

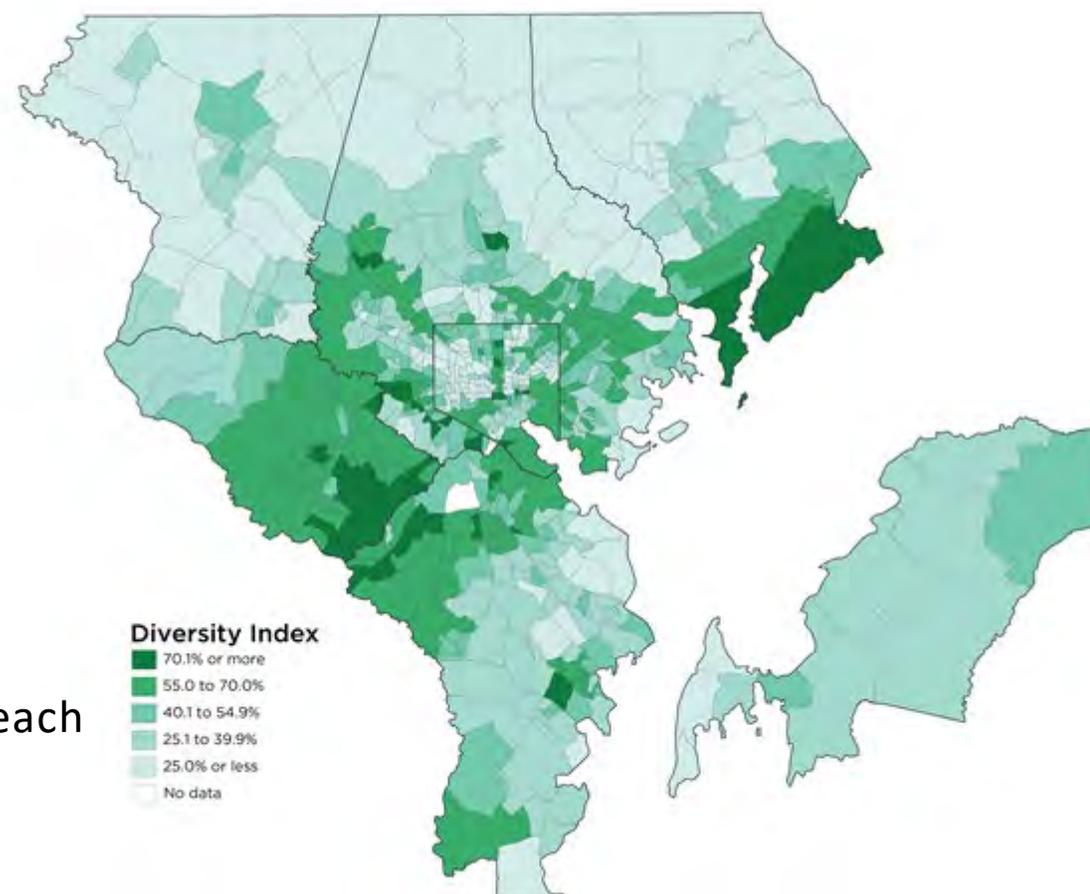
# Racial and Ethnic Diversity: 2020 Census Results

## Baltimore Metropolitan Council Cooperative Forecasting Group

**Nicholas A. Jones**, Director, Race Ethnicity Research and Outreach

**Eric Jensen**, Senior Technical Expert, Demographic Analysis

Population Division, U.S. Census Bureau  
December 15, 2021



Source: U.S. Census Bureau, 2020 Census Redistricting Data (Public Law 94-171) Summary File.

# 2020 Census Provides a New Snapshot of Racial and Ethnic Composition and Diversity

Improved Race and Ethnicity Measures Reveal  
U.S. Population is More Multiracial



2020 U.S. Population More Racially and  
Ethnically Diverse Than Measured in 2010



# 2020 Census Asked Two Separate Questions on Hispanic Origin and Race

→ NOTE: Please answer BOTH Question 6 about Hispanic origin and Question 7 about race. For this census, Hispanic origins are not races.

6. Is this person of Hispanic, Latino, or Spanish origin?

- No, not of Hispanic, Latino, or Spanish origin
- Yes, Mexican, Mexican Am., Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, another Hispanic, Latino, or Spanish origin – *Print, for example, Salvadoran, Dominican, Colombian, Guatemalan, Spaniard, Ecuadorian, etc.* ↴

Significant changes from 2010 Census for race and ethnicity question designs, data processing, and coding.

7. What is this person's race?

Mark  one or more boxes AND print origins.

- White – *Print, for example, German, Irish, English, Italian, Lebanese, Egyptian, etc.* ↴

- Black or African Am. – *Print, for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, Somali, etc.* ↴

- American Indian or Alaska Native – *Print name of enrolled or principal tribe(s), for example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, etc.* ↴

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Chinese  | <input type="checkbox"/> Vietnamese  | <input type="checkbox"/> Native Hawaiian |
| <input type="checkbox"/> Filipino   | <input type="checkbox"/> Korean  | <input type="checkbox"/> Samoan          |
| <input type="checkbox"/> Asian Indian   | <input type="checkbox"/> Japanese  | <input type="checkbox"/> Chamorro        |
| <input type="checkbox"/> Other Asian – <i>Print, for example, Pakistani, Cambodian, Hmong, etc.</i> ↴ | <input type="checkbox"/> Other Pacific Islander – <i>Print, for example, Tongan, Fijian, Marshallese, etc.</i> ↴ |  |

- Some other race – *Print race or origin.* ↴

# Improvements to 2020 Census Question Designs, Data Processing, and Coding Procedures

- Yield a more accurate portrait of how people self-identify.
- Reveal U.S. population is much more multiracial and more diverse.



Improvements to the 2020 Census Race and Hispanic Origin Question Designs, Data Processing, and Coding Procedures

August 03, 2021

BY RACHEL MARKS, CHIEF, RACIAL STATISTICS BRANCH, POPULATION DIVISION AND MERARYS RIOS-VARGAS, CHIEF, ETHNICITY AND ANCESTRY BRANCH, POPULATION DIVISION

## 2020 Census Shows Different But Reasonable and Expected Distributions

- 2020 Census and 2010 Census race data comparisons should be made with caution, taking into account improvements.
- Results are not surprising.
- Results align with expert research and findings.
- Improvements more accurately illustrate richness and complexity of how people identify within Office of Management and Budget (OMB) standards.



# Cross Tabulation of Hispanic Origin by Race (Table P2)

P.L. 94-171 Redistricting Data

## Table P2

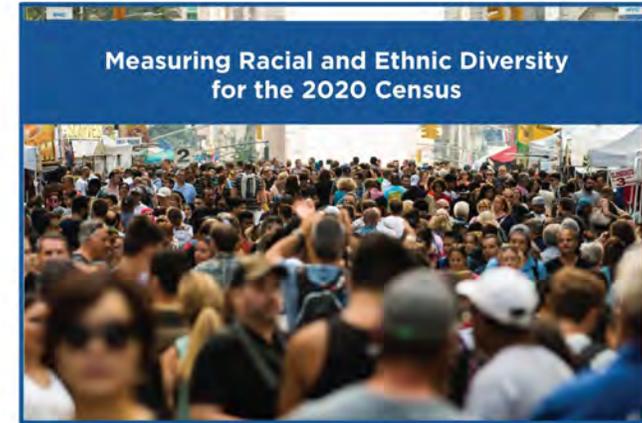
Hispanic or Latino, and Not Hispanic or Latino by Race

Universe: Total population

| HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE [73]   |
|---|
| Universe: Total population  |
| Total:  |
| Hispanic or Latino  |
| Not Hispanic or Latino:   |
| Population of one race:   |
| White alone   |
| Black or African American alone   |
| American Indian and Alaska Native alone   |
| Asian alone   |
| Native Hawaiian and Other Pacific Islander alone  |
| Some Other Race alone   |
| Two or More Races:  |
| Population of two races:  |
| White; Black or African American  |
| White; American Indian and Alaska Native  |
| White; Asian  |
| White; Native Hawaiian and Other Pacific Islander   |
| White; Some Other Race  |
| Black or African American; American Indian and Alaska Native  |
| Black or African American; Asian  |
| Black or African American; Native Hawaiian and Other Pacific Islander   |
| Black or African American; Some Other Race  |
| American Indian and Alaska Native; Asian  |
| American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander   |
| American Indian and Alaska Native; Some Other Race  |
| Asian; Native Hawaiian and Other Pacific Islander   |
| Asian; Some Other Race  |
| Native Hawaiian and Other Pacific Islander; Some Other Race   |
| Population of six races:  |
| White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race |

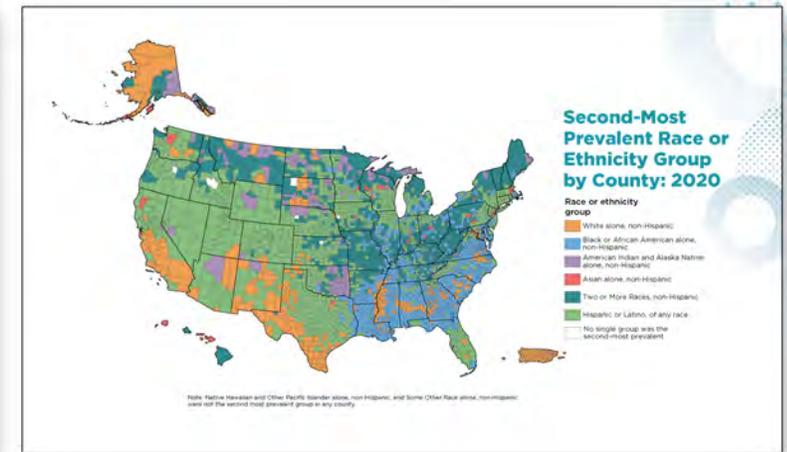
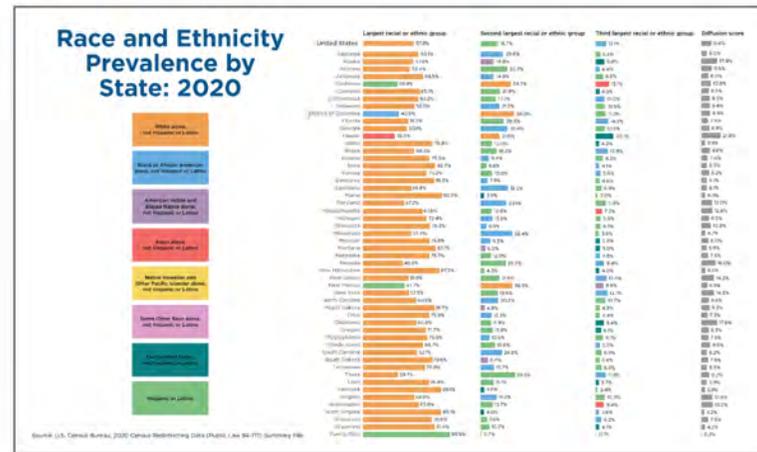
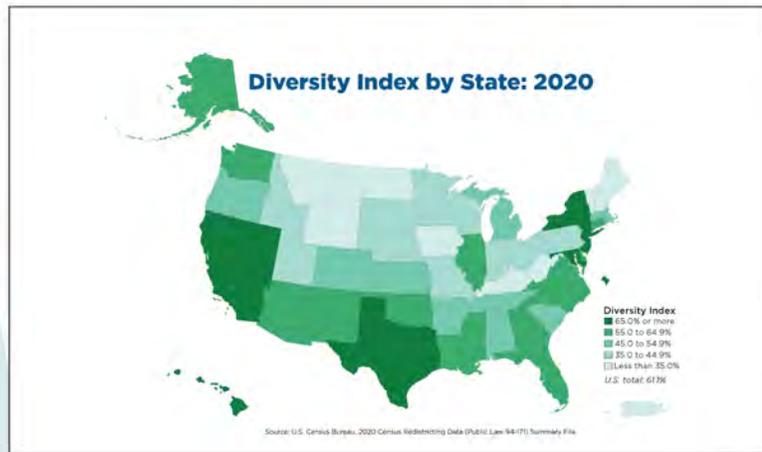
# Comparing Cross-Tabulated Race and Ethnicity Data

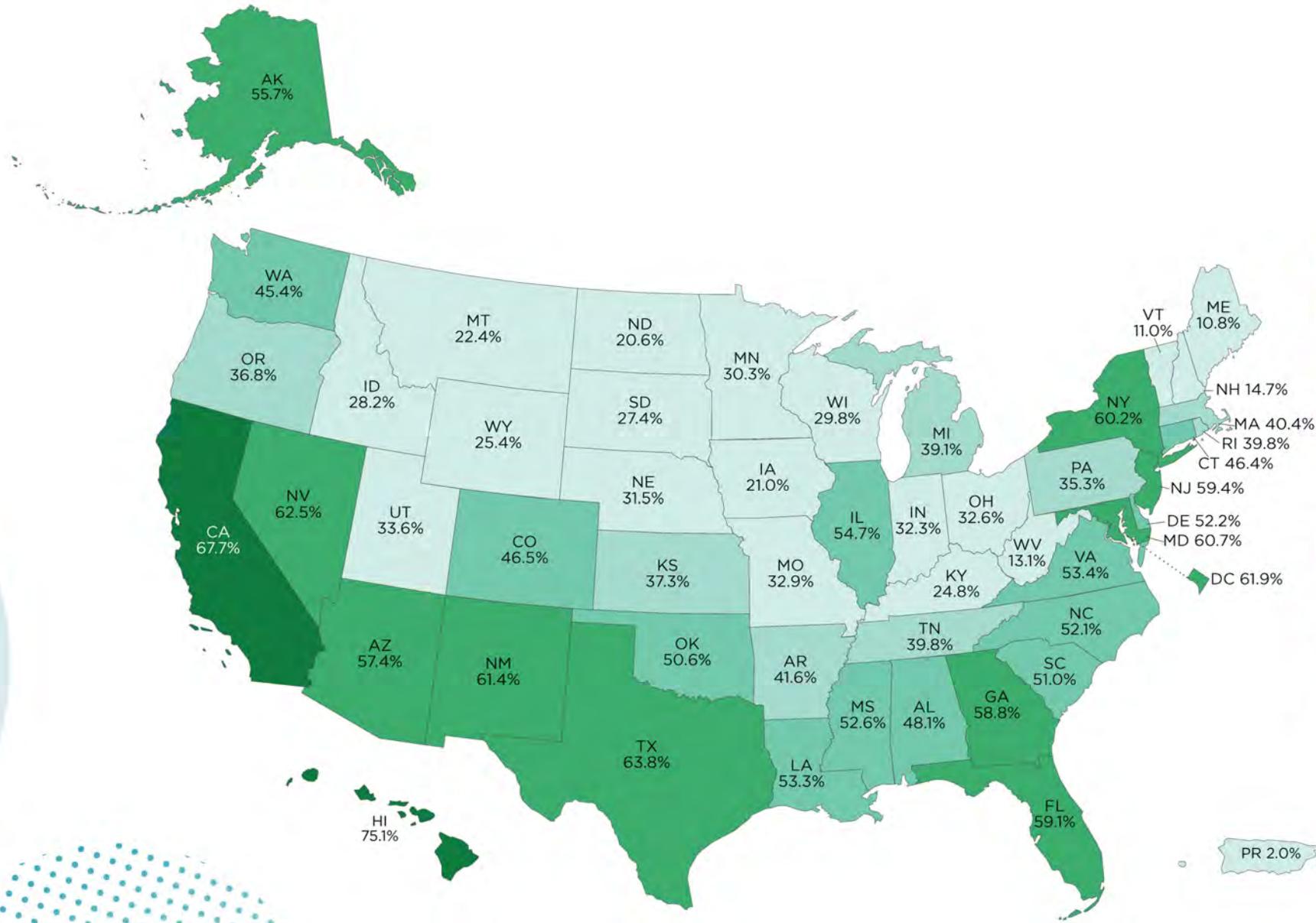
- Cross-tabulated race and ethnicity statistics are not as impacted by race reporting patterns of Hispanic respondents.
- We are confident changes in diversity measures reflect actual demographic changes, as well as improvements to 2020 Census question designs, data processing, and coding.



# Measuring Racial and Ethnic Diversity in the 2020 Census

Concept of “diversity” refers to representation and relative size of different racial and ethnic groups within a population.



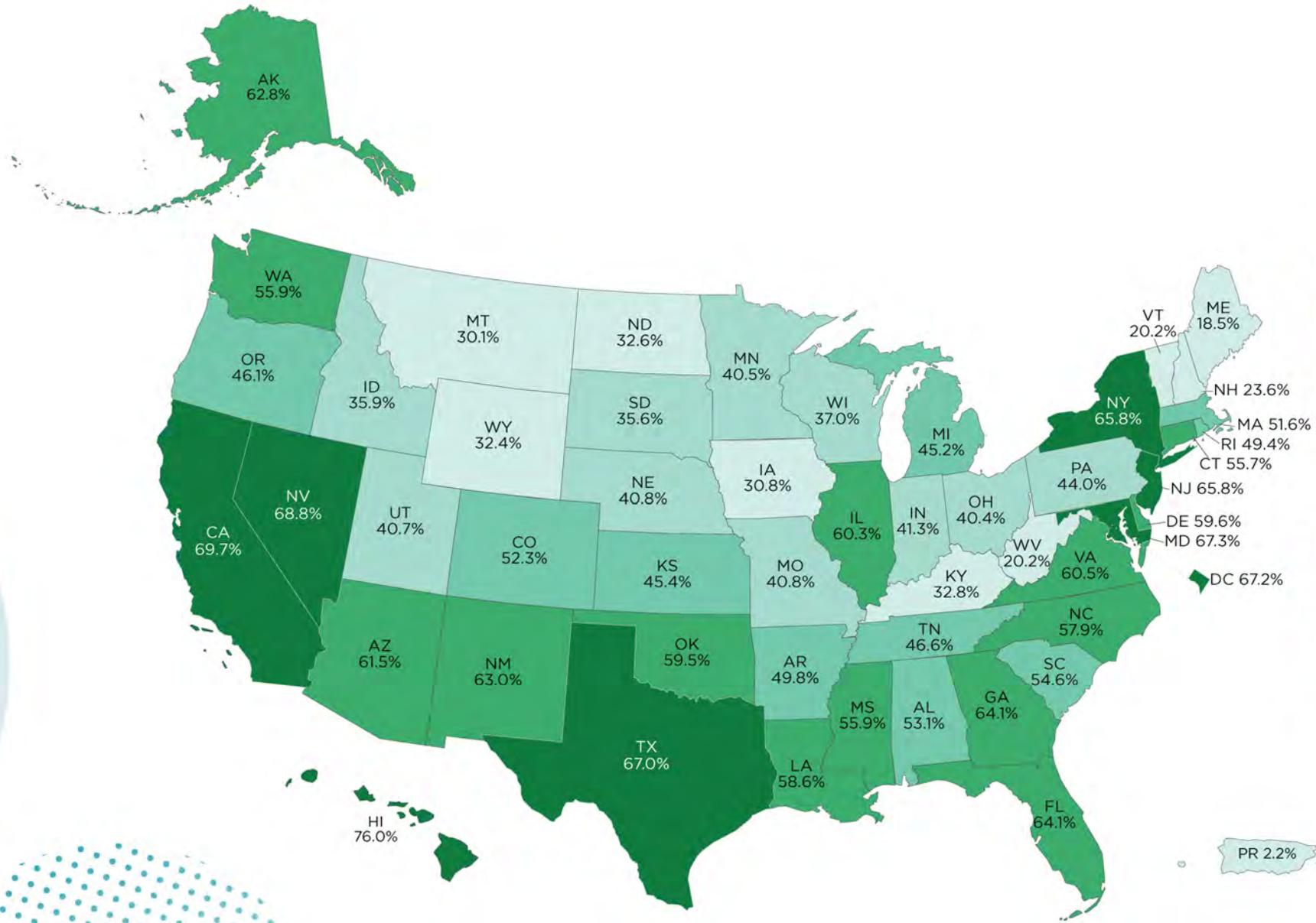


# Race and Ethnicity Diversity Index by State: 2010

**Diversity Index**

- 65.0% or more
- 55.0 to 64.9%
- 45.0 to 54.9%
- 35.0 to 44.9%
- Less than 35.0%

*U.S. total: 54.9%*

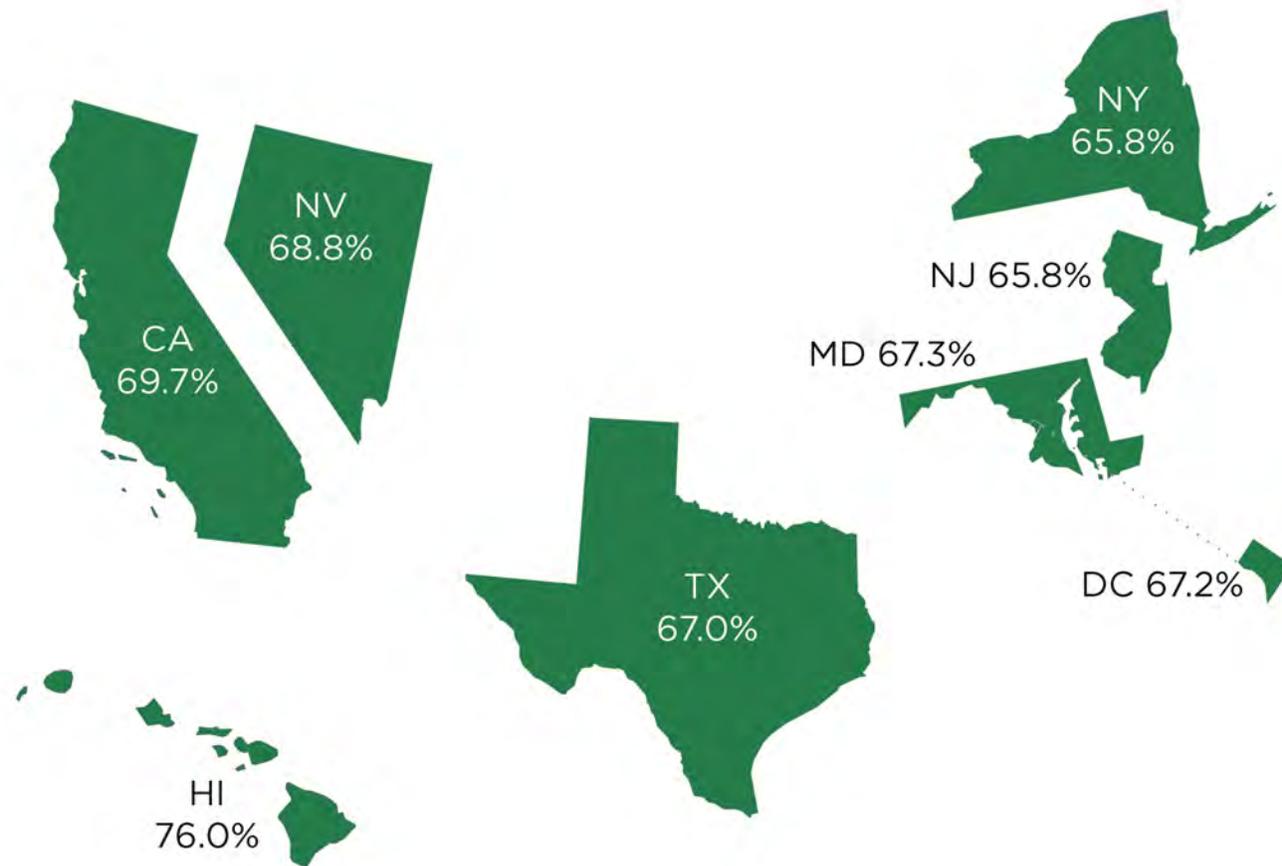


# Race and Ethnicity Diversity Index by State: 2020

**Diversity Index**

- 65.0% or more
- 55.0 to 64.9%
- 45.0 to 54.9%
- 35.0 to 44.9%
- Less than 35.0%

*U.S. total: 61.1%*



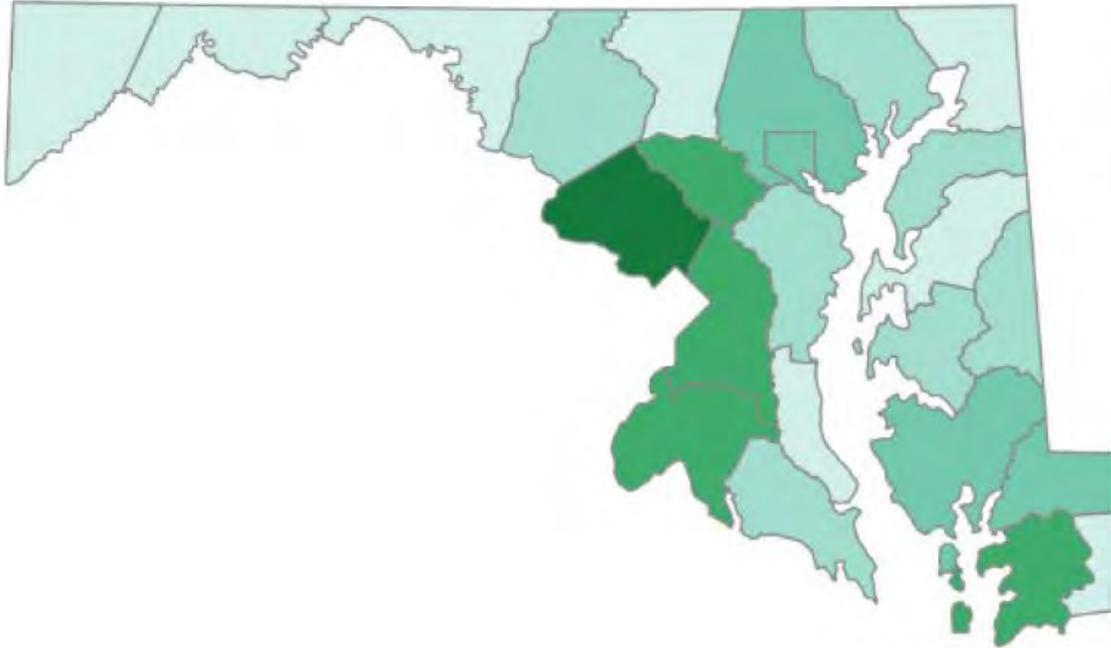
## Race and Ethnicity Diversity Index by State: 2020

Diversity Index  
■ 65.0% or more

# Racial and Ethnic Diversity Index for Maryland

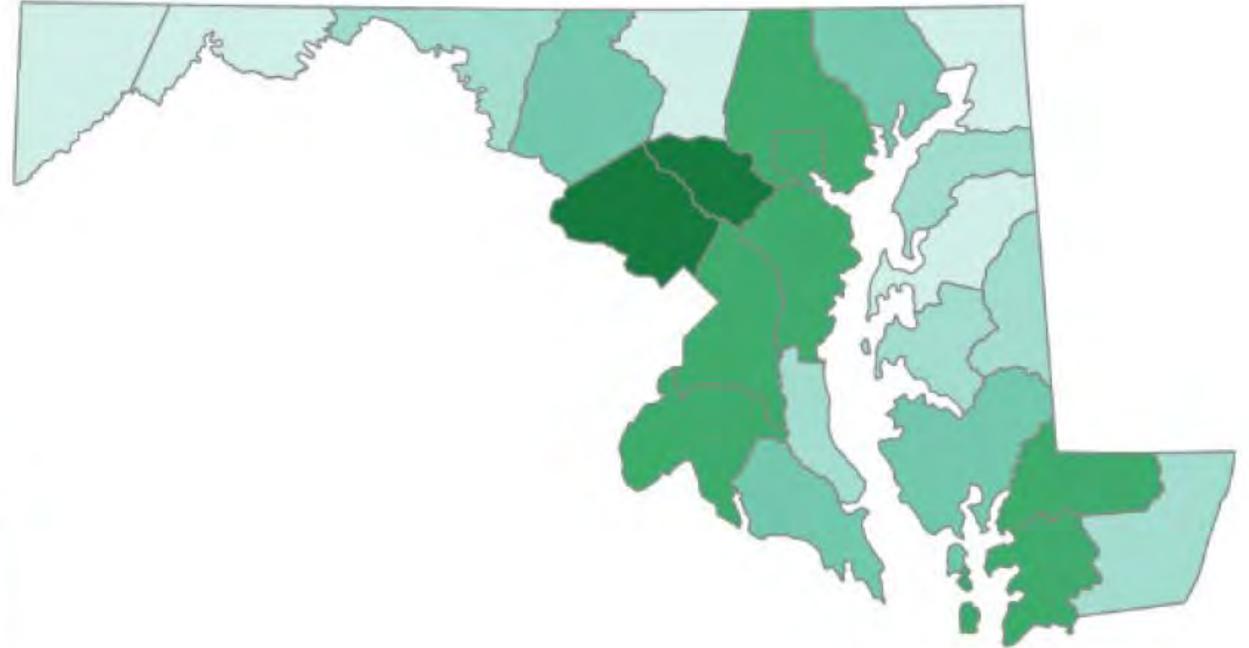
Diversity Index by County: 2010

Maryland: 60.7%

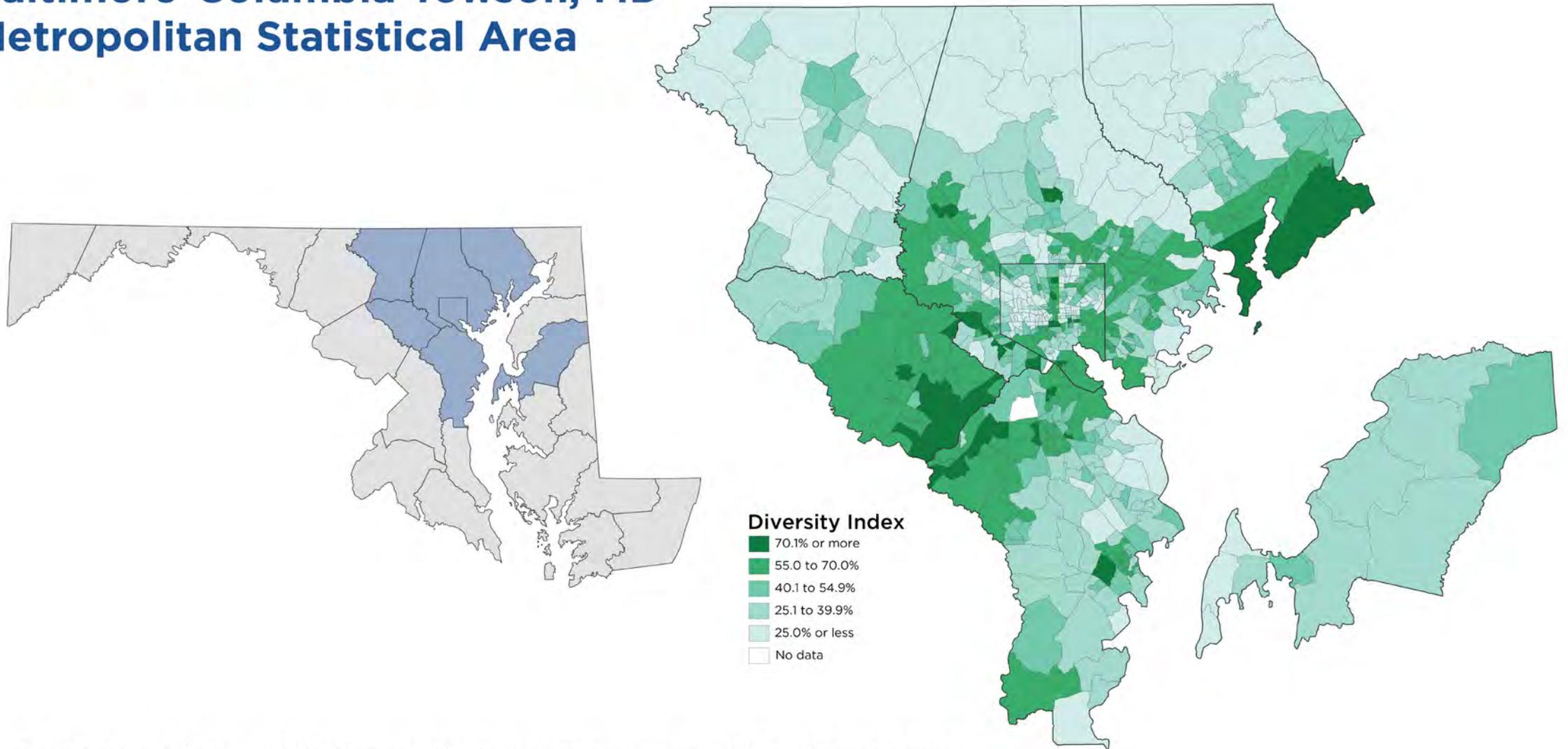


Diversity Index by County: 2020

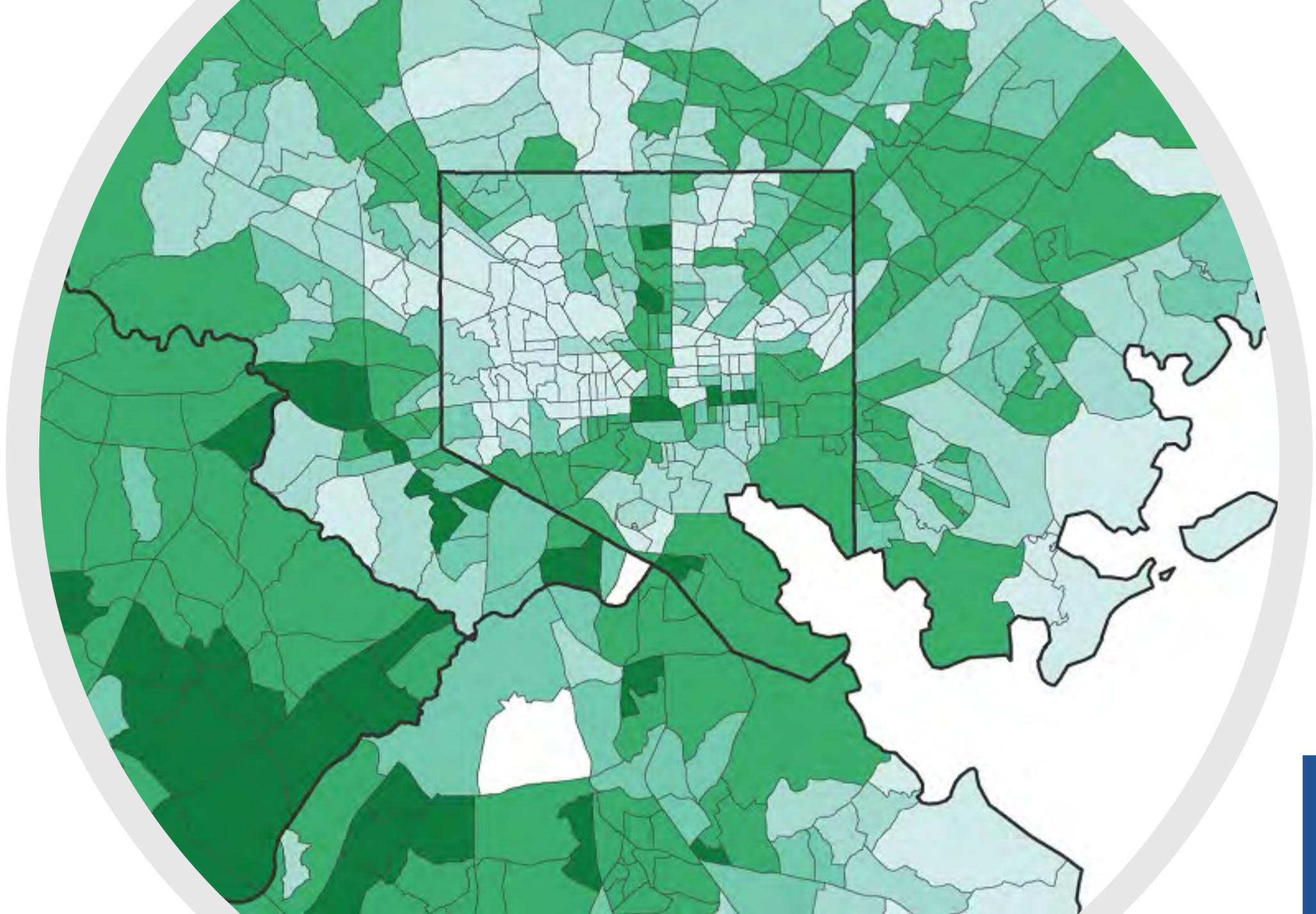
Maryland: 67.3%



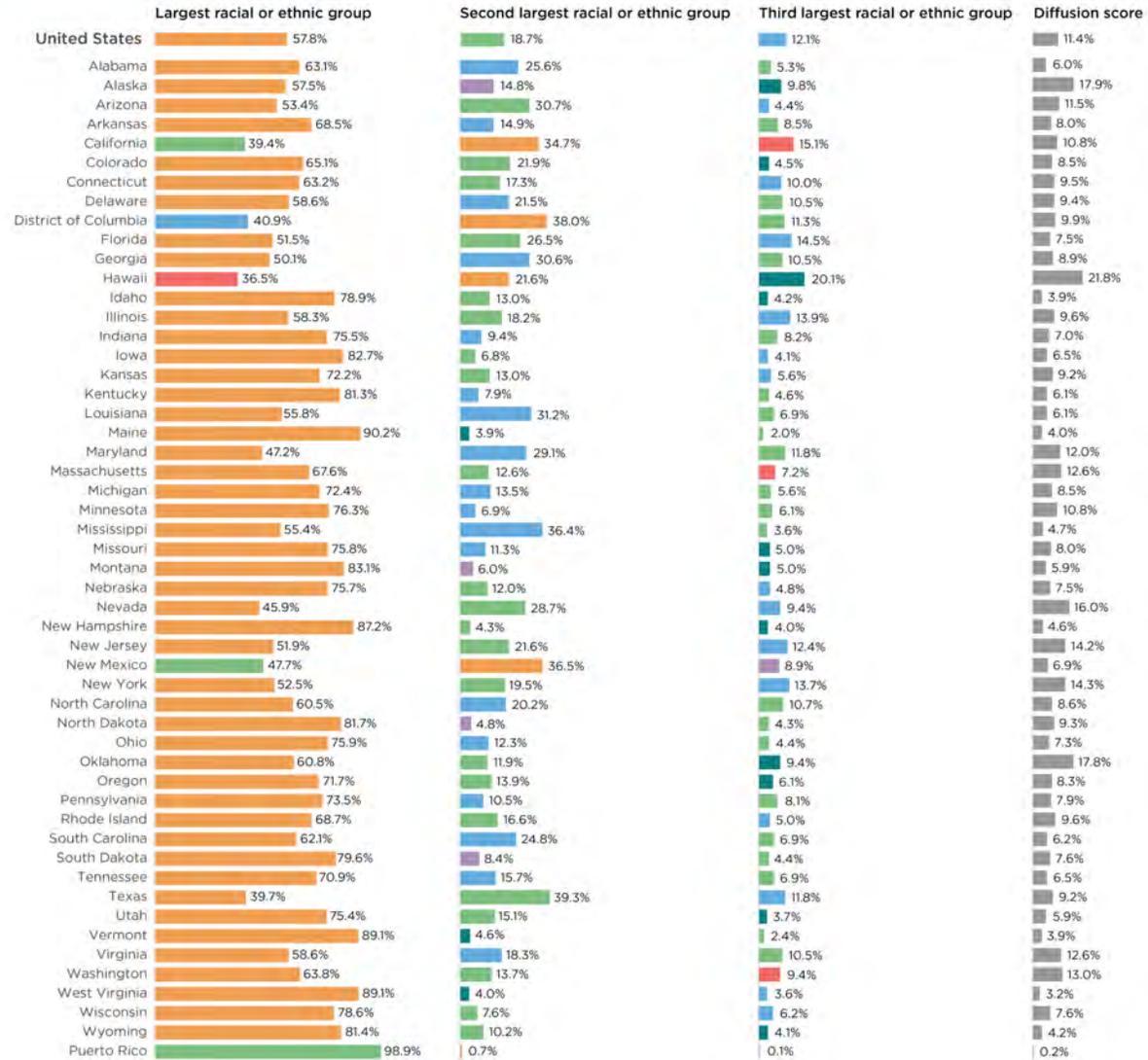
# Diversity Index by Census Tract: Baltimore-Columbia-Towson, MD Metropolitan Statistical Area



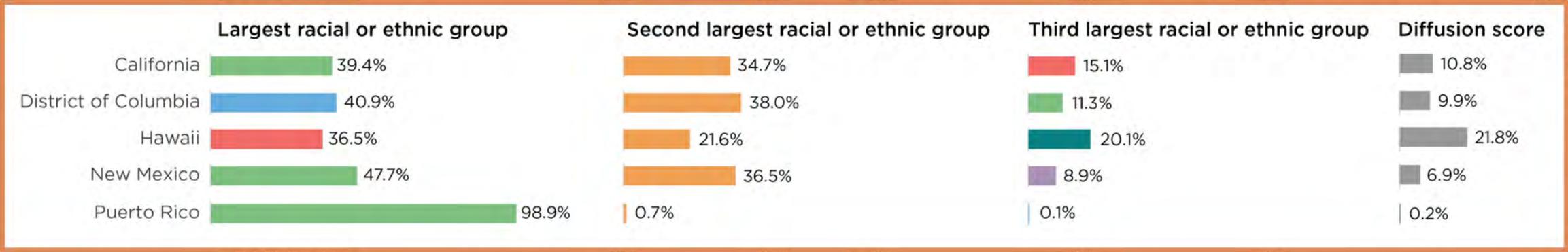
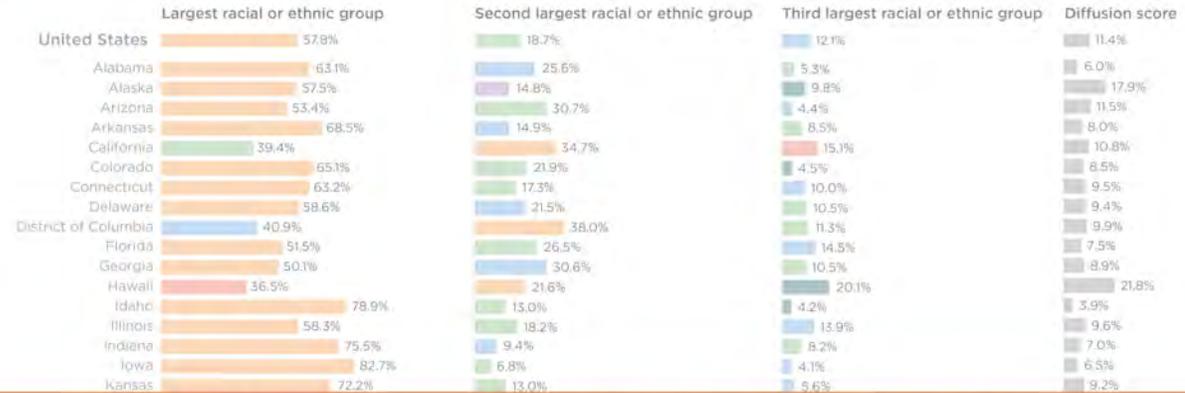
Source: U.S. Census Bureau, 2020 Census Redistricting Data (Public Law 94-171) Summary File.



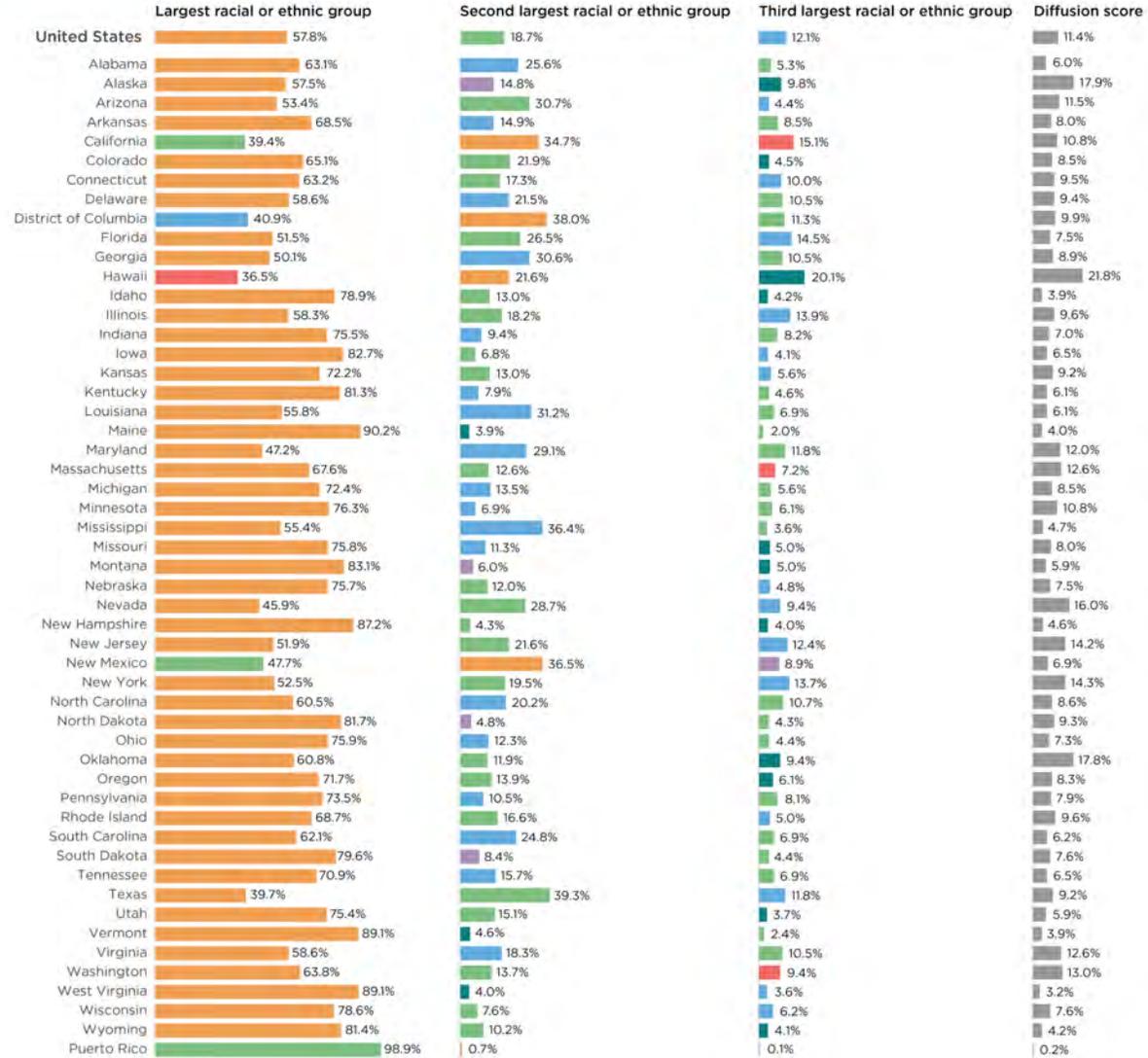
# Race and Ethnicity Prevalence by State: 2020



# Race and Ethnicity Prevalence by State: 2020



# Race and Ethnicity Prevalence by State: 2020



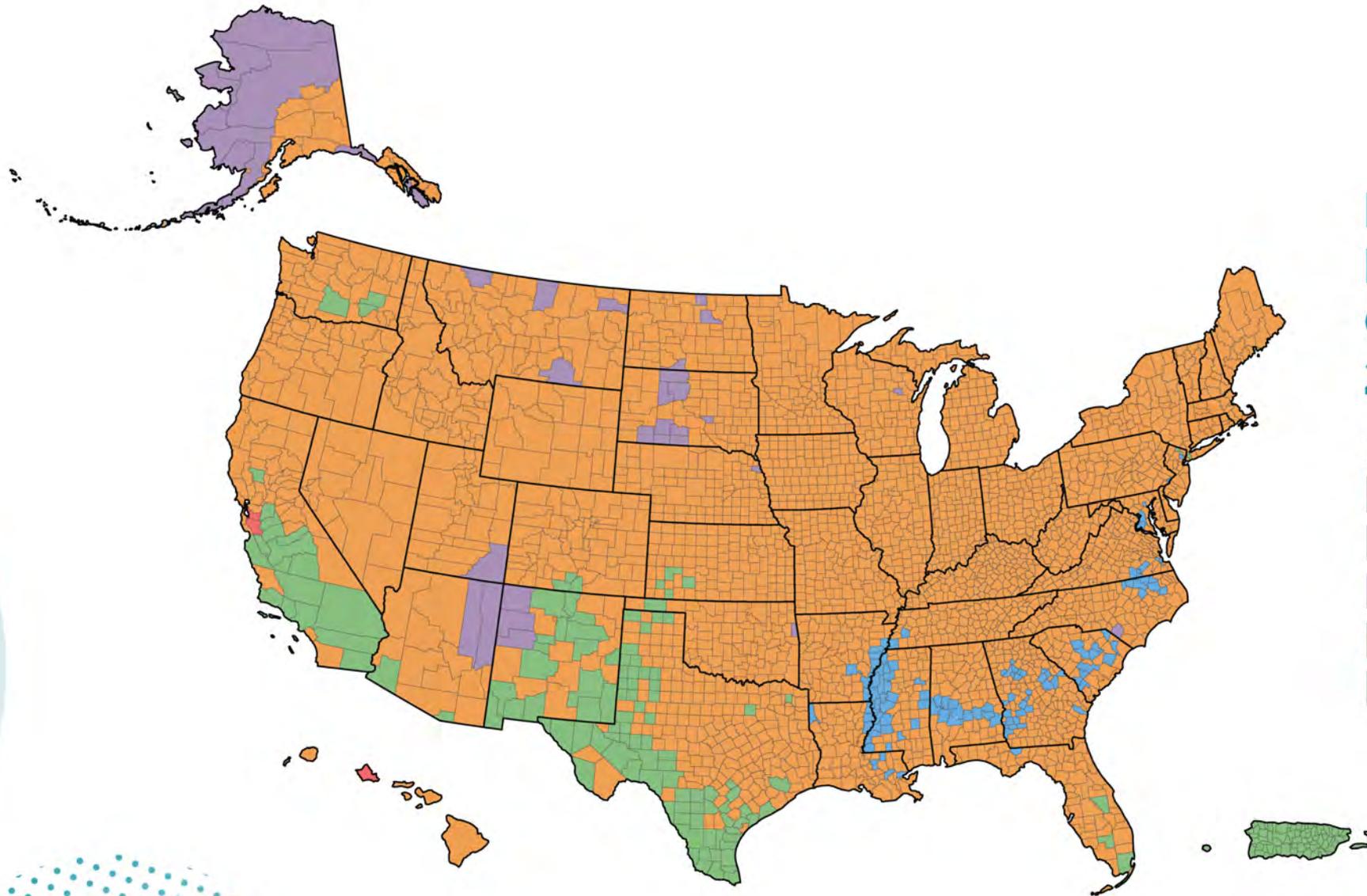
# Race and Ethnicity Prevalence for Maryland

## 2020 Census



## 2010 Census



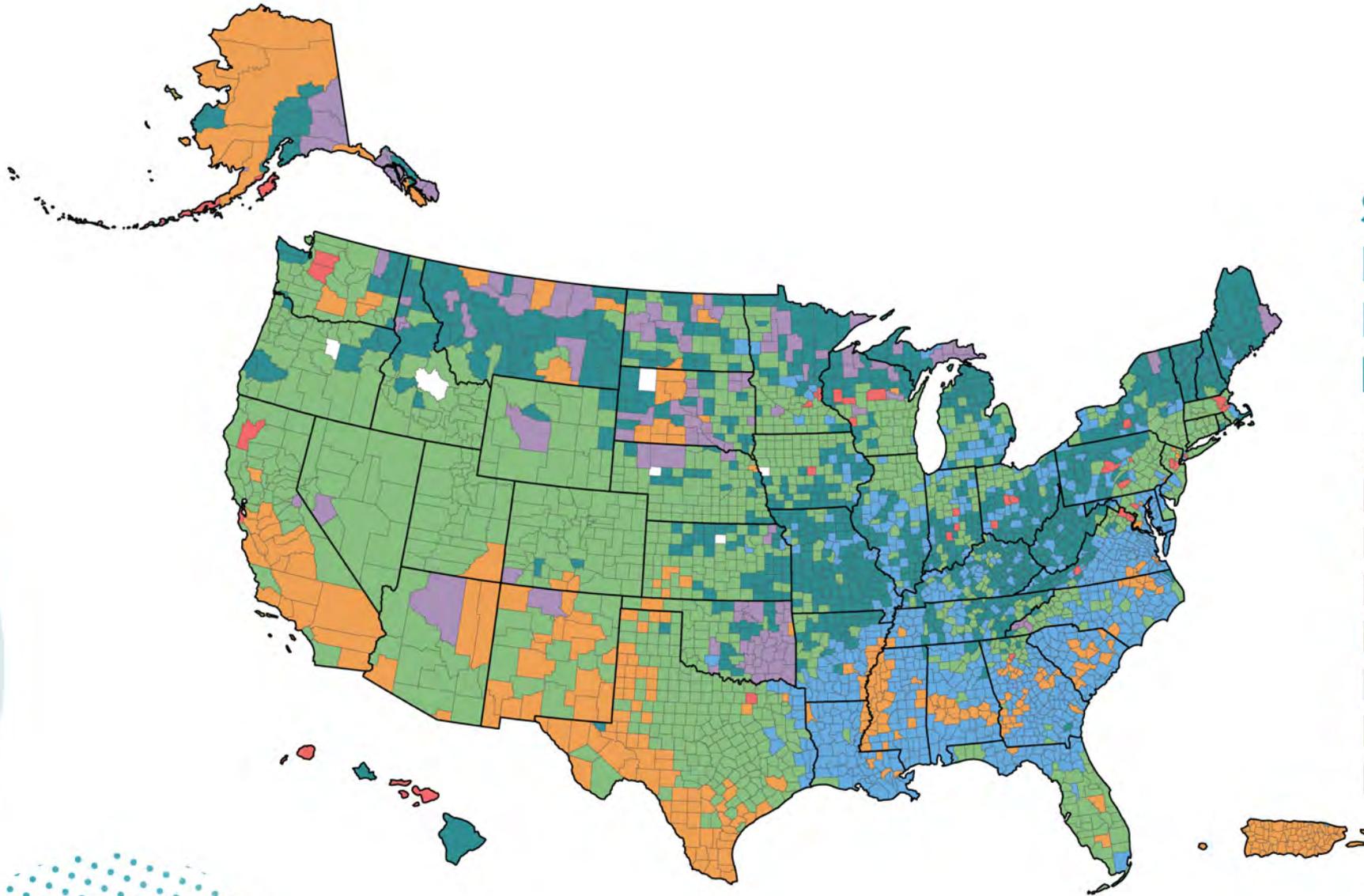


## Most Prevalent Race or Ethnicity Group by County: 2020

### Race or ethnicity group

- White alone, non-Hispanic
- Black or African American alone, non-Hispanic
- American Indian and Alaska Native alone, non-Hispanic
- Asian alone, non-Hispanic
- Hispanic or Latino, of any race

Note: Native Hawaiian and Other Pacific Islander alone, non-Hispanic, Some Other Race alone, non-Hispanic, and Two or More Races, non-Hispanic were not the most prevalent group in any county.



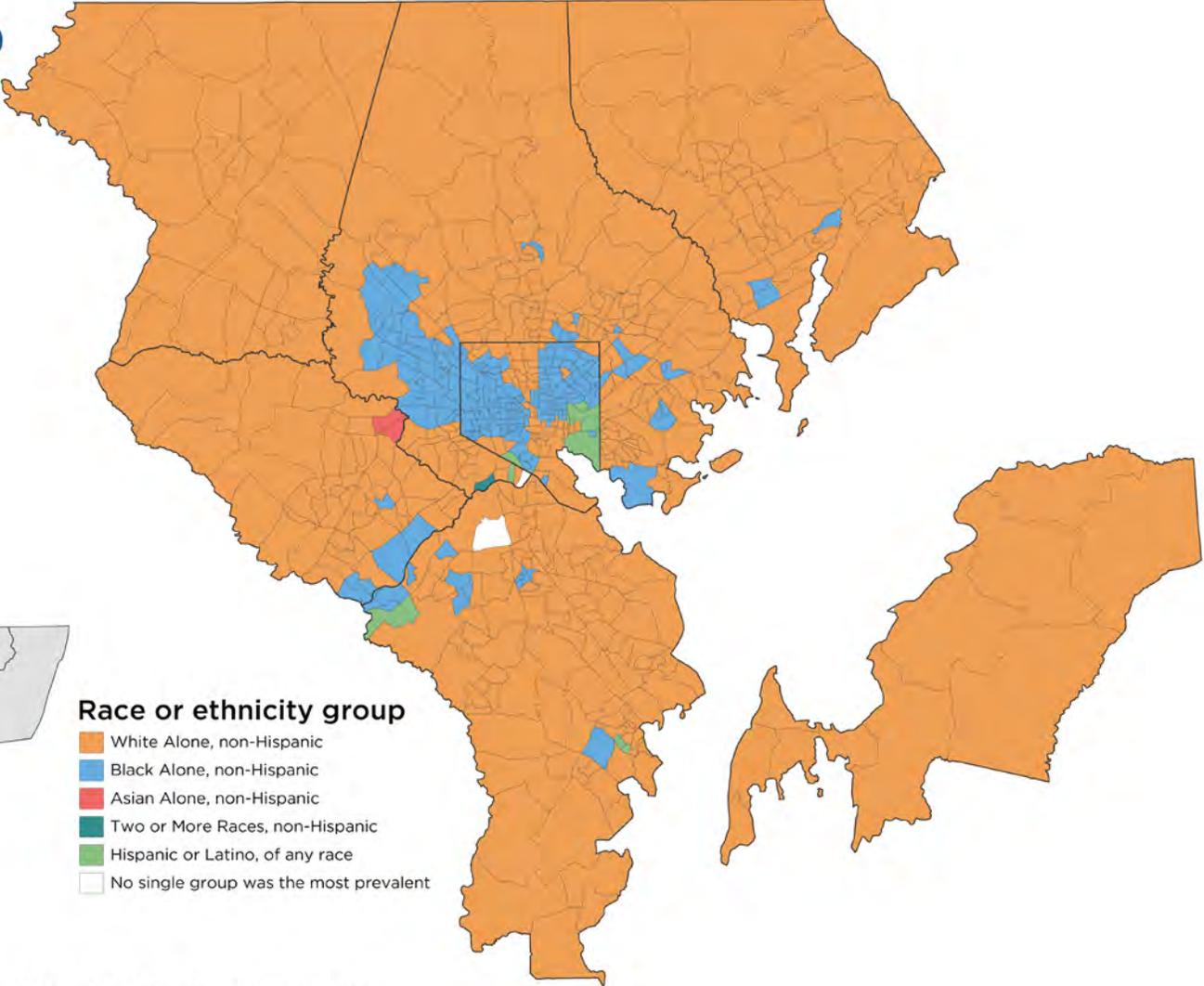
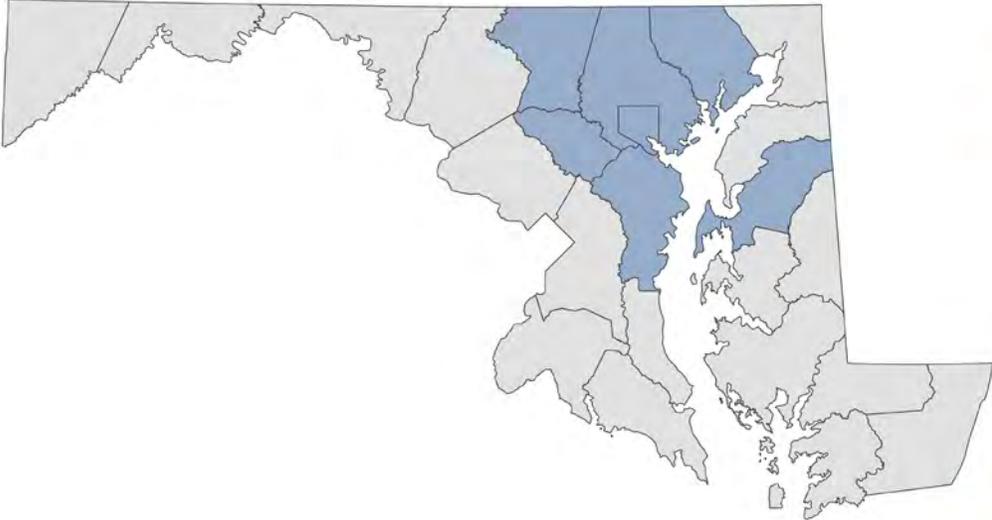
## Second-Most Prevalent Race or Ethnicity Group by County: 2020

### Race or ethnicity group

- White alone, non-Hispanic
- Black or African American alone, non-Hispanic
- American Indian and Alaska Native alone, non-Hispanic
- Asian alone, non-Hispanic
- Two or More Races, non-Hispanic
- Hispanic or Latino, of any race
- No single group was the second-most prevalent

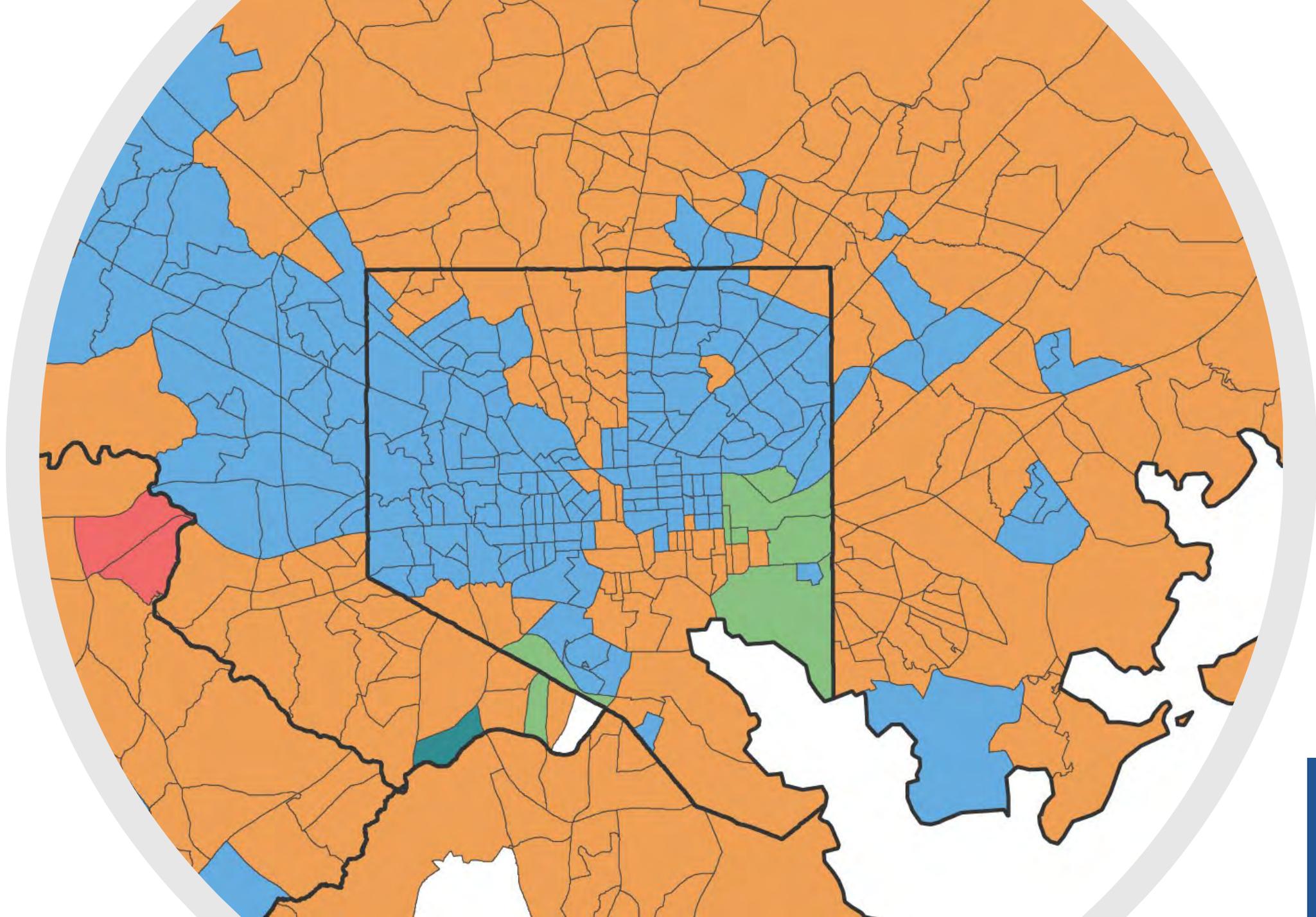
Note: Native Hawaiian and Other Pacific Islander alone, non-Hispanic, and Some Other Race alone, non-Hispanic were not the second most prevalent group in any county.

# Most Prevalent Race or Ethnicity Group by Census Tract: Baltimore-Columbia-Towson, MD Metropolitan Statistical Area

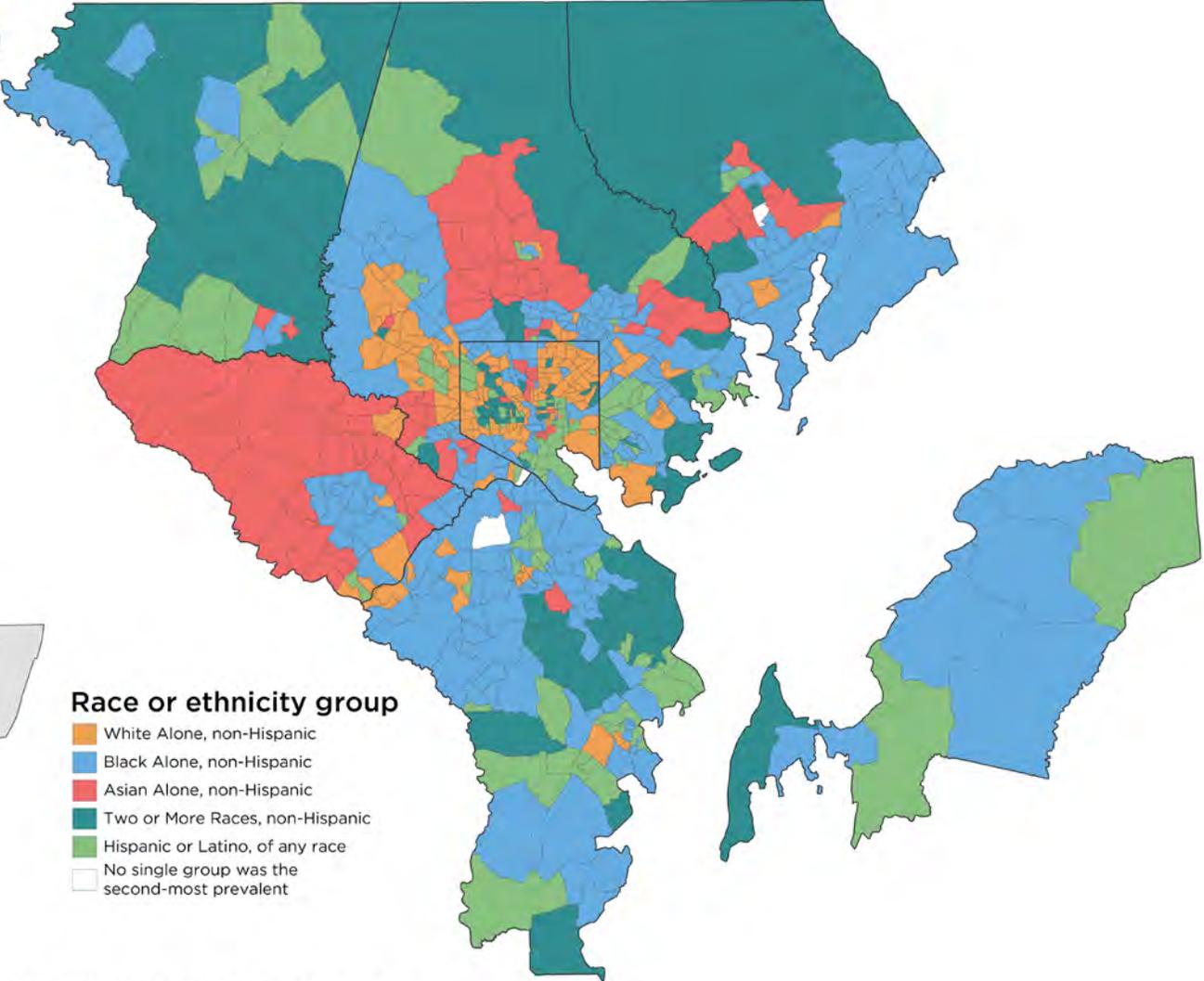
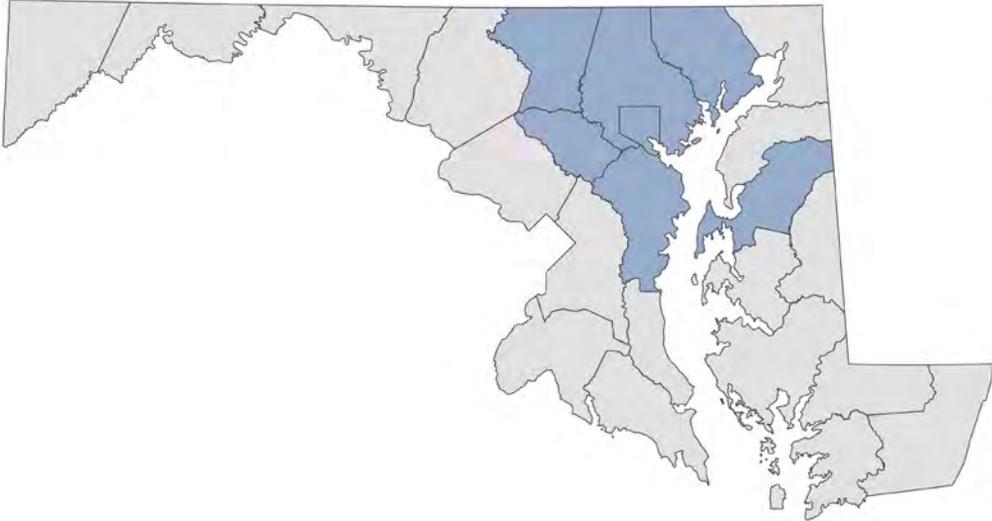


- Race or ethnicity group**
- White Alone, non-Hispanic
  - Black Alone, non-Hispanic
  - Asian Alone, non-Hispanic
  - Two or More Races, non-Hispanic
  - Hispanic or Latino, of any race
  - No single group was the most prevalent

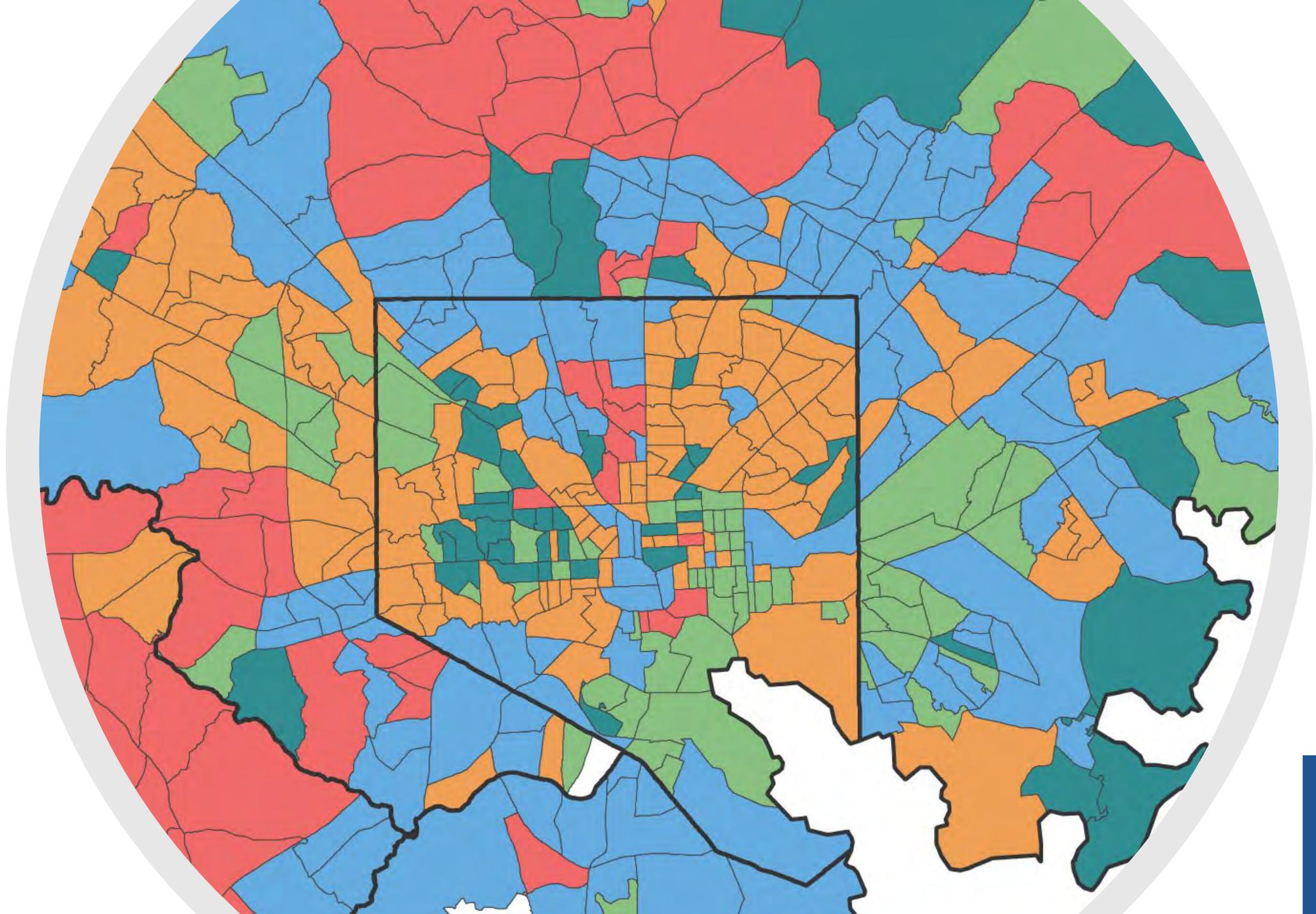
Source: U.S. Census Bureau, 2020 Census Redistricting Data (Public Law 94-171) Summary File.



# Second-Most Prevalent Race or Ethnicity Group by Census Tract: Baltimore-Columbia-Towson, MD Metropolitan Statistical Area



Source: U.S. Census Bureau, 2020 Census Redistricting Data (Public Law 94-171) Summary File.





# 2020 Census Provides a New Snapshot of Racial and Ethnic Composition and Diversity

Improved Race and Ethnicity Measures Reveal U.S. Population is More Multiracial



Improved Race and Ethnicity Measures Reveal U.S. Population Is Much More Multiracial

2020 U.S. Population More Racially and Ethnically Diverse Than Measured in 2010



2020 U.S. Population More Racially and Ethnically Diverse Than Measured in 2010

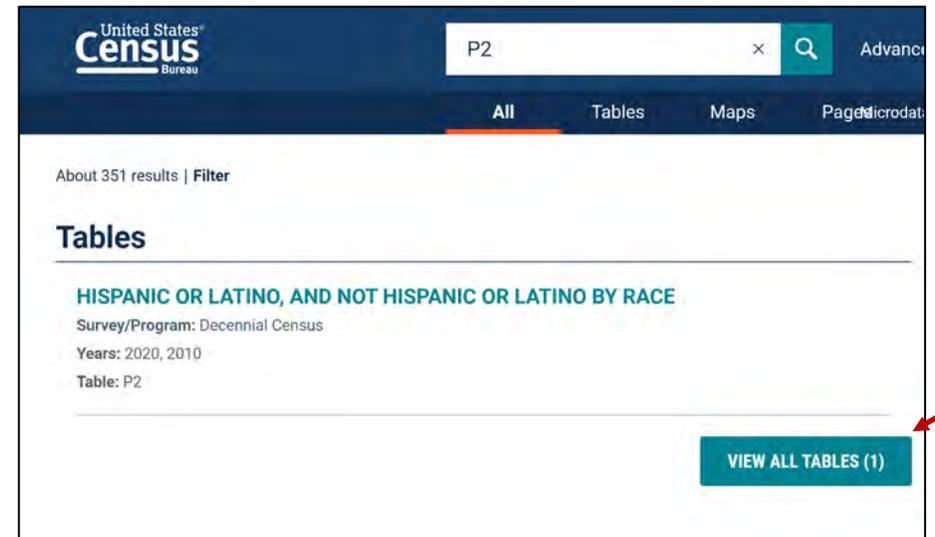
# Producing Racial and Ethnic Diversity Measures for the 2020 Census Using [data.census.gov](https://data.census.gov) and Microsoft Excel

# data.census.gov



**Step 1:** Go to data.census.gov and put “P2” into the search box. This will select **Table P2, including HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE** from the 2020 Census Redistricting Data

**Step 2:** Select *View All Tables(1)*



# data.census.gov

United States Census Bureau

P2

Advanced Search

All **Tables** Maps Pages Microdata Help FAQ Feedback

1 Results FILTER | DOWNLOAD

**HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE**

Survey/Program: Decennial Census Product: 2020: DEC Redistricting Data

TableID: P2 Universe: Total population

**CUSTOMIZE TABLE**

| Label                                   | Alabama   | Alaska |
|---|-----------|--------|
| ▼ Total:                                | 5,024,279 | 733,3  |
| Hispanic or Latino                      | 264,047   | 49,8   |
| ▼ Not Hispanic or Latino:               | 4,760,232 | 683,5  |
| ▼ Population of one race:               | 4,575,614 | 611,8  |
| White alone                             | 3,171,351 | 421,7  |
| Black or African American alone         | 1,288,159 | 20,7   |
| American Indian and Alaska Native alone | 23,119    | 108,8  |

**Step 3:** Select *Customize Table*

United States Census Bureau

P2

All **Tables** Maps Pages

// Search / Tables / P2

**HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE**

Survey/Program: Decennial Census Universe: Total population TableID: P2 Product: 2020: DEC Redistricting Data

Notes Selections **Geos** Years Topics Surveys Codes 123 Hide Transpose Margin of Error Restore

| Label                                   | Alabama   |
|---|-----------|
| ▼ Total:                                | 5,024,279 |
| Hispanic or Latino                      | 264,047   |
| ▼ Not Hispanic or Latino:               | 4,760,232 |
| ▼ Population of one race:               | 4,575,614 |
| White alone                             | 3,171,351 |
| Black or African American alone         | 1,288,159 |
| American Indian and Alaska Native alone | 23,119    |
| Asian alone                             | 75,918    |

**Step 4:** Now click *Geos*

# data.census.gov

The screenshot shows the data.census.gov interface. At the top, there is a search bar with 'P2' and a navigation menu with 'All', 'Tables', 'Maps', and 'Pages'. Below the navigation, the title is 'HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE'. The survey/program is 'Decennial Census', the universe is 'Total population', the table ID is 'P2', and the product is '2020: DEC Redistricting Data (PL 94-171)'. A toolbar contains various icons for 'Notes', 'Selections', '1 Geo', 'Years', 'Topics', 'Surveys', 'Codes', 'Filter', 'Margin of Error', 'Restore', 'Excel', 'Download', 'More Data', and 'Map'. On the left, under 'GEOGRAPHY', the 'County' level is selected. In the 'WITHIN (STATE)' dropdown, 'All Counties within United States and Puerto Rico' is selected. A 'CLOSE' button is visible at the bottom right.

**Step 5:** Select the geographic level. In this example, we are looking at All Counties. Then hit *CLOSE*

2020CENSUS.GOV

The screenshot shows the data.census.gov interface with an error message. The title is 'HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE'. The survey/program is 'Decennial Census', the universe is 'Total population', the table ID is 'P2', and the product is '2020: DEC Redistricting Data (PL 94-171)'. The toolbar is the same as in the previous screenshot. The main content area displays the following message: 'Sorry, that table is too large to display. The size of this table may exceed your browser's capabilities and may result in error or browser instability. Download the entire data or adjust your filters in the toolbar for a smaller table.' Below the message are two buttons: 'DOWNLOAD TABLE' and 'FILTER RESULTS'. A 'CLOSE' button is also visible at the bottom right.

**Step 6:** The table will be too large to display. Not to worry, just select *DOWNLOAD TABLE*

# data.census.gov

United States Census Bureau

P2 Advanced Search

### Download

Select Table Vintages

| P2  | All                      | 2020                                | 2010                     |
|---|--------------------------|-------------------------------------|--------------------------|
| DEC Redistricting Data (PL 94-171)                              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| DECIA Guam Summary File   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| DECIA Commonwealth of the Northern Mariana Islands Summary File | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| DECIA American Samoa Summary File                               | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| DEC Summary File 1  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| DECIA U.S. Virgin Islands Summary File                          | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |

File Type:  CSV  PDF

What You're Getting:

- 1 .csv files (metadata)
- 1 .csv files (data)
- 1 .txt files (table title)

Compressed Size Estimate: 266.6 kB

**DOWNLOAD**

**Step 7:** A window will appear with some pre-selected items, you won't need to change anything, just select *DOWNLOAD*, and then choose *Download Now* in the pop-up window."

2020CENSUS.GOV

DECENNIALPL2020.P2\_data\_with\_overlays  
Type: Microsoft Excel Comma Separated Values File

DECENNIALPL2020.P2\_metadata\_2021-10  
Type: Microsoft Excel Comma Separated Values File

DECENNIALPL2020.P2\_table\_title\_2021-10  
Type: Text Document

**Step 7:** The files will be zipped, and you will need to use an application such as Win Zip to open them. You want to open the file that says `_data` in the filename

# Microsoft Excel

## Preparing the data

We only need to keep the following variables:

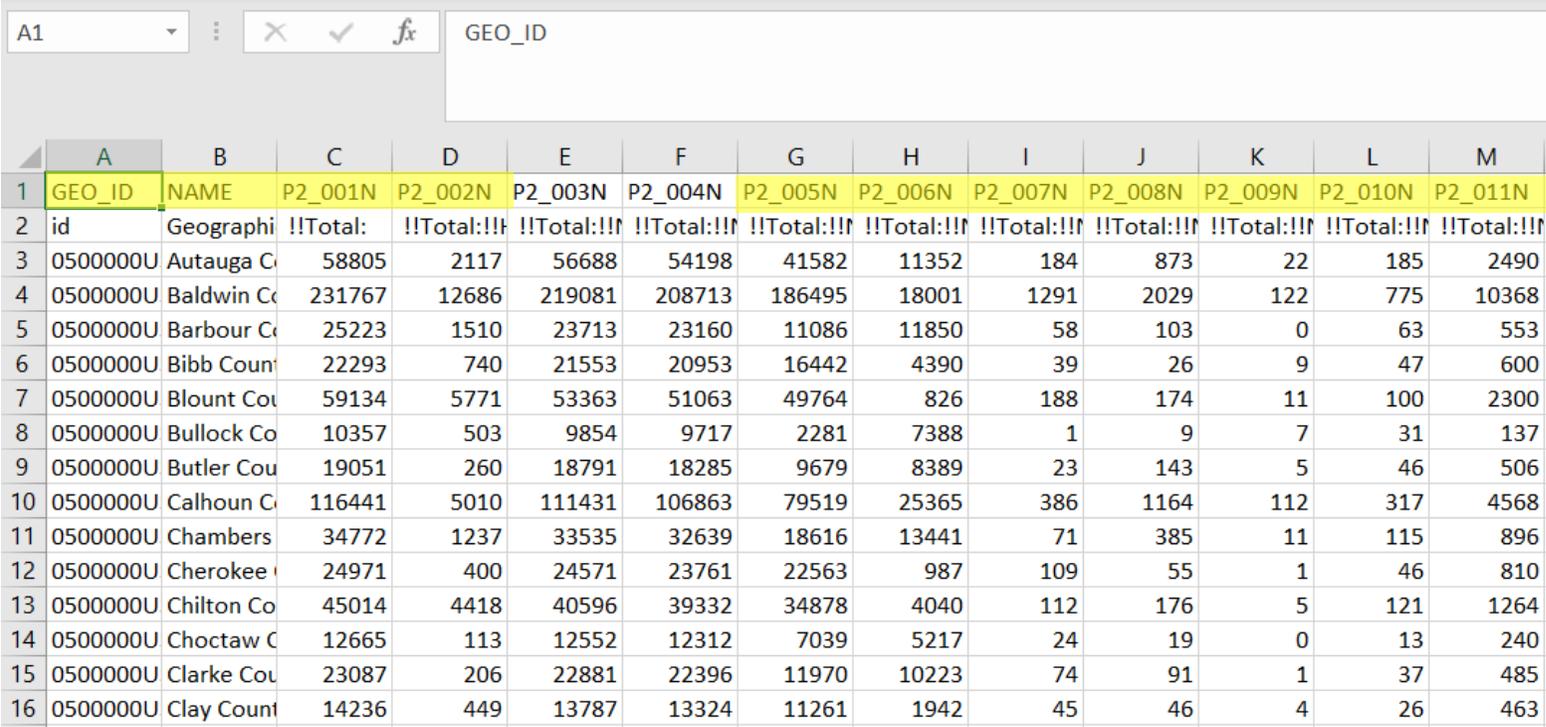
Geo-ID

Name

P2\_001N

P2\_002N

P2\_005N - P2\_011N



The screenshot shows an Excel spreadsheet with the following data:

|    | A        | B          | C        | D          | E          | F          | G          | H          | I          | J          | K          | L          | M          |
|----|----------|------------|----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 1  | GEO_ID   | NAME       | P2_001N  | P2_002N    | P2_003N    | P2_004N    | P2_005N    | P2_006N    | P2_007N    | P2_008N    | P2_009N    | P2_010N    | P2_011N    |
| 2  | id       | Geographi  | !!Total: | !!Total:!! |
| 3  | 0500000U | Autauga Co | 58805    | 2117       | 56688      | 54198      | 41582      | 11352      | 184        | 873        | 22         | 185        | 2490       |
| 4  | 0500000U | Baldwin Co | 231767   | 12686      | 219081     | 208713     | 186495     | 18001      | 1291       | 2029       | 122        | 775        | 10368      |
| 5  | 0500000U | Barbour Co | 25223    | 1510       | 23713      | 23160      | 11086      | 11850      | 58         | 103        | 0          | 63         | 553        |
| 6  | 0500000U | Bibb Count | 22293    | 740        | 21553      | 20953      | 16442      | 4390       | 39         | 26         | 9          | 47         | 600        |
| 7  | 0500000U | Blount Cou | 59134    | 5771       | 53363      | 51063      | 49764      | 826        | 188        | 174        | 11         | 100        | 2300       |
| 8  | 0500000U | Bullock Co | 10357    | 503        | 9854       | 9717       | 2281       | 7388       | 1          | 9          | 7          | 31         | 137        |
| 9  | 0500000U | Butler Cou | 19051    | 260        | 18791      | 18285      | 9679       | 8389       | 23         | 143        | 5          | 46         | 506        |
| 10 | 0500000U | Calhoun C  | 116441   | 5010       | 111431     | 106863     | 79519      | 25365      | 386        | 1164       | 112        | 317        | 4568       |
| 11 | 0500000U | Chambers   | 34772    | 1237       | 33535      | 32639      | 18616      | 13441      | 71         | 385        | 11         | 115        | 896        |
| 12 | 0500000U | Cherokee   | 24971    | 400        | 24571      | 23761      | 22563      | 987        | 109        | 55         | 1          | 46         | 810        |
| 13 | 0500000U | Chilton Co | 45014    | 4418       | 40596      | 39332      | 34878      | 4040       | 112        | 176        | 5          | 121        | 1264       |
| 14 | 0500000U | Choctaw C  | 12665    | 113        | 12552      | 12312      | 7039       | 5217       | 24         | 19         | 0          | 13         | 240        |
| 15 | 0500000U | Clarke Cou | 23087    | 206        | 22881      | 22396      | 11970      | 10223      | 74         | 91         | 1          | 37         | 485        |
| 16 | 0500000U | Clay Count | 14236    | 449        | 13787      | 13324      | 11261      | 1942       | 45         | 46         | 4          | 26         | 463        |

*You can delete the other variables and the second row*

# Microsoft Excel

## Calculate race and ethnicity proportions:

Hispanic or Latino = P2\_002N / P2001N

$$L2 = D2 / \$C2$$

White Alone Non-Hispanic = P2\_005N / P2001N

$$M2 = E2 / \$C2$$

Black Alone Non-Hispanic = P2\_006N / P2001N

$$N2 = F2 / \$C2$$

American Indian and Alaska Native (AIAN) Alone Non-Hispanic

$$= P2_007N / P2001N$$

$$O2 = G2 / \$C2$$

|    | A        | B          | C       | D       | E       | L                  | M                        | N                        | O                       |
|----|----------|------------|---------|---------|---------|--------------------|--------------------------|--------------------------|-------------------------|
|    |          |            |         |         |         | Hispanic or Latino | White Alone Non-Hispanic | Black Alone Non-Hispanic | AIAN Alone Non-Hispanic |
| 1  | GEO_ID   | NAME       | P2_001N | P2_002N | P2_005N |                    |                          |                          |                         |
| 2  | 0500000U | Autauga Co | 58805   | 2117    | 41582   | 0.036              | 0.707117                 | 0.193045                 | 0.003129                |
| 3  | 0500000U | Baldwin Co | 231767  | 12686   | 186495  |                    |                          |                          |                         |
| 4  | 0500000U | Barbour Co | 25223   | 1510    | 11086   |                    |                          |                          |                         |
| 5  | 0500000U | Bibb Count | 22293   | 740     | 16442   |                    |                          |                          |                         |
| 6  | 0500000U | Blount Cou | 59134   | 5771    | 49764   |                    |                          |                          |                         |
| 7  | 0500000U | Bullock Co | 10357   | 503     | 2281    |                    |                          |                          |                         |
| 8  | 0500000U | Butler Cou | 19051   | 260     | 9679    |                    |                          |                          |                         |
| 9  | 0500000U | Calhoun C  | 116441  | 5010    | 79519   |                    |                          |                          |                         |
| 10 | 0500000U | Chambers   | 34772   | 1237    | 18616   |                    |                          |                          |                         |
| 11 | 0500000U | Cherokee   | 24971   | 400     | 22563   |                    |                          |                          |                         |
| 12 | 0500000U | Chilton Co | 45014   | 4418    | 34878   |                    |                          |                          |                         |
| 13 | 0500000U | Choctaw C  | 12665   | 113     | 7039    |                    |                          |                          |                         |
| 14 | 0500000U | Clarke Cou | 23087   | 206     | 11970   |                    |                          |                          |                         |
| 15 | 0500000U | Clay Count | 14236   | 449     | 11261   |                    |                          |                          |                         |
| 16 | 0500000U | Cleburne C | 15056   | 284     | 13740   |                    |                          |                          |                         |

# Microsoft Excel

## Calculate race and ethnicity proportions:

Asian alone non-Hispanic = P2\_008N / P2001N

$$P2 = H2 / \$C2$$

Native Hawaiian and Other Pacific Islander (NHPI) alone non-Hispanic = P2009N / P2001N

$$Q2 = I2 / \$C2$$

Some Other Race (SOR) alone non-Hispanic = P2010N / P2001N

$$R2 = J2 / \$C2$$

Two or More Races (Multiracial) non-Hispanic = P2011N / P2001N

$$S2 = K2 / \$C2$$

*Click and Drag to copy the same equations for all counties*

|    | A        | B          | C       | D       | E       | L                  | M                        | N                        | O                       |
|----|----------|------------|---------|---------|---------|--------------------|--------------------------|--------------------------|-------------------------|
|    |          |            |         |         |         | Hispanic or Latino | White Alone Non-Hispanic | Black Alone Non-Hispanic | AIAN Alone Non-Hispanic |
| 1  | GEO_ID   | NAME       | P2_001N | P2_002N | P2_005N |                    |                          |                          |                         |
| 2  | 0500000U | Autauga Co | 58805   | 2117    | 41582   | 0.036              | 0.707117                 | 0.193045                 | 0.003129                |
| 3  | 0500000U | Baldwin Co | 231767  | 12686   | 186495  |                    |                          |                          |                         |
| 4  | 0500000U | Barbour Co | 25223   | 1510    | 11086   |                    |                          |                          |                         |
| 5  | 0500000U | Bibb Count | 22293   | 740     | 16442   |                    |                          |                          |                         |
| 6  | 0500000U | Blount Cou | 59134   | 5771    | 49764   |                    |                          |                          |                         |
| 7  | 0500000U | Bullock Co | 10357   | 503     | 2281    |                    |                          |                          |                         |
| 8  | 0500000U | Butler Cou | 19051   | 260     | 9679    |                    |                          |                          |                         |
| 9  | 0500000U | Calhoun Co | 116441  | 5010    | 79519   |                    |                          |                          |                         |
| 10 | 0500000U | Chambers   | 34772   | 1237    | 18616   |                    |                          |                          |                         |
| 11 | 0500000U | Cherokee   | 24971   | 400     | 22563   |                    |                          |                          |                         |
| 12 | 0500000U | Chilton Co | 45014   | 4418    | 34878   |                    |                          |                          |                         |
| 13 | 0500000U | Choctaw C  | 12665   | 113     | 7039    |                    |                          |                          |                         |
| 14 | 0500000U | Clarke Cou | 23087   | 206     | 11970   |                    |                          |                          |                         |
| 15 | 0500000U | Clay Count | 14236   | 449     | 11261   |                    |                          |                          |                         |
| 16 | 0500000U | Cleburne C | 15056   | 284     | 13740   |                    |                          |                          |                         |

# Diversity Index

|   | A        | B          | L                  | M                  | N                  | O                 | P                  | Q                 | R                | S                        | T               | U        |
|---|----------|------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|------------------|--------------------------|-----------------|----------|
|   |          |            | Hispanic or Latino | White Non-Hispanic | Black Non-Hispanic | AIAN Non-Hispanic | Asian Non-Hispanic | NHPI Non-Hispanic | SOR Non-Hispanic | Multiracial Non-Hispanic | Diversity Index | Chance   |
| 1 | GEO_ID   | NAME       |                    |                    |                    |                   |                    |                   |                  |                          |                 |          |
| 2 | 0500000U | Autauga Co | 0.036              | 0.707117           | 0.193045           | 0.003129          | 0.014846           | 0.000374          | 0.003146         | 0.0423433                | 0.45939         | 45.93904 |
| 3 | 0500000U | Baldwin Co | 0.054736           | 0.804666           | 0.077669           | 0.00557           | 0.008754           | 0.000526          | 0.003344         | 0.0447346                |                 |          |
| 4 | 0500000U | Barbour Co | 0.059866           | 0.439519           | 0.469809           | 0.002299          | 0.004084           | 0                 | 0.002498         | 0.0219244                |                 |          |
| 5 | 0500000U | Bibb Count | 0.033194           | 0.737541           | 0.196923           | 0.001749          | 0.001166           | 0.000404          | 0.002108         | 0.0269143                |                 |          |
| 6 | 0500000U | Blount Cou | 0.097592           | 0.841546           | 0.013968           | 0.003179          | 0.002942           | 0.000186          | 0.001691         | 0.0388947                |                 |          |
| 7 | 0500000U | Bullock Co | 0.048566           | 0.220238           | 0.713334           | 9.66E-05          | 0.000869           | 0.000676          | 0.002993         | 0.0132278                |                 |          |
| 8 | 0500000U | Butler Cou | 0.013648           | 0.508057           | 0.440344           | 0.001207          | 0.007506           | 0.000262          | 0.002415         | 0.0265603                |                 |          |
| 9 | 0500000U | Calhoun C  | 0.043026           | 0.682912           | 0.217836           | 0.003315          | 0.009996           | 0.000962          | 0.002722         | 0.0392302                |                 |          |

**Diversity Index = 1 - (Hispanic<sup>2</sup> + White<sup>2</sup> + Black<sup>2</sup> + AIAN<sup>2</sup> + Asian<sup>2</sup> + NHPI<sup>2</sup> + SOR<sup>2</sup> + Multiracial<sup>2</sup>)**

*In our Excel example*

**T2 = 1 - (L2<sup>2</sup> + M2<sup>2</sup> + N2<sup>2</sup> + O2<sup>2</sup> + P2<sup>2</sup> + Q2<sup>2</sup> + R2<sup>2</sup> + S2<sup>2</sup>)**

# Diversity Index

T2     $=1-(L^2 + M^2 + N^2 + O^2 + P^2 + Q^2 + R^2 + S^2)$

|   | A        | B          | L                  | M                  | N                  | O                 | P                  | Q                 | R                | S                        | T               | U        |
|---|----------|------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|------------------|--------------------------|-----------------|----------|
|   | GEO_ID   | NAME       | Hispanic or Latino | White Non-Hispanic | Black Non-Hispanic | AIAN Non-Hispanic | Asian Non-Hispanic | NHPI Non-Hispanic | SOR Non-Hispanic | Multiracial Non-Hispanic | Diversity Index | Chance   |
| 2 | 0500000U | Autauga Co | 0.036              | 0.707117           | 0.193045           | 0.003129          | 0.014846           | 0.000374          | 0.003146         | 0.0423433                | 0.45939         | 45.93904 |
| 3 | 0500000U | Baldwin Co | 0.054736           | 0.804666           | 0.077669           | 0.00557           | 0.008754           | 0.000526          | 0.003344         | 0.0447346                |                 |          |
| 4 | 0500000U | Barbour Co | 0.059866           | 0.439519           | 0.469809           | 0.002299          | 0.004084           | 0                 | 0.002498         | 0.0219244                |                 |          |
| 5 | 0500000U | Bibb Count | 0.033194           | 0.737541           | 0.196923           | 0.001749          | 0.001166           | 0.000404          | 0.002108         | 0.0269143                |                 |          |
| 6 | 0500000U | Blount Cou | 0.097592           | 0.841546           | 0.013968           | 0.003179          | 0.002942           | 0.000186          | 0.001691         | 0.0388947                |                 |          |
| 7 | 0500000U | Bullock Co | 0.048566           | 0.220238           | 0.713334           | 9.66E-05          | 0.000869           | 0.000676          | 0.002993         | 0.0132278                |                 |          |
| 8 | 0500000U | Butler Cou | 0.013648           | 0.508057           | 0.440344           | 0.001207          | 0.007506           | 0.000262          | 0.002415         | 0.0265603                |                 |          |
| 9 | 0500000U | Calhoun C  | 0.043026           | 0.682912           | 0.217836           | 0.003315          | 0.009996           | 0.000962          | 0.002722         | 0.0392302                |                 |          |

Convert the probability into a chance by multiplying by 100

$$\text{Chance} = \text{DI} * 100$$

*In our Excel example*

$$U2 = T2 * 100$$

# Prevalence Ranking

We can calculate the most prevalent race or ethnicity groups using the LARGE function in Excel. This function returns whichever ranked value you specify.

**1st Prevalent** = LARGE(L2:S2,1)

**1st Prevalent Percent** = V2 \* 100

*We need to check for ties between racial and ethnicity groups.*

**1st Ties** = COUNTIF(L2:S2,V2)

**1st Label** =

IF(W2=1,INDEX(\$L\$1:\$S\$1,SUMPRODUCT(MAX((\$L2:\$S2 = V2)\*(COLUMN(\$L2:\$S2))))-COLUMN(\$L\$1)+1),"Tie")

|    | T               | U        | V             | W                     | X        | Y           | Z             | AA                    | AB       | AC          | AD            |
|----|-----------------|----------|---------------|-----------------------|----------|-------------|---------------|-----------------------|----------|-------------|---------------|
|    | Diversity Index | Chance   | 1st Prevalent | 1st Prevalent Percent | 1st Ties | 1st Label   | 2nd Prevalent | 2nd Prevalent Percent | 2nd Ties | 2nd Label   | 3rd Prevalent |
| 1  | 0.45939         | 45.93939 | 0.7071        | 70.7117               | 1        | White Alone | 0.193045      | 19.30448              | 1        | Black Alone | 0.042343      |
| 2  | 0.341364        | 34.13641 |               |                       |          |             |               |                       |          |             |               |
| 3  | 0.582009        | 58.2009  |               |                       |          |             |               |                       |          |             |               |
| 4  | 0.41542         | 41.54195 |               |                       |          |             |               |                       |          |             |               |
| 5  | 0.280546        | 28.0546  |               |                       |          |             |               |                       |          |             |               |
| 6  | 0.440106        | 44.01062 |               |                       |          |             |               |                       |          |             |               |
| 7  | 0.547019        | 54.70192 |               |                       |          |             |               |                       |          |             |               |
| 8  | 0.482669        | 48.26688 |               |                       |          |             |               |                       |          |             |               |
| 9  | 0.56189         | 56.18898 |               |                       |          |             |               |                       |          |             |               |
| 10 | 0.180666        | 18.06662 |               |                       |          |             |               |                       |          |             |               |
| 11 | 0.38114         | 38.11401 |               |                       |          |             |               |                       |          |             |               |
| 12 | 0.520979        | 52.09787 |               |                       |          |             |               |                       |          |             |               |
| 13 | 0.534561        | 53.4561  |               |                       |          |             |               |                       |          |             |               |
| 14 | 0.353598        | 35.35977 |               |                       |          |             |               |                       |          |             |               |
| 15 | 0.164809        | 16.48095 |               |                       |          |             |               |                       |          |             |               |
| 16 | 0.515414        | 51.54139 |               |                       |          |             |               |                       |          |             |               |
| 17 |                 |          |               |                       |          |             |               |                       |          |             |               |

# Prevalence Ranking

We repeat the same process to calculate the 2<sup>nd</sup> and 3<sup>rd</sup> most prevalent race or ethnicity groups.  
We still need to check for ties between racial and ethnic groups

## 2nd Most Prevalent Group

**2nd Prevalent** = LARGE(L2:S2,2)

**2<sup>nd</sup> Prevalent Percent** = Z2 \* 100

**2nd Ties** = COUNTIF(L2:S2,Z2)

**2nd Label** =

IF(Z2=1,INDEX(\$L\$1:\$S\$1,SUMPRODUCT(MAX((\$L2:\$S2 = Z2)\*(COLUMN(\$L2:\$S2)))))-  
COLUMN(\$L\$1)+1),"Tie")

## 3rd Most Prevalent Group

**3rd Prevalent** = LARGE(L2:S2,3)

**3rd Prevalent Percent** = AD2 \* 100

**3rd Ties** = COUNTIF(L2:S2,AD2)

**3rd Label** =

IF(AC2=1,INDEX(\$L\$1:\$S\$1,SUMPRODUCT(MAX((\$L2:\$S2 = AD2)\*(COLUMN(\$L2:\$S2)))))-  
COLUMN(\$L\$1)+1),"Tie")

# Diffusion Score

The Diffusion Score tells us the percentage of the population that is not in the three most prevalent groups.

We can calculate it by subtracting the sum of the three most **Prevalent Percent** groups from 100:

$$AH = 100 - (W2 + AA2 + AE2)$$

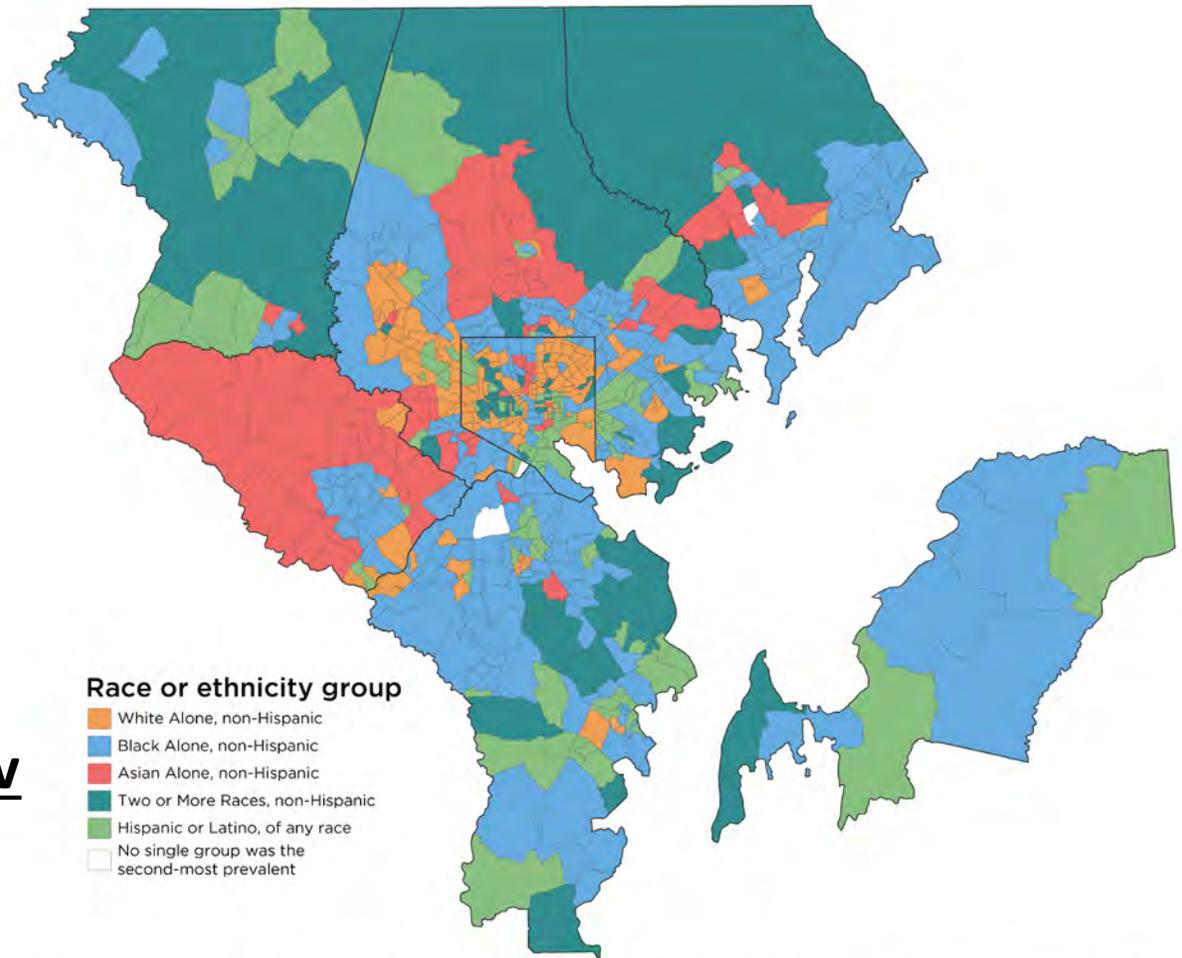
| = 100 - (W2+AA2+AE2) |                        |           |            |               |                       |          |           |               |                       |          |           |                 |      |
|----------------------|------------------------|-----------|------------|---------------|-----------------------|----------|-----------|---------------|-----------------------|----------|-----------|-----------------|------|
| V                    | W                      | X         | Y          | Z             | AA                    | AB       | AC        | AD            | AE                    | AF       | AG        | AH              |      |
| Most Prevalent       | Most Prevalent Percent | Most Ties | Most Label | 2nd Prevalent | 2nd Prevalent Percent | 2nd Ties | 2nd Label | 3rd Prevalent | 3rd Prevalent Percent | 3rd Ties | 3rd Label | Diffusion Score |      |
| 1                    | 0.7071                 | 70.7117   | 1          | White Alor    | 0.193045              | 19.30448 | 1         | Black Alon    | 0.042343              | 4.234334 | 1         | Multiracia      | 5.75 |
| 2                    | 0.8047                 | 80.4666   | 1          | White Alor    | 0.077669              | 7.766852 | 1         | Black Alon    | 0.054736              | 5.473601 | 1         | Hispanic o      | 6.29 |
| 3                    | 0.4698                 | 46.9809   | 1          | Black Alon    | 0.439519              | 43.95195 | 1         | White Alor    | 0.059866              | 5.9866   | 1         | Hispanic o      | 3.08 |
| 4                    | 0.7375                 | 73.7541   | 1          | White Alor    | 0.196923              | 19.69228 | 1         | Black Alon    | 0.033194              | 3.319428 | 1         | Hispanic o      | 3.23 |
| 5                    | 0.8415                 | 84.1546   | 1          | White Alor    | 0.097592              | 9.759191 | 1         | Hispanic o    | 0.038895              | 3.889471 | 1         | Multiracia      | 2.20 |
| 6                    | 0.7133                 | 71.3334   | 1          | Black Alon    | 0.220238              | 22.02375 | 1         | White Alor    | 0.048566              | 4.856619 | 1         | Hispanic o      | 1.79 |
| 7                    | 0.5081                 | 50.8057   | 1          | White Alor    | 0.440344              | 44.03443 | 1         | Black Alon    | 0.02656               | 2.656029 | 1         | Multiracia      | 2.50 |
| 8                    | 0.6829                 | 68.2912   | 1          | White Alor    | 0.217836              | 21.78356 | 1         | Black Alon    | 0.043026              | 4.302608 | 1         | Hispanic o      | 5.62 |
| 9                    | 0.5354                 | 53.5373   | 1          | White Alor    | 0.386547              | 38.65466 | 1         | Black Alon    | 0.035575              | 3.55746  | 1         | Hispanic o      | 4.25 |
| 10                   | 0.9036                 | 90.3568   | 1          | White Alor    | 0.039526              | 3.952585 | 1         | Black Alon    | 0.032438              | 3.243763 | 1         | Multiracia      | 2.45 |
| 11                   | 0.7748                 | 77.4826   | 1          | White Alor    | 0.098147              | 9.814724 | 1         | Hispanic o    | 0.08975               | 8.974986 | 1         | Black Alon      | 3.73 |
| 12                   | 0.5558                 | 55.5784   | 1          | White Alor    | 0.411923              | 41.19226 | 1         | Black Alon    | 0.01895               | 1.894986 | 1         | Multiracia      | 1.33 |
| 13                   | 0.5185                 | 51.8474   | 1          | White Alor    | 0.442803              | 44.28033 | 1         | Black Alon    | 0.021007              | 2.100749 | 1         | Multiracia      | 1.77 |
| 14                   | 0.7910                 | 79.1023   | 1          | White Alor    | 0.136415              | 13.64147 | 1         | Black Alon    | 0.032523              | 3.252318 | 1         | Multiracia      | 4.00 |
| 15                   | 0.9126                 | 91.2593   | 1          | White Alor    | 0.032811              | 3.281084 | 1         | Multiracia    | 0.030353              | 3.035335 | 1         | Black Alon      | 2.42 |
| 16                   | 0.6688                 | 66.8830   | 1          | White Alor    | 0.161657              | 16.16572 | 1         | Black Alon    | 0.091406              | 9.140559 | 1         | Hispanic o      | 7.81 |

# QUESTIONS & DISCUSSION

## Racial and Ethnic Diversity: 2020 Census Results

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Source: U.S. Census Bureau, 2020 Census Redistricting Data (Public Law 94-171) Summary File.