Improving Population Health: the Social Determinants of Health Mapper

Presented by Dave Grolling
GIS Strategist
HealthLandcape
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HealthLandscape℠

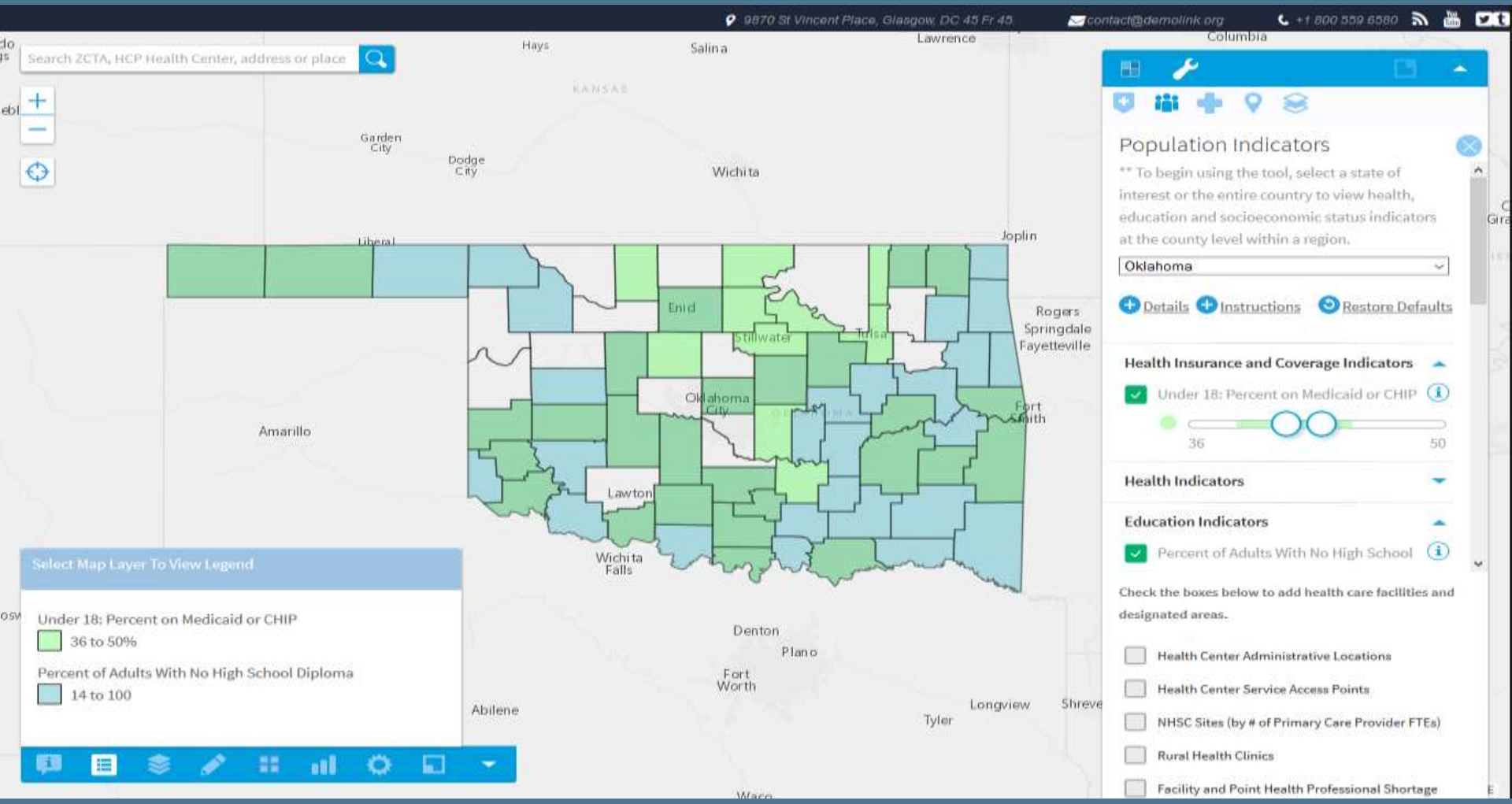
Agenda

- Introductions
- HealthLandscape and web mapping
- Population Health
- Social Determinants of Health Mapper
- Breast Cancer Education in D.C. Area

HealthLandscape

- HealthLandscape is part of the American Academy of Family Physicians (AAFP)
- Building online, geographic information systems since 2005
- Expertise in large datasets, data aggregation and analysis

HealthLandscape



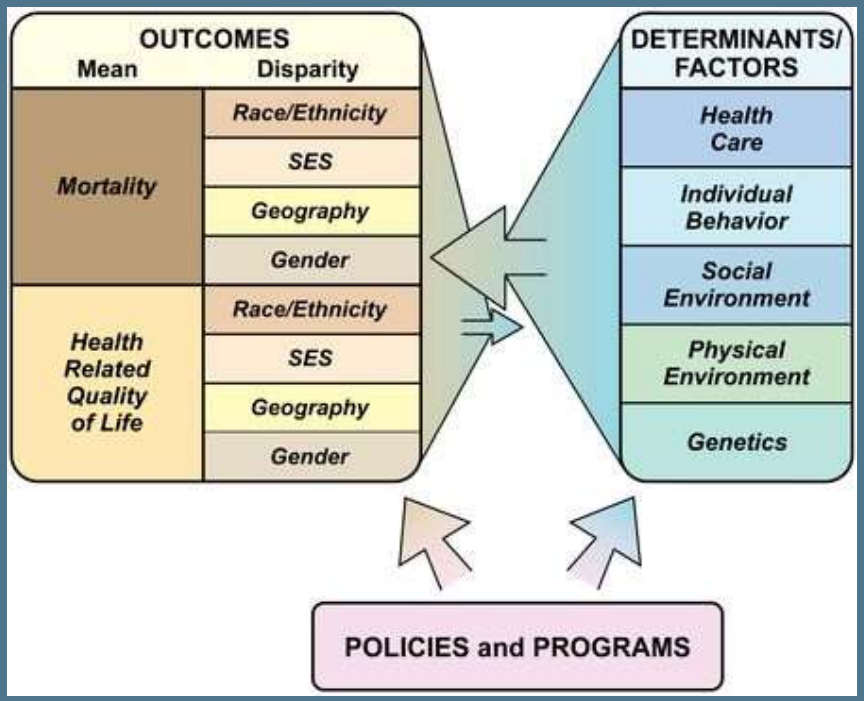
Geospatial Information Systems

- Integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information
- Can be used for spatial, cluster, and network analyses
- Used to map health inequalities, disparities, outcomes, and demographics

Population Health

- "The health outcomes of a group of individuals, including the distribution of such outcomes within the group" - David Kindig

- Facilitates integration of knowledge across the many factors that influence health and health outcomes



Source: University of Wisconsin, Population Health Sciences

Population Health

- Place matters → emergence of population health
- The social determinants of health have begun to shape health care
- Which determinants and outcomes are the most important to measure?

“Cold Spots”

- Concept introduced by John M. Westfall, MD, MPH
- Refers to people living in communities with disintegrated social determinants of health, little community support, and poor access to primary care
- Can be used to identify problem places and targets for community intervention

Determinants of Health

- The range of personal, social, economic, and environmental factors that influence health
- Health Care only accounts for 10% of premature deaths
- Zip Code is a more impactful determinant of health than genes

Determinants of Health

- Employment, income, debt, medical bills
- Transportation, access to parks and playgrounds, walkability
- Literacy and language, higher education
- Hunger and access to healthy food items
- Health coverage and provider availability

Social Determinants of Health Mapper

- Census tracts at the metro and county levels
- Used to identify cold spots by layering indicators on top of each other
- No cost to use
- healthlandscape.org/sdoh

Data

- Tool is built on publicly available data from the American Community Survey, 2011-2015 five-year estimates

- Categorized into six indicator groups

- Education, Demographics, Language Use and Linguistic Isolation, Income and Poverty, Employment, and Household Type

Data

Indicator Group	Variables
Education	% High School Graduate % High School Graduate and Above % College Graduate
Demographics	% Male % Female % Age 65 and Over % Age 18 and Over Median Age Dependency Ratio % Hispanic % White Alone % Black Alone % Non-White

Data

Indicator Group	Variables
Language Use and Linguistic Isolation	% English % Spanish Speaking % Other Language Speaking % Linguistically Isolated Households
Income and Poverty	Median Household Income Per Capita Income % Population Below 50% FPL % Population Below 100% FPL % Population Below 200% FPL % Population Under 18 in Poverty % Population 65 and Older in Poverty GINI index

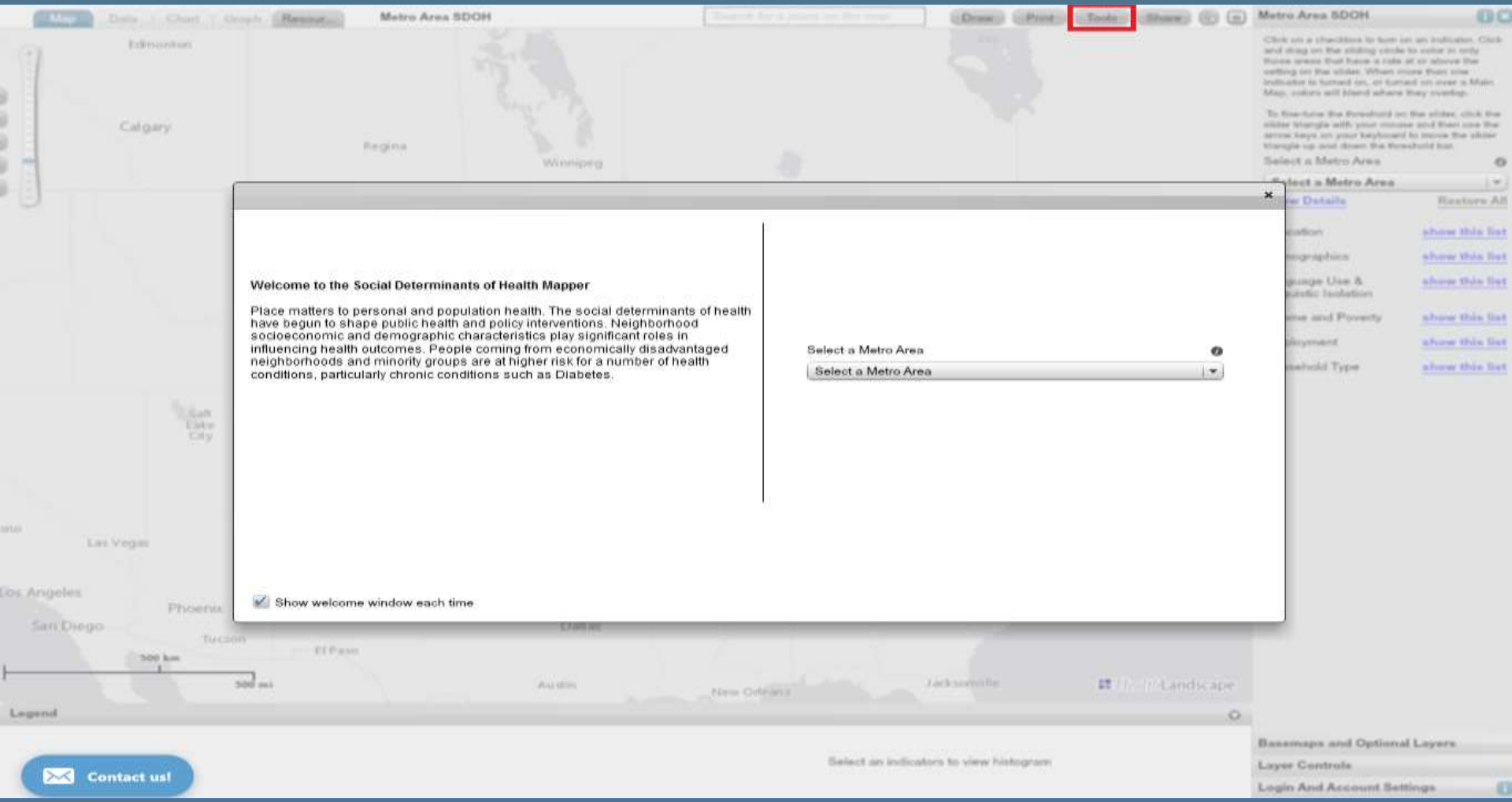
Data

Indicator Group	Variables
Employment	% Unemployed % Management Occupations
Household Type	% Households with Married Couple Families

Breast Cancer Education

- Where are areas around the D.C. metro area that could be targeted for increased breast cancer awareness?
- Importance of knowing where they are for targeting education programs
- Will use ACS 2011-2015 estimates for percent female, percent white only, and percent population over 65 years old

Welcome Screen



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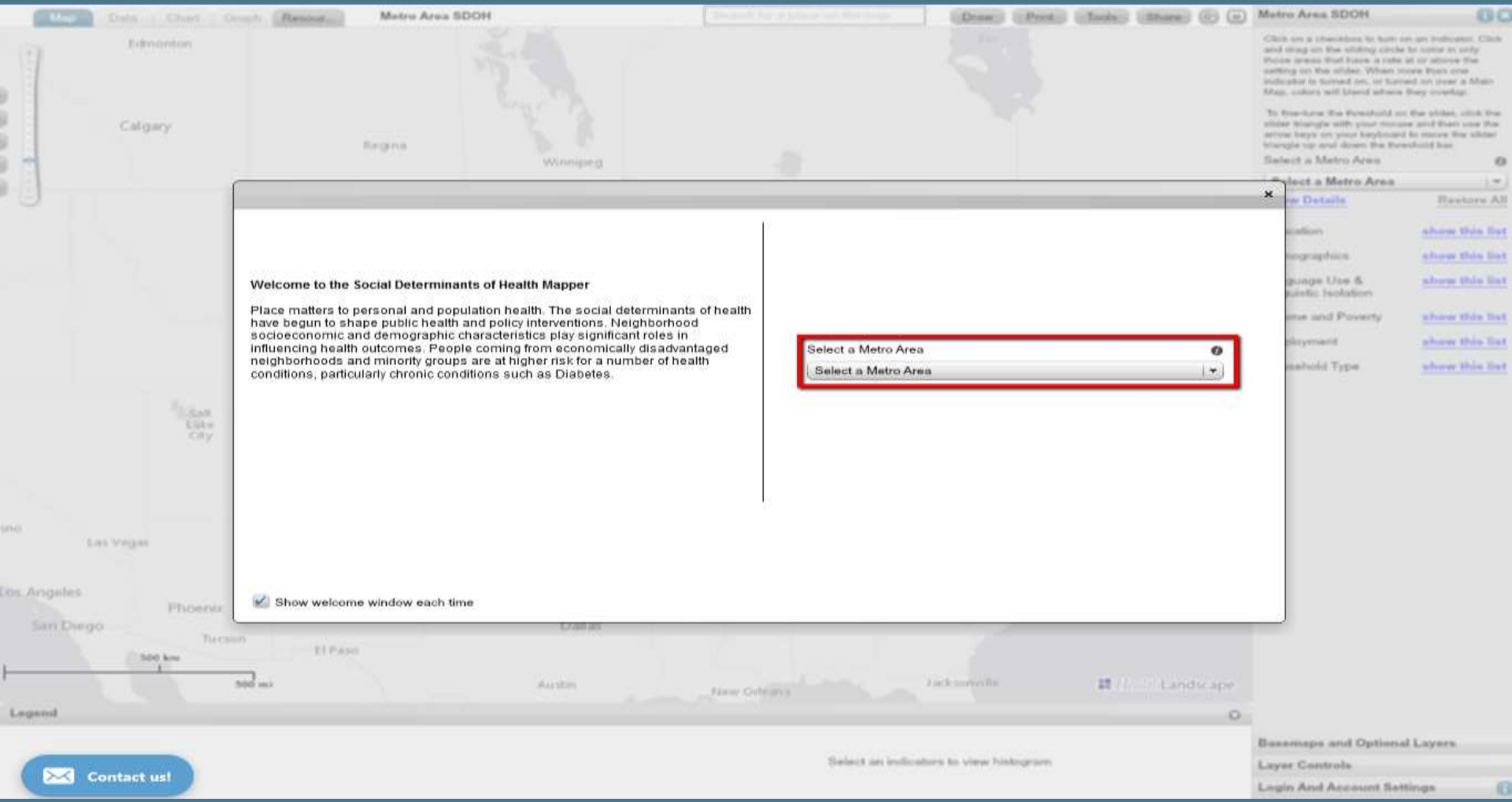
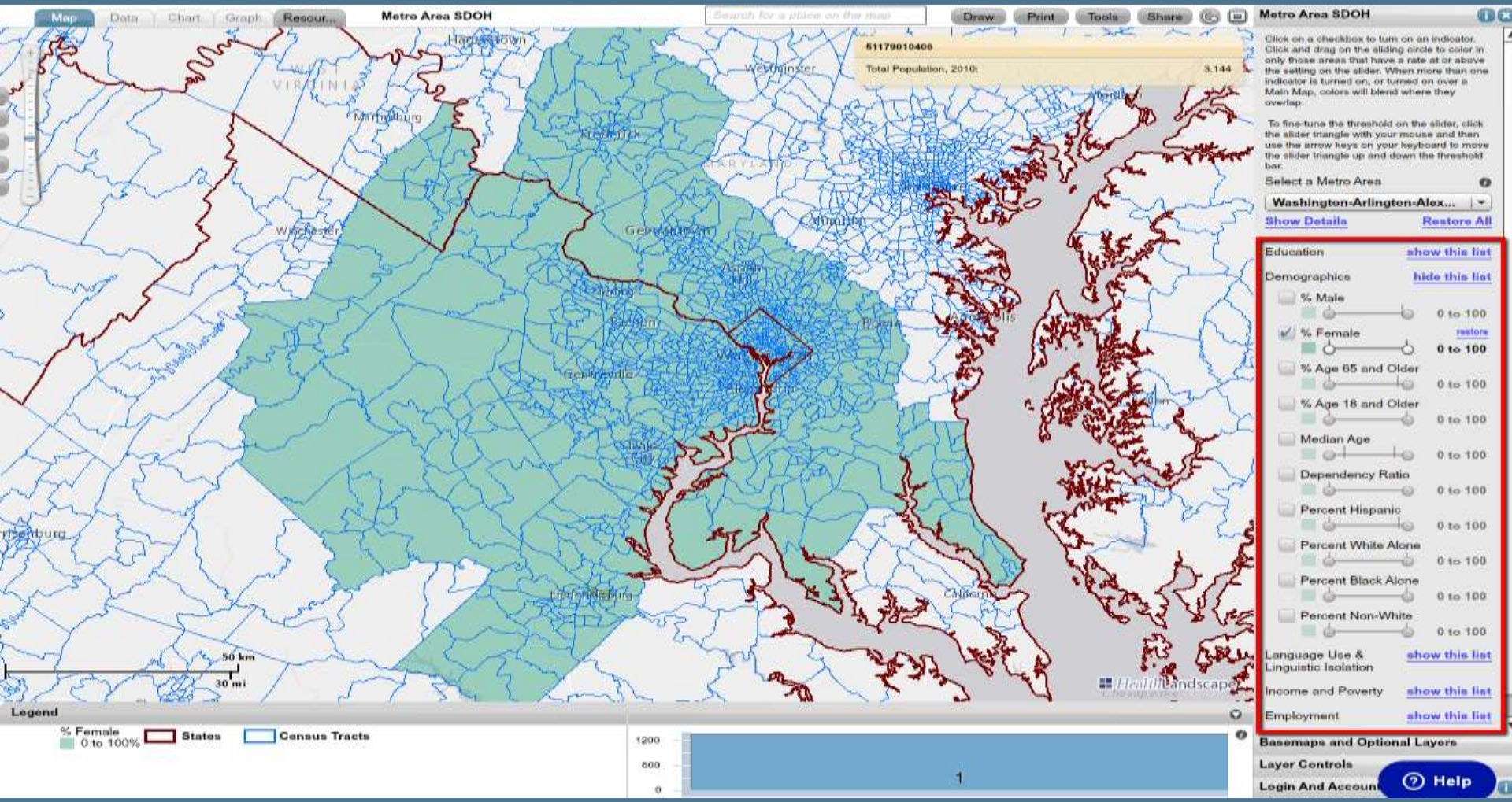


Percent Female



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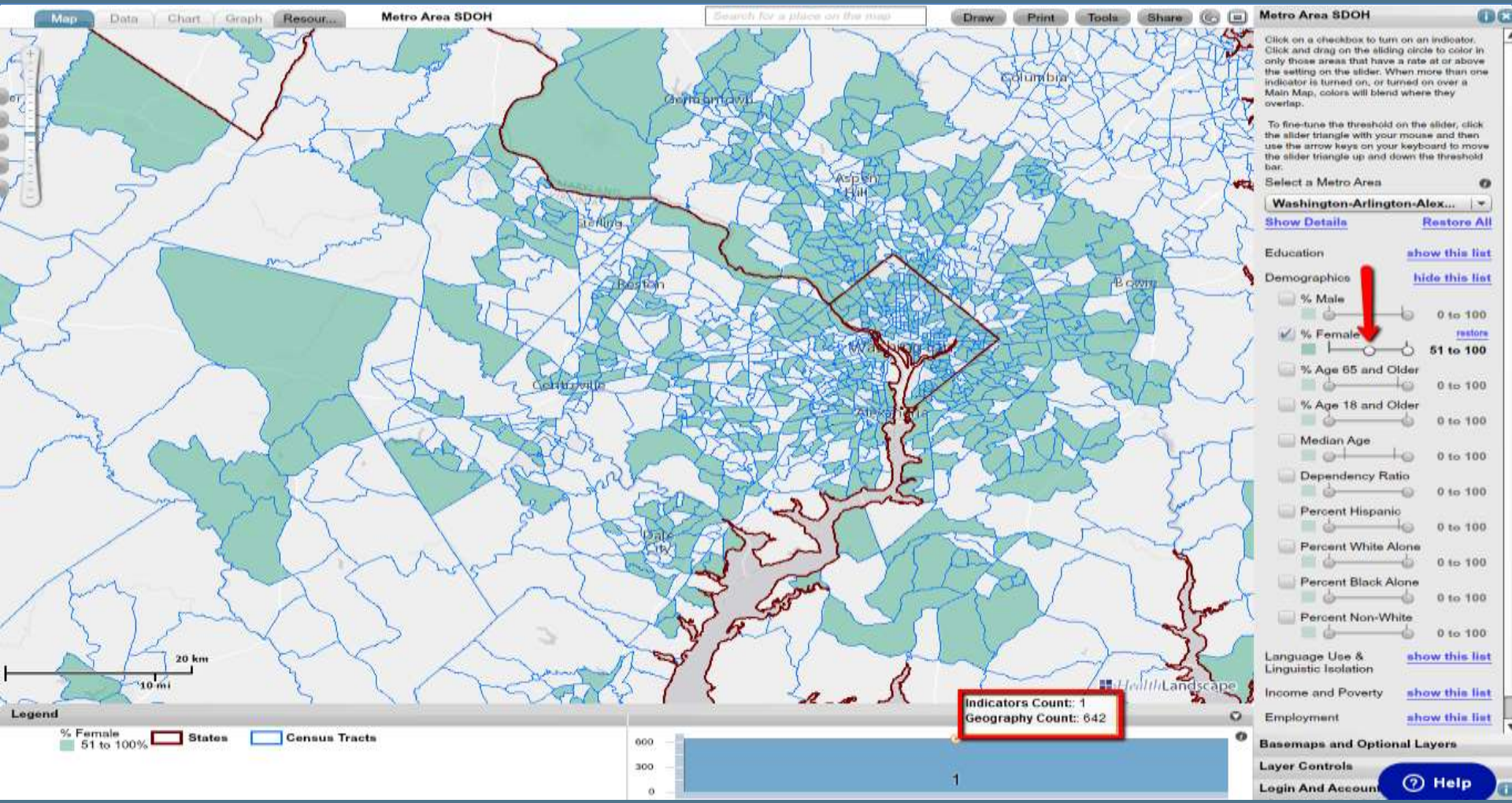
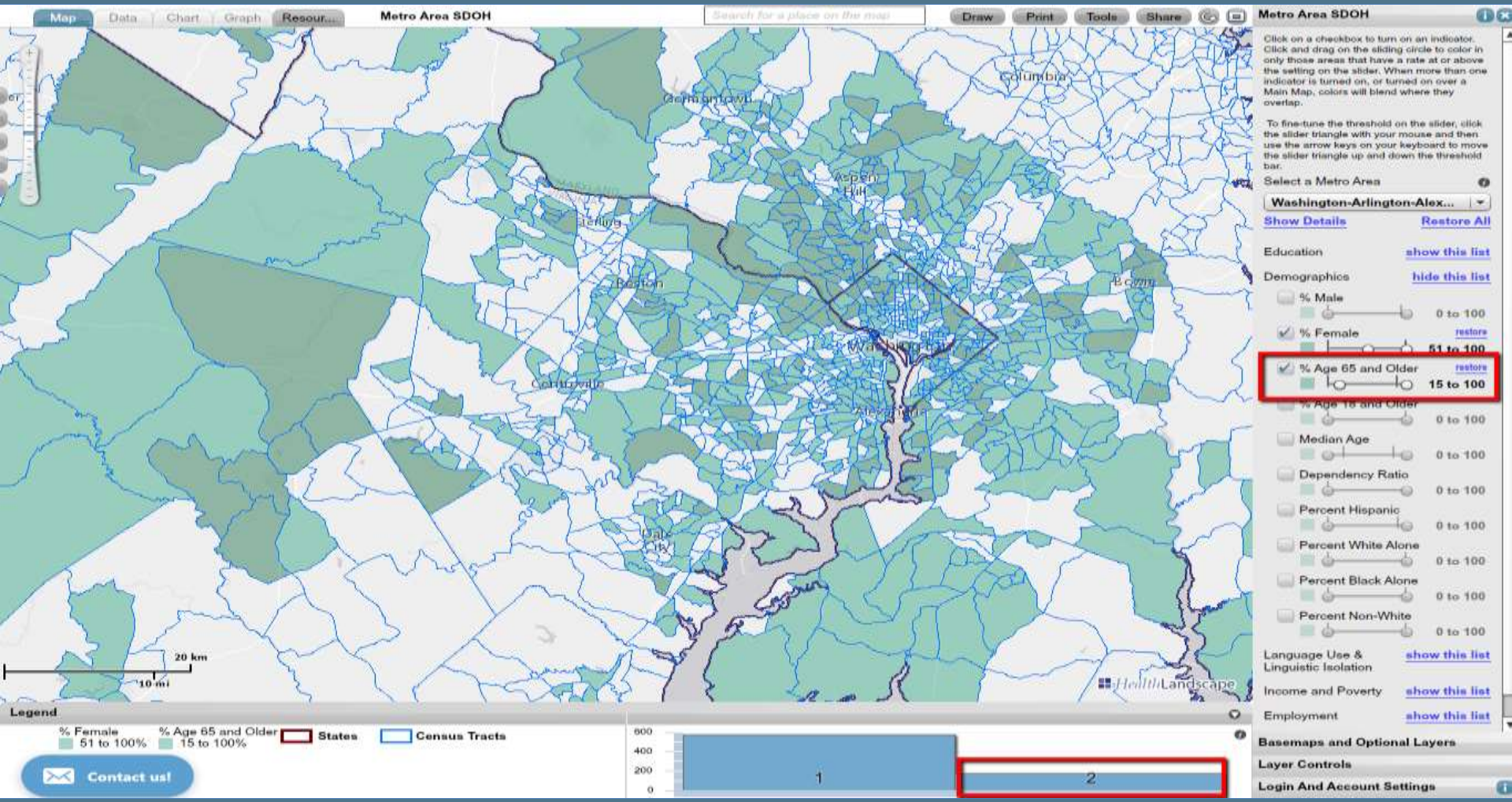
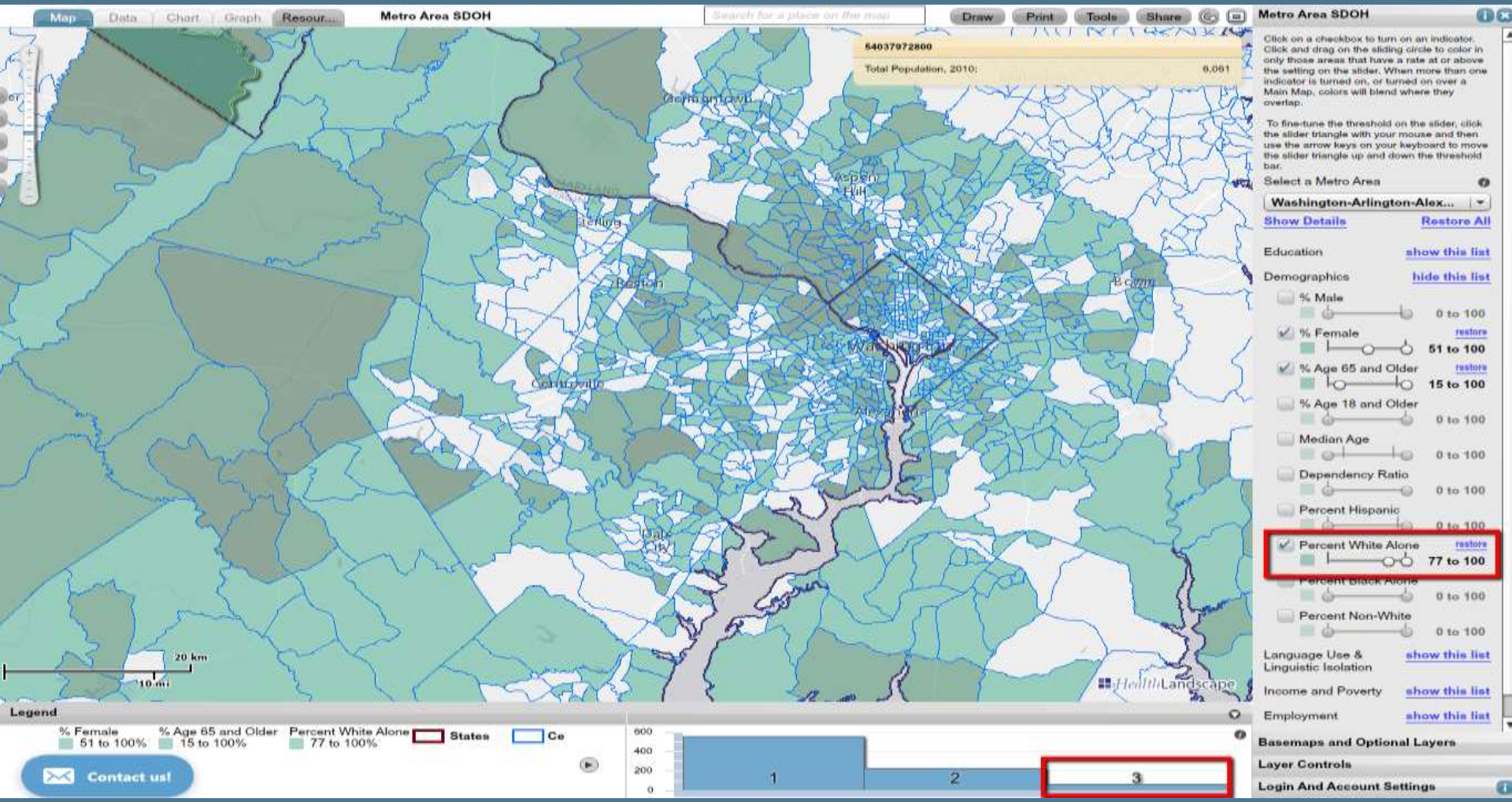
Percent Female Adjusted



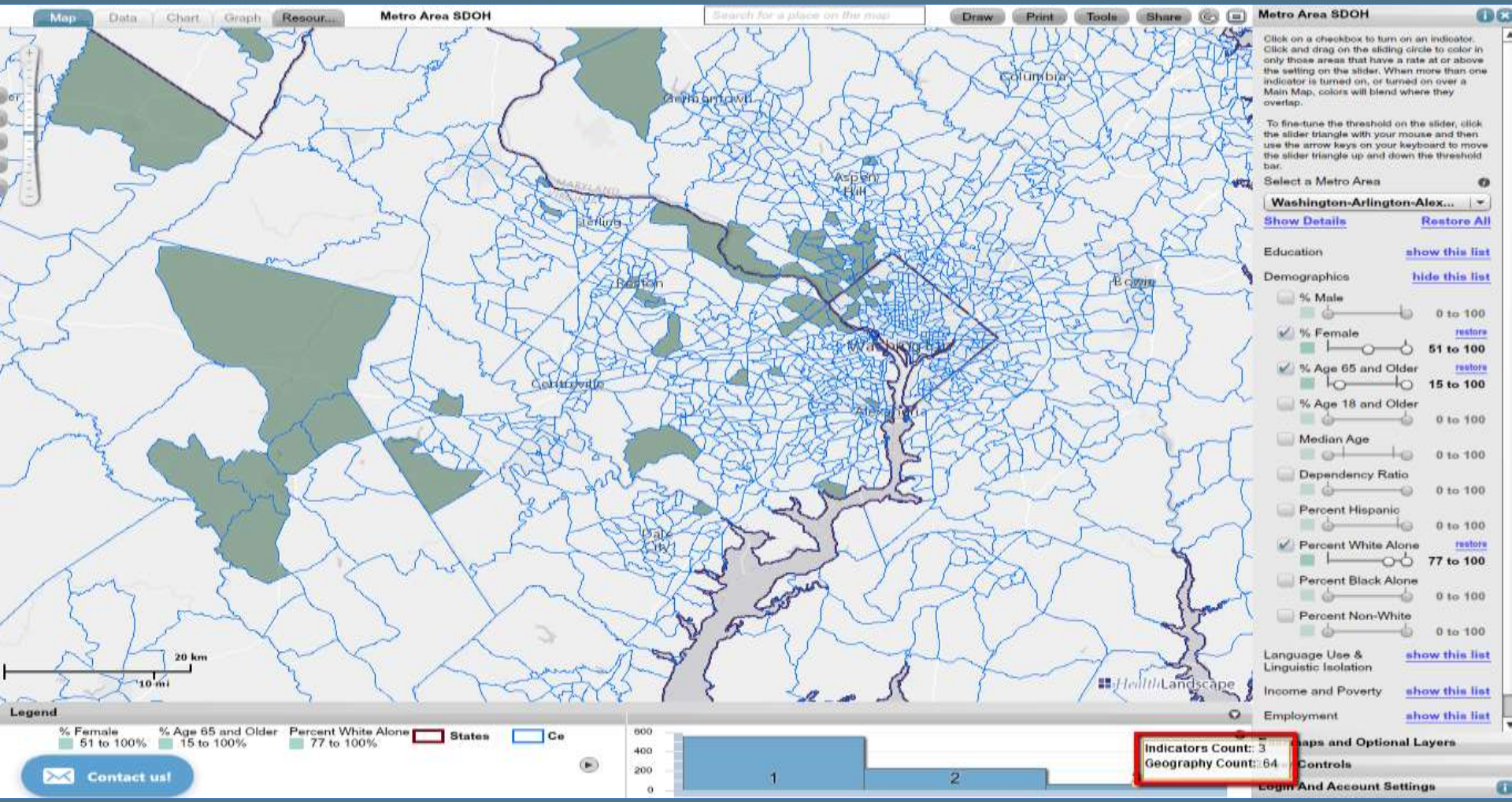
Adding Percent 65 and Older



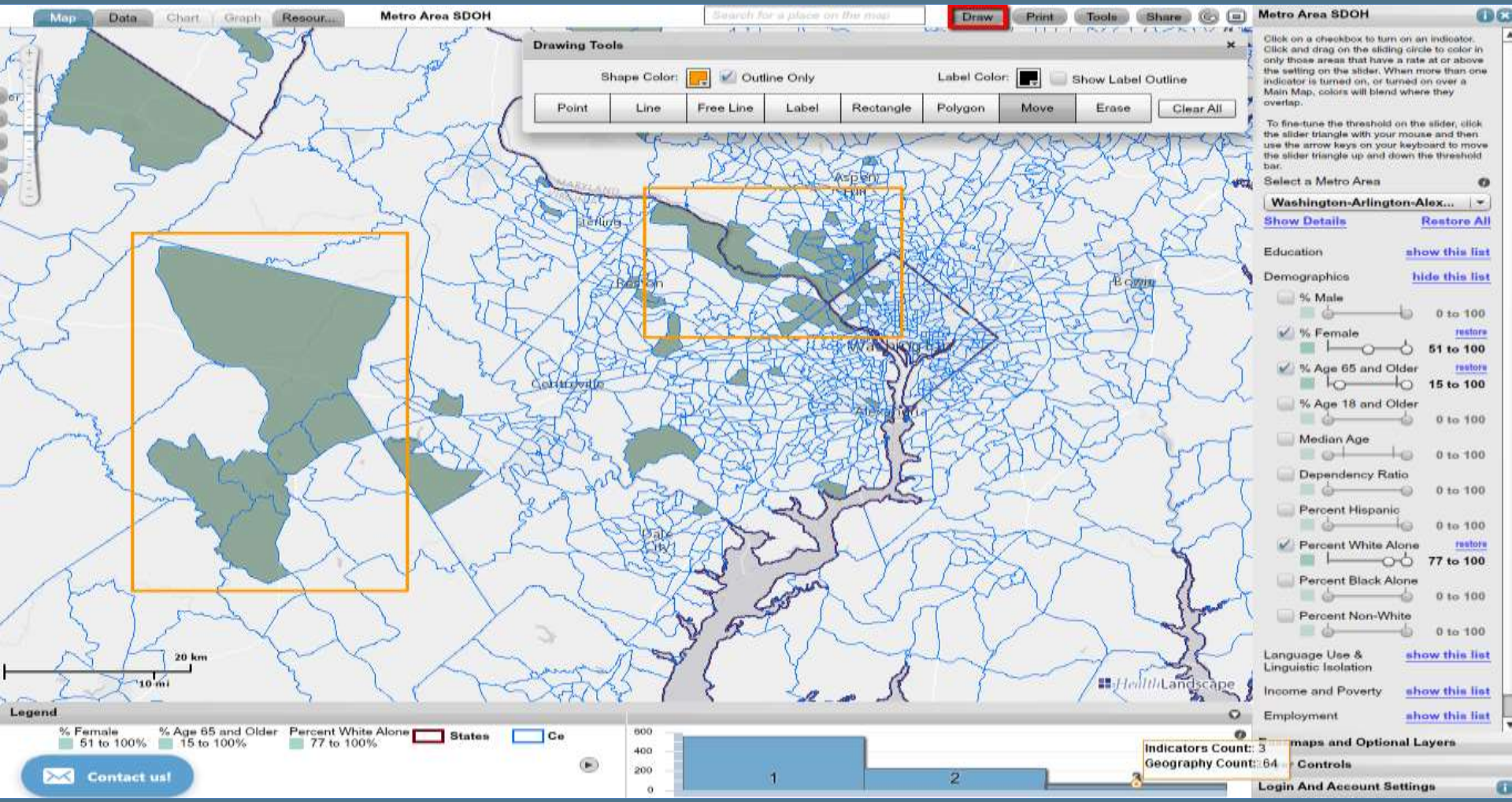
Adding Percent White Alone



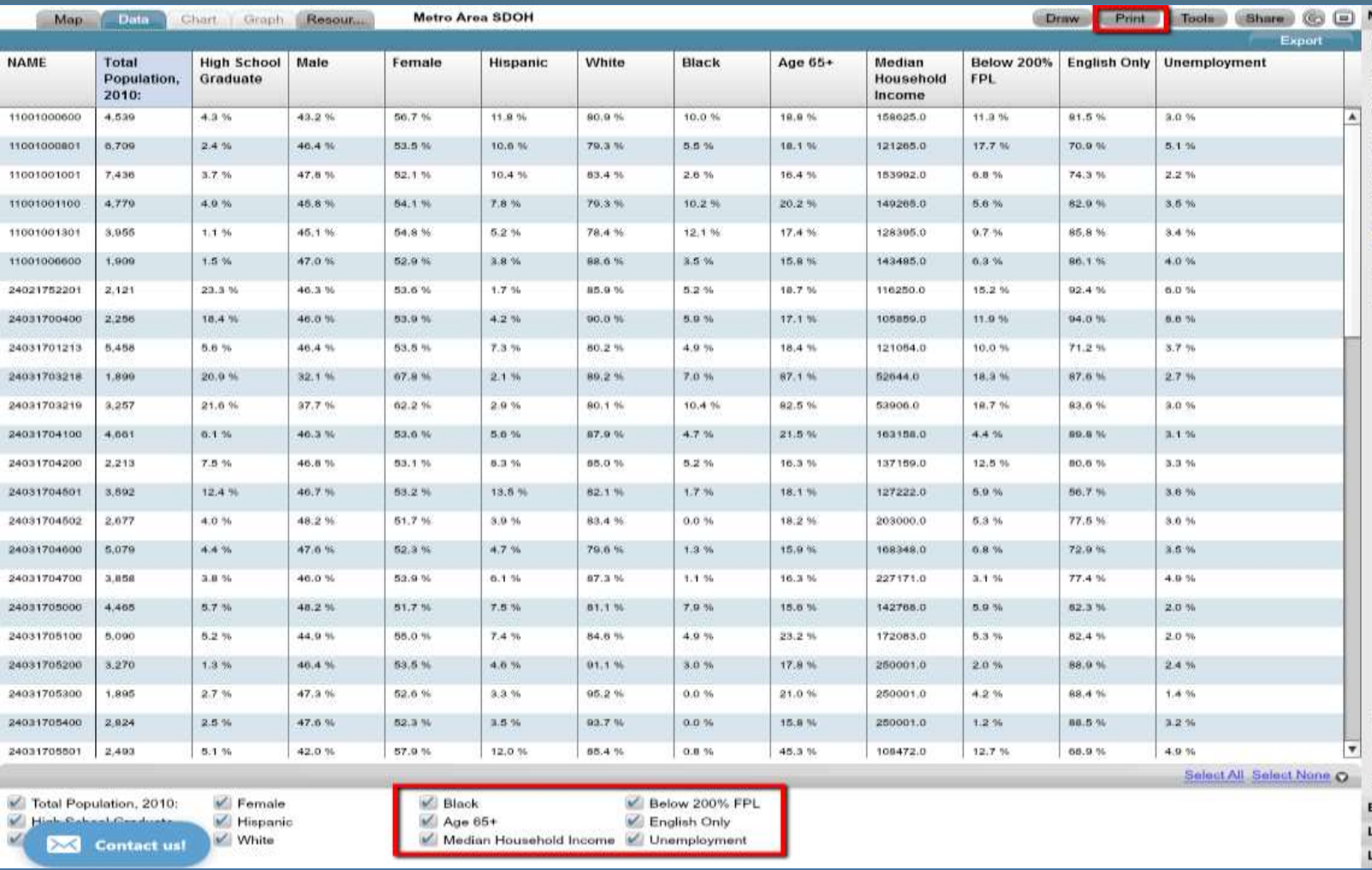
D.C. Metro Cold Spots



Target Areas



Data Table



NAME	Total Population, 2010:	High School Graduate	Male	Female	Hispanic	White	Black	Age 65+	Median Household Income	Below 200% FPL	English Only	Unemployment
11001000600	4,539	4.3 %	43.2 %	56.7 %	11.9 %	80.9 %	10.0 %	18.8 %	158625.0	11.3 %	91.5 %	3.0 %
11001000801	6,709	2.4 %	46.4 %	53.5 %	10.6 %	79.3 %	5.5 %	18.1 %	121265.0	17.7 %	70.9 %	5.1 %
11001001001	7,436	3.7 %	47.8 %	52.1 %	10.4 %	83.4 %	2.6 %	16.4 %	153992.0	6.8 %	74.3 %	2.2 %
11001001100	4,779	4.9 %	45.8 %	54.1 %	7.8 %	79.3 %	10.2 %	20.2 %	149265.0	5.6 %	82.9 %	3.5 %
11001001301	3,955	1.1 %	45.1 %	54.8 %	5.2 %	78.4 %	12.1 %	17.4 %	128395.0	9.7 %	85.8 %	3.4 %
11001006600	1,909	1.5 %	47.0 %	52.9 %	3.8 %	88.6 %	3.5 %	15.8 %	143485.0	6.3 %	86.1 %	4.0 %
24021752201	2,121	23.3 %	46.3 %	53.6 %	1.7 %	85.9 %	5.2 %	18.7 %	116250.0	15.2 %	92.4 %	6.0 %
24031700400	2,256	18.4 %	46.0 %	53.9 %	4.2 %	90.0 %	5.9 %	17.1 %	105859.0	11.9 %	94.0 %	8.6 %
24031701213	5,458	5.6 %	46.4 %	53.5 %	7.3 %	80.2 %	4.9 %	18.4 %	121054.0	10.0 %	71.2 %	3.7 %
24031703218	1,899	20.9 %	32.1 %	67.8 %	2.1 %	89.2 %	7.0 %	87.1 %	52644.0	18.3 %	87.6 %	2.7 %
24031703219	3,257	21.6 %	37.7 %	62.2 %	2.9 %	80.1 %	10.4 %	82.5 %	53906.0	18.7 %	83.6 %	3.0 %
24031704100	4,661	6.1 %	46.3 %	53.6 %	5.6 %	87.9 %	4.7 %	21.5 %	163158.0	4.4 %	89.8 %	3.1 %
24031704200	2,213	7.5 %	46.8 %	53.1 %	8.3 %	85.0 %	5.2 %	16.3 %	137159.0	12.5 %	80.6 %	3.3 %
24031704501	3,892	12.4 %	46.7 %	53.2 %	13.8 %	82.1 %	1.7 %	18.1 %	127222.0	5.9 %	96.7 %	3.6 %
24031704502	2,677	4.0 %	48.2 %	51.7 %	3.9 %	83.4 %	0.0 %	18.2 %	203000.0	5.3 %	77.5 %	3.6 %
24031704600	5,079	4.4 %	47.6 %	52.3 %	4.7 %	79.6 %	1.3 %	15.9 %	168348.0	6.8 %	72.9 %	3.5 %
24031704700	3,858	3.8 %	46.0 %	53.9 %	6.1 %	87.3 %	1.1 %	16.3 %	227171.0	3.1 %	77.4 %	4.9 %
24031705000	4,465	5.7 %	48.2 %	51.7 %	7.5 %	81.1 %	7.9 %	15.6 %	142768.0	5.9 %	82.3 %	2.0 %
24031705100	5,090	5.2 %	44.9 %	55.0 %	7.4 %	84.6 %	4.9 %	23.2 %	172083.0	5.3 %	82.4 %	2.0 %
24031705200	3,270	1.3 %	46.4 %	53.5 %	4.6 %	91.1 %	3.0 %	17.8 %	250001.0	2.0 %	88.9 %	2.4 %
24031705300	1,895	2.7 %	47.3 %	52.6 %	3.3 %	95.2 %	0.0 %	21.0 %	250001.0	4.2 %	88.4 %	1.4 %
24031705400	2,824	2.5 %	47.6 %	52.3 %	3.5 %	93.7 %	0.0 %	15.8 %	250001.0	1.2 %	86.5 %	3.2 %
24031705501	2,493	5.1 %	42.0 %	57.9 %	12.0 %	85.4 %	0.8 %	45.3 %	108472.0	12.7 %	68.9 %	4.9 %

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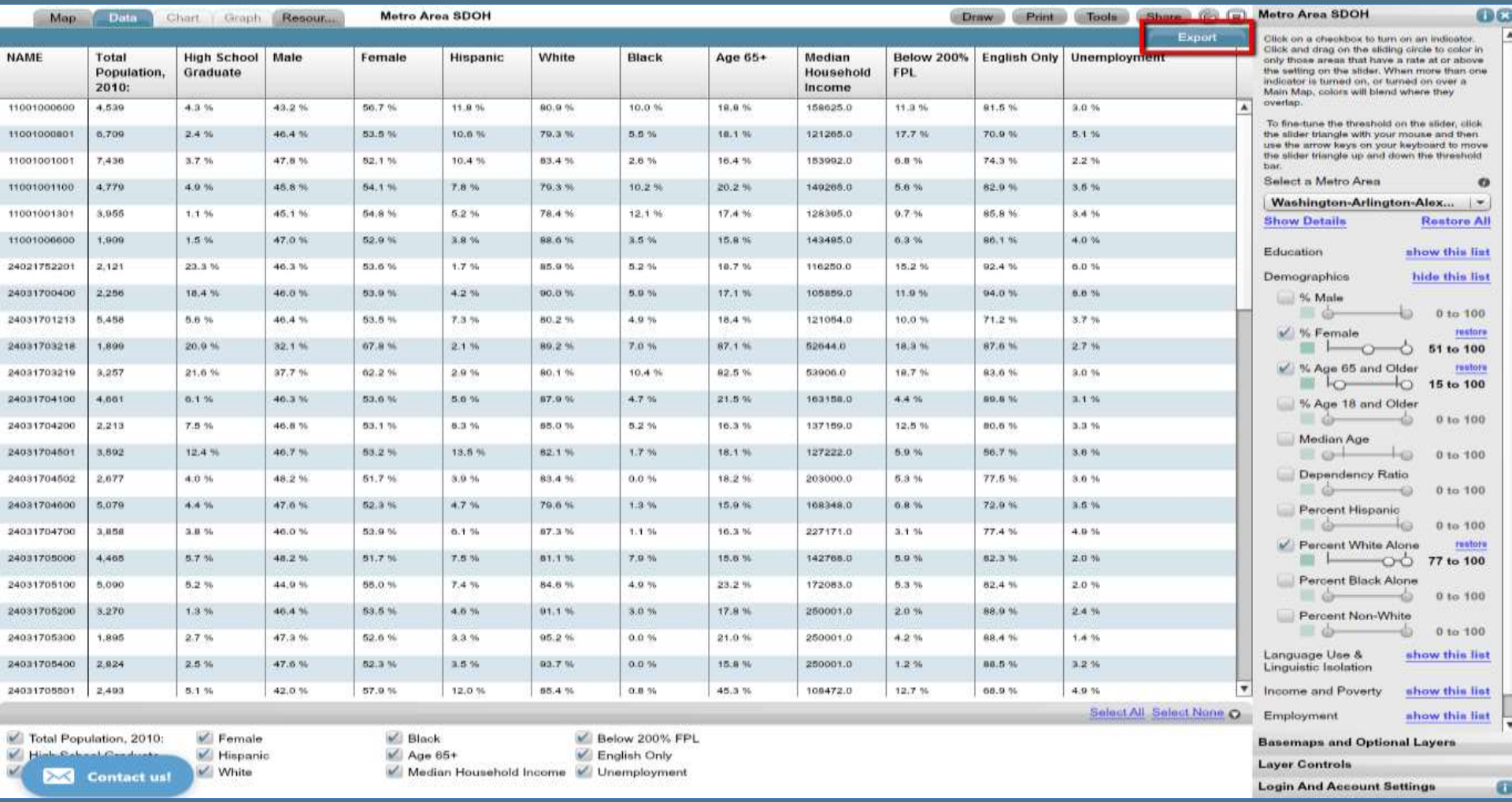

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Questions?

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