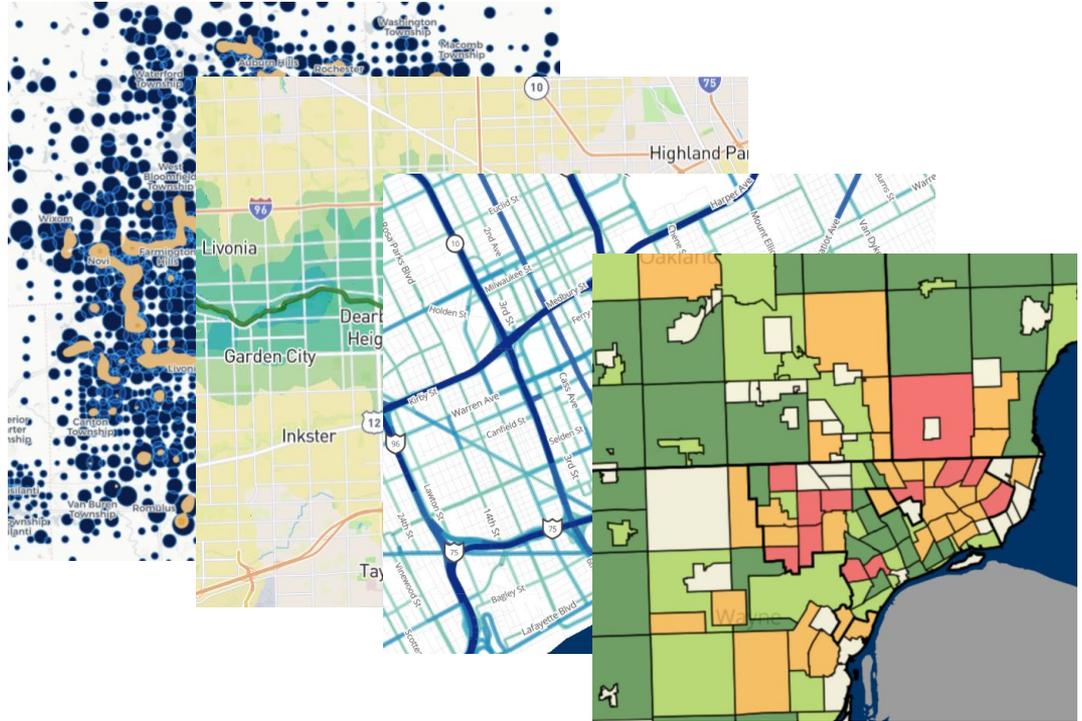


SEMCOG Data Visualization



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313-407-9996



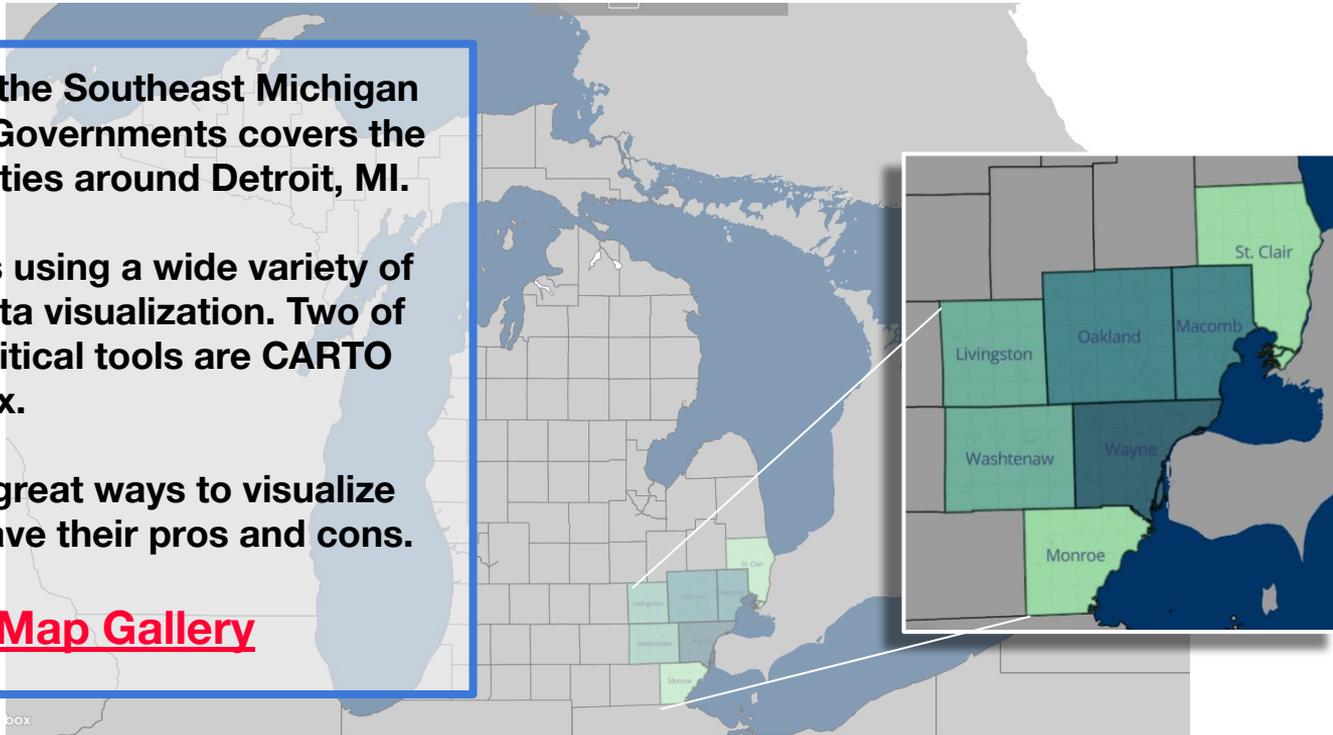
About SEMCOG

SEMCOG, the Southeast Michigan Council of Governments covers the seven counties around Detroit, MI.

SEMCOG is using a wide variety of tools for data visualization. Two of the most critical tools are **CARTO** and **Mapbox**.

Each have great ways to visualize data and have their pros and cons.

[Map Gallery](#)



“...there is very little in geospatial that doesn't need some **customization...**”

Source: [Forbes](#)

SEMCOG Data Viz using **CARTO**

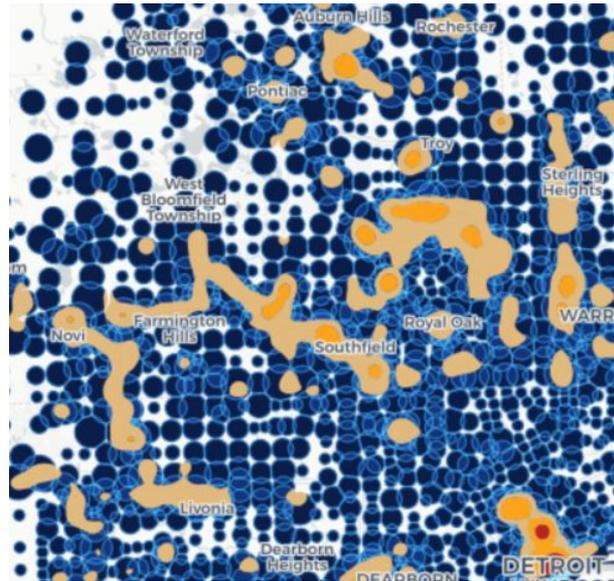
CartoCSS is a powerful way to symbolize data and has many functions

SQL interface allows you to keep data in original format and query it so that it works for the map

SQL allows us to make custom filters so the user to dive into the data and get the information they need

SEMCOG Data Viz using **CART**

Employment Density Map DEMO

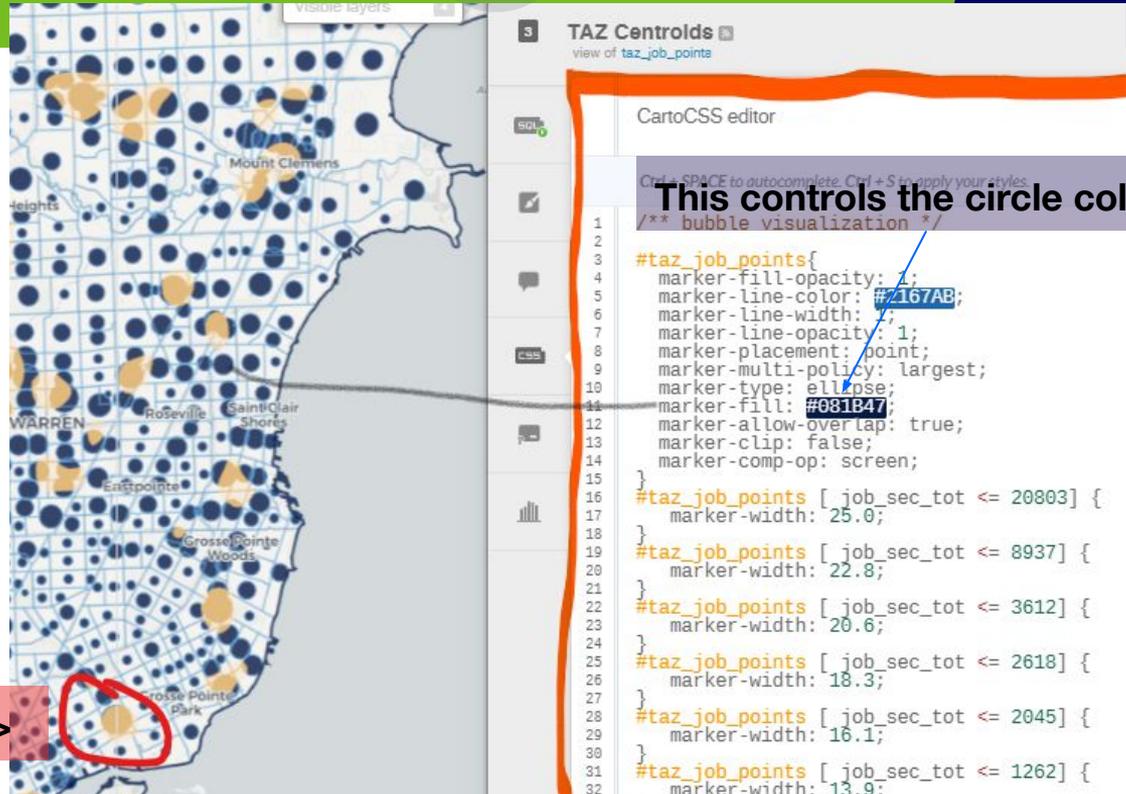


SEMCOG Data Viz using CART

CartoCSS

- Like web page CSS but for geospatial data
- Easy to use, and customize once you get used to the syntax
- Can use logic to style by data or by zoom (zoom > 10, then width 20)

What about this circle? ->



TAZ Centroids
view of taz_job_points

CartoCSS editor

Create SP4CE to autocomplete. Ctrl + S to apply your styles.

This controls the circle color
/* bubble visualization */

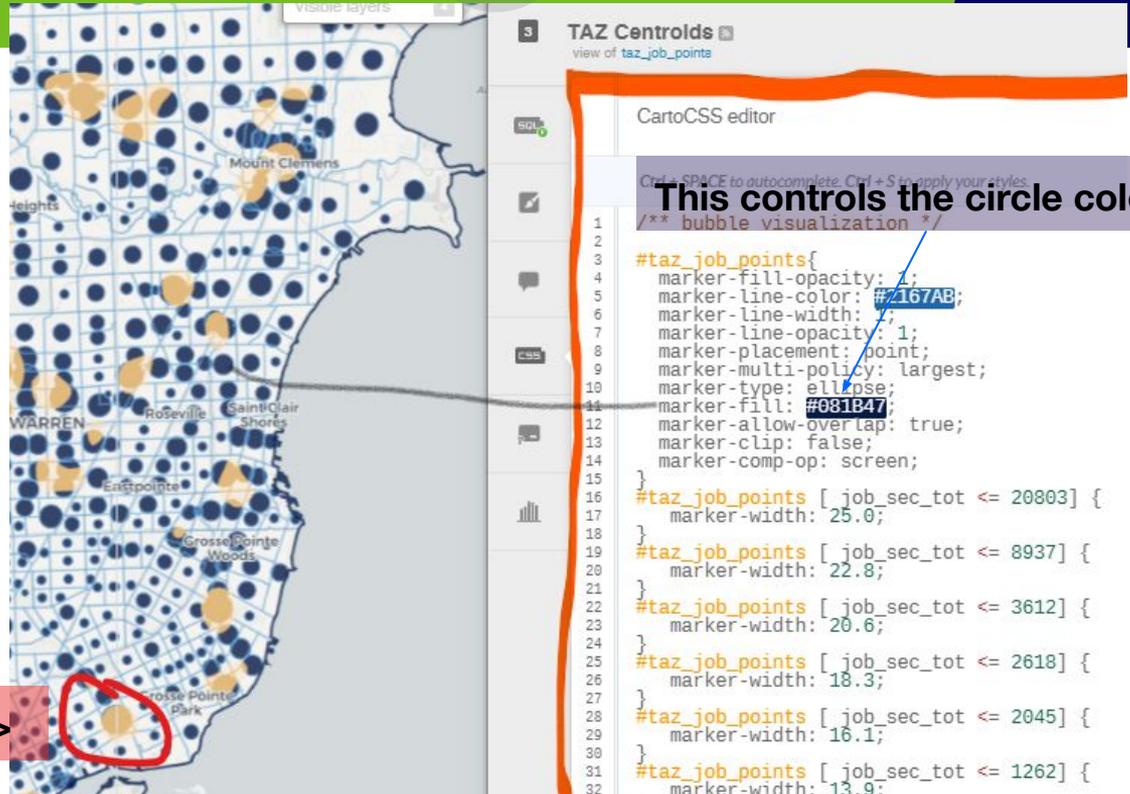
```
1
2
3
4 #taz_job_points{
5   marker-fill-opacity: 1;
6   marker-line-color: #7167AB;
7   marker-line-width: 2;
8   marker-line-opacity: 1;
9   marker-placement: point;
10  marker-multi-policy: largest;
11  marker-type: ellipse;
12  marker-fill: #081B47;
13  marker-allow-overlap: true;
14  marker-clip: false;
15  marker-comp-op: screen;
16 }
17 #taz_job_points [ job_sec_tot <= 20803 ] {
18   marker-width: 25.0;
19 }
20 #taz_job_points [ job_sec_tot <= 8937 ] {
21   marker-width: 22.8;
22 }
23 #taz_job_points [ job_sec_tot <= 3612 ] {
24   marker-width: 20.6;
25 }
26 #taz_job_points [ job_sec_tot <= 2618 ] {
27   marker-width: 18.3;
28 }
29 #taz_job_points [ job_sec_tot <= 2045 ] {
30   marker-width: 16.1;
31 }
32 #taz_job_points [ job_sec_tot <= 1262 ] {
33   marker-width: 13.9;
```

SEMCOG Data Viz using CART

Polygon-comp-op: src-in
lets you blend layers together that overlap

```
#job_sector_density {  
  polygon-opacity: .9;  
  polygon-comp-op: src-in;  
}  
#job_sector_density[gridcode=5] {  
  polygon-fill: #B40903;  
}  
#job_sector_density[gridcode=4] {  
  polygon-fill: #FF9900;  
}  
#job_sector_density[gridcode=3] {  
  polygon-fill: #e0b26e;  
}
```

What about this circle? ->



SEMCOG Data Viz using CART

SEMCOG

SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

Traffic Volume

X

MENU

Daily VMT for segments in map view:

1,562,658

County/Community

7 counties selected

Detroit

Latest Count Year

Multiple years selected

Jurisdiction

City

DEMO

SELECT *

FROM trafficvolume_js418

where jurisdictri = 'City'

and (semccd1 = '5' or semccd2 = '5' or semccd3 = '5' or
semccd4 = '5')

and ((aadtr >= 10001 and aadtr <= 20000) or (aadtr >= 20001 and
aadtr <= 40000) or
(aadtr >= 40001 and aadtr <= 20000000))

ORDER BY AADT

SEMCOG

SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

SEMCOG Data Viz using mapbox

Vector tile based

Continuous zooming

Viewbox based styling

**Mapbox Studio for custom
basemaps**



```
width: zoom()  
color: rgb(204,0,0)
```

Mapbox Studio

- Great for custom basemaps
- Can upload layers to make the basemap your own
- Allows for fine grain control when styling data
- Can use the zoom level to adjust point/line width etc.
- Can be used on most platforms (Leaflet, ArcGIS, etc.)

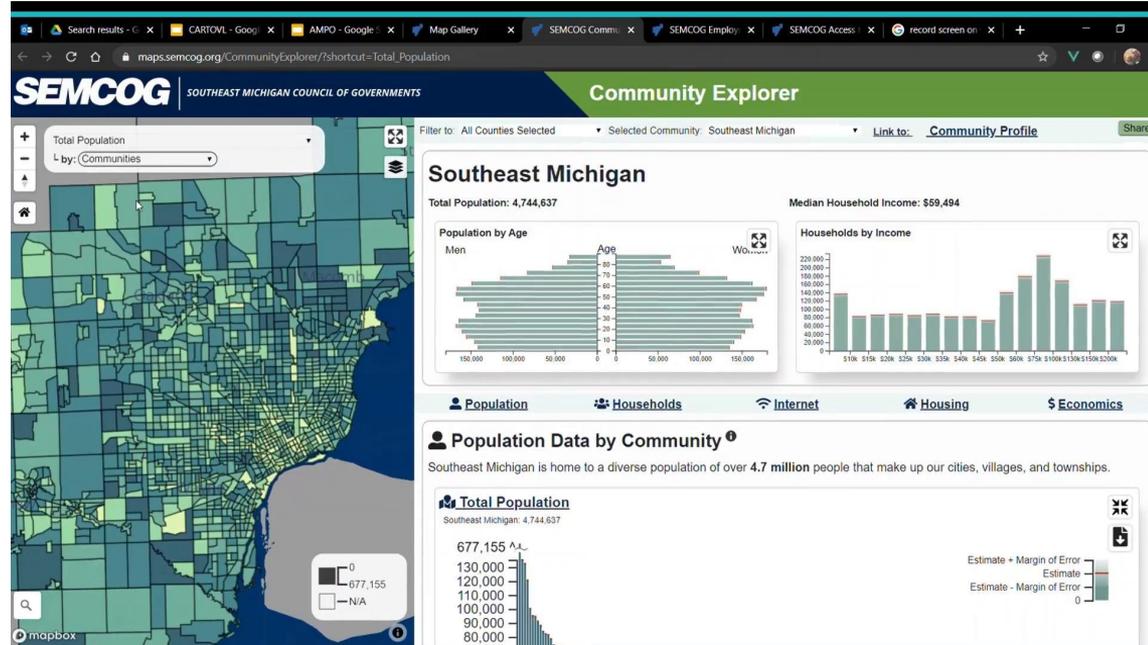
SEMCOG Data Viz using mapbox

Demos

[Community Explorer](#)
[Access Parks](#)

Extend Mapbox Studio with Mapbox GL

- Viewport based classification and styling
 - Allows users to get a better picture as they zoom in
 - Uses only the data on the viewport to calculate class breaks



Links and THANKS!

Map Gallery - <https://semcog.org/map-gallery>

Maps:

1. Employment Density - <https://maps.semcog.org/EmploymentDensity/>
2. Traffic Volume - <https://maps.semcog.org/TrafficVolume/>
3. Community Explorer - <https://maps.semcog.org/CommunityExplorer/>
4. Access Parks - <https://maps.semcog.org/accessparks/>

Tools:

1. CARTO - <https://carto.com/>
2. Mapbox - <https://www.mapbox.com/>

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