B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Universe and Respondent Selection

The objective of the census is to count—once and only once—every person residing in every geography included in the census area. To reach this goal, various procedures are employed for address frame building and enumeration of the population. All people are to be counted according to the established Residence Criteria and Residence Situations. Housing units that are occupied or that could be occupied are also to be counted, as are all occupied group quarters.

The total respondent universe for the 2020 Census consists of every person residing in the 50 states and the District of Columbia, as well as federally affiliated people overseas. In addition, this package covers the enumeration of the population in Puerto Rico and of the populations in the Island Areas of American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the United States Virgin Islands. The estimated population in the United States, Puerto Rico, and Island Areas is shown in Table 3 below.

The delineation into methodologies for enumeration and address list updating in all geographies is called the Type of Enumeration Area (TEA) delineation. The TEAs designated for the 2020 Census are:

* TEA 1 = Self-Response.

* TEA 2 = Update Enumerate.

* TEA 3 = Island Areas.

* TEA 4 = Remote Alaska.

* TEA 6 = Update Leave.

TEA 5, which appeared in previous documents, has been eliminated and the areas redistributed to TEAs 1 and 6.

The most common enumeration method by percentage of households is self-response (TEA 1), where materials will be delivered to each address through the mail, and self-response is supported and promoted. In this TEA, after the initial self-response phase, nonresponding households will be included for enumeration in the Nonresponse Followup (NRFU) operation. Update Enumerate (TEA 2) uses the methodology of updating the address list and attempting enumeration of the household with a respondent at the same time. Thus, there is not self-response or a self-response rate for this TEA. The Island Areas (TEA 3) do not have a pre-existing address list. For these areas, the address list will be created and enumeration will be attempted at the same time. Similarly, there is also not a response rate for this TEA. Remote Alaska (TEA 4) uses the Update Enumerate methodology but in remote areas of Alaska that require a different schedule for enumeration, as described in Supporting Statement A. Update Leave (TEA 6) is an update of the address list at the same time that a questionnaire is left at each individual housing unit. Self-response is supported and promoted. Puerto Rico is designated as entirely Update Leave (except for military locations), as discussed in Supporting Statement A. TEAs 1 and 6 are the only TEAs that allow for self-response and are, therefore, the only TEAs for which a response rate (or self-response rate) can be calculated or estimated.

The number of housing units designated for each TEA prior to enumeration, according to the Census Bureau's Life Cycle Cost Estimate and recent program updates, is shown in Table 1.

Table 1 – Type of Enumeration Area, Methodology and Housing Unit Counts

Type of Enumeration Area (TEA)	Methodology for Address Updates and Enumeration	Number of Housing Units (estimated)
TEA 1	Self-Response	144,600,000
TEA 2	Update Enumerate	8,500
TEA 3	Island Areas	139,000
TEA 4	Remote Alaska	28,200
TEA 6	Update Leave	6,800,000
TOTAL		**151,575,700**

The expected response rate for the 2020 Census is 60.5 percent. This is based on response rates for previous censuses as well as response rates to the American Community Survey between 2010 and now, shown in Table 2.

Table 2 – Response Rates and Projected Response Rates for all censuses using Self-Response

	Mail Response SF and LF*	Mail Response SF only*	Mail Response LF only*
1970 Census	78.3%	Not available	Not available
1980 Census	75.0%	Not available	Not available
1990 Census	65.0%	65.9%	60.6%
Census 2000	64.3%	66.4%	53.9%
2010 Census	SF only	63.5%	Not applicable
2020 Census	SF only	60.5%** (projected)	Not applicable

SF=Short Form   LF=Long Form

* Rate shown is of the start of Nonresponse Followup (NRFU), so excludes late mail returns, and includes both occupied and vacant units because occupancy status unknown at that point for nonresponding households. As such, it is not the best measure of voluntary participation, but its converse (the

nonresponse rate) defines the workload for the NRFU field operation. For the 2020 Census, this represents all self-response, including by internet, telephone, and paper mail returns.

** 2019 Census Test may result in updated rates.

This package also covers the In-Field Address Canvassing operation. Address Canvassing is the operation where the address list is validated or updated prior to the census. For the 2020 Census there was a full Address Canvassing of the country that consisted of In-Office Address Canvassing complemented with In-Field Address Canvassing. In-Office Address Canvassing is the process of using empirical geographic evidence (e.g., imagery, comparison of the Census Bureau's address list to partner-provided lists) to assess the current address list and make changes where necessary. This component also detects and captures areas of change from high quality administrative records and third-party data. Advancements in technology have enabled continual address and spatial updates to occur throughout the decade as part of the In-Office Address Canvassing effort, as well as through address list updates provided by the United States Postal Service (USPS) and address and map updates provided by geographic program partners. Since 2015, satellite imagery has been used for the identification of areas where there are changes in living quarters. Where the necessary updates could be captured from electronic sources and were deemed to be sufficiently accurate, In-Office Address Canvassing completed the update process prior to the census. Otherwise, the block became eligible to be sent to In-Field Address Canvassing for updating on the ground by field staff.

In-Field Address Canvassing covered approximately 35 percent of the estimated 145 million USPS Delivery living quarters in the United States. During the In-Field Address Canvassing field operation, contact was attempted at all living quarters in the assigned area to confirm address information and type of living quarters, but contact was not necessary for

successful completion. It is anticipated that a maximum of 25 percent of the households in the universe for the operation result in contact during the In-Field Address Canvassing. Puerto Rico was not be visited in In-Field Address Canvassing, as the list updating in Puerto Rico will occur within the Update Leave operation at the time of the enumeration, as described in Supporting Statement A. Similarly, the Island Areas will not be included in Address Canvassing or visited in In-Field Address Canvassing, as the address list will be created during the enumeration phase.

The federally affiliated population that should be included in the census count for apportionment purposes will be enumerated through administrative records. All federal agencies will be contacted and asked to provide the counts of people who should be enumerated while they serve the agency and the federal government in a location outside the areas that will be directly enumerated for the 2020 Census, as discussed elsewhere in these supporting statements.

The summary of respondent universe, respondent selection, expected response rates, and 2010 Census response rates is shown in Table 3. Response rates for both the 2010 Census and the 2020 Census are calculated as of at the time that the NRFU workload is created.

Table 3 – Summary of Expected Population, Living Quarters and Response Rates

Geographic Area	Expected Population Count	Expected Living Quarters Count	Expected Response Rate	2010 Census Response Rate
United States - stateside	350,000,000	150,500,000	60.5%	63.5%
Federally affiliated persons and dependents overseas	1,877,000	Not applicable	Not applicable	Not applicable
Puerto Rico	3,400,000	1,200,000	51%	Not reported
Island Areas	375,000	139,000	Not applicable	Not applicable
In-Field Address	Not Applicable	50,038,437	Maximum 25%	Not reported

Canvassing				

2. Procedures for Collecting Information

The objective of the census is to count—once and only once—every person residing in every geography included in the census area. To reach this goal, various procedures are employed for address frame building and enumeration of the population. Throughout the 2020 Census operational design are efforts that focus on:

- Identifying all of the addresses where people live or could live.

- Motivating people to respond.

- Determining what information to collect.

- Collecting information from all households or individuals, including those residing in groups or unique living arrangements.

Identification of all the addresses for stateside and Puerto Rico is accomplished through updating of the Census Bureau's address and spatial database through geographic partnerships and the American Community Survey, LUCA, and Address Canvassing, in addition to updates provided in operations prior to and throughout the census, as described in Supporting Statement A and the Address Canvassing Detailed Operational Plan.

For In-Field Address Canvassing, the address list is verified and updated in the field, as needed. Living quarters are classified for operational purposes into housing units and group quarters. Group quarters are living quarters where people who are typically unrelated have group living arrangements and frequently are receiving some type of service. College/university student housing and nursing/skilled-nursing facilities are examples of group quarters. The Census Bureau will enumerate people residing in group quarters through in-field visits or

administrative records data for certain types of group quarters, including enumeration at regular group quarters as well as on military installations or on maritime vessels.

Transitory locations are areas such as recreational vehicle parks, campgrounds, racetracks, circuses, carnivals, marinas, hotels, and motels, where people who do not have a usual home may be staying during the time of the census. The occupied living quarters within the transitory locations will be counted as housing units.

In TEA 1, the mailing materials strategy is designed to maximize self-response at housing units. The majority of the basic collection units (a geographic designation, usually a block) in TEA 1 will be designated for Internet First, where internet response is encouraged and a full questionnaire is sent only in the fourth mailing and to nonresponders only. The Internet Choice strategy is selected for those TEA 1 areas where low internet coverage or connectivity or other characteristics may make it less likely the householders will complete the census questionnaire online. A questionnaire is delivered in the first mailing for these areas, which constitute approximately 22 percent of the housing units in TEA 1. For the Optimizing Self-Response in the 2020 Census Experiment, a sample of cases will receive a different strategy than that originally assigned in order to test the effectiveness of the strategy assignment process. All TEA 1 households will have all self-response options available at all times.

Table 4 – Mailing Strategies in TEA 1 (Self-Response)

Mailing Materials Treatment	Mailing 1	Mailing 2	Mailing 3*	Mailing 4*	Mailing 5*
Internet First	Letter with internet invitation	Reminder letter	Reminder postcard	Questionnaire with letter with internet option	"It's Not Too Late" postcard
Internet Choice	Questionnaire with letter with internet option	Reminder letter	Reminder postcard	Questionnaire with letter with internet option	"It's Not Too Late" postcard

* Targeted only to nonrespondents.

For every housing unit on the Census Bureau's address list in TEAs 1 (Self-Response) and 6 (Update Leave) for which no self-response is received by a particular date, a follow-up field operation will collect the data, in particular Nonresponse Followup (NRFU). Through automation, the universe of housing units that have provided an enumeration through self-response can be updated daily as additional responses are received through internet, telephone, or mail, even after NRFU has begun. This will contribute to minimizing respondent burden.

People living in group quarters will be counted through group quarters operations, using either Administrative Records of group quarters client-level data (as described in Supporting Statement A) or in-person enumeration for individuals, rather than households. There is also an effort to count people experiencing homelessness who will not be captured in the enumeration at any living quarters. This Service-Based Enumeration captures people receiving services at places such as soup kitchens or regularly scheduled mobile food vans, or utilizing transitional shelters or nonsheltered outdoor locations.

Every operation has some type of quality control to ensure that quality data have been collected. Sometimes this will require a reinterview of a sample of the households or population. If it is determined that quality data were not collected (as described in Supporting Statement A for data collection operations), there will be a recollection of data. In addition, there is a coverage improvement activity that has the objective of collecting additional data from the household respondent when there are certain categories of discrepant or incomplete data for the response. Soft edits, which give an alert when an answer is incomplete or inconsistent, have been incorporated into the Internet Self-Response and NRFU instruments and should reduce rates of these outcomes in the initial enumeration as compared with previous censuses, which also works toward minimizing respondent burden.

3. Methods to Maximize Response

With the objective of counting everyone, 100 percent response is the goal. This can be either self-response or in the NRFU operation or other field operations, in particular Update Enumerate. In combination, these should accomplish enumeration at every housing unit. Special procedures implemented for enumeration at group quarters and at transitory locations are designed to enumerate 100 percent of those universes.

One of the major innovation areas for the 2020 Census is Optimizing Self-Response. A major initiative that falls under the umbrella of this innovation is Internet Self-Response, including the ability for people to respond without the pre-determined ID assigned to the housing unit by the Census Bureau. Self-response is possible only in self-response and Update Leave areas (TEAs 1 and 6). Other areas, for example, areas with high rates of seasonal housing, may be designated for a different enumeration methodology.

The second initiative that falls under the umbrella of Optimizing Self-Response is the Integrated Partnership and Communications operation. This operation has the purpose of communicating the importance of participating in the 2020 Census to the entire population of the 50 states, the District of Columbia, and Puerto Rico. This communication is ongoing throughout the self-response and NRFU phases.

As described in #2 above, all known living quarters are contacted through some method. In those areas designated for self-response, if a response is not received by a particular date, then follow-up procedures to gather the data begin. Most notably, NRFU then occurs in self-response and Update Leave Type of Enumeration Areas. Other areas and operations involve enumeration at the time of the field visit. In these scenarios, follow-up visits may be required, but this is part of the set of tasks performed within the designated operation.

Group quarters that have indicated response data would be provided through electronic transmission but for which the data has not been received by the necessary date will be subject to an in-person visit to collect the data.

Island Areas are being enumerated with the methodology that the address list is created at the time of the census and the enumeration is conducted in tandem with the address list creation. This should result in contact at all living quarters and the enumeration of all residents.

To a certain extent, any deviation taken from the traditional enumeration path, represented as self-response (TEA 1) mailings followed by NRFU, can be seen as an effort to improve the ease and likelihood of successful enumeration of groups that might otherwise be undercounted. Categories of situations that could result in additional efforts to enumerate the population correctly include, but are not limited to:

- People who do not live in traditional housing.

- Children.

- People experiencing homelessness.

- People who have distrust in the government.

- People with low incomes.

- Young, mobile people.

- People with multiple homes they occupy on a seasonal basis.

- Racial and ethnic minorities.

- People who do not speak English fluently.

- Undocumented immigrants.

- Lesbian-gay-bisexual-transsexual-questioning/queer people.

- People with mental and physical disabilities.

Many of these situations when identified in advance of the census may be designated for special address listing or enumeration methods within the TEA delineation. In general, the determination for which methodology is used is made on a geographic basis, specifically at the basic collection unit level.

Enumerating these populations that may be considered "Hard to Count" requires a variety of approaches. Through TEA delineation; multiple modes for self-response; operations for housing units, group quarters, and transitory locations; a variety of follow-up operations for gathering the enumeration, validating the data collections, and improving coverage; various programs that provide language assistance; and other procedures that help collect accurate enumerations of traditionally hard to count populations, it is clear that the Census Bureau puts

much effort into gathering the enumeration data for everybody. The [2020 Census Operational Plan](#) has more information about this in Appendix B.

4. Tests of Procedures or Methods

As in previous censuses, the 2020 Census will include some experimental techniques or methods for enumeration data collection. This represents the start of the research program for the next decennial census. The population for these experiments is drawn on some sample basis. The planned 2020 Census Evaluations and Experiments are being handled for OMB clearance with this revision to the 2020 Census OMB package (OMB approval #0607-1006), within a related Census Bureau package for the Post-Enumeration Survey Independent Listing and QC (covered under OMB approval #0607-1009, or within the Generic Clearance for Decennial Census Field Tests and Evaluations, covered under OMB approval #0607-0971.

The following table summarizes the planned evaluations and experiments and the sampling required for these tests. Those evaluations described in italics are covered in other packages, as noted in the footnotes.

2020 Census Evaluations and Experiments	Sample Design and Size
Evaluations	
Reengineered Address Canvassing • Estimate certain types of errors that can occur during In-Field Address Canvassing. Investigate effectiveness of In-Office Address Canvassing and Interactive Review. Compare costs of reengineered Address Canvassing to 100 percent In-Field Address Canvassing. • Evaluate In-Field Address Canvassing listing by including false addresses (salting) and suppressing a sample of valid addresses. • *Evaluate In-Office and In-Field Address Canvassing using Post-Enumeration Survey listing results.[1]*	• 82,853 salted addresses • 97,409 suppressed addresses • *541,000 addresses (already included in Post-Enumeration Survey sample)*

Administrative Record Dual-System Estimation

Determine whether dual system estimates could be generated without conducting an independent post-enumeration survey, using Administrative Records. | NA |
| *Evaluating Privacy and Confidentiality Concerns[2]*

Capture respondents' concerns about privacy and confidentiality during the census, particularly with respect to the internet response option and administrative records use in a census environment. | *Sample of 103,340 self-respondents in TEA 1 to interview by telephone or in person.*

Qualitative component – 15 qualitative interviews by telephone or in person and 18 focus groups (180 participants – maximum of 10 in each focus group) |
| *The Undercount of Young Children: A Qualitative Evaluation of Census Materials and Operations[2,3]*

Conduct focus groups and cognitive interviews to identify where existing roster questions and procedures are failing and how to improve them. | • *12 focus groups (120 participants – maximum of 10 in each focus group)*
• *90 cognitive interviews* |
| *Research on Hard to Count Populations: Non-English Speakers and Complex Household Residents, including Undercount of Children Research[2]*

Assess NRFU interviews in areas associated with potential undercoverage and non-English speaking households. In addition, administer a specialized enumerator training module to a sample of Spanish-bilingual enumerators to evaluate its impact. | *Follow-up on 300 NRFU interviews in 15-20 selected sites in TEAs 1 and 6.* |
| Analysis of Census Internet Self-Response Paradata by Language

Examine 2020 Census web paradata and assess by language. | NA |
| *Group Quarters Advance Contact: Refining Classification of College or University Student Housing[2]*

Explore whether refined classification used in the 2020 Census results in more accurately identifying privately owned college housing. | *100 telephone follow-up interviews* |
| *Evaluating the 2020 Census Communications Campaign: Census Mindset Measures Before and After the Campaign[4]*

Gauge whether the portion of the population with mindsets less inclined to participate in the census shrank over the course of the campaign while the portion of the population with mindsets more inclined to participate grew larger. | *Probability-based sample of a total of 25,000 people, with 18,750 expected responses.* |
| *2020 Census Quantitative Copy Testing[4]*

Test whether 2020 Census television and radio advertisements perform better than control ads that do not mention the 2020 Census on factors including message recall, message comprehension, ad likability and enjoyability, behavioral intention to respond to the census, and the Census Bureau's corporate image. | *1000 respondents per treatment, as described in table.*

Advertisement	Medium	Ad Type
Across America (Awareness)	TV	Treatment TV 1
Across	TV	Treatment	

America (Motivation)		TV 2
Kids How to Count	TV	Treatment TV 3
Kids Benefits	TV	Treatment TV 4
Online	TV	Treatment TV 5
TBD	TV	Distractor TV (Treatment & Control)
Prudential	TV	Control TV 1
Constitution	Radio	Treatment Radio 1
Across America	Radio	Treatment Radio 2
Digital Assistant	Radio	Treatment Radio 3
TBD	Radio	Control Radio 1
TBD	Radio	Distractor Radio (Treatment & Control)

2020 Census Tracking Survey[4]

Track US public sentiment concerning matters that may bear upon 2020 Census participation to examine how attitudes and perceptions change during the census measurement period (mid-March through May 2020)

The data will reflect a cross-sectional national random probability sample of the U.S. population yielding 1400 completed cases monthly in 2019; 200 cases completed daily in the 2020 time period, as follows: a) a 7-day rolling estimate and b) a daily delivery of the most recently delivered days' interviews.

The analysis also requires supplemental nonprobability sampled data, which will focus on representativeness of the hard-to-survey populations as needed for campaign optimization.

- *2100 per week (one week per month in the 2019 time period and every week during the 2020 time period)*
- *Reflecting a composition of approximately 15% Hispanic, 12% Black or African American, 11% Asian, 62% White*

Investigating Digital Advertising and Online Self-Response Investigate the relationship between digital advertising materials and online self-response by analyzing ISR paradata.	None
Matching 2018 Census Barriers, Attitudes, and Behaviors Study Survey Sample to 2020 Census Match the 2018 Census Barriers, Attitudes, and Motivators Study (CBAMS) survey sample addresses to 2020 Census addresses to evaluate (1) how well survey respondents' intended response behaviors align with actual response behaviors, (2) the characteristics of non-responding CBAMS households.	None
Comparing 2019 Census Test and 2020 Census Self-Response Rates to Estimate "Decennial Environment" Matching 2019 Census Test data to 2020 Census data to compare self-response behavior with and without the decennial environment.	None
Evaluating the Effect of the Decennial Census on Self-Response to the American Community Survey Assess of the impact of the decennial census communications campaign on garnering self-response from members of the public for the American Community Survey. Analyze the self-response trends for the American Community Survey to assess the extent to which the changes in the data collection environment during the decennial census affect other self-response data collection efforts undertaken by the Census Bureau.	None

Experiments

Extending the Census Environment to the Mailing Materials Test effect on self-response rates of wearable, nonmonetary mailing inserts that promote 2020 Census as well as mailing materials that incorporate elements and images developed by the 2020 Census communications campaign. In addition, test the use of an every door direct mail piece.	172,992 households in TEA 1.
Optimization of Self-Response in the 2020 Census Experiment Evaluate impacts of the mailing strategy and the influence of the internet response option by 1) mailing a sample of housing units a modified version of 2010 Census materials with no promotion of the internet response option on a schedule that resembles what occurred during the 2010 Census, 2) mailing another sample of housing units a modified version of the 2020 Census materials with no promotion of the internet response option, 3) switching the planned mail contact strategy between internet choice and internet first for another sample of housing units. In addition, test the effectiveness of communications and partnership activities by not mailing any	118,541 households in TEA 1.

census materials to a sample of households.	
Real-Time 2020 Census Administrative Record Census Simulation Compare person-level, housing unit-level, and hybrid approaches to conducting an administrative record census.	NA
Synthesis Reports	
Integrated Partnership and Communications Evaluation	None
Undercount of Young Children	None
Response Rates and Behavior Analysis	None
Interviewer Data Collection	None
Address List Development	None
Administrative Records	None

1. 2020 Census Post-Enumeration Survey Independent Listing Operation (OMB approval #0607-1009)
2. Generic Clearance for Census Bureau Field Tests and Evaluations (OMB approval #0607-0971)
3. Generic Clearance for Questionnaire Pretesting Research (OMB approval #0607-0725)
4. Generic Clearance for Testing (OMB approval #0607-0978)

Multiple tests have been performed throughout the decade to provide data for decisions and refine ongoing operational planning. These tests and the OMB control numbers that apply are:

Generic Clearance for Questionnaire Pretesting Research: 0607-0725

Generic Clearance for Census Bureau Field Tests and Evaluations: 0607-0971

Federal Statistical System Public Opinion Survey: 0607-0969

2012 National Census Test: 0607-0970

2013 National Census Contact Test: 0607-0972

2013 Census Test: 0607-0975

2014 Census Test: 0607-0979

Address Validation Test: 0607-0809

2015 Optimizing Self-Response Test and 2015 Census Test: 0607-0981

2015 National Content Test: 0607-0985

2015 Group Quarters Electronic Capability Test Survey: 0607-0725

2016 Census Test: 0607-0989

Address Canvassing Testing: 0607-0992

2016 Service-Based Enumeration Census Test: 0607-0971

2017 Census Test: 0607-0996

2017 eResponse Data Transfer Test: 0607-0971

2018 End-to-End Census Test Address Canvassing Operation: 0607-0997

2018 End-to-End Census Test – Peak Operations: 0607-0999

2019 Census Test (ACS Methods Panel Test): 0607-0936

Census Barriers, Attitudes, Motivators Study (Generic Clearance for Internet

Nonprobability Panel Pretesting): 0607-0978

5. Contacts for Statistical Aspects and Data Collection

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