

Making NC Count Differential Privacy GICC February 12, 2020

Bob Coats
Governor's Census Liaison
North Carolina State Data Center
Office of State Budget & Management,
Demographic & Economic Analysis Section

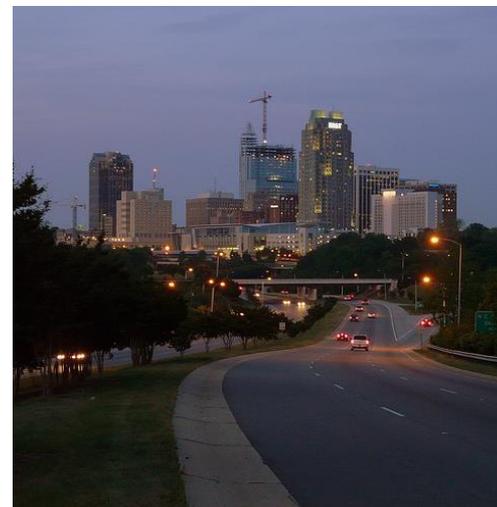
Bob.Coats@osbm.nc.gov



You May Have Heard ...



**MAKE NC
COUNT**
C E N S U S 2 0 2 0



Shape
your future
START HERE > | United States[®]
**Census
2020**



Census Impact

- **Our Voice (Representation)**
 - Census is required by the US Constitution
 - Count every resident, once, and in the right place
 - Apportionment and Redistricting
- **Our Tax Dollars (Funding)**
 - \$1,623 per person, per year in Federal Funding to NC based on Census data in FY2015
 - About \$200 per person, per year in state funding based on Census data
- **Our Future (Planning)**
 - Largest survey in the US providing reliable, comparable data
 - Vital for business and local government service



What Can We Expect?

- **Census Mailings in March 2020**
Internet, phone, and paper response options will be available
- **April 1, 2020 is Census Day**
Non-response Follow Up will begin in April
- **State Populations must be reported by December 31, 2020**
These numbers determine apportionment of seats in Congress
- **Redistricting Files will be delivered in Spring 2021**
- **Census Count Challenges can be submitted through 2023**
Challenges can only be submitted by local/tribal governments
- **Metropolitan Statistical Areas will be redefined in 2023**



Here's Where to Start

- Start/join a Complete Count Committee
Stay connected with the NC CCC
- Involve agency partners - staff and customers
- Leverage your existing resources

Add the NC Census Logo to your website and email taglines

Link to census.nc.gov

Use [#MakeNCCount](#) and [@NCCensus](#) on social media

Include Census logo, reference, or content on standard work processes (mailings, documents, listservs, blogs, etc.)

Add Census message at conferences



Differential Privacy

- New strategy that will better protect confidentiality
- Introduces privacy-loss budget (or epsilon) that will decrease data accuracy to protect confidentiality
- Data tables for small population groups or geographies may not be produced ... at least initially
- Generally, large population areas lose population while small population gain
- Differential Privacy will be used on the 2020 Census and on other Census surveys later



2020 Census Product Summary

Summary of Proposed 2020 Data Products

Proposed 2020 Data Product	Status
Apportionment Product	The current disclosure avoidance system either supports or is being expanded to support these 2020 Census data products
Redistricting File	
Demographic Profiles	
Demographic and Housing Characteristics File (DHC)	
Tables that require complex person/household joins	We continue to research ways to create public data products that include these tables that will meet user needs yet maintain data confidentiality.
Tables that include detailed race and Hispanic Origin groups	
Tables that include data for American Indian and Alaska Native groups	
Congressional District Demographic and Housing Characteristics File	Data in these files are primarily dependent on the production of the files listed above.
Census Briefs	
Population and Housing Tables (CPH-Ts)	
Special Reports	
Public Use Microdata Sample (PUMS) File	We continue to discuss the release of a PUMS file for the 2020 Census.
Summary of Population and Housing Characteristics (CPH-1)	We are proposing not to publish these files in 2020.
Population and Housing Unit Counts Report Series (CPH-2)	Data from these products will be available in other files.

2020 Census Demographic and Housing Characteristics File Proposed List of Tables

2010 Census Table Number	2020 Census Table Number	Title	Lowest Level of Geography Proposed for 2020	Proposed for Inclusion in 2020 DHC
P1.	P1.	TOTAL POPULATION	Block	Yes
P2.	P2.	URBAN AND RURAL	Block	Yes
P3.	P3.	RACE	Block	Yes
P4.	P4.	HISPANIC OR LATINO ORIGIN	Block	Yes
P5.	P5.	HISPANIC OR LATINO ORIGIN BY RACE	Block	Yes
P6.	P6.	RACE (TOTAL RACES TALLIED)	Block	Yes
P7.	PCO1.	HISPANIC OR LATINO ORIGIN BY RACE (TOTAL RACES TALLIED)	County	Yes
P8.	N/A	RACE	N/A	No
P9.	N/A	HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE	N/A	No
P10.	N/A	RACE FOR THE POPULATION 18 YEARS AND OVER	N/A	No
P11.	N/A	HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE FOR THE POPULATION 18 YEARS AND OVER	N/A	No
P12.	P7.	SEX BY AGE	Block	Yes
P13.	P8.	MEDIAN AGE BY SEX (1 EXPRESSED DECIMAL)	Block	Yes
P14.	P9.	SEX BY AGE FOR THE POPULATION UNDER 20 YEARS	Block	Yes
P15.	PCO2.	HISPANIC OR LATINO ORIGIN OF HOUSEHOLDER BY RACE OF HOUSEHOLDER	County	Yes
P16.	P10.	POPULATION IN HOUSEHOLDS BY AGE	Block	Yes
P17.	N/A	AVERAGE HOUSEHOLD SIZE BY AGE (2 EXPRESSED DECIMALS)	N/A	No
P18.	P11.	HOUSEHOLD TYPE	Block	Yes
P19.	PCO3.	HOUSEHOLD SIZE BY HOUSEHOLD TYPE BY PRESENCE OF OWN CHILDREN	County	Yes
P20.	P12.	HOUSEHOLDS BY TYPE AND PRESENCE OF OWN CHILDREN UNDER 18	Block	Yes



Demonstration Products

- The US Census Bureau released 2010 Census demonstration tables using Differential Privacy

<https://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/2020-census-data-products/2010-demonstration-data-products.html>

- ESRI developed a dashboard using the 2010 Census demonstration data to highlight potential impact

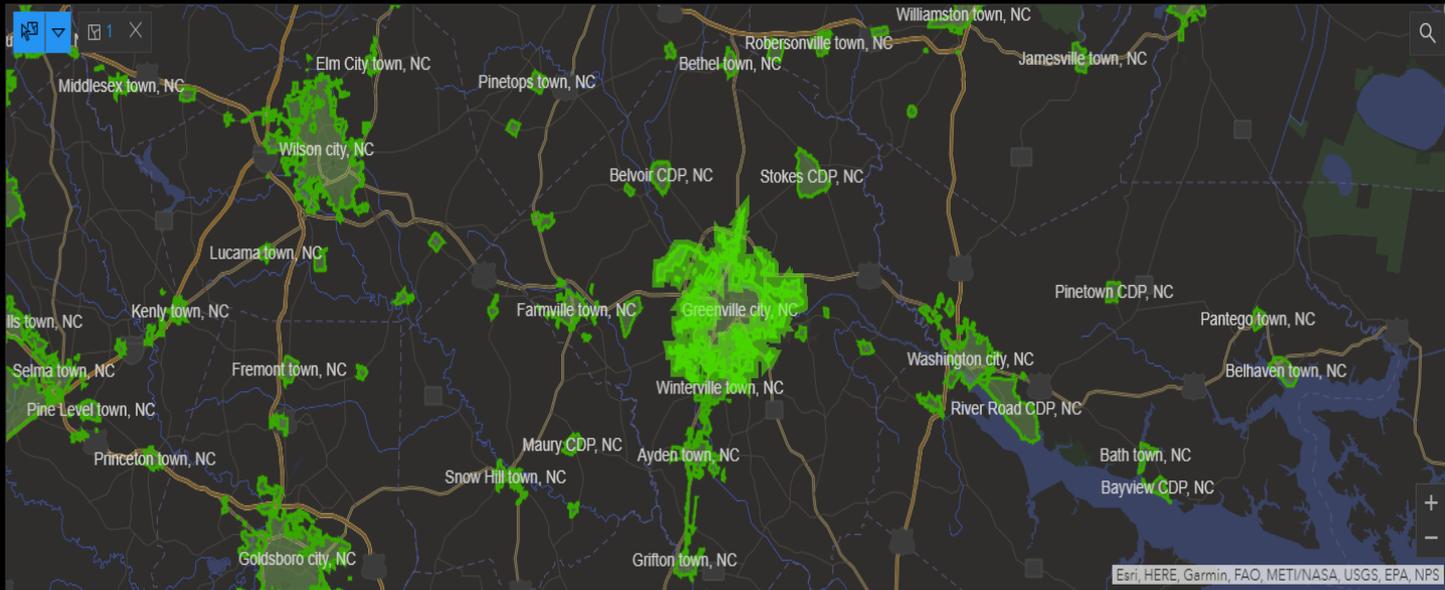
<https://arcgis-content.maps.arcgis.com/apps/opstdashboard/index.html#/04451f90e7b049f39aa6647a41b986ac>



Greenville, NC

Census 2010 Summary File 1 vs. Differential Privacy: Compare Places

Place Name:



To select a place by clicking on the map please activate the selection tool in the upper left corner of the map. Additionally you can select places within the map extent using the 'Place Name:' dropdown list in the upper right corner of the dashboard. A third way to select places is by searching using the magnifying glass icon in the upper right portion of the map.

Learn more about differential privacy in the 2020 Census

Esri, HERE, Garmin, FAO, METI/NASA, USGS, EPA, NPS

Household Population Difference

-978

SF1: 78,696 vs. DP: 77,718

Household Difference

-730

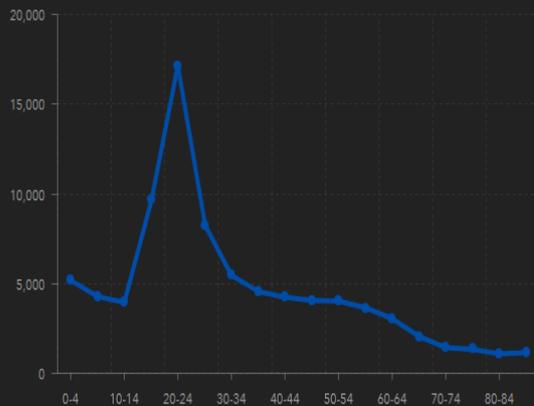
SF1: 36,071 vs. DP: 35,341

Occupancy Difference

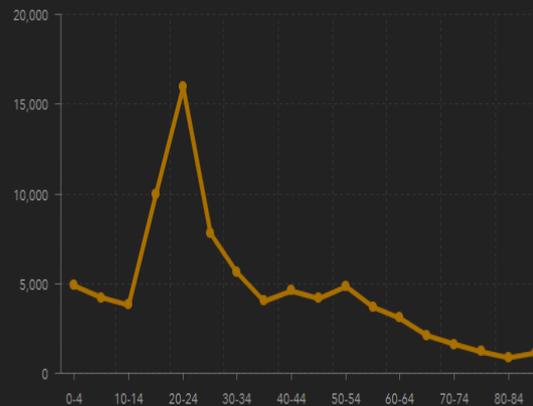
-1.8%

SF1: 88.92% vs. DP: 87.12%

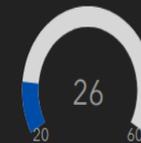
SF1 Total Population



DP Total Population



SF1 Median Age



DP Median Age



Sex Ratio





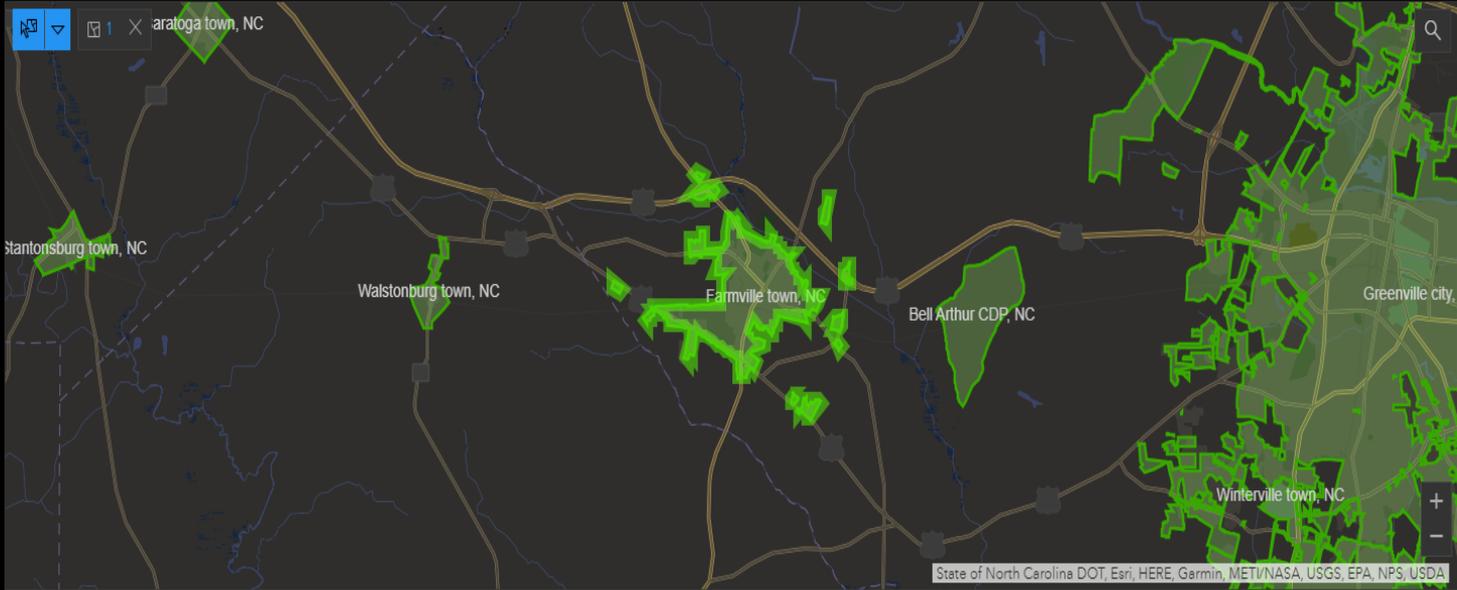
Farmville, NC

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[Learn more about differential privacy in the 2020 Census](#)



State of North Carolina DOT, Esri, HERE, Garmin, METI/NASA, USGS, EPA, NPS, USDA

Household Population Difference

182

SF1: 4,592 vs. DP: 4,774

Household Difference

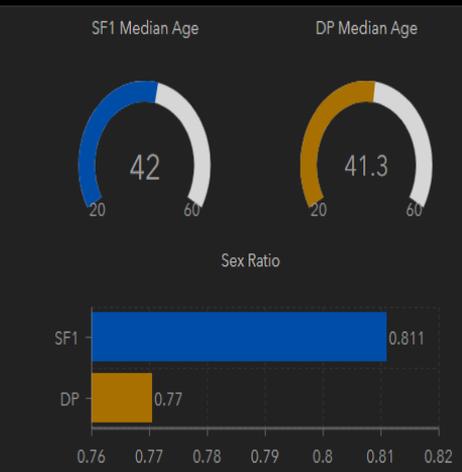
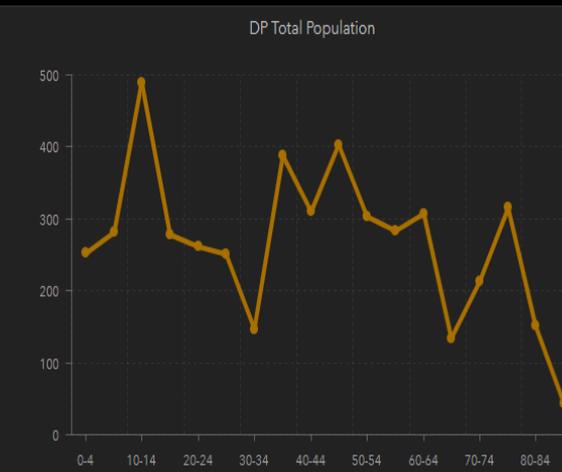
30

SF1: 1,981 vs. DP: 2,011

Occupancy Difference

1.34%

SF1: 88.48% vs. DP: 89.82%





Feedback

- Feedback on Differential Privacy is encouraged. Many national organizations have responded.
- GICC response is appropriate.
- State and local agencies should document their Census data needs and any legislation/requirements for the 2020 Census data products team.
- Individual email feedback should be directed to:
dcmd.2010.demonstration.data.products@census.gov



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Contacts

Bob Coats

(984) 236-0687

Bob.Coats@osbm.nc.gov

Governor's Census Liaison,
North Carolina State Data Center
Demographic and Economic Analysis Section
NC Office of State Budget and Management

Dr. Mike Cline

(984) 236-0686

Michael.Cline@osbm.nc.gov

State Demographer of North Carolina
Demographic and Economic Analysis Section
NC Office of State Budget and Management