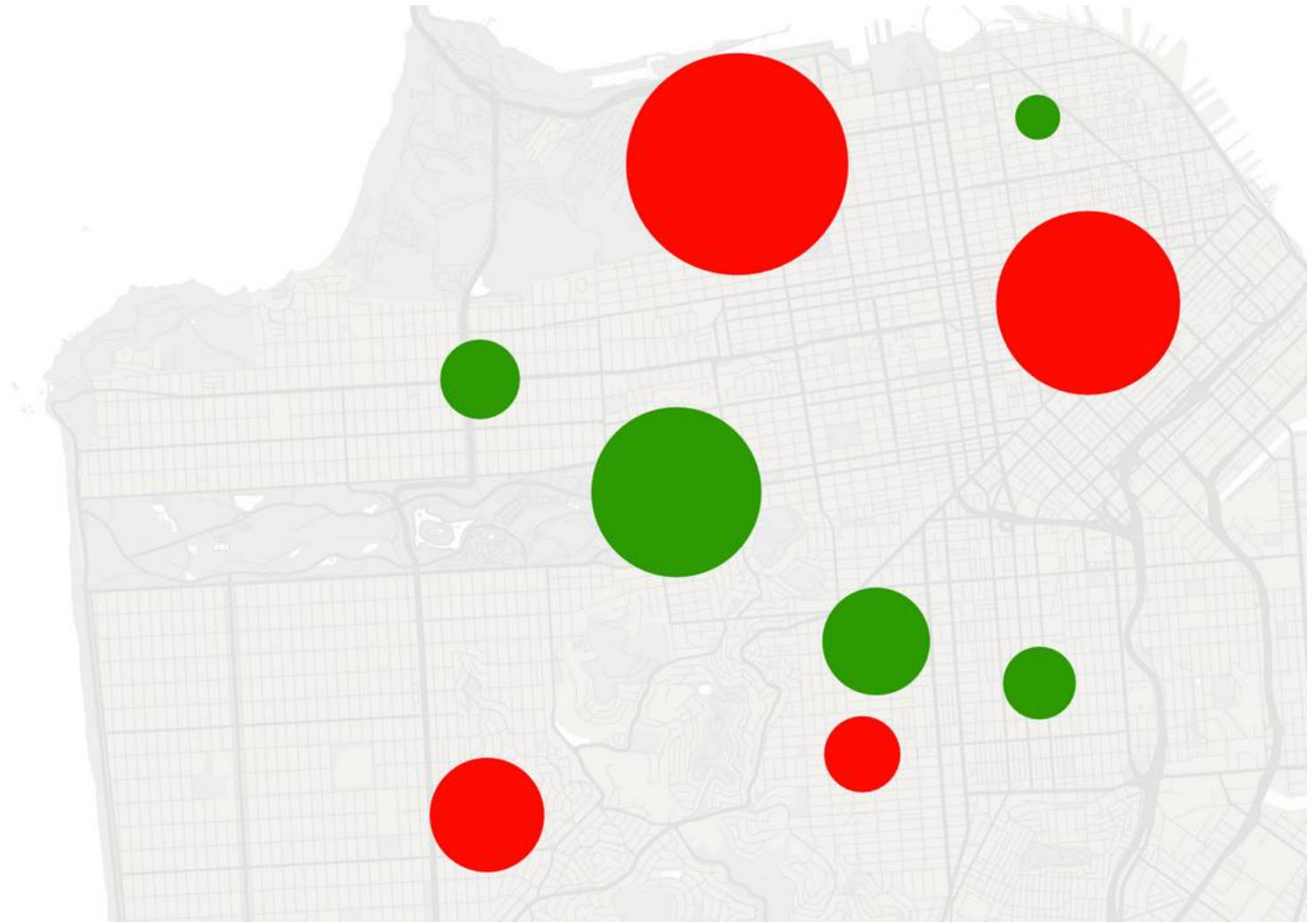
Use a `StyledMapType` like other map types.

JAVASCRIPT

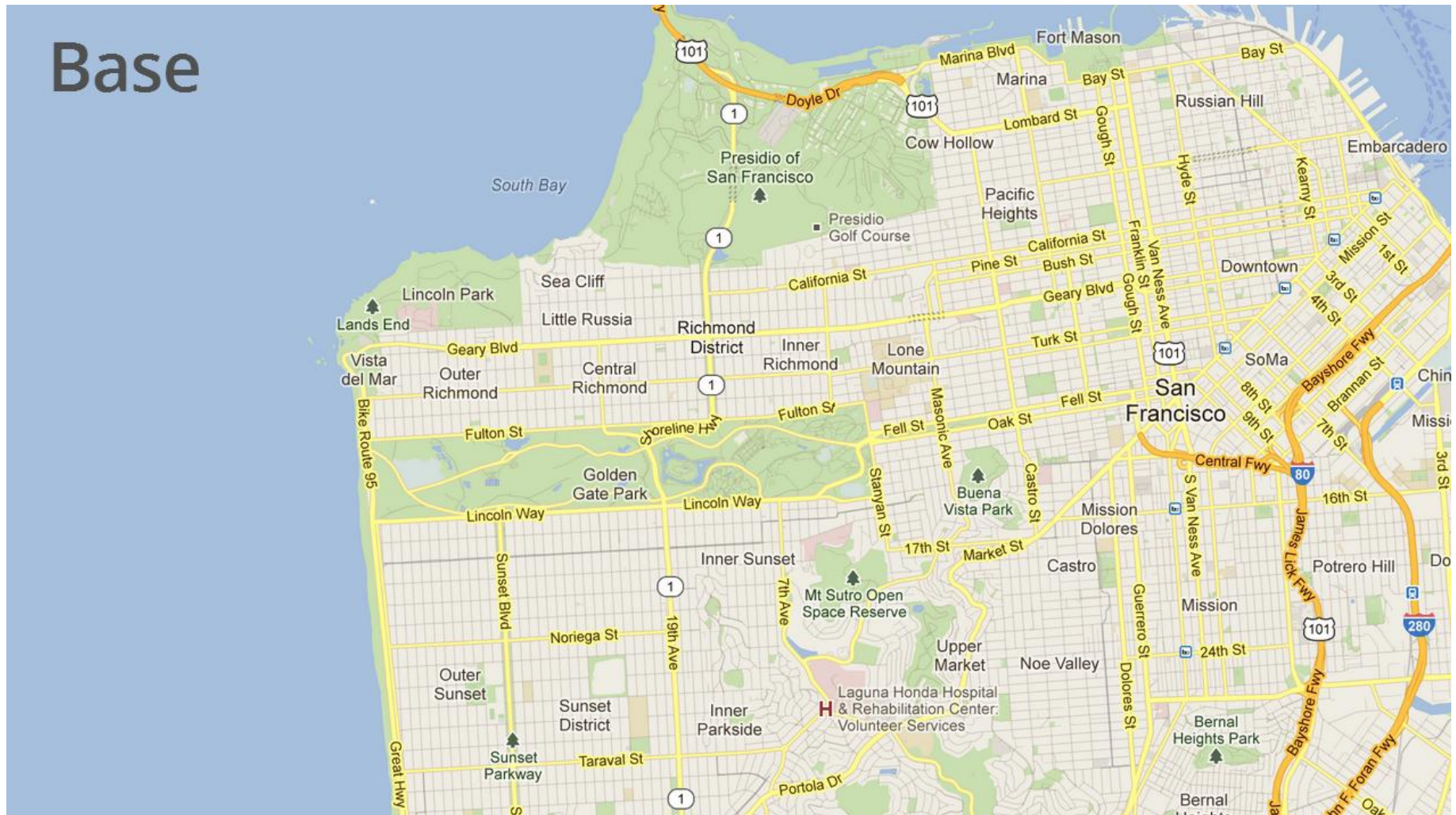
```
...
var STYLED_MAPTYPE_ID = "styled";
function init() {
  var mapOptions = {
    ...
    mapTypeId: STYLED_MAPTYPE_ID
  };
  map = new google.maps.Map(document.getElementById('map'), mapOptions);
  var styles = [<styles>];
  var styledMapOptions = { name: "Stylish" };
  var styledMapType = new google.maps.StyledMapType(styles, styledMapOptions);
  map.mapTypes.set(STYLED_MAPTYPE_ID, styledMapType);
}
```


A map of San Francisco with several red and green circles overlaid. The red circles are located in the northern part of the city (near the Presidio and Fort Mason), in the central part (near the Golden Gate Park and Inner Richmond), and in the southern part (near the Sunset District and Bernal Heights). The green circles are located in the central part (near the Inner Richmond and Golden Gate Park), in the southern part (near the Sunset District and Bernal Heights), and in the eastern part (near the Mission District and Potrero Hill). The word "Base" is written in the top left corner.

Final



Base



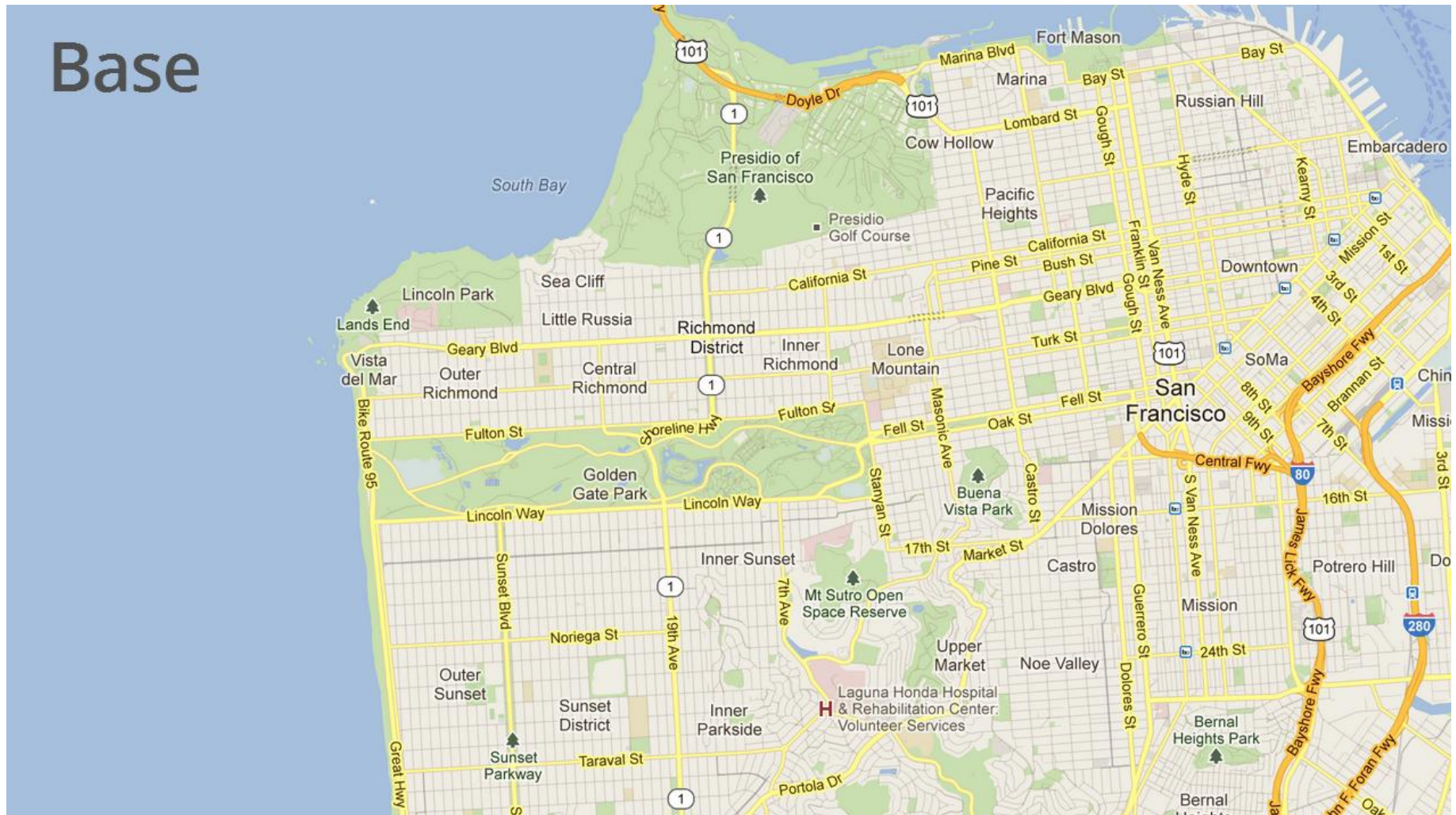
Desaturate

JAVASCRIPT

```
{stylers : [  
  {saturation: -100}  
]},  
{elementType: "labels",  
  stylers : [  
    {visibility : "off"}  
  ]},
```



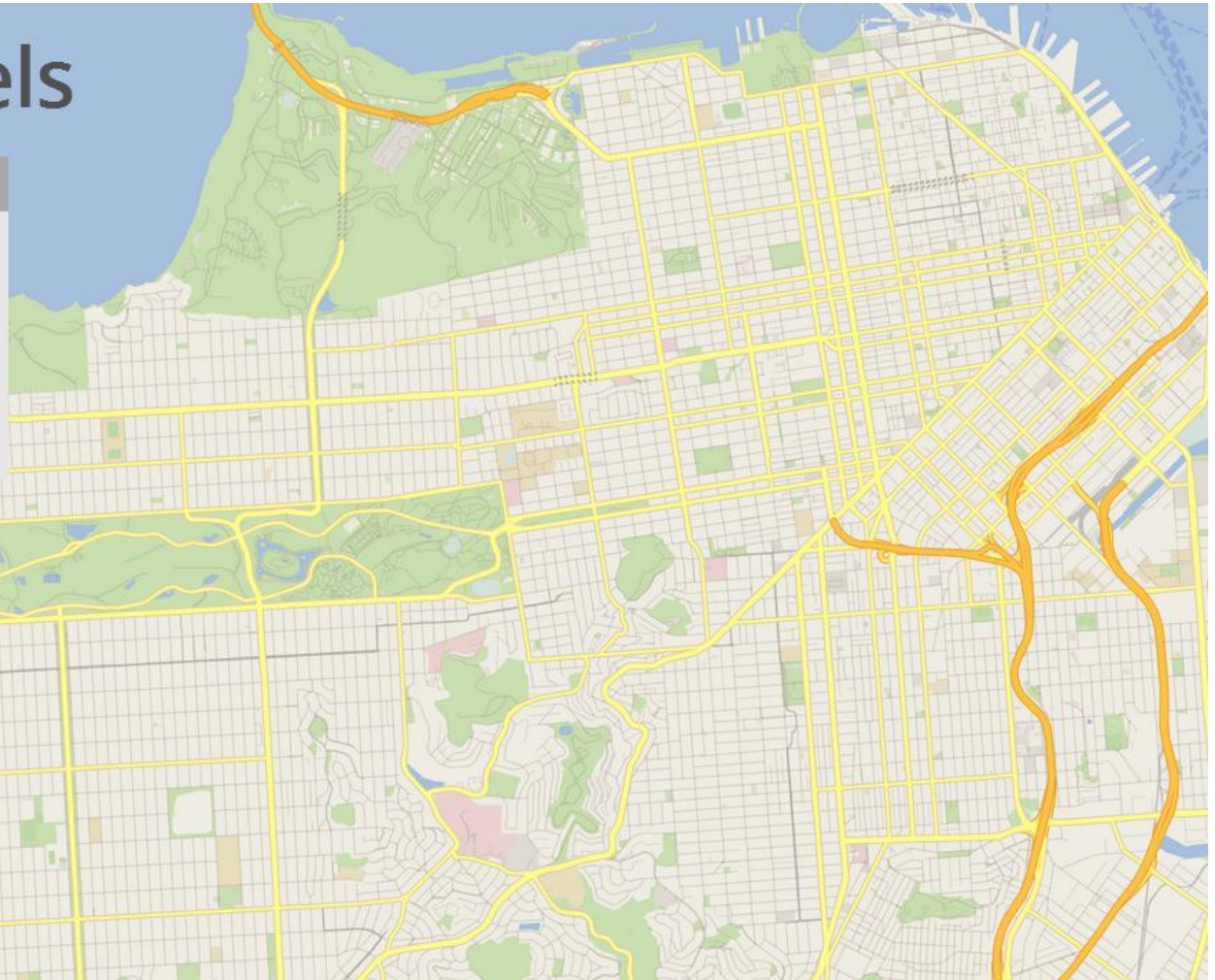
Base



Remove labels

JAVASCRIPT

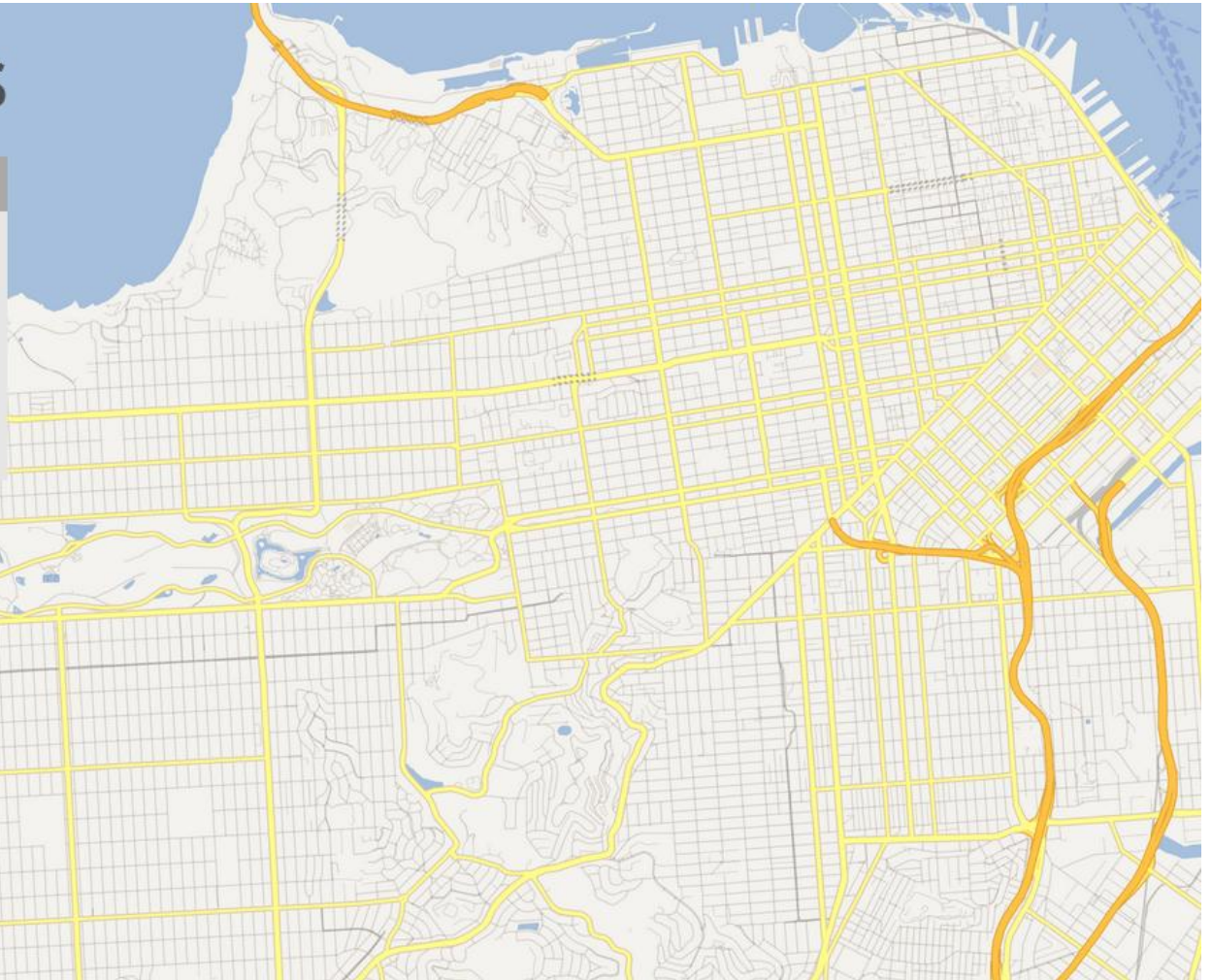
```
{elementType: "labels",  
  stylers : [  
    {visibility: "off"}  
  ]},
```



Remove pois

JAVASCRIPT

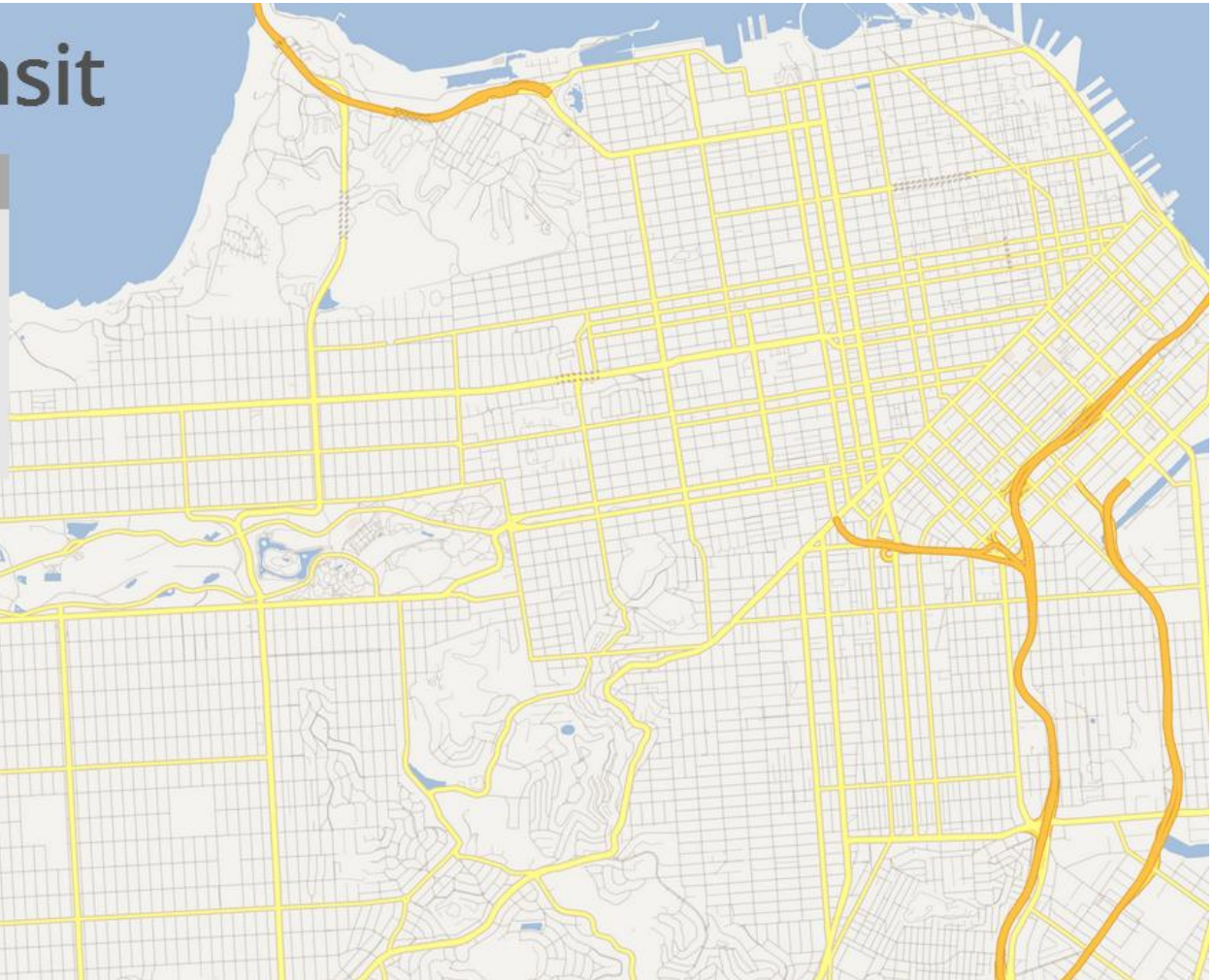
```
{featureType: "poi",  
  stylers : [  
    {visibility: "off"}  
  ]},
```



Remove transit

JAVASCRIPT

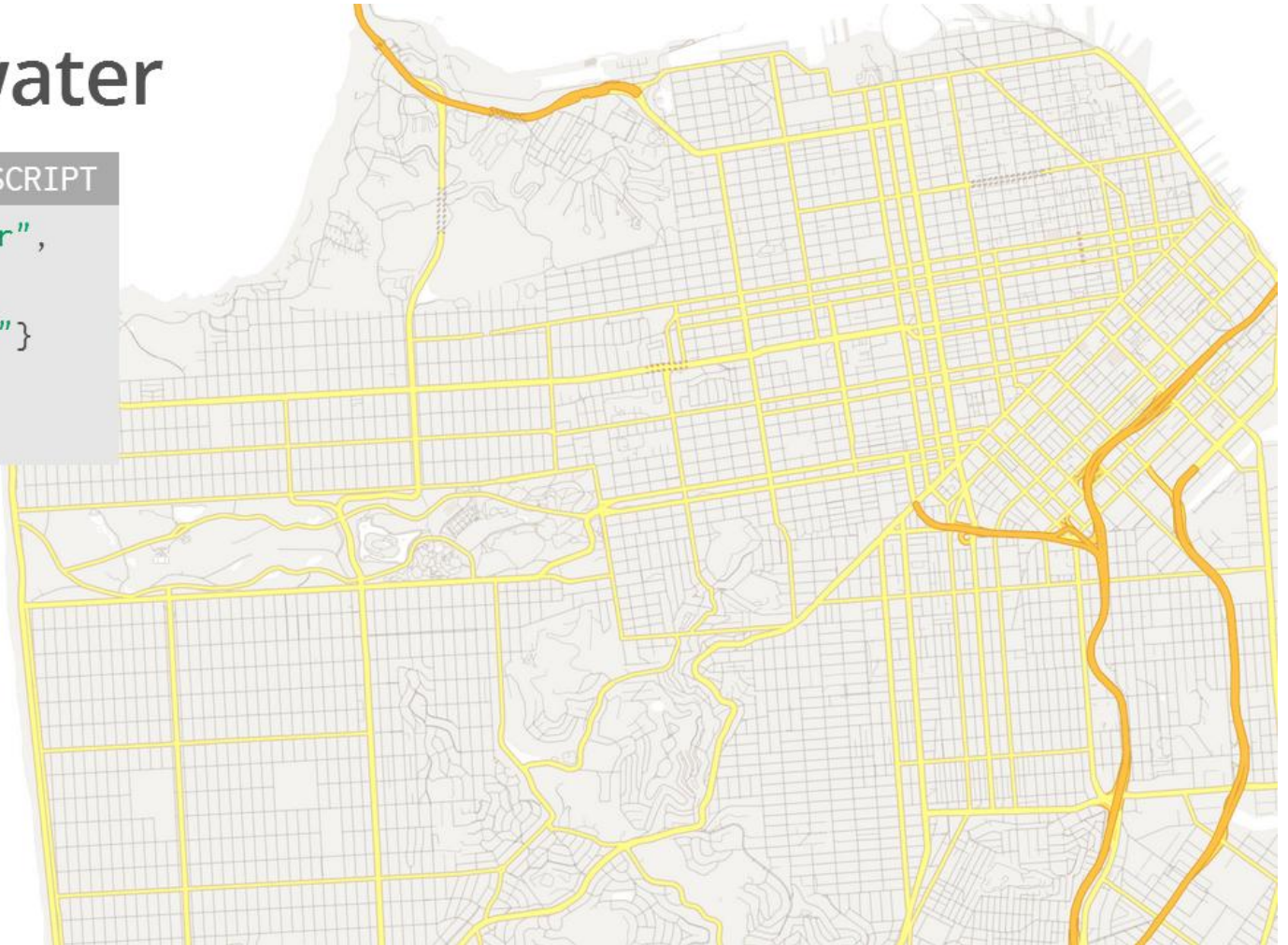
```
{featureType: "transit",  
  stylers : [  
    {visibility: "off"}  
  ]},
```



Recolor water

JAVASCRIPT

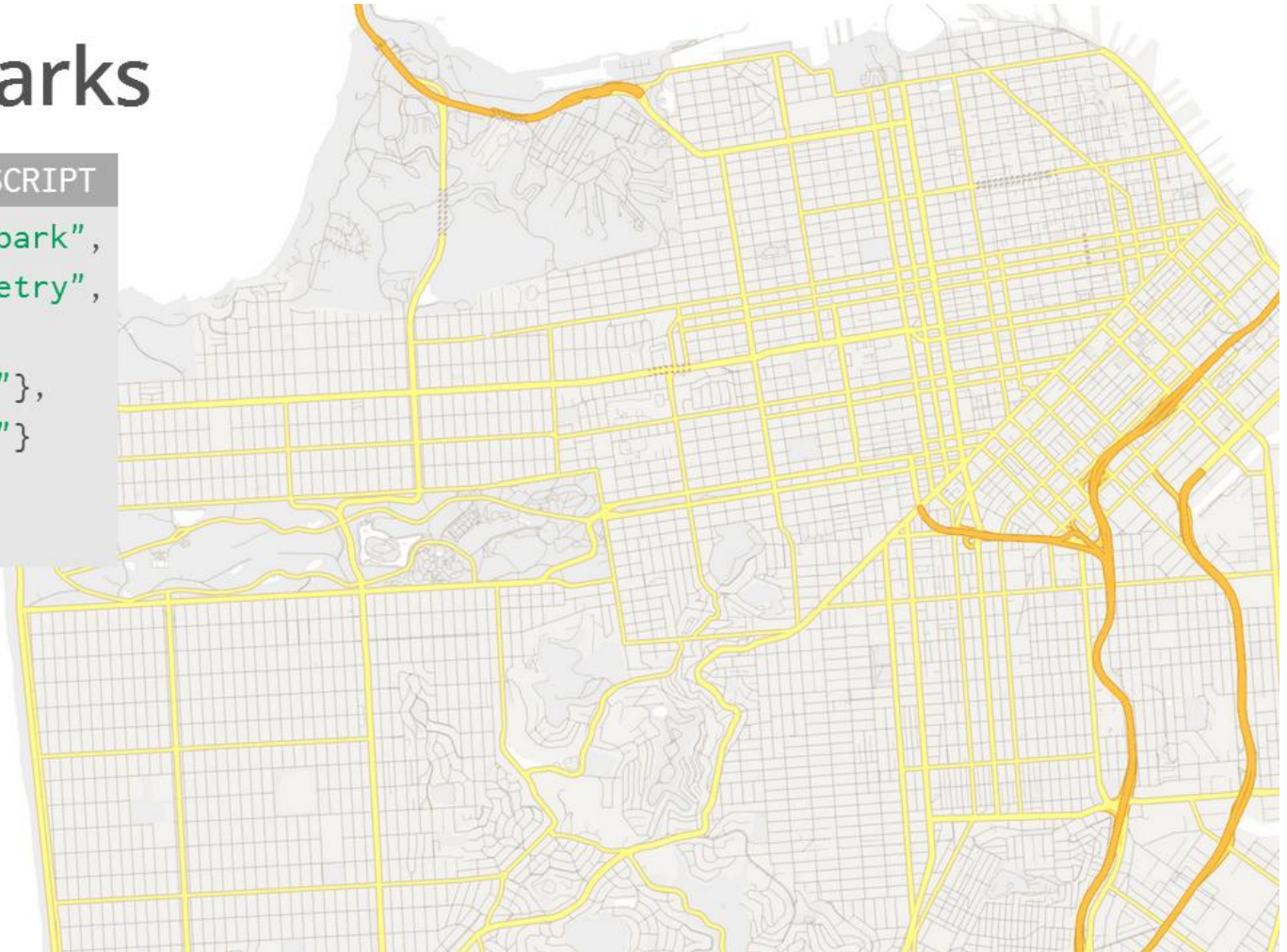
```
{featureType: "water",  
  stylers : [  
    {color: "#ffffff"}  
  ]},
```



Recolor parks

JAVASCRIPT

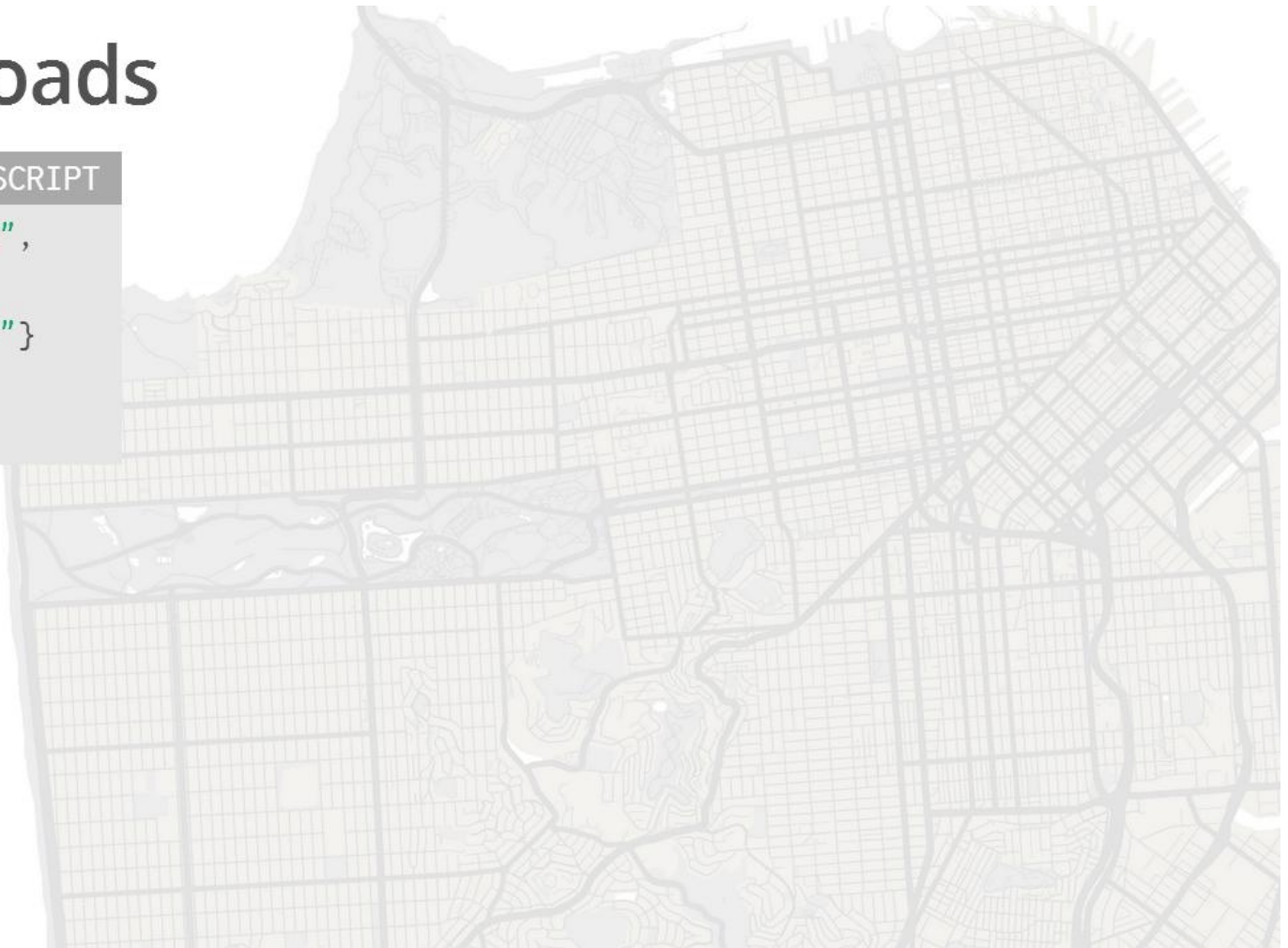
```
{featureType: "poi.park",  
  elementType: "geometry",  
  stylers: [  
    {visibility: "on"},  
    {color: "#eeeeee"}  
  ]},
```



Recolor roads

JAVASCRIPT

```
{featureType: "road",  
  stylers : [  
    {color: "#e3e3e3"}  
  ]},
```



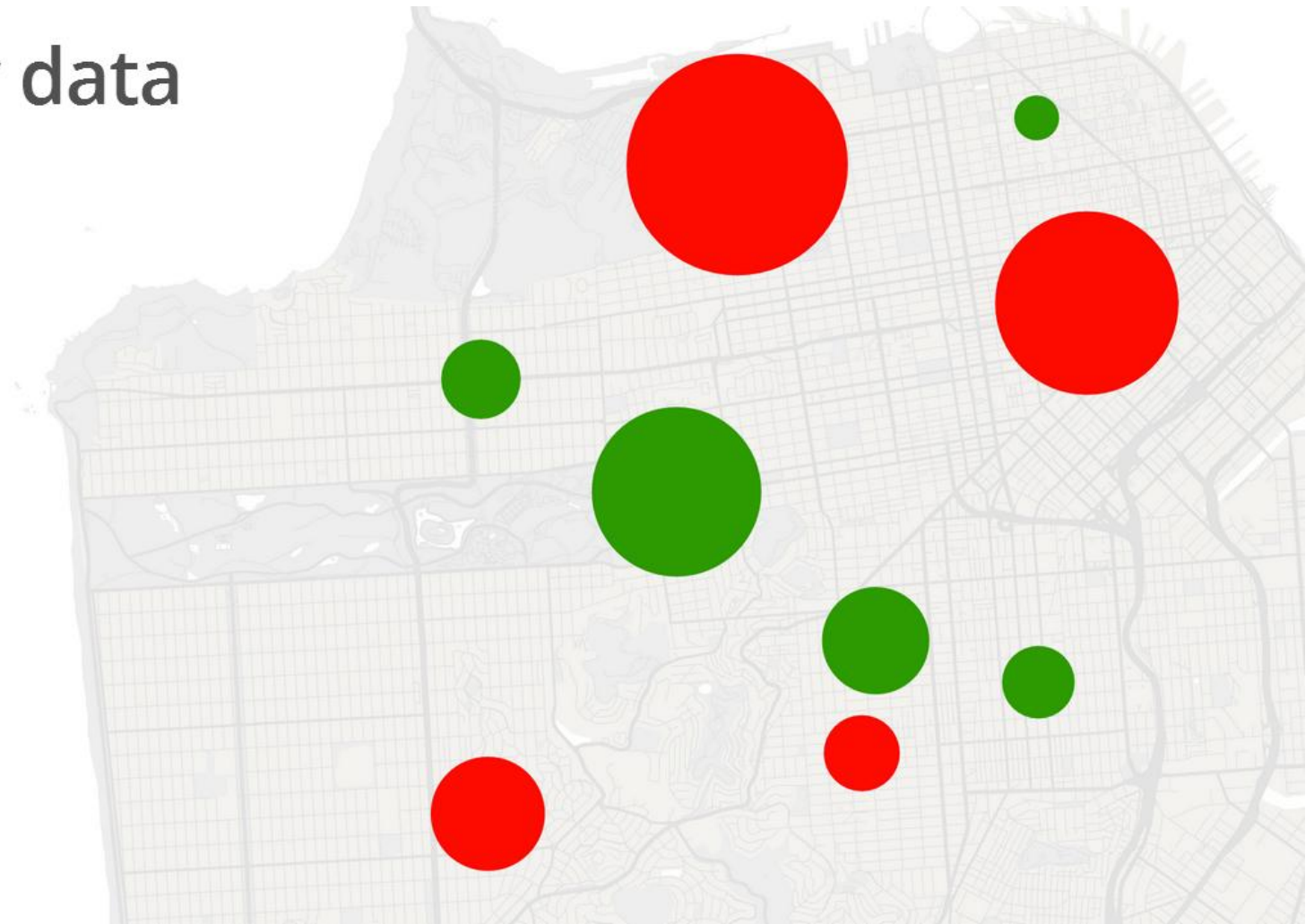
Thin roads

JAVASCRIPT

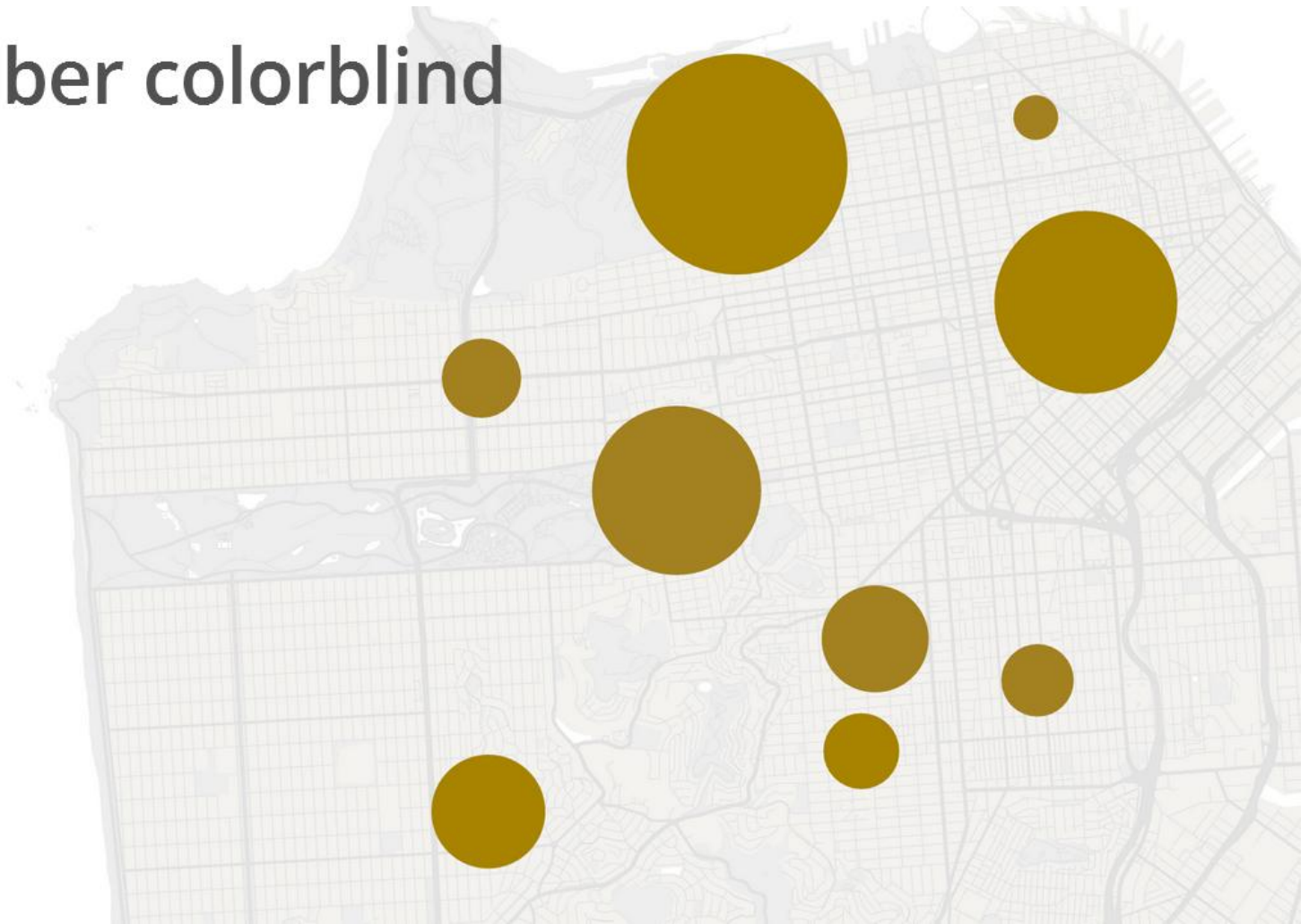
```
{featureType:  
  "road.highway",  
  stylers : [  
    {weight: 1}  
  ]},  
{featureType:  
  "road.arterial",  
  stylers : [  
    {weight: 0.5}  
  ]},  
{featureType:  
  "road.local",  
  stylers : [  
    {weight: 0.5}  
  ]},
```



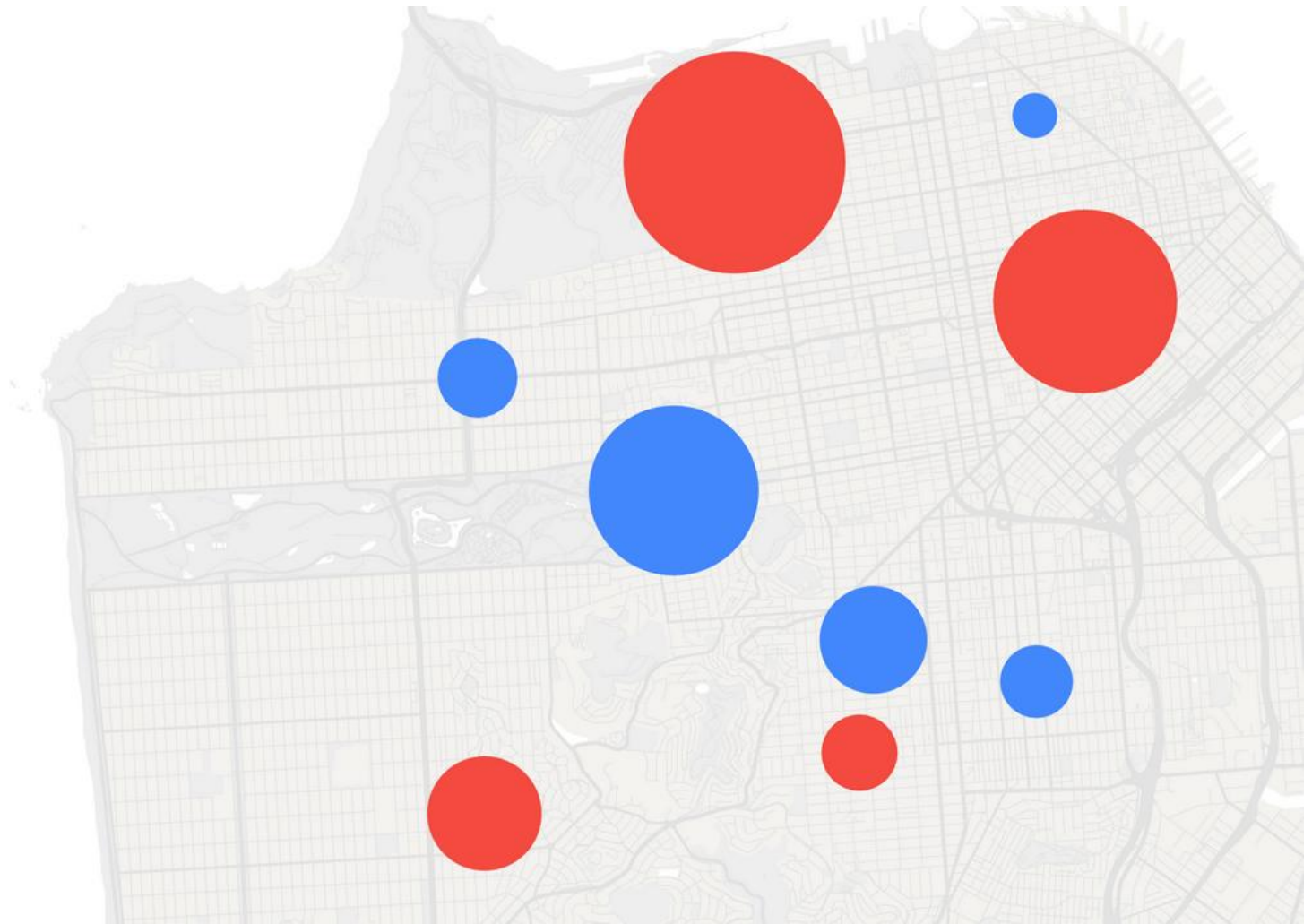
Overlay data



Remember colorblind



Final



Restrict zoom

Restricting the zoom leaves less styling edge cases.

JAVASCRIPT

```
...  
var DEFAULT_ZOOM = 13;  
function init() {  
  var mapOptions = {  
    zoom: DEFAULT_ZOOM,  
    minZoom: DEFAULT_ZOOM,  
    maxZoom: DEFAULT_ZOOM + 2,  
  };  
  map = new google.maps.Map(document.getElementById('map'), mapOptions);  
}  
...
```


Restrict center

Restricting the center ensures data is visible.

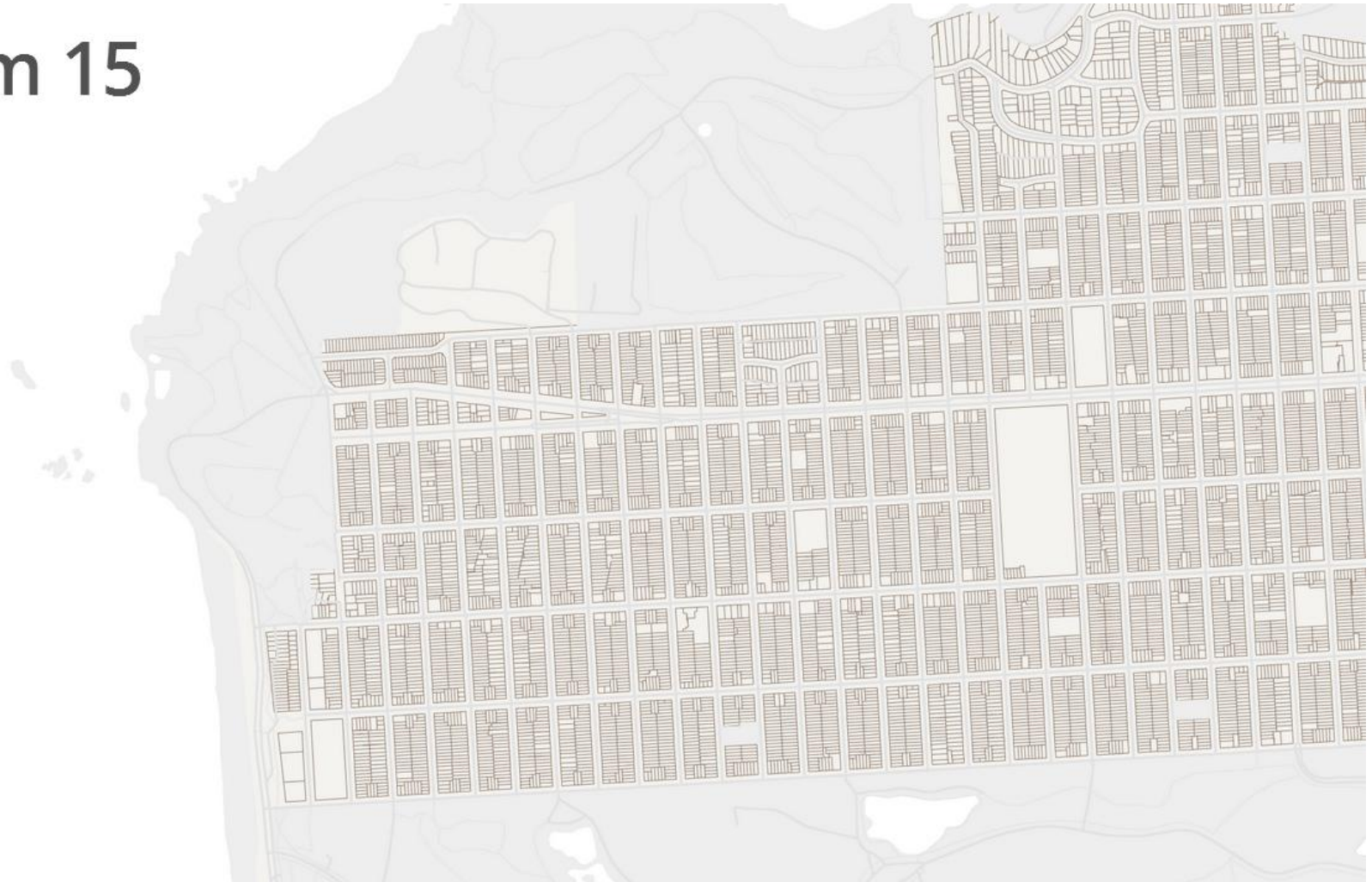
JAVASCRIPT

```
var bounds = new google.maps.LatLngBounds(new google.maps.LatLng(37.74, -122.48),
                                           new google.maps.LatLng(37.808, -122.3977));
google.maps.event.addListener(map, "center_changed", function() {
  var c = map.getCenter();
  if (bounds.contains(c)) return;
  var cappedLat = Math.min(c.lat(), bounds.getNorthEast().lat());
  cappedLat = Math.max(cappedLat, bounds.getSouthWest().lat());
  var cappedLng = Math.min(c.lng(), bounds.getNorthEast().lng());
  cappedLng = Math.max(cappedLng, bounds.getSouthWest().lng());
  map.setCenter(new google.maps.LatLng(cappedLat, cappedLng));
});
```

Zoom 14



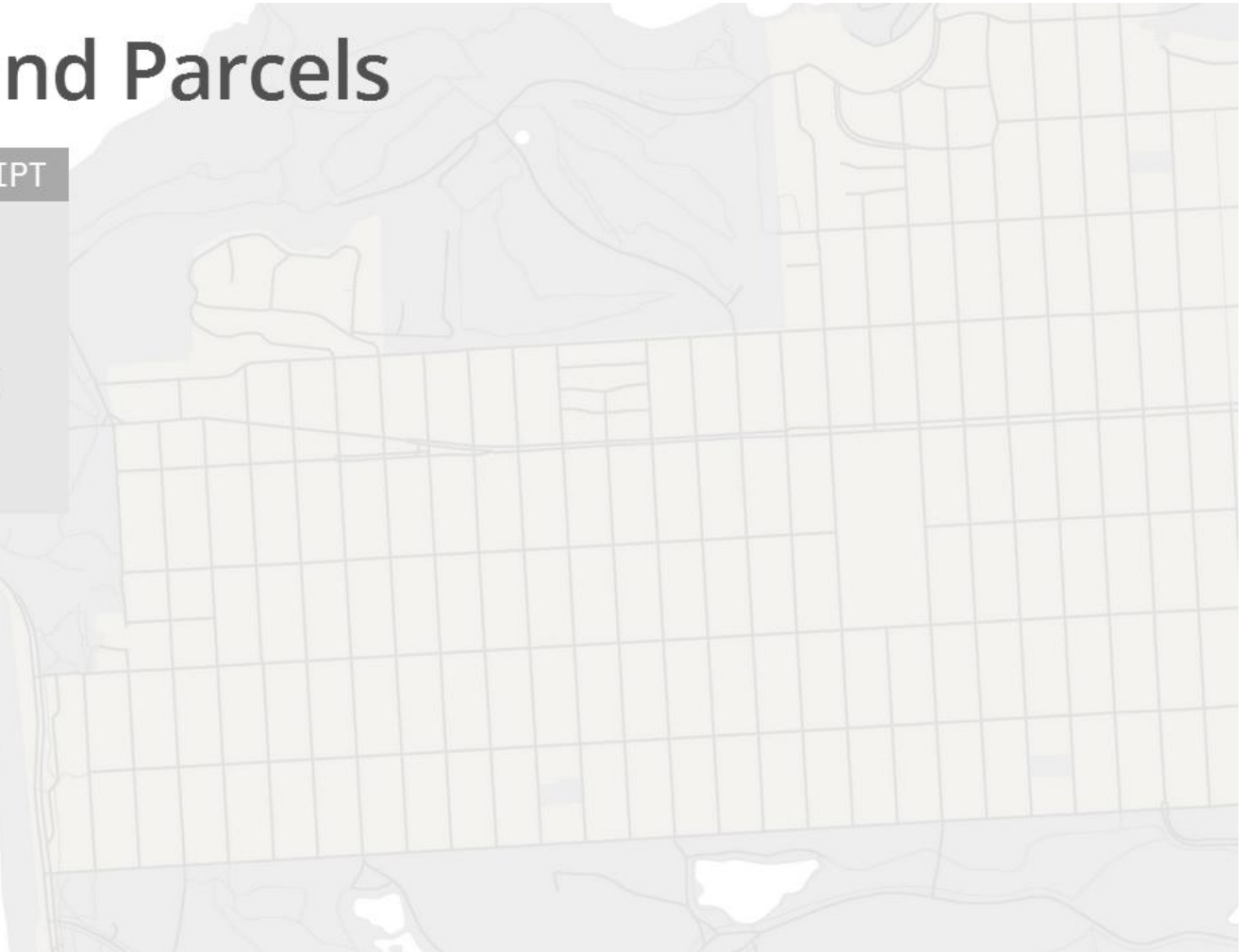
Zoom 15



Remove Land Parcels

JAVASCRIPT

```
{featureType:  
  "administrative",  
  stylers : [  
    {visibility: "off"}  
  ]},
```



Changing the style per zoom

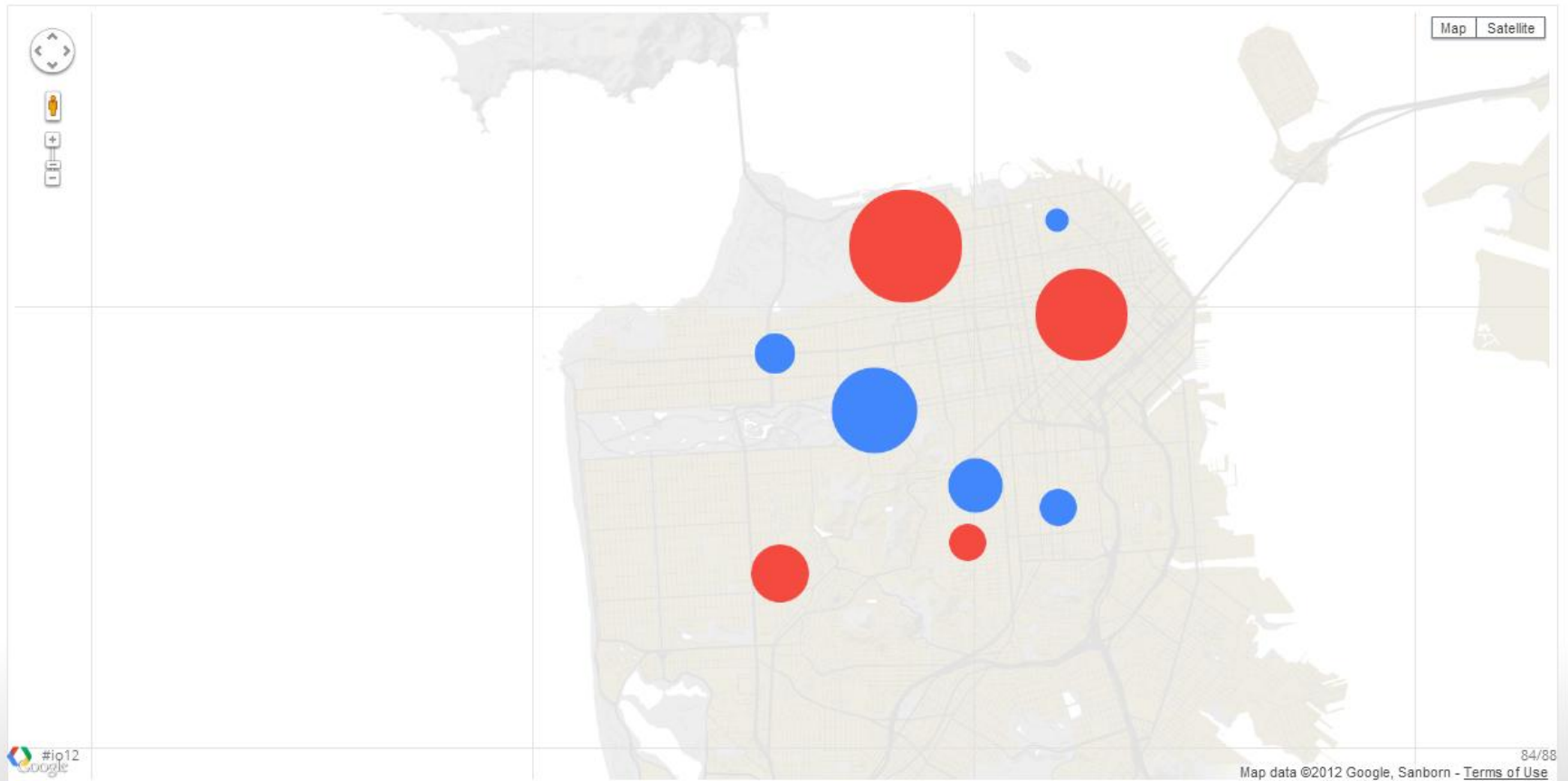
Construct the StyledMapType with a list of styles.

JAVASCRIPT

```
var styledMapOptions = { name: "Stylish" };
var styles = [<styles>];
var adminOff = [{featureType: "administrative",
                  stylers: [{ visibility: "off" }]}];
var stylesPerZoom = {
  13: new google.maps.StyledMapType(styles, styledMapOptions),
  14: new google.maps.StyledMapType(styles, styledMapOptions),
  15: new google.maps.StyledMapType(styles.concat(adminOff), styledMapOptions)};
map.mapTypes.set(STYLED_MAPTYPE_ID, stylesPerZoom[DEFAULT_ZOOM]);

google.maps.event.addListener(map, "zoom_changed", function() {
  var z = map.getZoom();
  map.mapTypes.set(STYLED_MAPTYPE_ID, stylesPerZoom[map.getZoom()]);
});
```

Finished



- Remove unnecessary information
- Refine the remaining data
- Test multiple zooms and regions



- Change weight
- Set color directly
- Select Fill vs Stroke

