Innovation at the U.S. Census Bureau: Modernization for the 21st century and beyond

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U.S. Census Bureau

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United States Census Bureau
U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov

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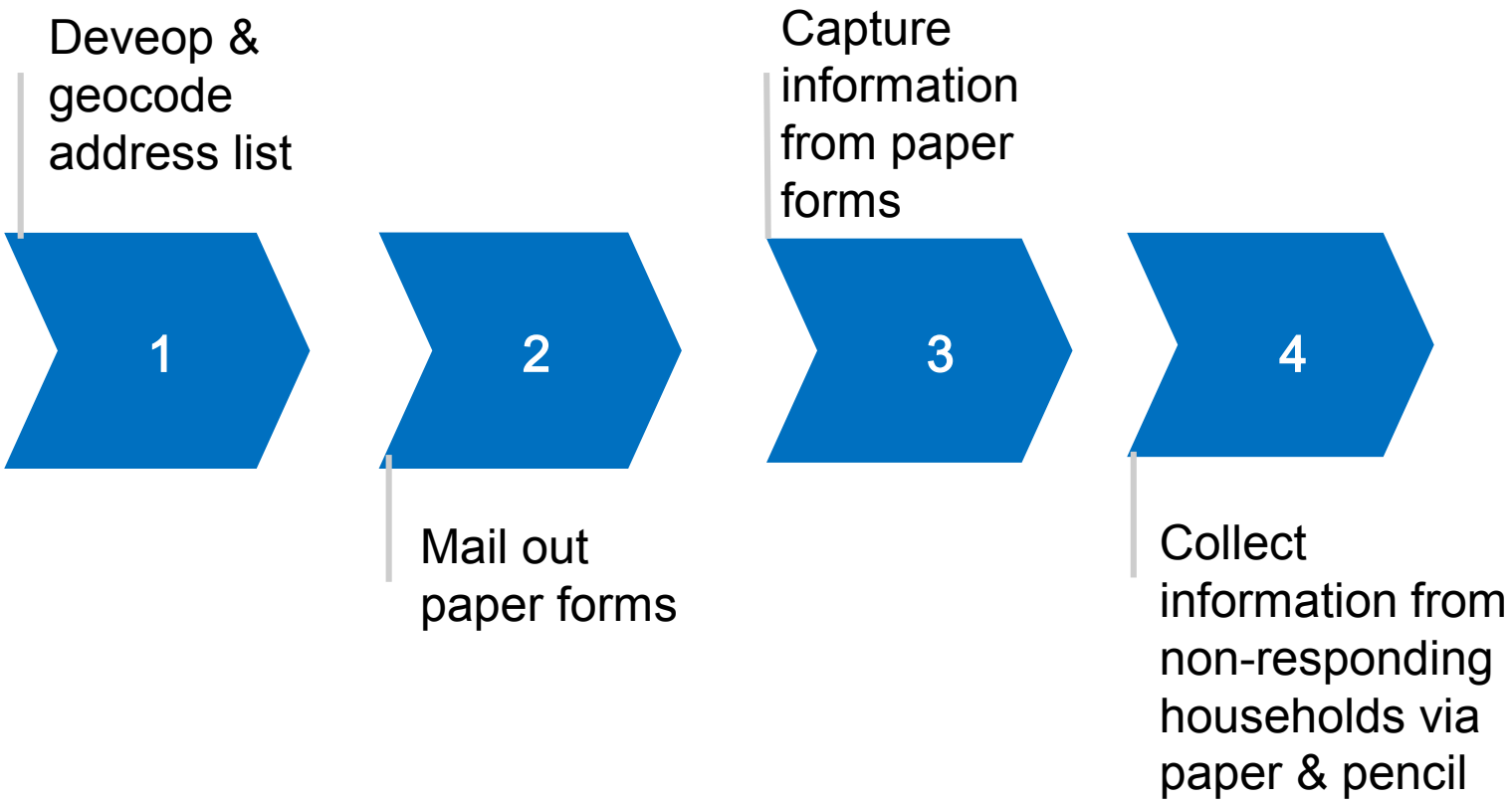
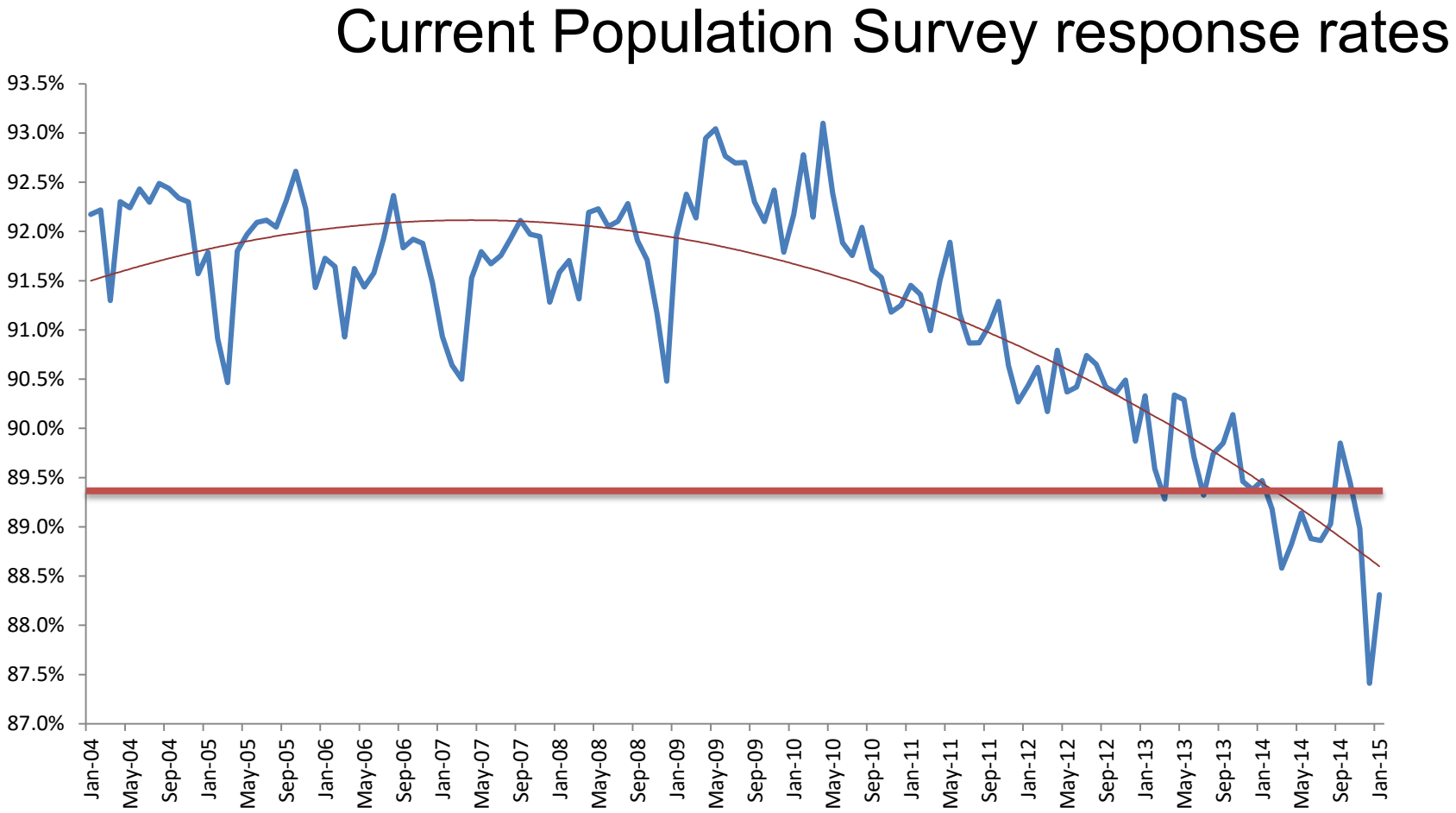
Census methodology, 1970-2010



21st century challenges

Falling response rates



21st century challenges
Protecting privacy

Database reconstruction theorem

Too many statistics published too accurately from a confidential database exposes the entire database with certainty

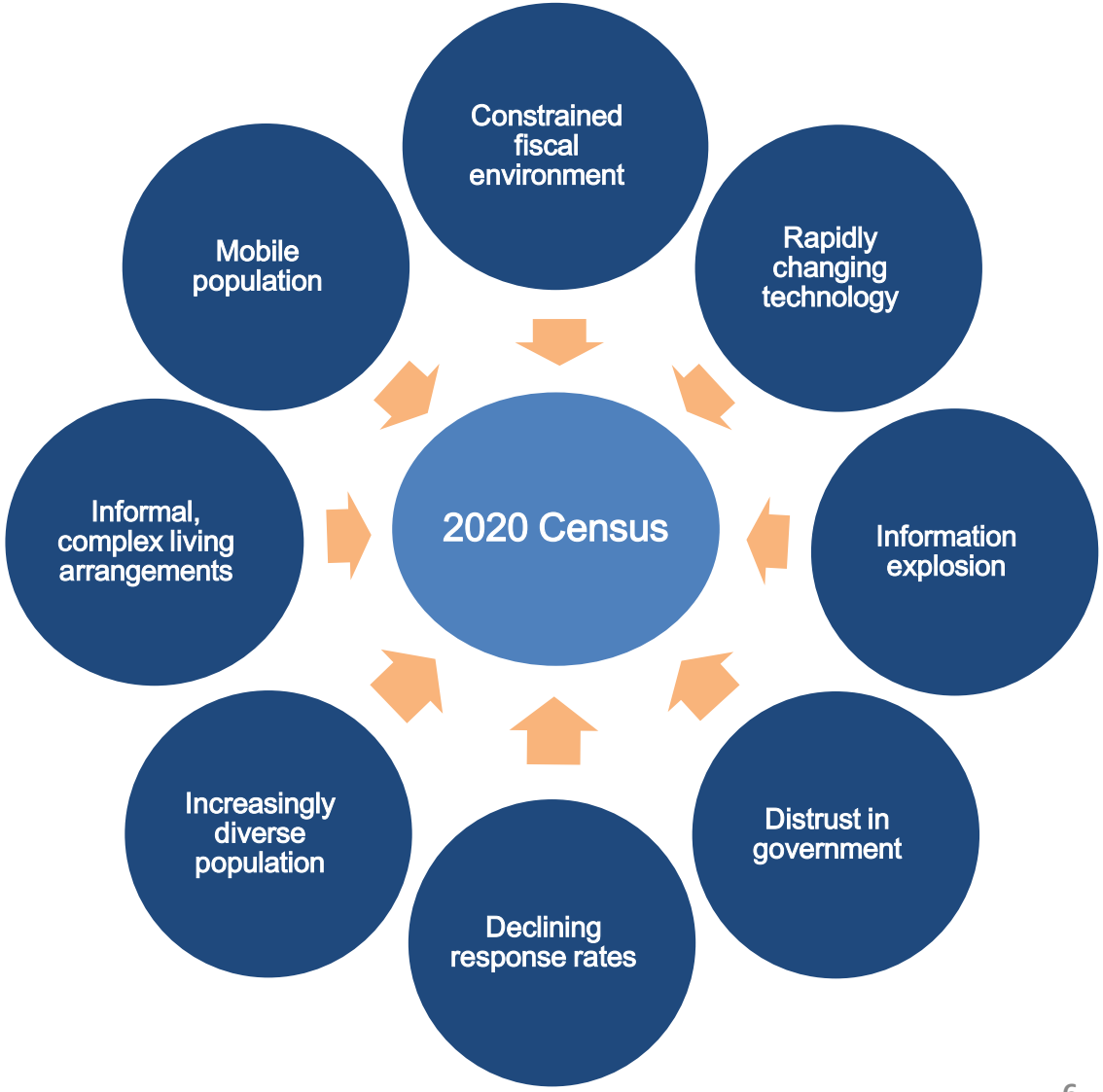
Challenge: How many statistics are too many, and too accurate?

21st century challenges

- Reduce respondent burden
- Contain data collection costs
- Maintain high quality
- Release timely, granular data and protect privacy

2020 Census
A changing environment and a new design

The 2020 Census requires a flexible design that takes advantages of new technologies and data sources, while minimizing risk to ensure a high quality population count.



2020 Census
Goals and key innovation areas

Goal: To count everyone once, only once, and in the right place

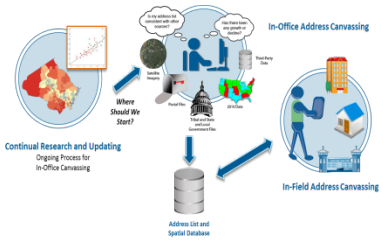
Challenge: Conduct the 2020 Census at a lower cost per housing unit (adjusted for inflation) than the 2010 Census, while maintaining high quality results

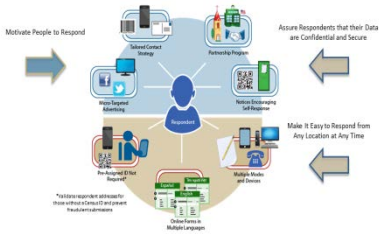
Reengineering Address Canvassing

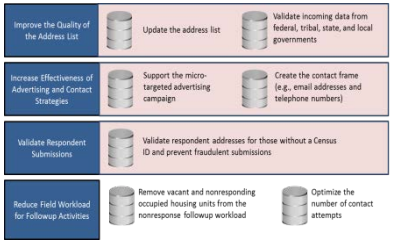
Optimizing Self-Response

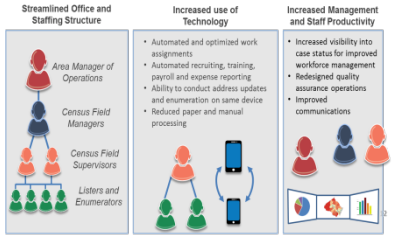
Using Administrative Records and Third-Party Data

Reengineering Field Operations

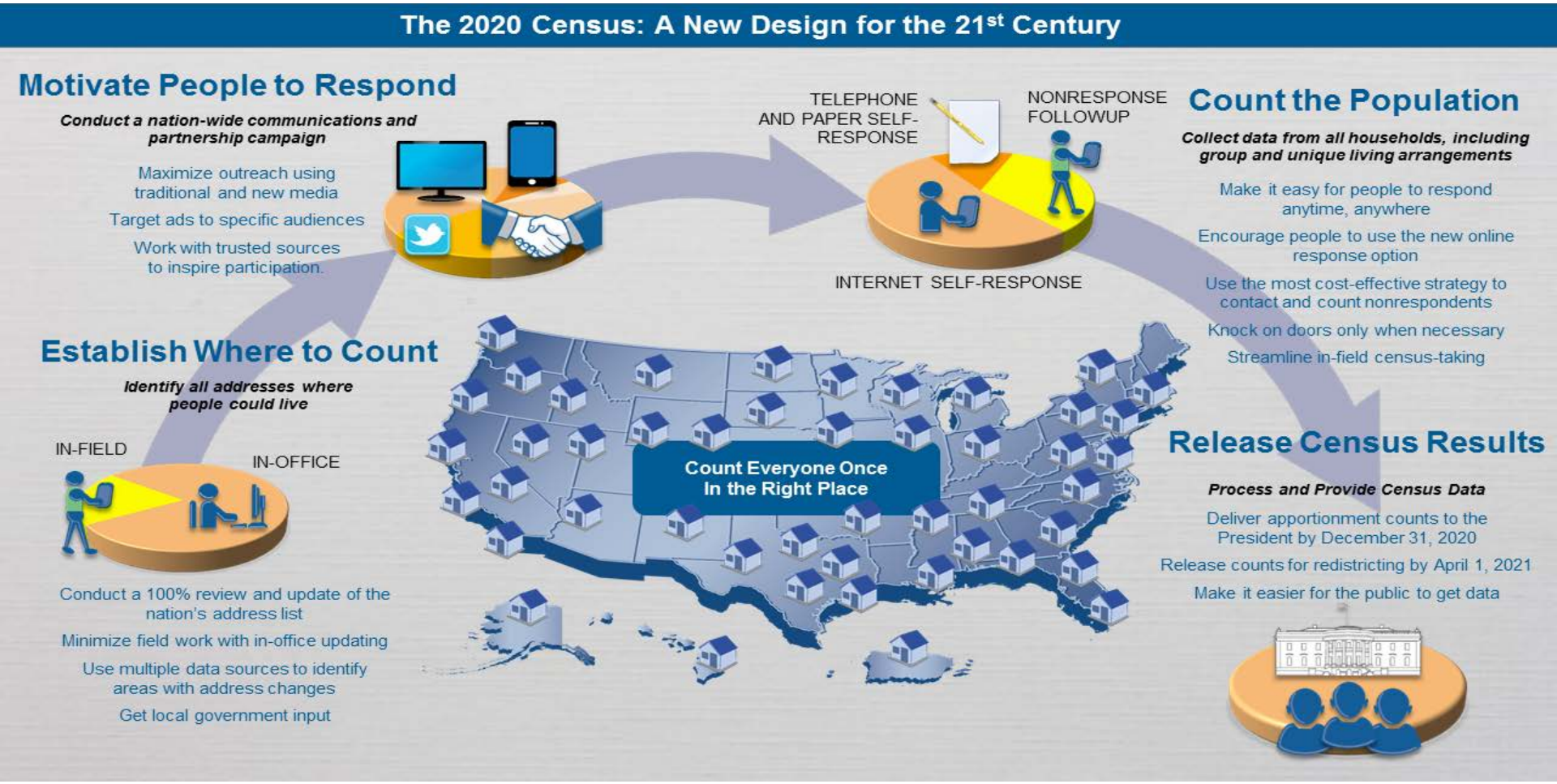




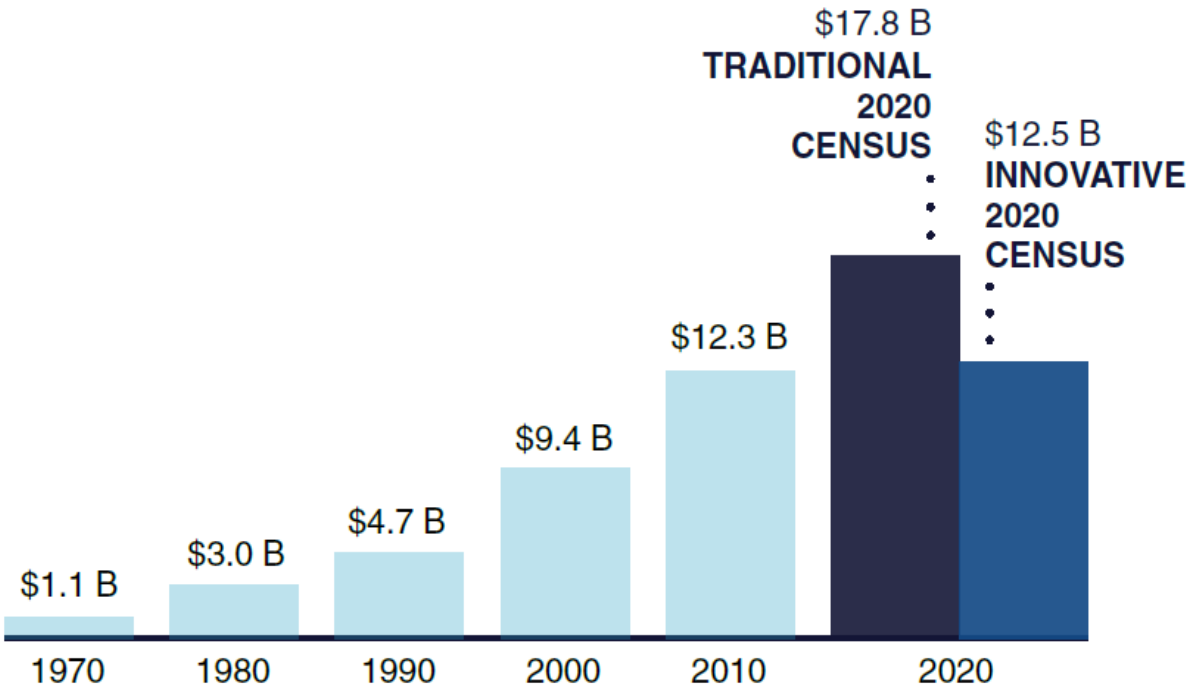




2020 Census
A new design for the 21st century



2020 Census
Estimated lifecycle costs



Fewer Staff
Fewer Offices
Less Burden

MORE THAN $5 BILLION IN SAVINGS

2020 Census
Research on race and ethnicity

We began developing research program in 2008

- 2010 Alternate Question Experiment
- 2015 National Content Test

Check out the two sessions on the National Content Test this afternoon

2020 Census

2015 National Content Test

Separate

→ **NOTE: Please answer BOTH Question 8 about Hispanic ethnicity and Question 9 about race. For this census, Hispanic ethnicities are not races.**

8. Is Person 1 Hispanic, Latino, or Spanish?
*Mark all boxes that apply **AND** print ethnicities in the spaces below. Note, you may report more than one group.*

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

9. What is Person 1's race?
*Mark all boxes that apply **AND** print ethnicities in the spaces below. Note, you may report more than one group.*

- ☐ White – *Print, for example, German, Irish, English, Italian, Polish, French, etc.*
- ☐ Black or African Am. – *Print, for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, Somali, etc.*
- ☐ American Indian or Alaska Native – *Print, for example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, etc.*
- ☐ Chinese ☐ Vietnamese ☐ Native Hawaiian
- ☐ Filipino ☐ Korean ☐ Samoan
- ☐ Asian Indian ☐ Japanese ☐ Chamorro
- ☐ Other Asian – *Print, for example, Pakistani, Cambodian, Hmong, etc.* ☐ Other Pacific Islander – *Print, for example, Tongan, Fijian, Marshallese, etc.*
- ☐ Middle Eastern or North African – *Print, for example, Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, etc.*
- ☐ Some other race – *Print race or ethnicity.*

Combined w/ Write-Ins

8. What is Person 1's race or origin?
*Mark all boxes that apply **AND** print origins in the spaces below. Note, you may report more than one group.*

- ☐ **White** – *Print, for example, German, Irish, English, Italian, Polish, French, etc.*
- ☐ **Hispanic, Latino, or Spanish origin** – *Print, for example, Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc.*
- ☐ **Black or African Am.** – *Print, for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, Somali, etc.*
- ☐ **Asian** – *Print, for example, Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, etc.*
- ☐ **American Indian or Alaska Native** – *Print, for example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, etc.*
- ☐ **Middle Eastern or North African** – *Print, for example, Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, etc.*
- ☐ **Native Hawaiian or Other Pacific Islander** – *Print, for example, Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, Marshallese, etc.*
- ☐ **Some other race or origin** – *Print race or origin.*

Combined w/ Checkboxes

8. Which categories describe Person 1?
*Mark all boxes that apply **AND** print details in the spaces below. Note, you may report more than one group.*

- ☐ **WHITE** – *Provide details below.*
  - ☐ German ☐ Irish ☐ English
  - ☐ Italian ☐ Polish ☐ French
  - *Print, for example, Scottish, Norwegian, Dutch, etc.*
- ☐ **HISPANIC, LATINO, OR SPANISH** – *Provide details below.*
  - ☐ Mexican or Mexican American ☐ Puerto Rican ☐ Cuban
  - ☐ Salvadoran ☐ Dominican ☐ Colombian
  - *Print, for example, Guatemalan, Spaniard, Ecuadorian, etc.*
- ☐ **BLACK OR AFRICAN AM.** – *Provide details below.*
  - ☐ African American ☐ Jamaican ☐ Haitian
  - ☐ Nigerian ☐ Ethiopian ☐ Somali
  - *Print, for example, Ghanaian, South African, Barbadian, etc.*
- ☐ **ASIAN** – *Provide details below.*
  - ☐ Chinese ☐ Filipino ☐ Asian Indian
  - ☐ Vietnamese ☐ Korean ☐ Japanese
  - *Print, for example, Pakistani, Cambodian, Hmong, etc.*
- ☐ **AMERICAN INDIAN OR ALASKA NATIVE** – *Provide details below.*
  - ☐ American Indian ☐ Alaska Native ☐ Central or South American Indian
  - *Print, for example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat, Nome Eskimo Community, etc.*
- ☐ **MIDDLE EASTERN OR NORTH AFRICAN** – *Provide details below.*
  - ☐ Lebanese ☐ Iranian ☐ Egyptian
  - ☐ Syrian ☐ Moroccan ☐ Algerian
  - *Print, for example, Israeli, Iraqi, Tunisian, etc.*
- ☐ **NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER** – *Provide details below.*
  - ☐ Native Hawaiian ☐ Samoan ☐ Chamorro
  - ☐ Tongan ☐ Fijian ☐ Marshallese
  - *Print, for example, Palauan, Tahitian, Chuukese, etc.*
- ☐ **SOME OTHER RACE, ETHNICITY, OR ORIGIN** – *Print below.*

2020 Census
Next steps for race and ethnicity research

- Continue to work with the U.S. Office of Management and Budget to release research results and create national standards
- Release results of National Content Test – Early 2017
- Submit 2020 Census content topics to Congress – April 2017
- Release our recommendations based on research – Summer 2017
- Submit 2020 Census final wording to Congress – April 2018

2020 Census
Residence criteria and situations

- Guidance on who should be counted, and where
  - Census Act of 1790 established concept of counting people at their "usual abode"
  - Since 1950s, the Census Bureau has interpreted this to mean where a person lives and sleeps most of the time

- In preparation for 2020, we opened our deliberations to public comment for the first time
  - Solicited comments in May 2015
  - Published proposed 2020 residence criteria for comments in June 2016
  - Plan to publish final 2020 residence criteria in early 2017

2020 Census
Protecting privacy

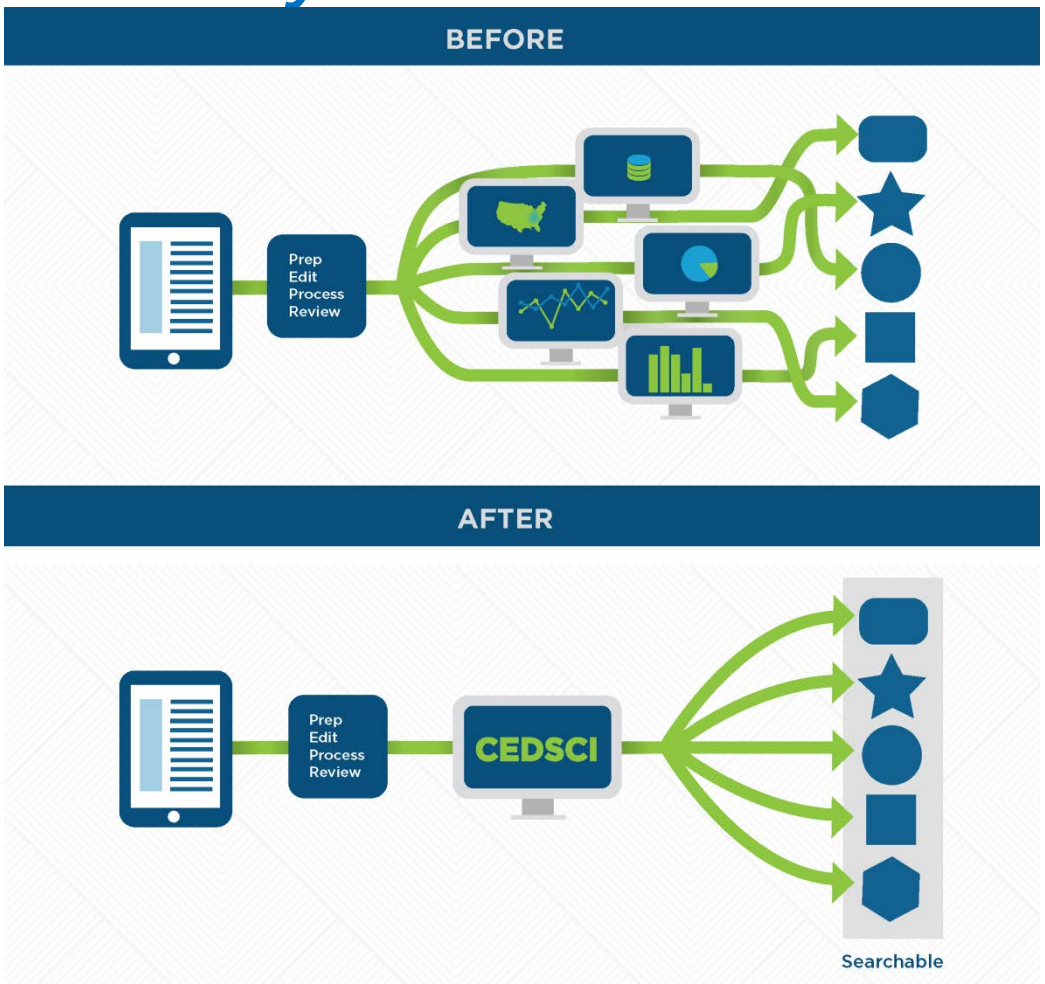
We want to disseminate the most accurate, granular data possible. At the same time, we have the responsibility to protect the confidentiality of our respondents' data.

- We are uncertain about the implications of the database reconstruction theorem for a data product as large-scale as the census

- We are actively researching ways to deliver statistics that meet users' needs and limits reconstruction

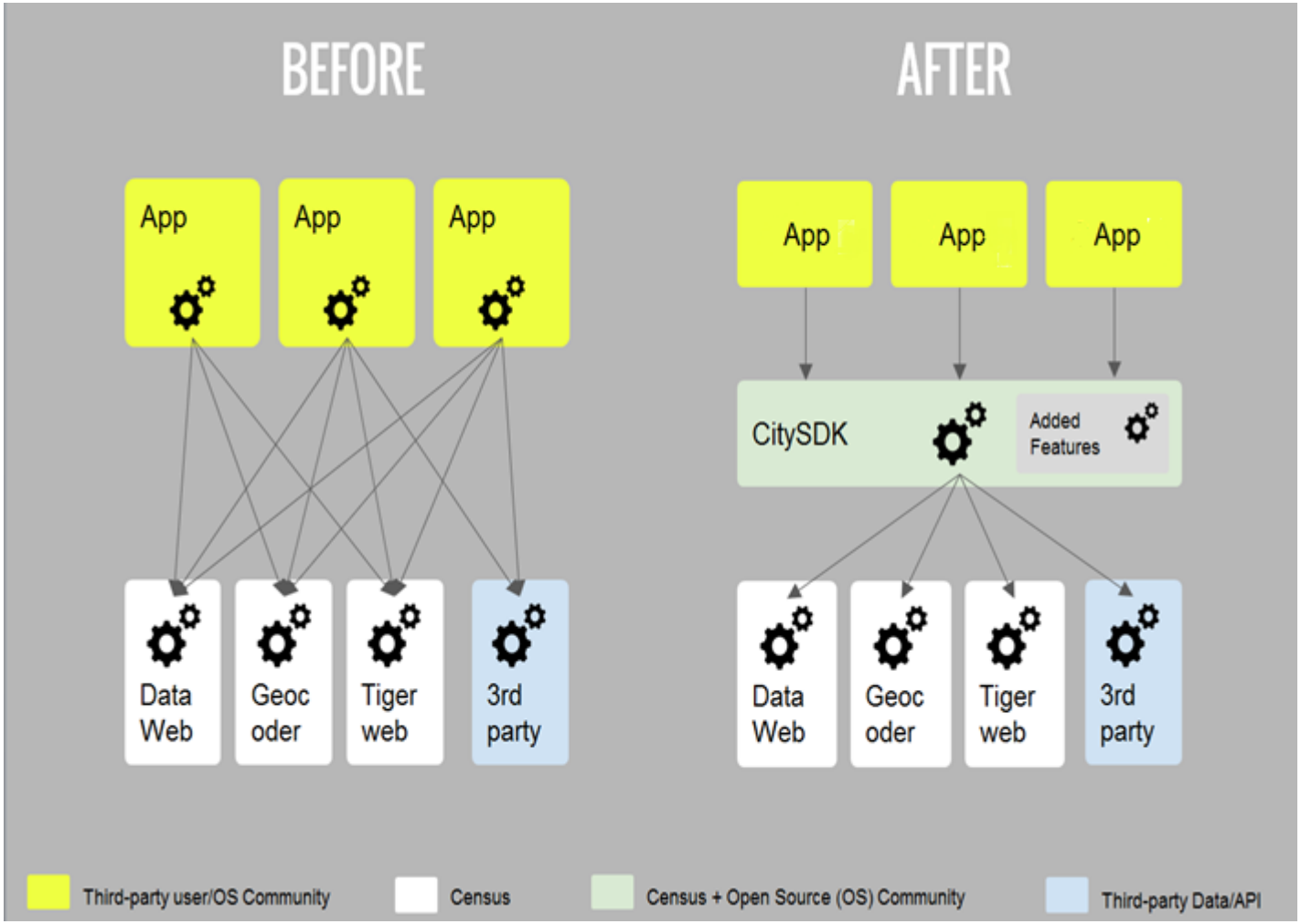
Center for Enterprise Dissemination Services and Consumer Innovation

Shared, reusable systems for dissemination



CitySDK

Toolbox to connect to local & national public data



Census Business Builder

Small Business and Regional Analyst Editions

Census Business Builder: *Small Business Edition*

Privacy Act Statement | FAQs | Send Feedback

Change Your Industry: Food Services, Food trucks

Change Your Location: Fairfax County, Virginia

Select Map Variable: Employer establishments (County - 2013, City - 2012)

Select Your Filter: Not Applied

County | City/Town | ZIP Code | Neighborhood

Zoom out

Fairfax County, Virginia

1,117,072 Total population

$112,102 Median household income ($)

6 Employer establishments (County - 2013, City - 2012)

91.9% Percent high school degree or higher

68.2% Homeownership rate (%)

Create Report

Employer establishments (County - 2013, City - 2012)

- 9 - 11
- 7 - 8
- 5 - 6
- 3 - 4
- 1 - 2
- Not Available/Suppressed

Set Transparency:

Esri, HERE, DeLorme, FAO, USGS, NGA, EPA, NPS

Census Business Builder : Small Business Edition

siness Profile of Mobile Food Services (NAICS 72233) in Fairfax County, Virginia

Potential Customers?

Demographic Characteristics

	1,083,770
ars old:	6.7%
ears old:	24.1%
over:	75.9%
s old and over:	10.0%
size:	2.77
	63.77%
	9.16%
or Alaska Native:	0.43%
	17.61%
or Pacific Islander:	0.09%
ce:	4.06%
	4.89%
	15.5%

mographic data and margins of error, go here.

Socioeconomic Characteristics

income:	$109,383
gh school degree or more:	91.6%
chelor's degree or more:	58.2%
rty:	5.6%
	68.9%
ver in labor force:	73.9%
disability:	6.3%
alth insurance coverage:	87.9%
e to work (mins.):	31.8

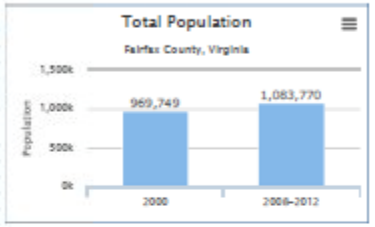
For more social characteristic data and margins of error, go here, and for more economic characteristic data and margins of error, go here.

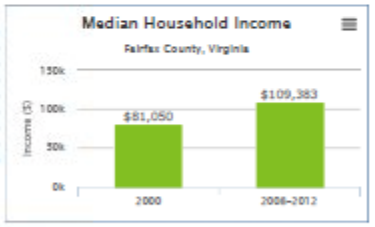
Housing Characteristics

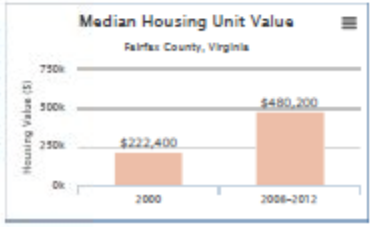
Owner-occupied housing units:	270,928
Renter-occupied housing units:	117,524
Single-family detached housing units:	199,428
Homeownership rate	69.7%
Vacancy rate:	4.6%
Median value of owner-occupied housing units:	$480,200
Median selected monthly owner cost:	$2,316
Median rent (housing):	$1,621
Median year structure built:	1980

For more housing characteristic data and margins or error, go here.

Source: 2008-2012 American Community Survey 5-Year Estimates

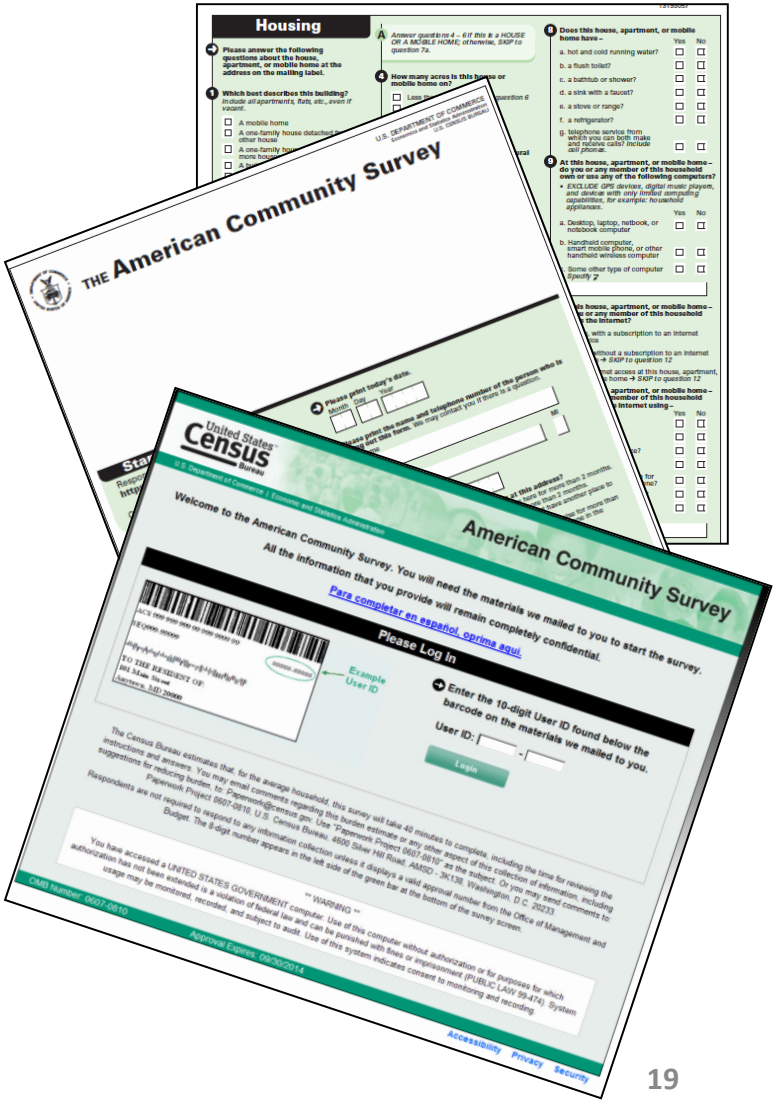






American Community Survey

- Ongoing monthly survey sent to 3.5 million addresses per year to produce detailed population and housing estimates
- Designed to produce *critical information on small areas and small population groups,* previously collected on decennial long form
- Covers 35+ topics and supports over 300 Federal government uses
- Data released twice annually
  - 1-year estimates (12 months of data)
  - 5-year estimates (60 months of data)



American Community Survey
Process for content changes

Every decade, we conduct a review of ACS content. In 2014, we examined all 72 survey questions:

- Query Federal agencies about their data needs
- Interagency Committee on Statistical Policy (ICSP) Subcommittee for the ACS considers content change based on criteria including:
  - Legislative requirements for ACS or Census Bureau data for small areas on an ongoing basis
  - Legislative requirement for small area or small population data, and no other sources meet the information needs
  - Federal agency need for program data
- OMB provides approval for cognitive testing and field testing
- Based on testing results, final recommendations, and ICSP input, OMB makes final decision

American Community Survey
Actions to address stakeholder concerns

- Researching the feasibility of eliminating questions and asking them less frequently.
- Reducing follow-up contact attempts
- Testing changes to survey messaging
- Using information already provided to the government

2017 Economic Census
Transformation and efficiency

- 100% internet collection
- Reduce the burden for businesses
- Automate operations to increase efficiency and productivity
- Improve and accelerate release of data products

2017 Economic Census
More timely and relevant data

Improvements from 2012:

- Advanced data available in the collection/processing year
- U.S. statistics available for all sectors up to 9 months earlier *(2-6 digit NAICS levels)*
- State statistics available for all sectors up to 18 months earlier *(2-3 or 2-4 digit NAICS levels)*
- All Geographic Area Statistics available 8 months earlier
- Inaugural publication of economy-wide establishment and firm size tables
- All other data available 6 months earlier

Economic statistics

Meeting user demand for timelier, granular, linkable data

Retail trade is our first focus:

2030 Census
Reimagining the census

Demography

What will the nation look like?

Sociology

How will people interact with each other?

Technology

How will people communicate?

What can we test in 2020
that will help us prepare for a new census in 2030?

Thank you!