

Reimagining Redistricting Data Products

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Redistricting: The process of redrawing or redefining legislative district boundaries for federal, state, and local elections.

The Public Law (P.L.) 94-171 dataset is created by the U.S. Census Bureau from the decennial census for use by the states in redistricting.

Federal requirements

Single Member Districts

Equal Protection

Section 2 of the Voting Rights Act

State Requirements (varies by state)

Compactness

Contiguity

Maintaining political subdivisions

Preserving communities of interest

Preservation of cores of prior districts

Avoiding pairing incumbents

Competitiveness

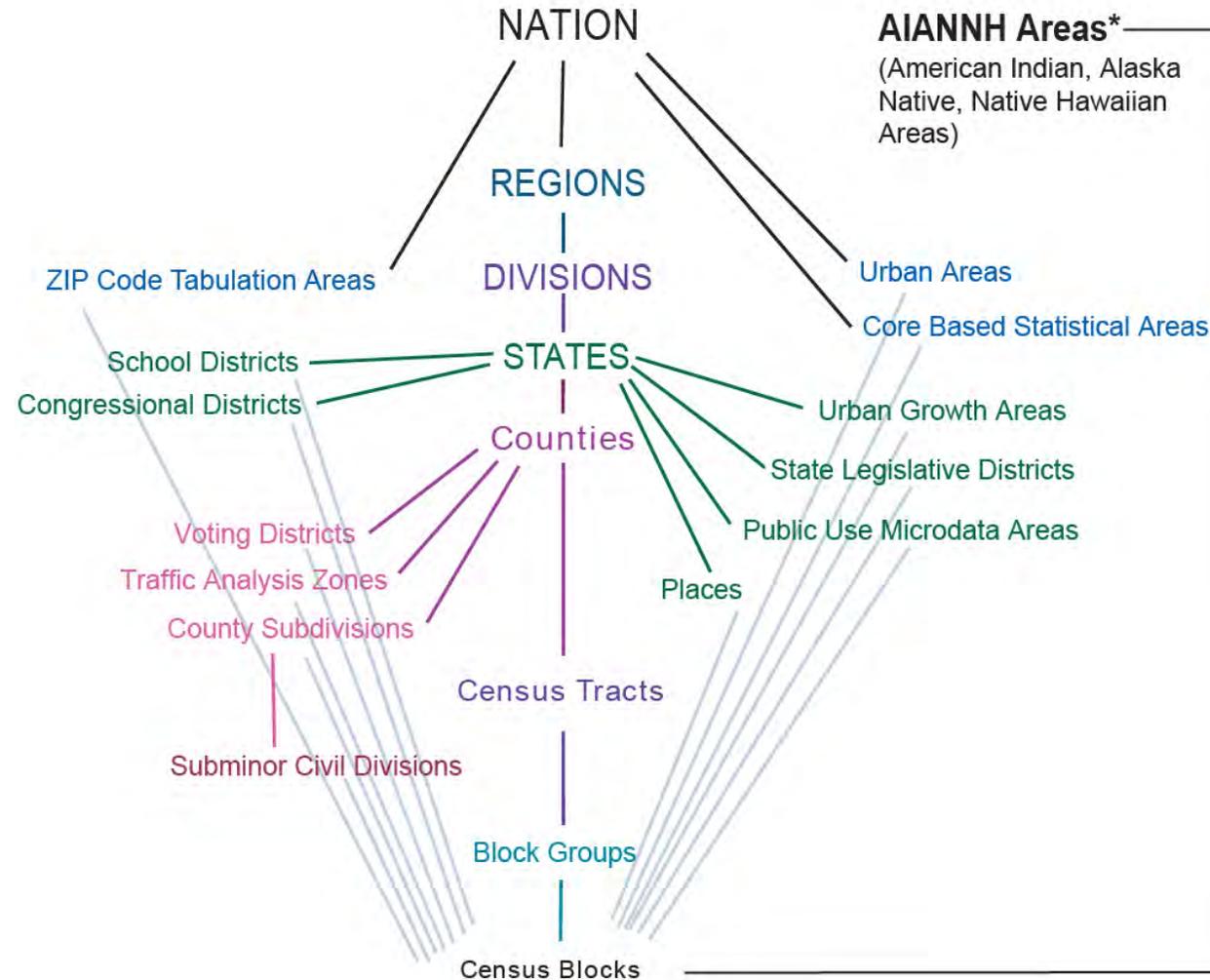
Fields in the P.L. 94-171 Data

Over 300
Fields!

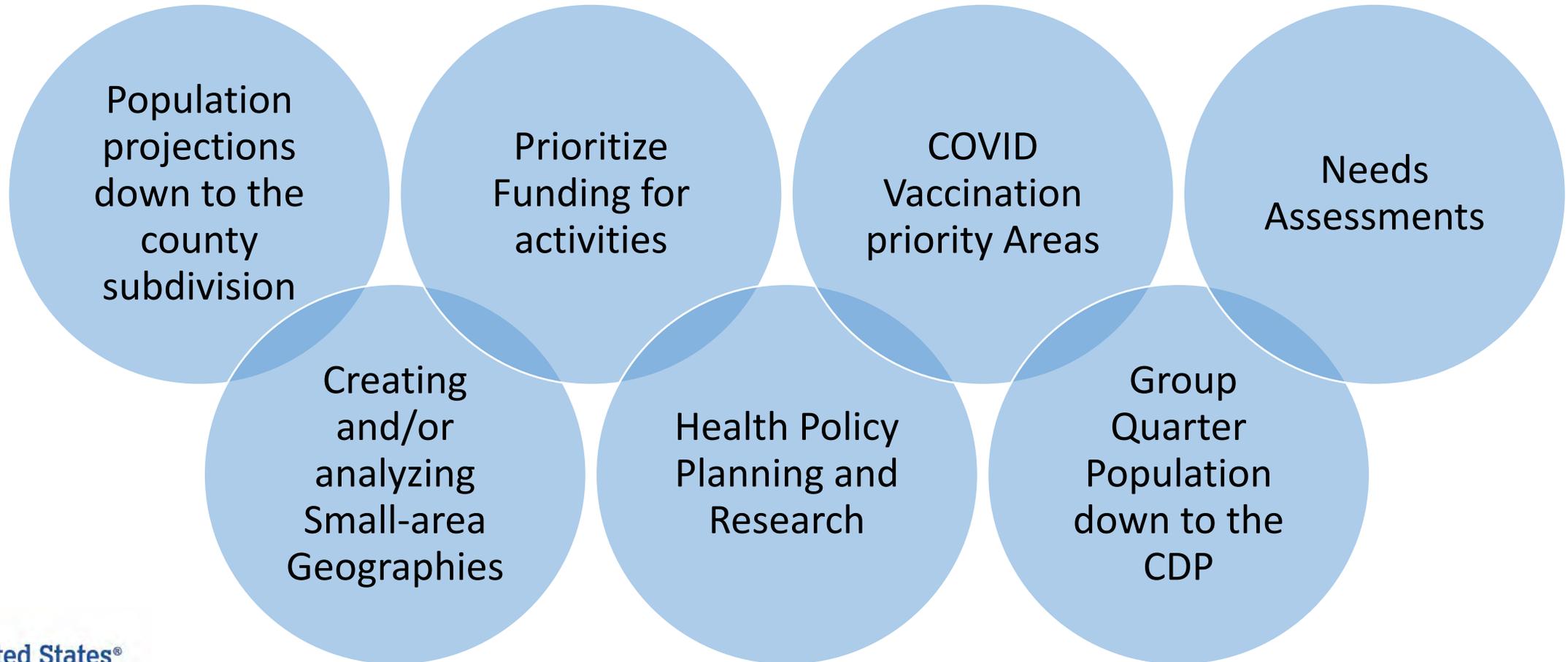
- Race*
- Hispanic or Latino, and not Hispanic or Latino by Race*
- Race* for the Population 18 Years and Over
- Hispanic or Latino, and not Hispanic or Latino by Race* for the Population 18 Years and Over
- Group Quarters Population by Major Group Quarters Type
- Occupancy Status (Housing)

* Iterated for populations of one race and two/three/four/five/six races

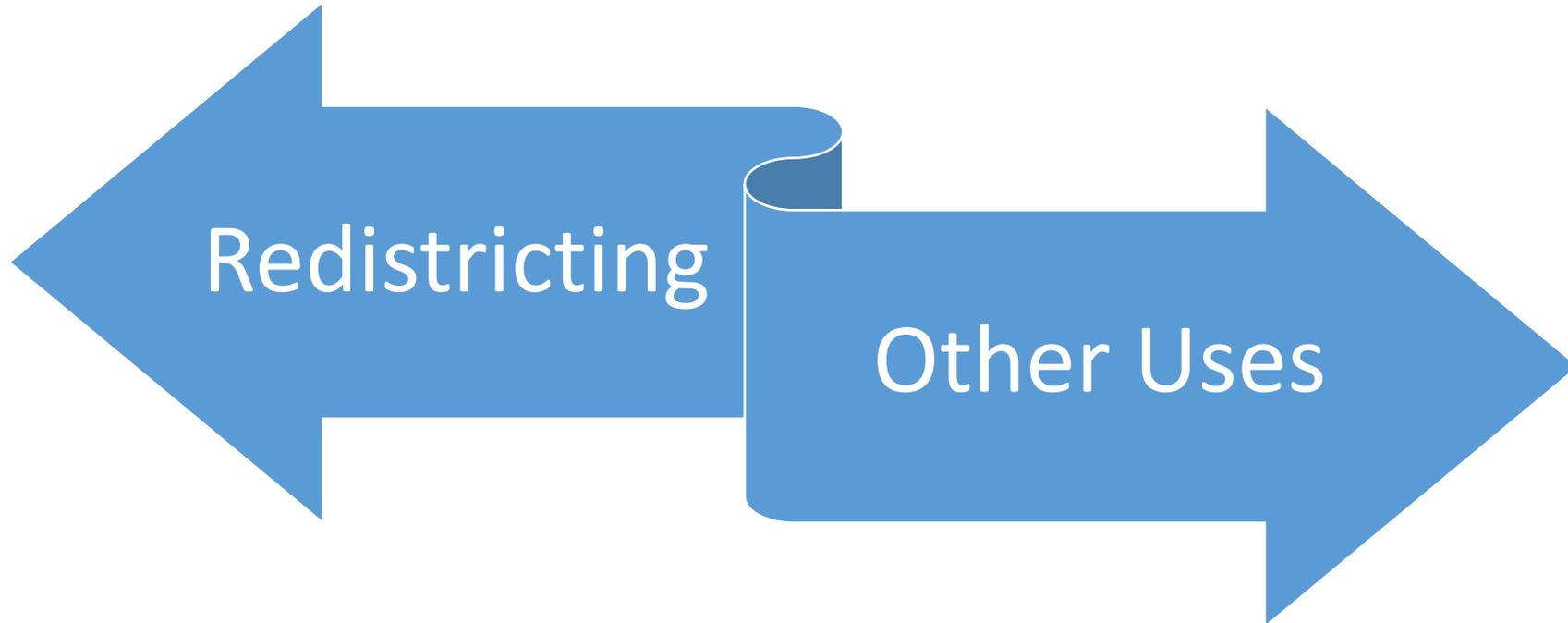
Geography



Uses Beyond Redistricting



Different Uses | Different Needs



Disclosure and Confidentiality

1.5 billions statistics are released as part of the P.L. 94-171 data

<i>Wyoming</i>	<i>California</i>	<i>Rhode Island</i>
<i>53,769 Blocks</i>	53,769 Blocks	25,649 Blocks
<i>16,184,469 statistics</i>	156,436,623 level statistics	7,720,349 level statistics
<i>91% of statistics are 0</i>	90% statistics are 0s	97% statistics are 0s
<i>3% of statistics are 1 to 3</i>	4% of statistics are 1 to 3	1% of statistics are 1 to 3

Thought Experiment

What if we could reimagine the geographic granularity of the P.L. 94-171 data that balances the various purposes and uses with privacy and confidentiality?

Warning: This is an academic exercise only



Census Blocks are Not All the Same

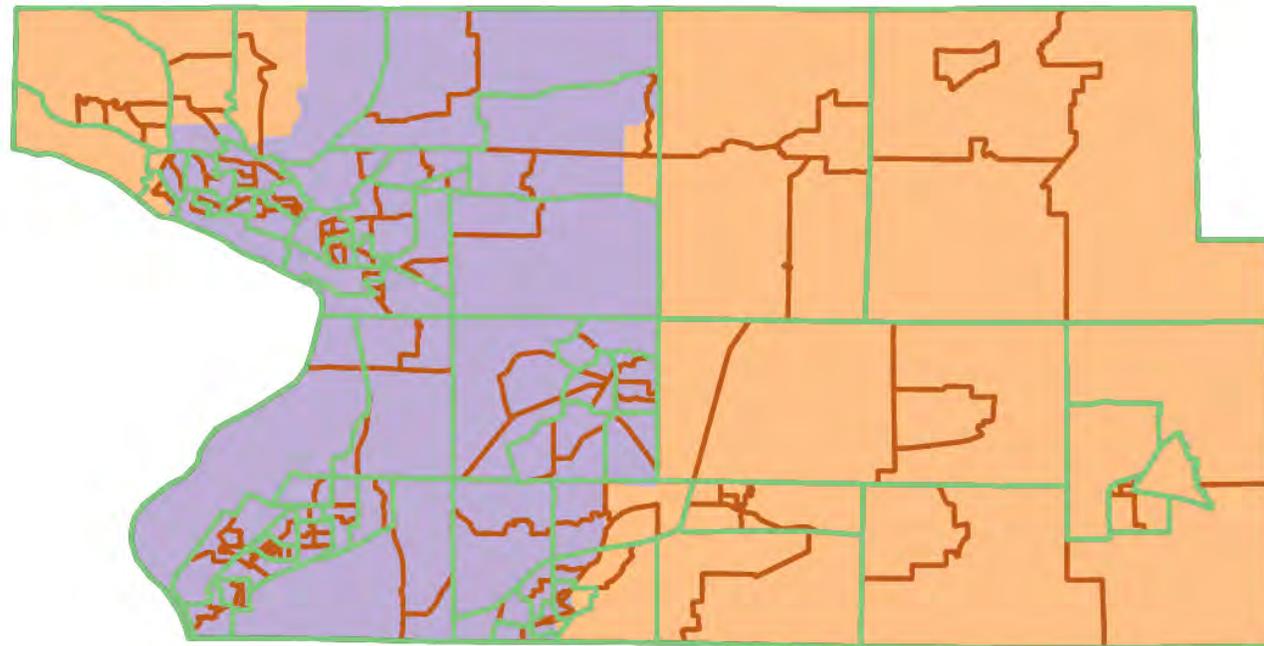
8,129,271 blocks in 2020
had some land

Median block: 0.4 km²

- Urban 0.02 km²
- Rural 1.1 km²

	Total	Rural	Urban
Zero Housing Units	27.7%	18.1%	9.5%
1-5 Housing Units	22.0%	16.4%	5.6%
6-10 Housing Units	12.5%	6.2%	6.4%
More than 10 Housing Units	<u>37.8%</u>	<u>9.2%</u>	<u>28.6%</u>
	100%	100%	
Zero People	29.1%	19.6%	9.5%
1-5 People	7.9%	6.6%	1.3%
6-10 People	8.5%	6.2%	2.3%
More than 10 People	<u>54.6%</u>	<u>17.6%</u>	<u>37.0%</u>
	100%	100%	

Congressional Districts



Legend

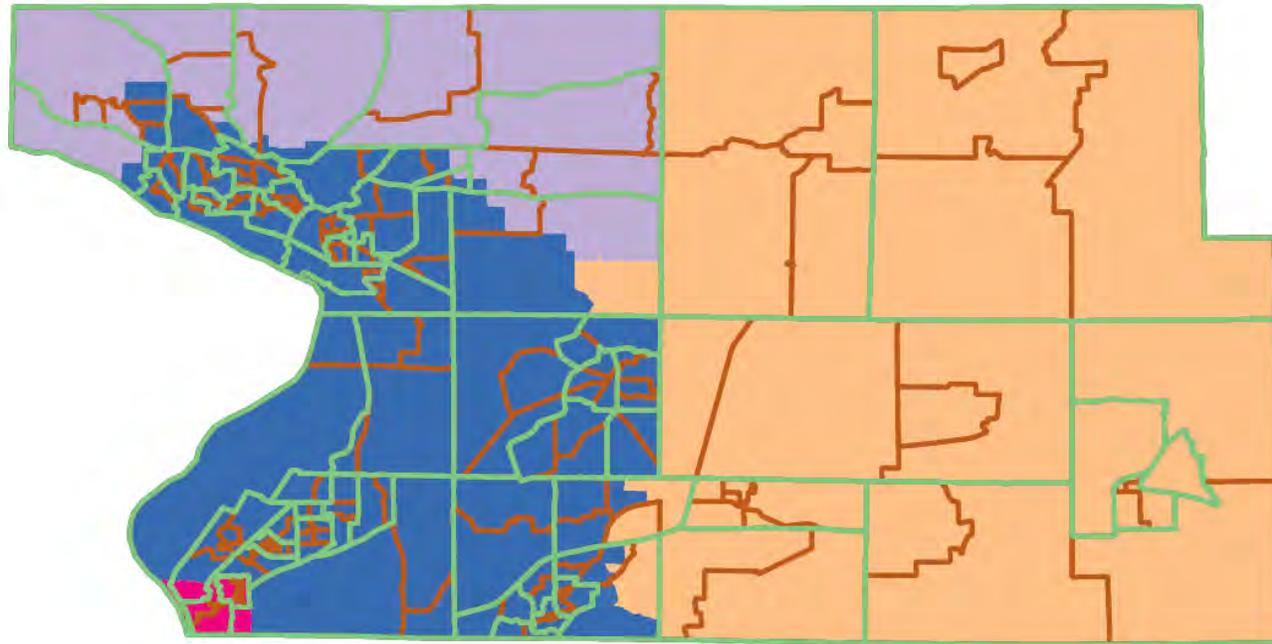
Tracts Block Group

Congress

Congressional District 13
Congressional District 15

Some misalignment with
Tracts and Block Groups

State Upper Chamber



Legend

Tracts Block Group

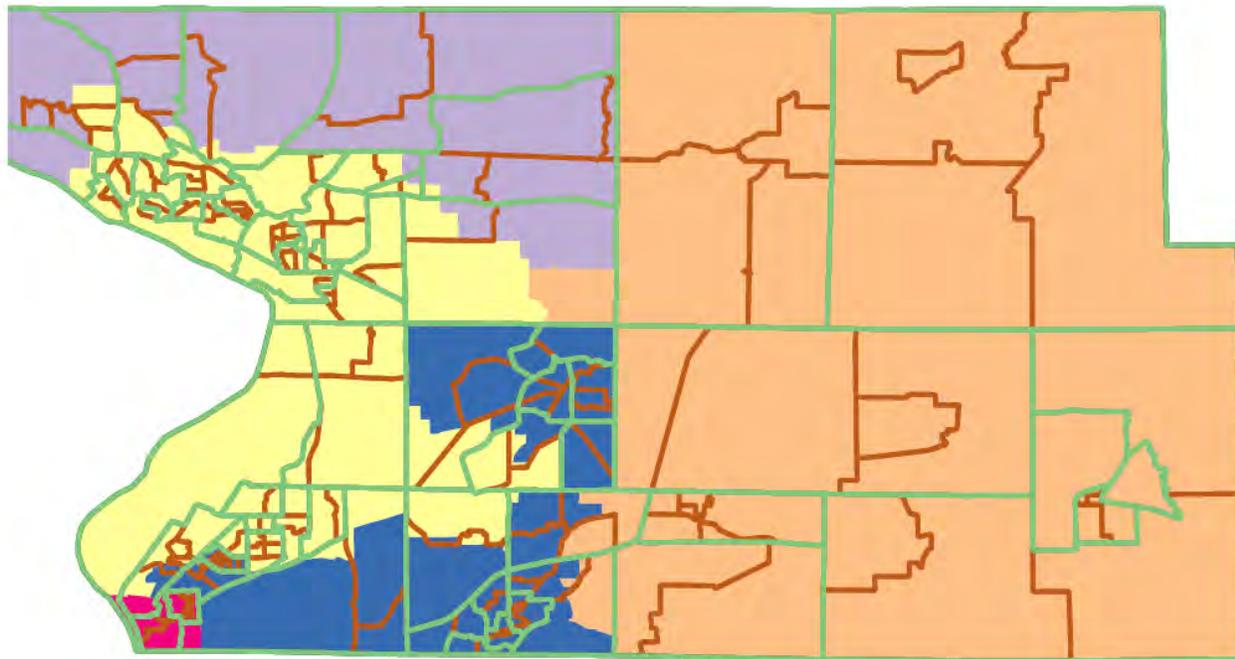
State Upper Chamber

- State Senate District 50
- State Senate District 55
- State Senate District 56
- State Senate District 57



More misalignment with
Tracts and Block Groups

State Lower Chamber



Legend

 Tracts  Block Group

State Lower Chamber

 State House District 100

 State House District 109

 State House District 111

 State House District 112

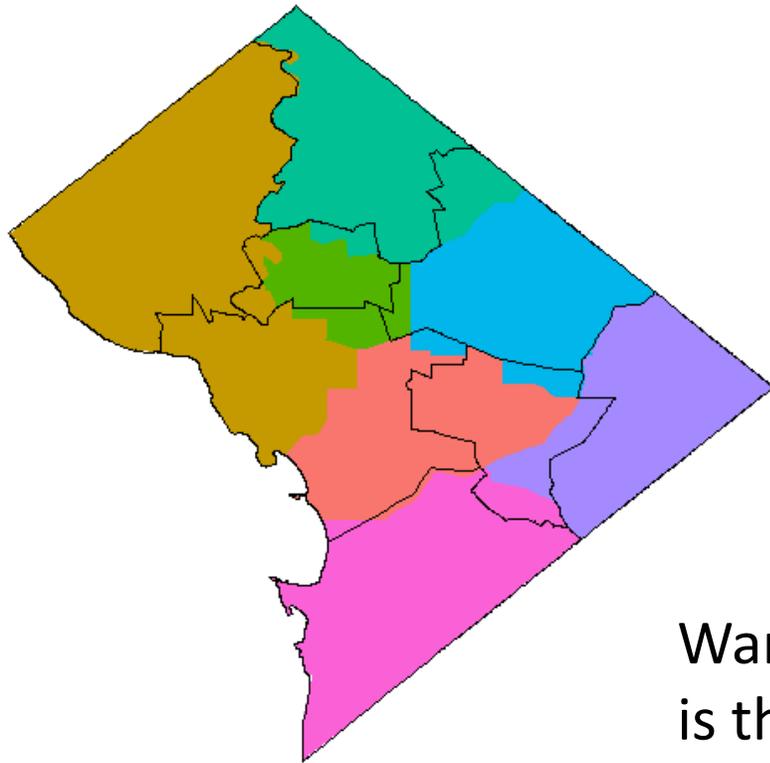
 State House District 113

A lot more misalignment
with Tracts and Block
Groups

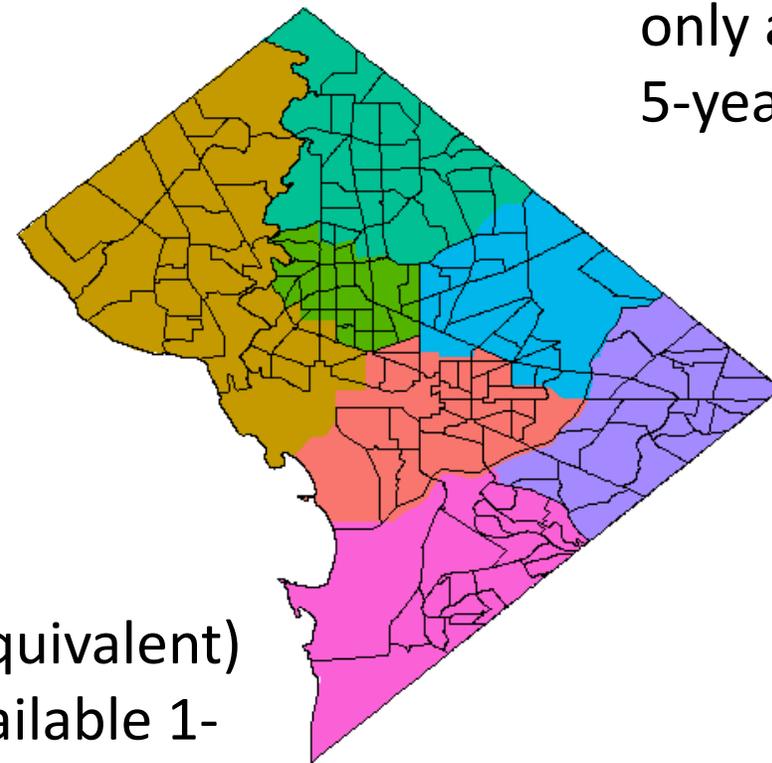
Police Service Areas

Still not perfect alignment.

Wards



Tracts

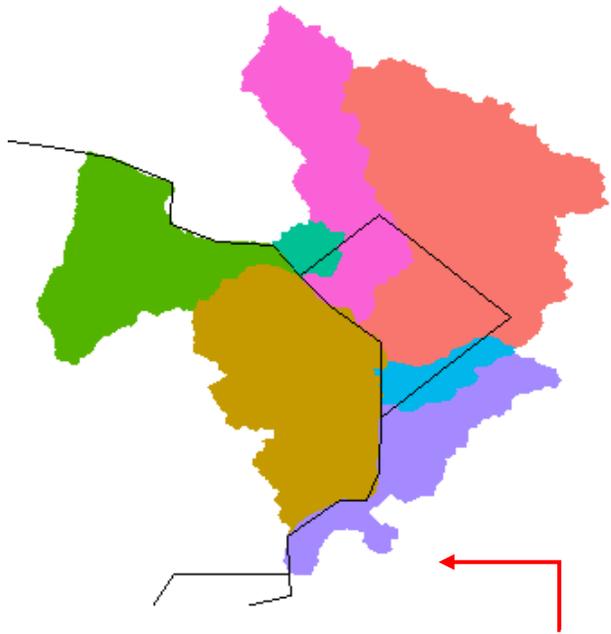


Tract estimates are only available using 5-year ACS data

Ward (county equivalent) is the lowest available 1-year ACS data.

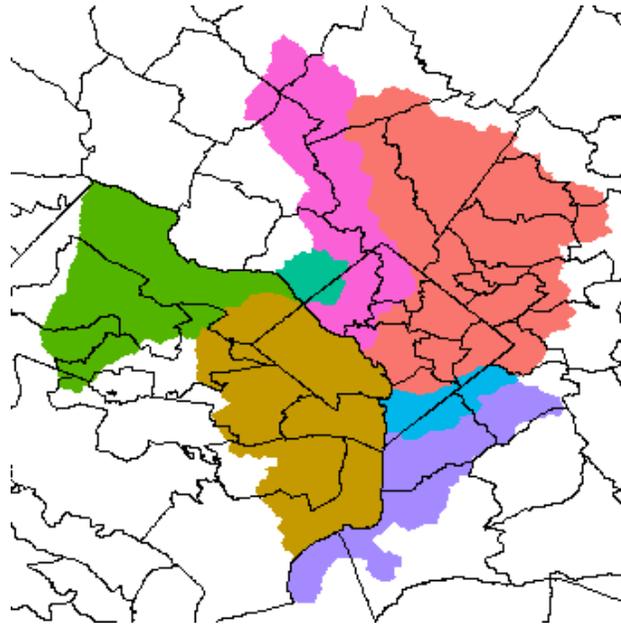
Chesapeake Bay Watershed

States



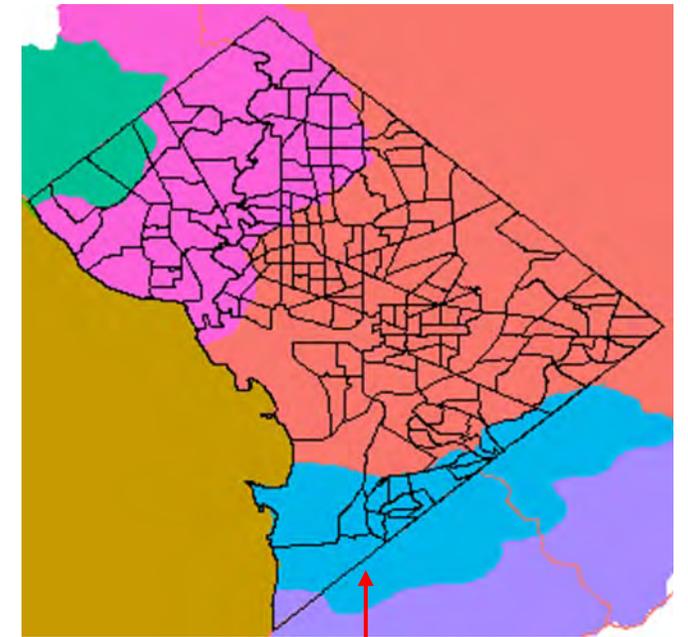
Expands over three states

County/Wards



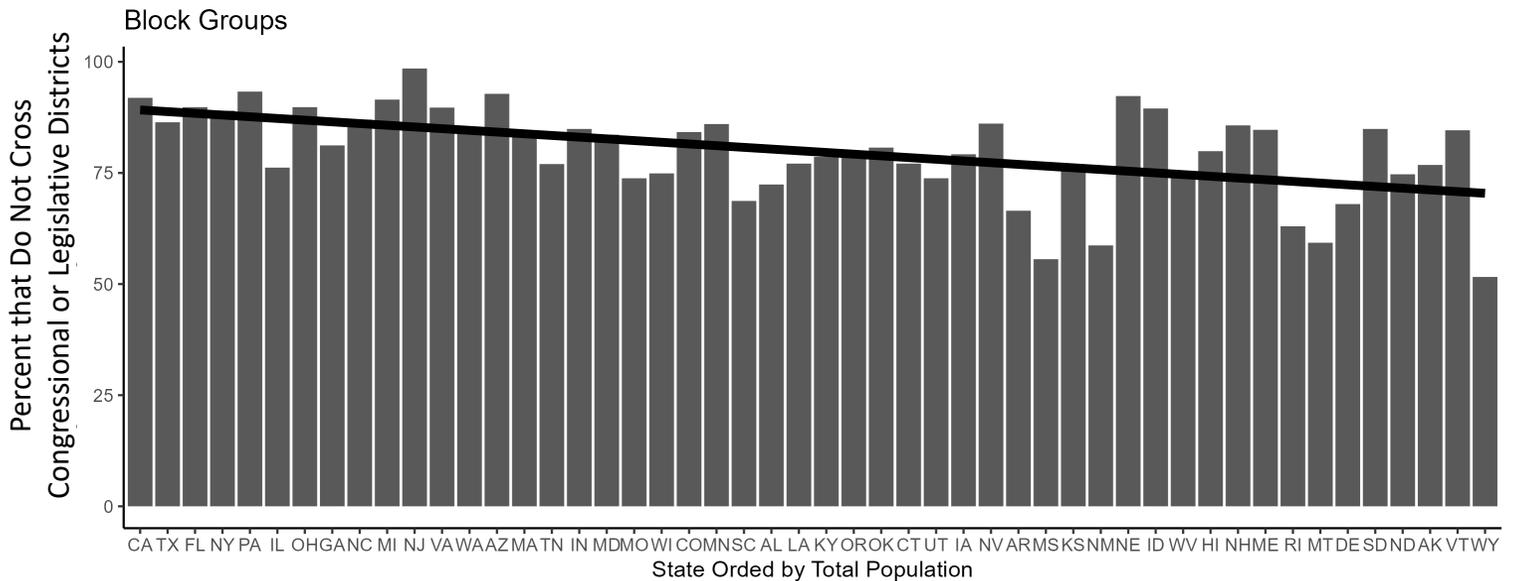
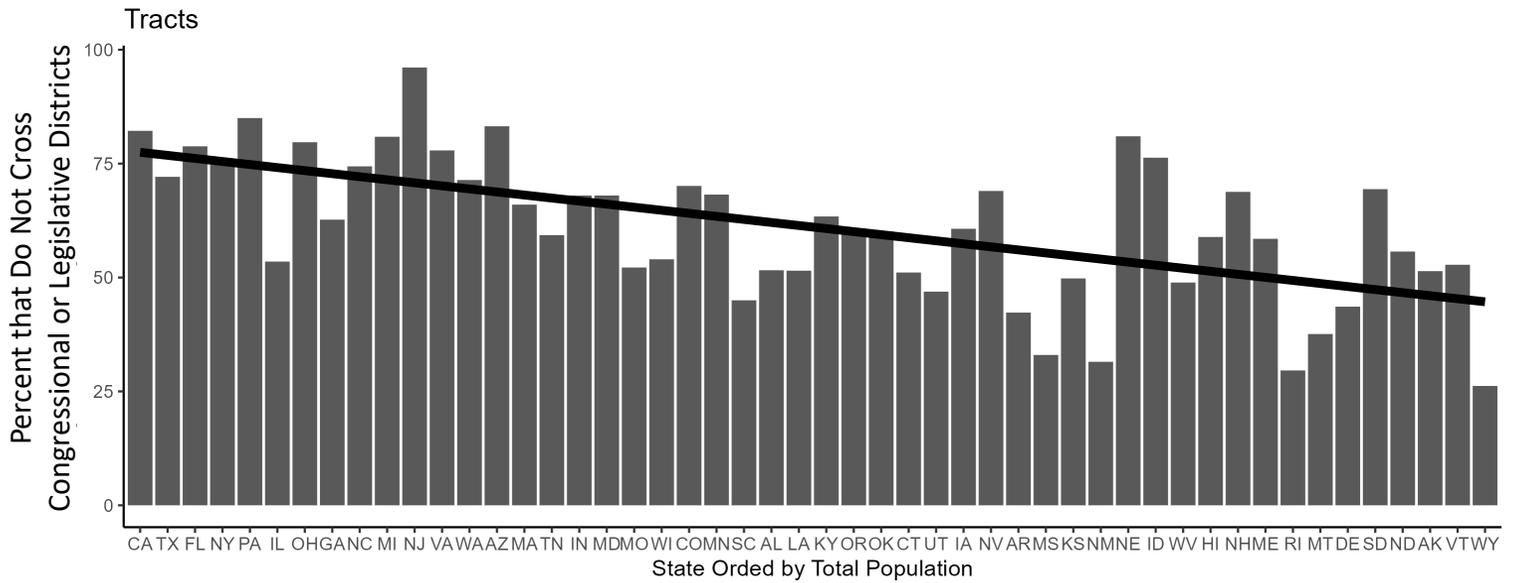
Significant crossover across counties and wards.

Tracts

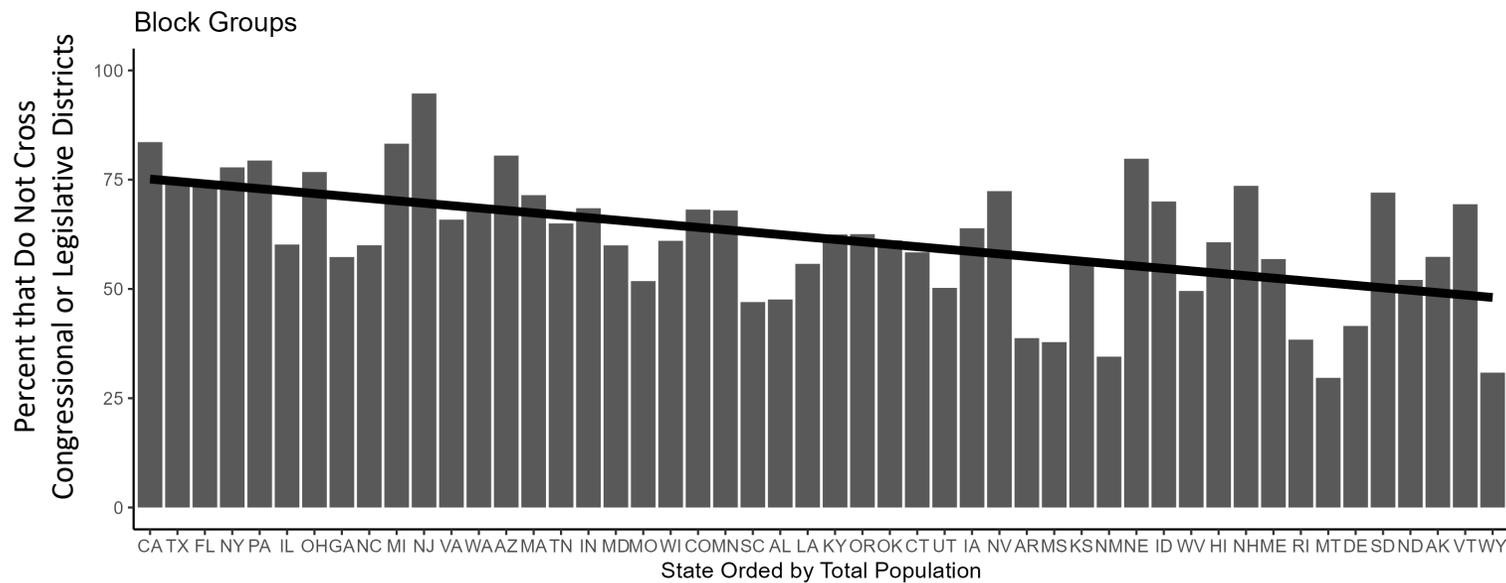
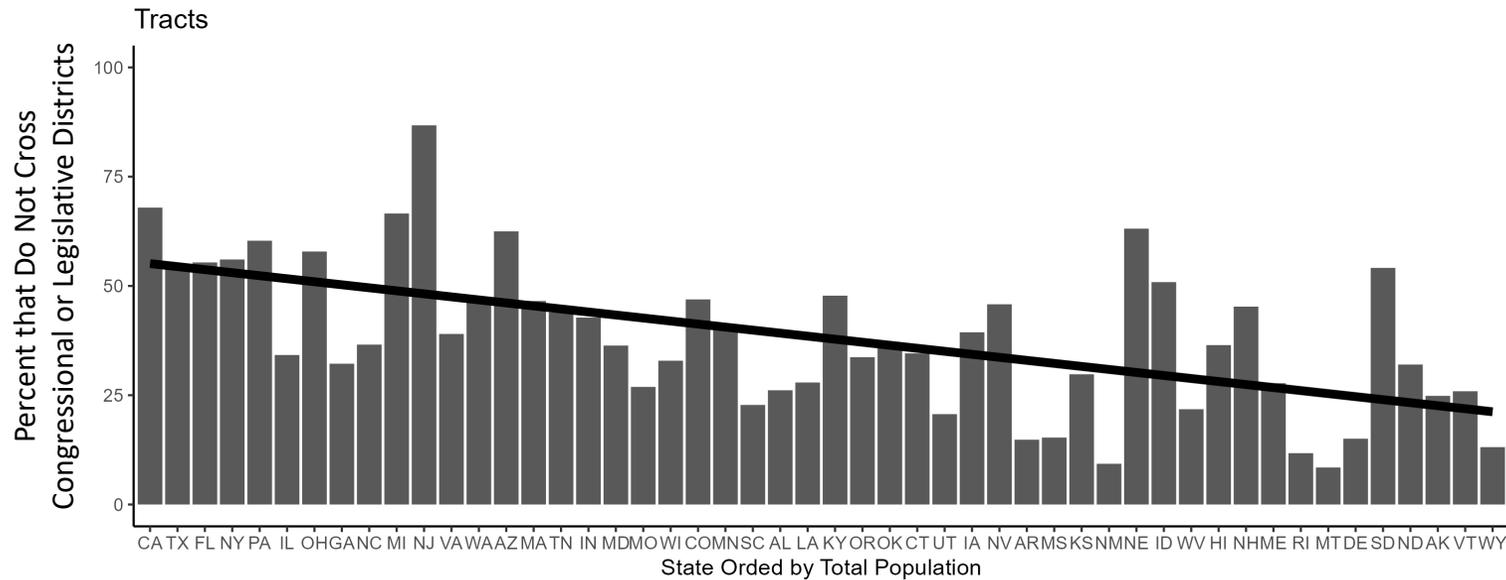


Some misalignment down to the Tract in DC.

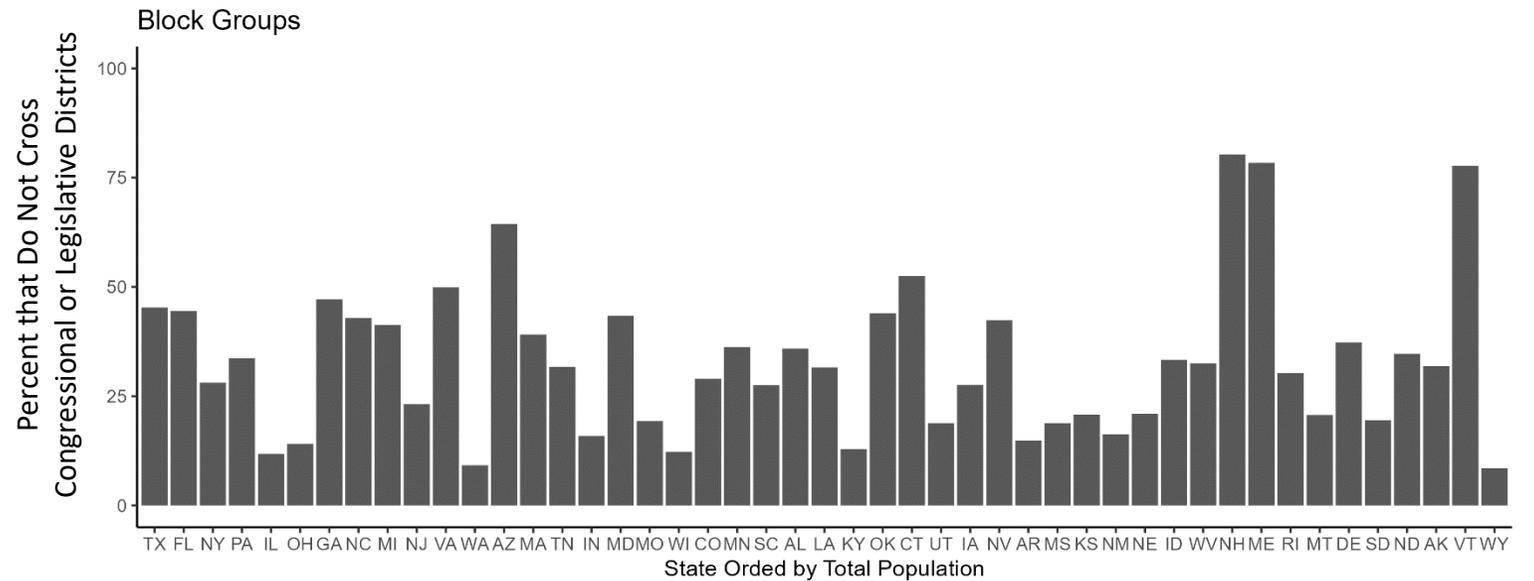
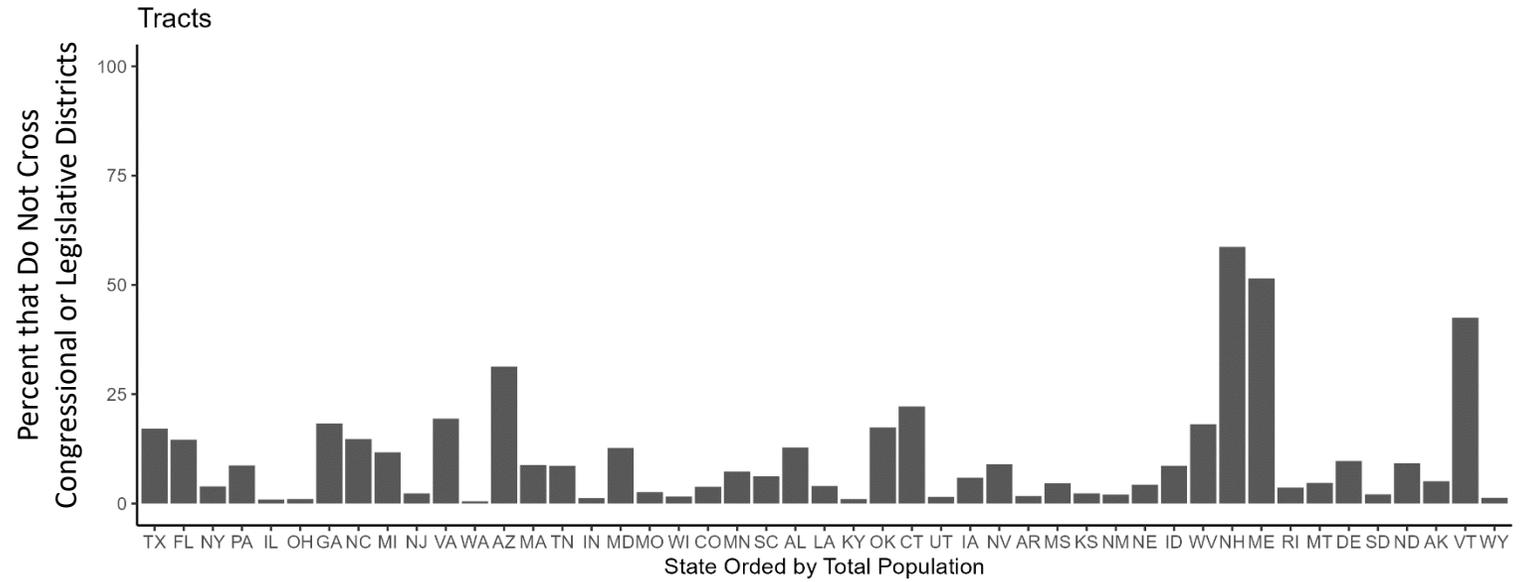
Congressional and State Legislative Districts



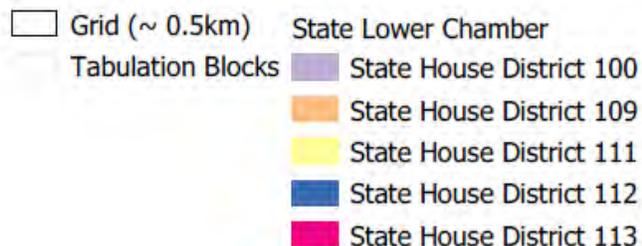
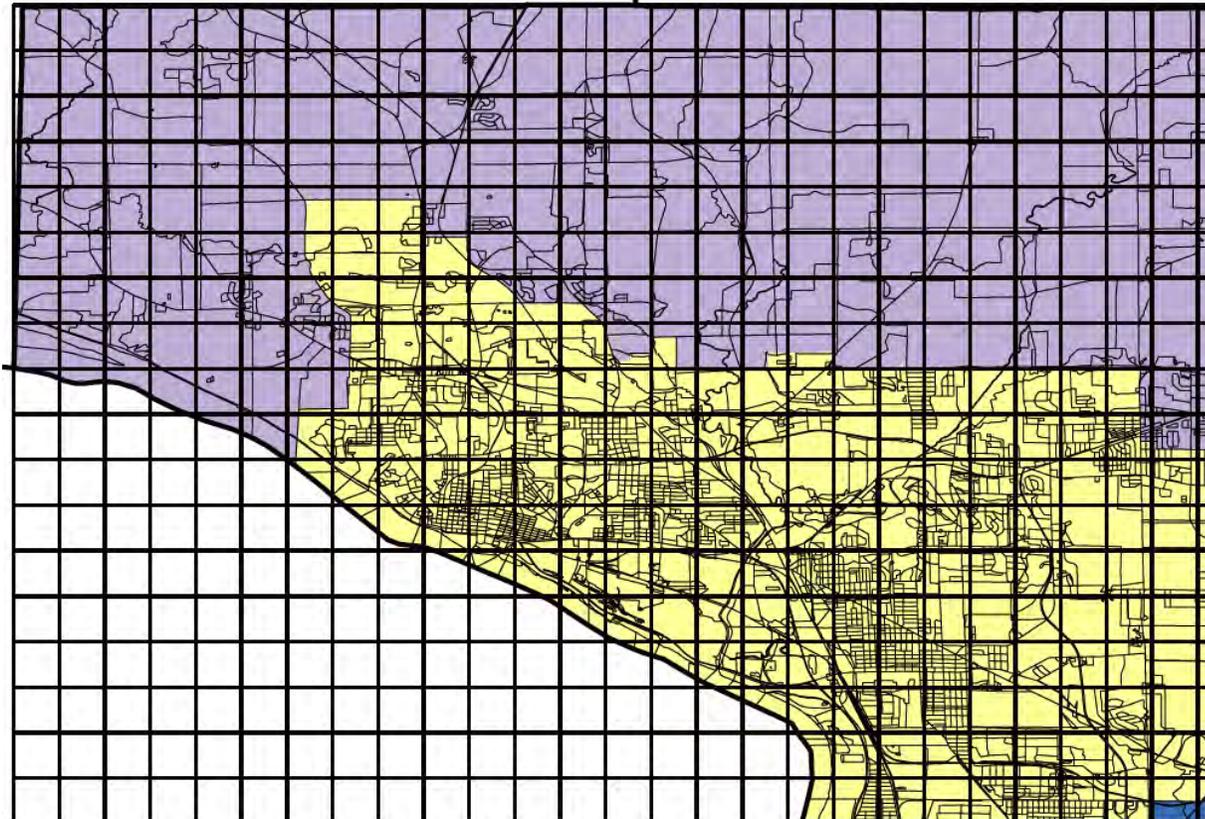
Shifts across
Time



Congressional, State Legislative, and Voting Districts



Gridded Data Product



Gridded data products are useful with:

- Longitudinal studies to avoid problems of changes to boundaries
- Comparatives studies to avoid mismatch between geographic concepts
- Studies that wish to examine larger customized areas with data that are not a standard Census Geography

Some uses of P.L. 94-171 data fall under this

BUT will present problems with redistricting.

What does this tell us?

Redistricting

There are areas where the detail of blocks have not necessarily needed.... BUT this would not be known this in advanced.

Can this help inform future delimitation of blocks?

Other Uses

Larger areas *might* limit the utility in impacted areas, especially for small areas

Tract and block-group based new tools for aggregating to custom geographies using existing statistical products might be better suited

Opportunities

Tailored statistical products, dissemination modalities, and tools for other uses of the P.L. 94-171 data

Other areas to explore:

- Adjustments to characteristics/content
- Synthetic Data
- Model Based Approaches

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Voting Districts

