Status Update on 2020 Census Data Products Plan

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California State Data Center Meeting
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Background

- The Census Bureau has a long history of protecting information provided by respondents

- Over the decades, more and more granular census data have been published

- Advances in data science, more powerful computers, and externally accessible 'big data' – which contain a lot of personal information – has increased the risk of identifying individuals from published statistics

- To mitigate this risk, the Census Bureau is implementing new disclosure avoidance methods for the 2020 Census

- Our goal for the 2020 Census data products is to meet data user needs while implementing the new disclosure avoidance method - however, there are some challenges

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Background (cont.)

- In the presentation today we will discuss the 2020 Census data products that will be supported by the current differentially private disclosure avoidance system

- We are developing other formal privacy systems for protecting 2020 Census data products that include tabulations that provide counts of the population by detailed race and Hispanic origin groups, tribes, and the population by household/family types

- For those products not supported by the current disclosure avoidance system, we are conducting outreach to understand what the "must-have" tables are both in terms of detail and geography

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Stakeholder Feedback

- Feedback was collected through a July 2018 *Federal Register* notice, its extension, and associated outreach

- Additional outreach has been conducted to obtain input from data users

- A 2010 demonstration data products file is being developed that will allow external data users to examine the impact on accuracy of using differential privacy

- Additional outreach is planned, including a National Academy of the Sciences workshop

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Use of Stakeholder Feedback

- Stakeholder feedback, combined with a review of table access rates, and subject matter expert knowledge is informing the development of the 2020 data products

- The 2020 data products will include an initial set of products made up of legally mandated products and products with tables that are expected to be supported by the current differentially private disclosure avoidance system

- A later set of products are planned to be produced that will include tables that will be protected using other formal privacy systems

- The design of the later set of products will be informed by feedback and information we already have and any additional feedback received

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Overview of the Proposed 2020 Census Data Products Plan

- The current disclosure avoidance system either supports or is being expanded to support the following 2020 Census data products
  - Apportionment Product
  - Redistricting File (P.L. 94-171)
  - Demographic Profile
  - Demographic and Housing Characteristics File (DHC)
  - Congressional District Demographic and Housing Characteristics File

- We are developing other formal privacy systems for public data products that include the tables below that meet user needs yet maintain data confidentiality
  - Detailed race and Hispanic origin tables and some family/household tables included in Summary File 1 in 2010
  - Summary File 2
  - American Indian and Alaska Native Summary File
  - Public Use Microdata Sample (PUMS) File

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Apportionment Product

- The Apportionment Product will be the first release of the 2020 Census and will consist of the resident population of the 50 states plus the overseas federal employees (military and civilian) and their dependents living with them, who are included in their home states

Redistricting File (P.L. 94-171)

- Public Law 94-171 directs the Census Bureau to provide data to the governors and legislative leadership in each of the 50 states for redistricting purposes. This product will be the first file released that will include demographic and housing characteristics about detailed geographic areas

Demographic Profile

- This product will provide critical demographic and housing characteristics about local communities as soon after the release of the Redistricting file as possible

Demographic and Housing Characteristics File (DHC)

- The DHC will include many of the demographic and housing tables previously included in Summary File 1

Congressional District Demographic and Housing Characteristics File

- Provides a re-tabulation of the Demographic and Housing Characteristics File for the new congressional districts

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Redistricting File (P.L. 94-171)

Public Law 94-171 directs the Census Bureau to provide data to the governors and legislative leadership in each of the 50 states for redistricting purposes

This product will be the first file released that will include demographic and housing characteristics about detailed geographic areas

- **Subjects will include:**
  - Voting age
  - Race
  - Hispanic or Latino origin
  - Occupancy Status
  - Group quarters population by Major GQ Types

- **Lowest level of geography:** Census Block
- **Release date:** Within one year of Census Day (April 1, 2021)
- The 2018 Redistricting File Prototype Specification is available on census.gov

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Demographic and Housing Characteristics File (DHC)

- The DHC will include many of the demographic and housing tables previously included in Summary File 1

- **Subjects will include:**

  - Age
  - Sex
  - Race
  - Hispanic or Latino origin
  - Household type
  - Family type
  - Relationship to householder

  - Some subjects provided for major OMB race/ethnicity groups
  - Group quarters population
  - Housing occupancy
  - Housing tenure

- **Geography:** Various; data will be available for all geographies at and above the lowest level they are released for. In many cases this will be at the Census Block level.

- The DHC will not include tables that provide counts by detailed race, Hispanic origin , tribes, and population by household/family types due to challenges associated with the use of differential privacy for privacy protection

- We are developing other solutions for data products that include these tables

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Demographic Profile

This product will provide critical demographic and housing characteristics about local communities from selected DHC tables in a streamlined, easy to use, format as soon after the release of the Redistricting product as possible

- **Subjects will include:**

  - 5-year age groups
  - Sex
  - Race
  - Hispanic or Latino origin
  - Household type
  - Relationship to householder

  - Group quarters population
  - Housing occupancy
  - Housing tenure

- **Geography:** Place/Minor Civil Division

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Data Available from the Redistricting File and the Demographic and Housing Characteristics File (DHC)

Census Block (* = provided for major race and Hispanic origin groups)

- Total Population
- Urban Rural Designation
- Sex
- Race
- Hispanic or Latino origin
- Sex by 5 year and other age groups*
- Sex by Single year-of-age under 20
- Relationship to Householder

- Households by Householder Characteristics*
- Household Type by Relationship*
- Households by presence of people of specific ages*
- Housing Tenure*
- Household Size
- Group Quarters population by sex and age for major types
- Median Age for various groups*

Census Tract

- Population by Single year-of-age up to 100 by Sex
- Tenure by Race by Hispanic or Latino origin

- Tenure by Presence of Own Children

County

- Household Size by Household Type by Presence of Own Children

- Household Type by Age of Householder
- Household Type by presence of people of specific ages

State

- Group Quarters Population by Sex by Age by Major Group Quarters type

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The Demographic and Housing Characteristics File (DHC) Product Specification:

- Lists tables included in the DHC
- Provides a crosswalk from the 2010 Summary File 1 (SF1) table numbers to the 2020 DHC tables
- List tables that are new in the DHC
- Lists the tables that were in SF1 but are not in the DHC
- Shows the tables that will be included in the Demographic Profiles
- Provides the proposed lowest level of geography for each table

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Demographic and Housing Characteristics File (DHC): Geography

Table names indicate the lowest level of geography at which the table is proposed to be available.

P = **P**opulation table - Census **B**lock Level

PCT = **P**opulation table - **C**ensus **T**ract Level

PCO = **P**opulation table - **C**ounty Level

PST = **P**opulation table - **S**tate Level

H = **H**ousing table – Census **B**lock Level

HCT = **H**ousing table – **C**ensus **T**ract Level

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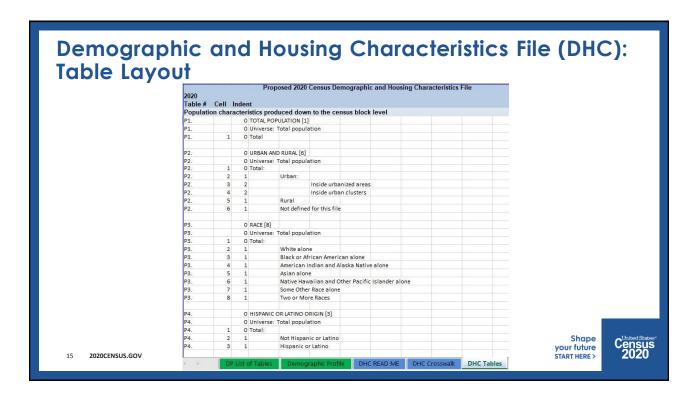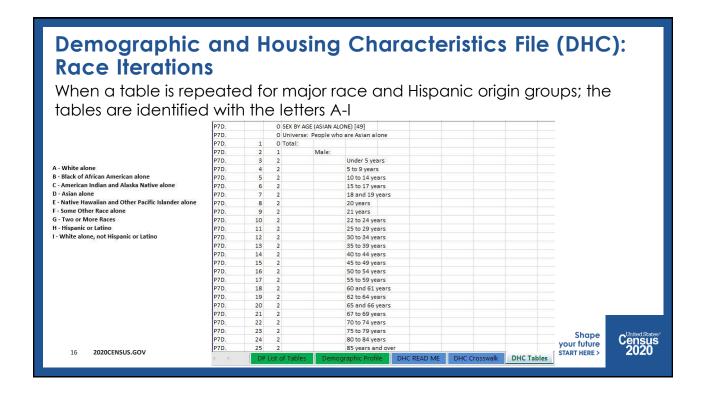United States®
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Demographic and Housing Characteristics File (DHC): 2010 SF1 to 2020 Proposed DHC Table Crosswalk

		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
		HOUSEHOLDS BY AGE OF HOUSEHOLDER BY HOUSEHOLD TYPE BY PRESENCE OF		

DP List of Tables | Demographic Profile | DHC READ ME | DHC Crosswalk | DHC Tables | ⊕

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Demographic and Housing Characteristics File (DHC): Table Layout

2020 Table #	Cell	Indent	Proposed 2020 Census Demographic and Housing Characteristics File
Population characteristics produced down to the census block level			
P1.		0	TOTAL POPULATION [1]
P1.		0	Universe: Total population
P1.	1	0	Total
P2.		0	URBAN AND RURAL [6]
P2.		0	Universe: Total population
P2.	1	0	Total:
P2.	2	1	Urban:
P2.	3	2	Inside urbanized areas
P2.	4	2	Inside urban clusters
P2.	5	1	Rural
P2.	6	1	Not defined for this file
P3.		0	RACE [8]
P3.		0	Universe: Total population
P3.	1	0	Total:
P3.	2	1	White alone
P3.	3	1	Black or African American alone
P3.	4	1	American Indian and Alaska Native alone
P3.	5	1	Asian alone
P3.	6	1	Native Hawaiian and Other Pacific Islander alone
P3.	7	1	Some Other Race alone
P3.	8	1	Two or More Races
P4.		0	HISPANIC OR LATINO ORIGIN [3]
P4.		0	Universe: Total population
P4.	1	0	Total:
P4.	2	1	Not Hispanic or Latino
P4.	3	1	Hispanic or Latino

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DP List of Tables | Demographic Profile | DHC READ ME | DHC Crosswalk | DHC Tables

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Demographic and Housing Characteristics File (DHC): Race Iterations

When a table is repeated for major race and Hispanic origin groups; the tables are identified with the letters A-I

A - White alone
B - Black of African American alone
C - American Indian and Alaska Native alone
D - Asian alone
E - Native Hawaiian and Other Pacific Islander alone
F - Some Other Race alone
G - Two or More Races
H - Hispanic or Latino
I - White alone, not Hispanic or Latino

P7D.		0	SEX BY AGE (ASIAN ALONE) [49]
P7D.		0	Universe: People who are Asian alone
P7D.	1	0	Total:
P7D.	2	1	Male:
P7D.	3	2	Under 5 years
P7D.	4	2	5 to 9 years
P7D.	5	2	10 to 14 years
P7D.	6	2	15 to 17 years
P7D.	7	2	18 and 19 years
P7D.	8	2	20 years
P7D.	9	2	21 years
P7D.	10	2	22 to 24 years
P7D.	11	2	25 to 29 years
P7D.	12	2	30 to 34 years
P7D.	13	2	35 to 39 years
P7D.	14	2	40 to 44 years
P7D.	15	2	45 to 49 years
P7D.	16	2	50 to 54 years
P7D.	17	2	55 to 59 years
P7D.	18	2	60 and 61 years
P7D.	19	2	62 to 64 years
P7D.	20	2	65 and 66 years
P7D.	21	2	67 to 69 years
P7D.	22	2	70 to 74 years
P7D.	23	2	75 to 79 years
P7D.	24	2	80 to 84 years
P7D.	25	2	85 years and over

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DP List of Tables | Demographic Profile | DHC READ ME | DHC Crosswalk | DHC Tables

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The Demographic Profile File (DP): Product Specification:

2010 Table Number	2020 Table Number	Title	Lowest Level of Geography Proposed for 2020	Proposed for Inclusion in DP
		2020 Census Demographic Profile Proposed List of Tables		
DP1	DP1	SEX AND AGE [57]	Place	Yes
DP2	DP2	MEDIAN AGE BY SEX [3] (1 expressed decimal)	Place	Yes
DP3	DP3	SEX FOR THE POPULATION 16 YEARS AND OVER [3]	Place	Yes
DP4	DP4	SEX FOR THE POPULATION 18 YEARS AND OVER [3]	Place	Yes
DP5	DP5	SEX FOR THE POPULATION 21 YEARS AND OVER [3]	Place	Yes
DP6	DP6	SEX FOR THE POPULATION 62 YEARS AND OVER [3]	Place	Yes
DP7	DP7	SEX FOR THE POPULATION 65 YEARS AND OVER [3]	Place	Yes
DP8	DP8	RACE [9]	Place	Yes
DP9	DP9	RACE (TOTAL RACES TALLIED) [6]	Place	Yes
DP10	DP10	HISPANIC OR LATINO [3]	Place	Yes
DP11	DP11	HISPANIC OR LATINO BY RACE [17]	Place	Yes
DP12	DP12	RELATIONSHIP [20]	Place	Yes
DP13	DP13	HOUSEHOLDS BY TYPE [13]	Place	Yes
DP14	DP14	HOUSEHOLDS WITH INDIVIDUALS UNDER 18 YEARS [1]	Place	Yes
DP15	DP15	HOUSEHOLDS WITH INDIVIDUALS 65 YEARS AND OVER [1]	Place	Yes
DP16	N/A	AVERAGE HOUSEHOLD SIZE [1] (2 expressed decimals)	N/A	No
DP17	N/A	AVERAGE FAMILY SIZE [1] (2 expressed decimals)	N/A	No
DP18	DP16	HOUSING OCCUPANCY [9]	Place	Yes
DP19	DP17	HOMEOWNER VACANCY RATE [1] (1 expressed decimal)	Place	Yes
DP20	DP18	RENTAL VACANCY RATE [1] (1 expressed decimal)	Place	Yes
DP21	DP19	HOUSING TENURE [3]	Place	Yes
DP22	N/A	POPULATION IN OCCUPIED HOUSING UNITS BY TENURE [2]	N/A	No
		AVERAGE HOUSEHOLD SIZE OF OCCUPIED HOUSING UNITS BY TENURE [2]		

DP List of Tables | Demographic Profile | DHC READ ME | DHC Crosswalk | DHC Tables | +

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Proposed Additional Data Products

- Census Briefs
  - Census briefs will provide summaries of population and housing data, and display data visually through maps, graphs, and figures
  - **Lowest level of geography:** Largest Places

- Population and Housing Tables
  - Population and Housing tables will provide population and housing data, often providing comparisons to the previous census
  - **Lowest level of geography:** Largest Places

- Special Reports
  - Special Reports will provide in-depth analyses of population and housing data not available in other data products
  - **Lowest level of geography:** Largest Places

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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. Data from these products will be available in other files.
Population and Housing Unit Counts Report Series (CPH-2)	

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2020 Census Data Products Planning and Outreach

- Meetings/Conferences to date
  - Population Association of America (PAA)
  - National Advisory Committee (NAC)
  - Committee on National Statistics (CNSTAT)
  - Association of Public Data Users (APDU)
  - Joint Statistical Meetings (JSM)
  - Federal-State Cooperative for Population Estimates (FSCPE)
  - American Indian and Alaska Native Tribal Consultations

- Publications/Releases
  - Disclosure Avoidance System (DAS) code release for the 2018 E2E Census Test
    https://github.com/uscensusbureau/census2020-das-e2e
  - DAS decisions as part of the 2020 Census Memo Series
    https://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/memo-series.html

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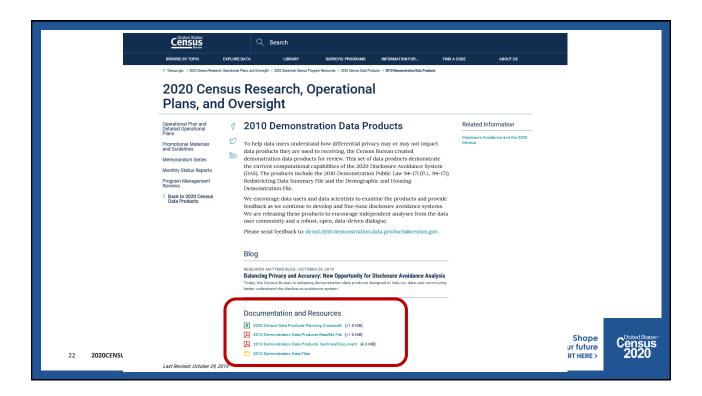
2010 Demonstration Products

- The Census Bureau released a set of data products that demonstrate the computational capabilities of the DAS. The current version of the DAS was run on the 2010 internal data to produce two products:
  - PL 94-171
  - Demographic and Housing Characteristics File(select tables)
- Allows data users to assess the impacts of the DAS implementation
- Committee on National Statistics – December 11-12, 2019

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Questions?

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