SEMCOG Data Visualization

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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
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.
Employment Density Map DEMO
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? ->

This controls the circle color
SEMCOG Data Viz using CART

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

What about this circle? ->

This controls the circle color

```css
#job_sector_density {  
polygon-opacity: .9;  
polygon-comp-op: src-in;  }
#job_sector_density[gridcode=5] {  
polygon-fill: #B40083;  }
#job_sector_density[gridcode=4] {  
polygon-fill: #FF9900;  }
#job_sector_density[gridcode=3] {  
polygon-fill: #e0b26c;  }
```
SELECT *
FROM trafficvolume_js418
where jurisdicti = 'City'
and (semmcd1 = '5' or semmcd2 = '5' or semmcd3 = '5' or semmcd4 = '5')
and ((aadtr >= 10001 and aadtr <= 20000) or (aadtr >= 20001 and aadtr <= 40000) or (aadtr >= 40001 and aadtr <= 2000000))
ORDER BY AADT
Vector tile based

Continuous zooming

Viewbox based styling

Mapbox Studio for custom basemaps
SEMCOG Data Viz using Mapbox

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.)
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:

Tools:
1. CARTO - https://carto.com/

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