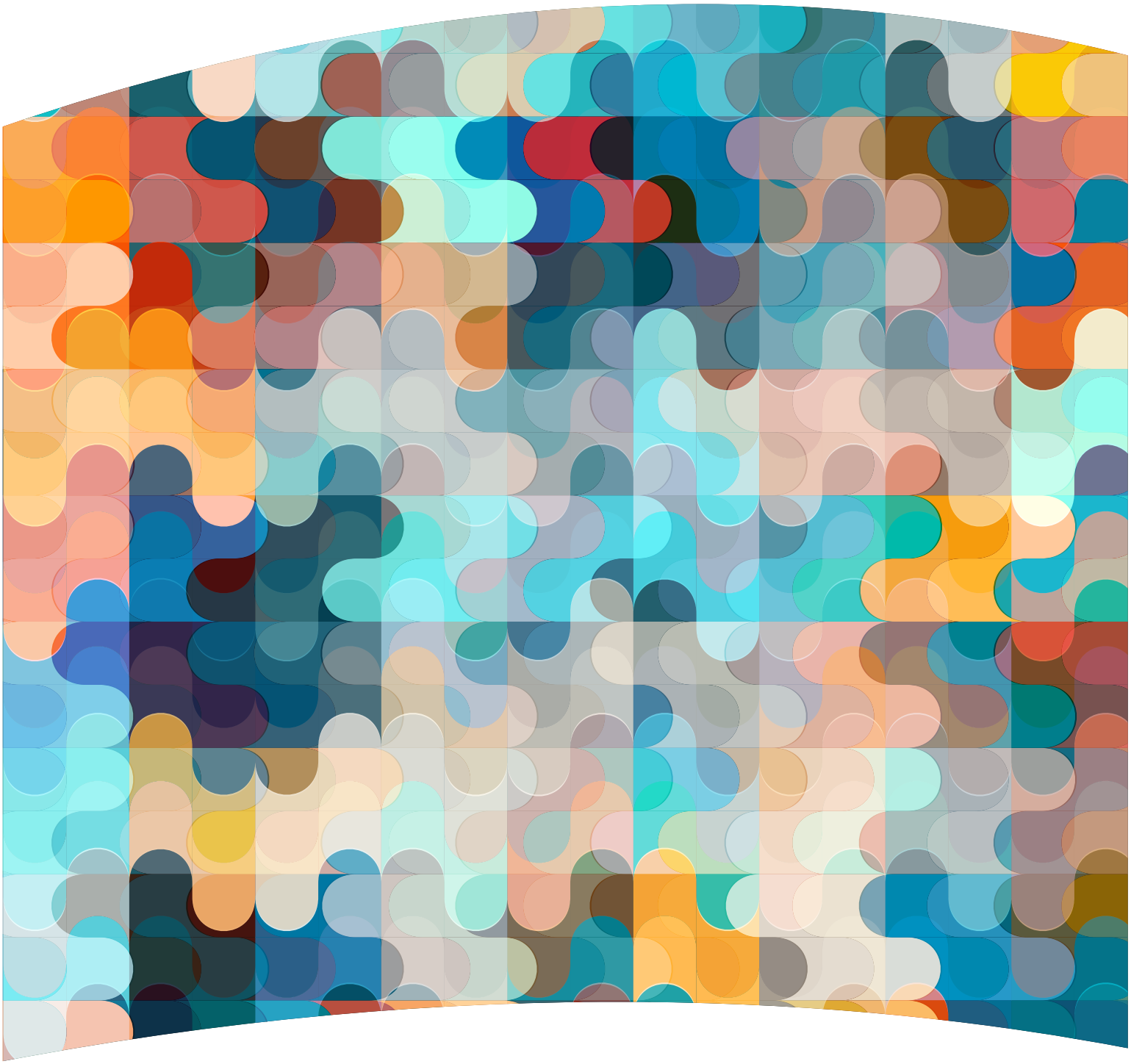
2030 Census Operational Plan

V1.0 July 2025



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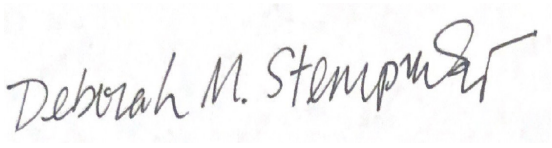
Note to reader:

This document, the "2030 Census Operational Plan," outlines the initial, high-level design of the 2030 Census as of June 30, 2025.

Approval Signature

The **2030 Census Operational Plan V1.0** has been reviewed and approved for use.



Deborah Stempowski

7/22/2025

Date Signed

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Document Logs

Sensitivity Assessment

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Review/Approval

Name	Area Represented	Date
2030 Census Executive Guidance Group	Office of the Director and the Census Bureau's Directorate Leadership, including the Chief Administrative Officer and the Chief Technology Officer	11/20/2024
2030 Census Portfolio Management Governing Board	Executive leadership of the Decennial Census Programs Directorate, including additional key participating divisions/offices such as the Population and Field Divisions, Office of the Chief Information Officer, and the Office of the Chief Financial Officer	09/19/2024

Version History

Version	Date	Description
V0.5	12/27/24	Baselined internal use only version of the "2030 Census Operational Plan."
V0.73	06/30/25	Revised based on Executive Orders and other updates.

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1. INTRODUCTION

The "2030 Census Operational Plan" is a high-level, narrative description of the operational design or approach for the 2030 Census. This document is a middecade snapshot of the work currently underway or planned to successfully achieve our mission. The mission of the 2030 Census Program is to determine where everyone in the nation lives, count the people at those locations, and share the results with the president, the states, and the American people. This plan is the primary means for communicating the design of the 2030 Census to U.S. Census Bureau staff and external stakeholders. The operational design covers the full scope of the 2030 Census Program which results in a count of the nation's population and housing across the 50 states, the District of Columbia, Puerto Rico, and for the four Island Areas (American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands).

Key Improvements for the 2030 Census

- Increased operational efficiency and improved data quality through expanded use of administrative and supplemental data.
- Modernized enumeration of people living in group quarters and other unique living arrangements.
- Increased use of shared systems and programs to reduce the need for decennial-specific solutions.
- Transformed design for processing responses to improve quality of response data.
- Optimized field support operations and infrastructure.

Baseline 1 of the 2030 Census design, described in this document, starts with the 2020 Census design and incorporates lessons learned, research results, ongoing work, and improvements. Also included in the design are inputs from the public via the 2030 Census Federal Register Notice and small-scale testing performed during the 2030 Census Design Selection Phase. Baseline 1 informs the test topics that will be evaluated for operational viability through small-scale testing and during the 2030 Census Program's first large-scale field test in 2026 (the 2026 Census Test). It also informs other parts of the program, including the development of the 2030 Census Life Cycle Cost Estimate and the determination of requirements for operational and information technology (IT) solutions.

The "Key Improvements for the 2030 Census" text box in the Introduction highlights several major innovations and efficiencies for the 2030 Census that build on the 2020 Census design. We are increasing operational efficiency and improving census data quality and accuracy through expanded use of high-quality administrative and supplemental data. We are modernizing the enumeration of people living in group quarters (GQs) and other unique living arrangements. We are being more efficient by leveraging systems and programs already used throughout the Census Bureau instead of building unique solutions for the 2030 Census. Examples of these efficiencies include leveraging the Geographic Support Program (which enables address updating throughout the decade) and a shared Census Bureau-wide solution for data collection. Additionally, we are transforming data processing and improving data quality and accuracy by determining how best to process, review, and edit data concurrent with collection. Finally, we are streamlining our footprint in the field offices by reducing the number of planned local census offices and conducting all training virtually. Other improvements and efficiencies are delineated in each section of this document. These efforts will help us strengthen our management of this mission-critical program, which will produce a complete and accurate statistical portrayal of the United States population.[1]

Baseline 1 describes work needed in terms of operational areas (i.e., groupings of related work or business functions).[2] We then perform testing for operational viability, e.g., the 2026 Census Test, small-scale testing, and simulations. This way we benefit from test results before we organize, integrate, and baseline the 2030 Census operations. Specific operations will be identified and described in Baseline 2 of the operational design, which we plan to document and release in version two of this plan in summer of 2027. While some operational areas in Baseline 1 will become operations in Baseline 2, others may be divided into multiple operations or integrated into a single operation.

[1] A key focus of our testing and research was to improve the accuracy of the counts.
[2] The "2030 Census Operations Strategy and Roadmap" released April 8, 2024, provides more information on this incremental approach for maturing 2030 Census operations, starting with business functions middecade.

1.1. Importance of Census Data: Why We Do What We Do

The census data are important and must meet high-quality standards. The decennial census is the major source of comprehensive statistical information about everyone living in the 50 states, the District of Columbia, Puerto Rico, and the four Island Areas of American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands. We count people in all living situations (e.g., houses, apartments, mobile homes, nursing homes, correctional facilities, student housing, marinas, campgrounds, and locations where the unhoused live). Data collected for most living situations include usual home elsewhere, housing tenure, relationship to householder, sex, age, race, and ethnicity.[3]

The data collected by the decennial census are used to apportion the number of seats each state has in the U.S. House of Representatives, as mandated in the U.S. Constitution:

> **Article I, Section 2**: The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years.
>
> **14th Amendment, Section 2**: Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State . . .

In addition, the Census Bureau is statutorily required to provide redistricting data to the states by April 1, 2031.

> **Public Law 94-171 (adding Title 13, United States Code, Section 141(c))**: " . . . to provide for the transmittal to each of the several States of the tabulation of population of that State obtained in each decennial census and desired for the apportionment or districting of the legislative body or bodies of that State, in accordance with, and subject to the approval of the Secretary of Commerce, a plan and form suggested by that officer or public body having responsibility for legislative apportionment or districting of the State being tabulated, and for other purposes."

State and local governments use decennial census data for redistricting, that is, defining the representative boundaries for congressional districts, state legislative districts, and other electoral districts.

One of the most motivating benefits of encouraging participation in the census is that data from the Census Bureau are used to inform the distribution of trillions of federal dollars each year. While the Census Bureau does not determine any funding formulas or distribute any funds for these programs directly, our census data are used as inputs into decisions that allocate funding for programs like infrastructure (e.g., roads, bridges, public transportation), health care (e.g., the Medicaid program), education (e.g., the Head Start program for school readiness of children), block grant programs for community mental health services, the Supplemental Nutrition Assistance Program, and planning and development (e.g., new schools, hospitals, and public facilities). By participating in the census, the public can help make a difference with their local government, businesses, and nonprofit organizations in meeting the needs of their community.

Further, other important tribal, state, and local government uses of decennial census data include:

- Monitoring compliance with voting rights and civil rights legislation.
- Forecasting the number of people eligible for government benefits.
- Distributing funds for education and other social programs.
- Predicting disaster relief needs.

Island Area governments use census data to access federal funding opportunities to better understand the characteristics of a changing population (such as age and household composition), and to understand and address emerging needs (such as access to employment, health insurance, and internet services).

Decennial census data play an important role in U.S. commerce and the economy. As businesses expand their use of data to make decisions that impact their success and shape the nation's economy, they increasingly depend on data from the decennial census. For example, local businesses use decennial census data to help decide where to add jobs and open new stores. At the national level, businesses rely on decennial census data for decisions on product development, marketing, demand forecasting, and determining the optimum location of new sites.

[3] Designation is for individuals living or staying in a place other than their usual domicile on Census Day, April 1, 2030.

In addition, decennial census data are typically used to create survey controls within and outside the government, for social research, and to form the basis for the annual population estimates. For example, decennial census results are used to determine the sample for dozens of current surveys conducted by the Census Bureau, including the American Community Survey (ACS) <www.census.gov/programs-surveys/acs.html>.

The decennial census data must meet high-quality standards to support sound decision-making and to continue building confidence in the government, society, and economy.

1.2. 2030 Census Mission and Strategic Goals

The mission, vision, and guiding principles for the 2030 Census are described in **Figure 1**. Census Bureau executive leadership provided the guiding principles to serve as the foundation on which to build the program.

Figure 1.
2030 Census Mission, Vision, and Guiding Principles

MISSION	Conduct a census of population and housing and deliver data to the president, the states, and the American people.
VISION	An efficient, effective, and quality census that counts the people of our nation, once, only once, and in the right place.

GUIDING PRINCIPLES

Follow disciplined program and engineering management practices.	Simplify quality-driven designs, solutions, and methods.	Leverage agency programs early to distribute program work, resources, and costs more evenly across the life cycle.	Optimize field data collection by using high-quality alternative data sources whenever possible.	Engage effectively with external stakeholders and Census Bureau experts throughout the decade.

The 2030 Census mission, vision, and guiding principles are accomplished through the following four goals:

- **Goal 1: A Complete and Accurate Census**. Because we strive for a complete and accurate census, the Census Bureau is expanding the use of administrative and supplemental data to include administrative records, third-party data, and census and survey data, and building on 2020 Census innovations for household enumeration.[4] Our mandate is to count everyone in our nation. To improve the accuracy of the 2030 Census, we are focusing on the counts and data about those who are hard to count.
- **Goal 2: Trusted and Valued Results**. The success of the 2030 Census relies on delivering quality results that are accurate, credible, and confidential. To achieve this, we are conducting and planning implementation activities with integrity and objectivity. We are using improved, impartial, validated, and secure statistical methodologies. To maximize participation by all demographic groups, the Census Bureau must create an environment that makes it easy to be counted, protects respondent privacy, and maintains confidentiality.
- **Goal 3: A Well-Managed and Cost-Effective Program**. 2030 Census design work builds on 2020 Census innovations—creating more efficient testing strategies and employing an enhanced management model. A combination of strategic management, outcome management, and progressive elaboration allows for data-driven decisions and maximum flexibility. This nimble approach is important for operational and IT solutions across the census life cycle when we must adapt to the changing environment as demonstrated in Figure 3. Finally, an improved work breakdown structure encompassing the full scope of the program, integrated with schedule and cost, affords us the information to manage work more effectively.

[4] Administrative and supplemental data refer to data collected and maintained by federal, tribal, state, and local governments. This includes the Census Bureau's macro- and microdata. Supplemental data refer to data collected and maintained by some commercial entities, and publicly available data sources. Administrative and supplemental data are key to improving the quality of the 2030 Census, including frame development, motivating response, processing self-response data, and validating the work of field staff.

- **Goal 4: A Stable and Appropriately Sized, Skilled, and Structured Workforce**. The 2030 Census Program is working with the Department of Commerce and the Census Bureau's Human Resources Division to improve human capital management systems and processes to help facilitate continuity, retain critical knowledge, and clearly define, recruit, and retain the positions and skills to meet future program needs. These systems and processes are designed to support hiring hundreds of thousands of short-term and part-time employees leading up to and through peak production. Finally, the program's organizational structure is designed to support the effective delivery of human capital resources.

Each goal is supported by a set of objectives as described in **Figure 2**.

Figure 2.
2030 Census Goals and Objectives

Goal	Objectives
1. Complete and Accurate Census	1.1 All Living Quarters Associated With an Address 1.2 Accurate Response Data Obtained for All Identified Living Quarters and Persons
2. Trusted and Valued Results	2.1 Products, Data and Services Meet User Needs for Relevance and Usability, While Maintaining Confidentiality 2.2 Positive and Continual Support From Oversight 2.3 Positive and Continual Support and Participation From Partnering Organizations, Other External Stakeholders, and the Public
3. Well-Managed and Cost-Effective Program	3.1 Strategy and Performance-Driven Program 3.2 Well-Managed and Integrated Scope, Schedule, and Cost 3.3 Integrated, Robust, and Flexible Operational and IT Designs and Solutions 3.4 Efficient and Effective Peak Production Operational Support Infrastructure 3.5 Efficient and Effective Engineering Management Processes 3.6 Effective Acquisition Approach and Management 3.7 Effective Governance, Communications, and Decision-Making Processes
4. Stable and Appropriately Sized, Skilled, and Structured Workforce	4.1 Appropriately Sized, Skilled, and Structured Headquarters Workforce 4.2 Appropriately Sized and Skilled Decennial Census Field Workforce

More information about the 2030 Census mission, vision, guiding principles, goals, objectives, and strategies is available in the "2030 Census Strategy v1.0."

1.3. CONSTRAINTS AND CHALLENGES

Planning for the 2030 Census requires understanding the inherent constraints and challenges. Constraints are aspects of the environment that limit or restrict program plans and decisions, and sometimes we must adapt the design to address them. Some constraints identified to date include:

- Changes and events outside the Census Bureau's control (e.g., changes in laws or natural disasters).
- Legal mandates, such as Census Day (April 1, 2030), and the apportionment count to be delivered on December 31, 2030. More information is available in **Figure 25**.
- Other applicable laws, policies, and regulations (including Title 13, Title 5, and Title 26) that govern privacy and confidentiality and those that determine who should be counted and where. More information is available in "Appendix B. Security Privacy and Confidentiality."
- Constrained fiscal environment.

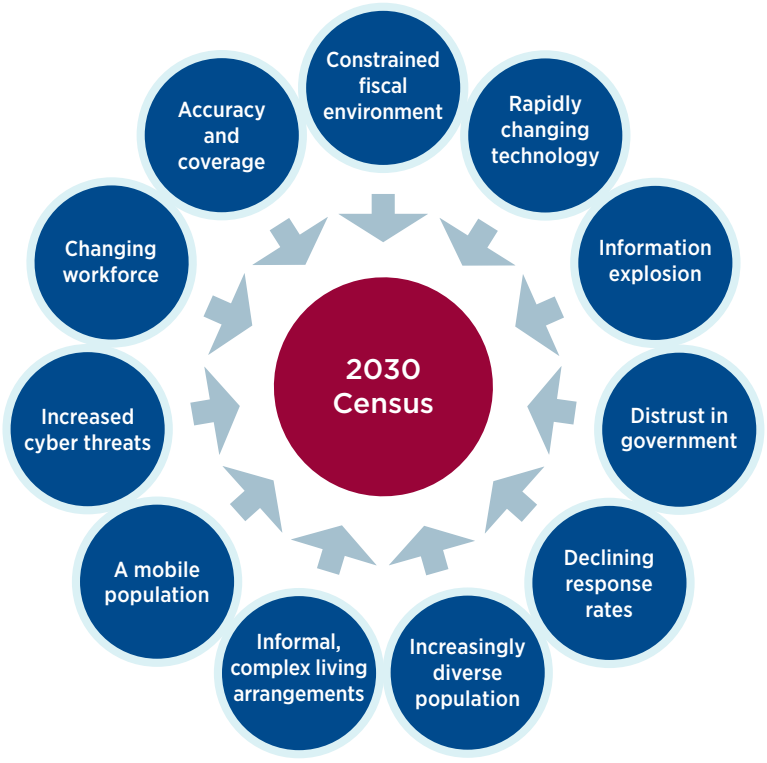
On the other hand, challenges are new or persistent issues that the design must address. Challenges can become constraints as well. Some challenges identified to date include:

- Expanding cyberthreats: Increasing threats by foreign adversaries and other malicious actors can harm the reputation of the Census Bureau and compromise the integrity of the data, requiring increasing defensive measures and resources to defend against these attacks.
- A changing workforce: The ability to hire and retain staff with the right skills, at the right time, is a growing challenge, given the tendency of today's workforce to change jobs more frequently. Additionally, the high demand for key skills and knowledge, such as systems engineering, data science, and analytics creates a competitive environment.
- Distrust in government: Concerns about information security and privacy, the confidentiality of information given to the government, and how government programs will use the information it collects continue to grow, making it more difficult to collect important demographic census and survey information.
- Accuracy and coverage: There are persistent accuracy and coverage errors within subsets of the U.S. population, such as young children.
- Rapidly changing technology: The state of technology is difficult to predict. Rapid technological advances, including the use of artificial intelligence and machine learning, make it difficult to effectively plan and design 2030 Census technology years in advance.
- Triple trade-off of official statistics: All statistical techniques to protect confidentiality impose a trade-off between the degree of data protection and the availability and utility of the statistics. (With the completion of the 2020 Census data products in September 2024, this research is a priority starting in FY2025.)

The constraints and challenges confronting the 2030 Census Program, notionally depicted in **Figure 3**, must be monitored and controlled, to the extent possible, to achieve the mission. These factors add risk to an already complex and lengthy program.

Figure 3.
Constraints and Challenges for the 2030 Census

The 2030 Census is a complex effort—occurring in an evolving environment with constraints that must be planned for and challenges that we must adapt to.



Note: This illustrative list is not all encompassing. More discussion is provided in the "2030 Census Strategy," available at <https://www2.census.gov/programs-surveys/decennial/2030/program-management/planning/strategic-documents/2030-strategic-doc-strategy.pdf>.

1.4. 2030 Census Overview

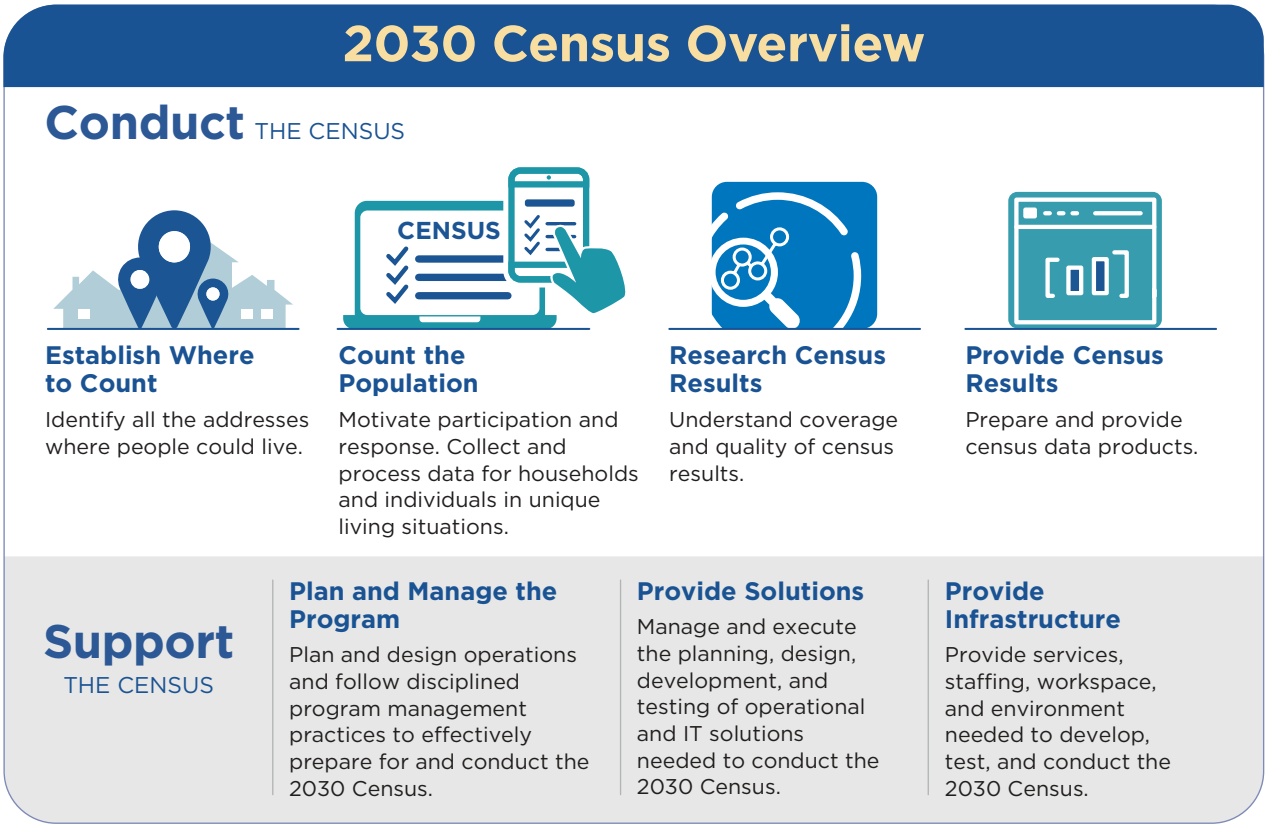
The operational design is our approach for planning and executing the work needed for the decennial census. **Figure 4** provides an overview of the 2030 Census design. It includes seven concept areas that describe all the work needed for a successful 2030 Census. These seven concept areas are organized into two groupings: Conduct the Census, which includes the work directly contributing to the 2030 Census mission, and Support the Census, which encompasses the work to plan, manage, and provide the staff, solutions, and infrastructure needed to conduct the 2030 Census.[5]

One of the ways we use this overview is to organize and describe the work in this document. **Figure 4** will be referenced throughout the document as we describe the work needed for a successful 2030 Census. It is important to note that while this document describes the work sequentially, the reality is the work is often happening in parallel throughout the decade. The 2030 Census Program has a 14-year lifecycle and is highly complex, thus Figure 4 is a simplified view not meant to capture these nuances.

The first concept area, **Establish Where to Count**, is the first step in conducting the 2030 Census. Within the work of **Establish Where to Count**, we identify all locations where people live and associate a known address, geocode, and geographic coordinates with each location. We count people living or staying in all types of living quarters or places, such as traditional households, group quarters (GQs), and other unique living arrangements including emergency and transitional shelters, campgrounds, recreational vehicle parks, hotels, and motels. We also count the unhoused as they visit meal kitchens or regularly scheduled mobile food vans.

A complete and accurate national address inventory (frame) increases the likelihood that everyone in our nation is counted once and in the right place. The Census Bureau is enhancing the 2020 Census innovations through a continual in-office address updating capability that services not only the 2030 Census, but also other surveys

Figure 4.
The 2030 Census Overview



[5] The work in "Research Census Results" (section 3.3) assesses the quality and accuracy of the current census as well as informs what should be researched further for the next decennial census. Thus, this concept has both mission-related work to conduct the 2030 Census and supports and informs the 2040 Census research phase.

and censuses conducted by the Census Bureau. This capability draws upon high-quality alternative data sources and seeks to continually improve the coverage and quality of the national address inventory throughout the decade.[6, 7] The 2030 Census plans to use this improved address information in conjunction with other sources of address list data (e.g., reviews with state and local governments) to minimize the need for costly in-field address updates during production.

In the second concept area, the Census Bureau strives to accurately **Count the Population** by collecting information from households and individuals, including those residing in GQs and other unique living arrangements. The 2030 Census continues the 2020 Census self-response innovations that made it easy for people to respond anytime and anywhere. (This is important since self-response data are the most accurate.) It also enhances the 2020 Census innovations around the use of administrative and supplemental data and improved methods for linking people to specific locations. The 2030 Census will automate the processes of counting people living in GQs and other unique living arrangements to increase the likelihood that everyone is counted. Another enhancement expected to improve the quality of the count is to begin processing responses while data collection activities are still occurring. As responses are processed, we plan to analyze them to identify and remediate potential coverage gaps or quality issues in near real time. Lastly, the 2030 Census plans to combine, simplify, or phase field operations to make them more efficient and effective.

The third concept area in conducting the census involves the work necessary to **Research Census Results**. Different types of research occur before, during, and after the 2030 Census data collection activities. Early research stems from lessons learned and insights gleaned during the prior decennial census. Later in the life cycle, during large-scale tests and peak production, evaluations are done to analyze, interpret, and synthesize the effectiveness of census activities and their impacts on coverage and quality, or accuracy. Experiments, which include quantitative and qualitative research, tap into the unique environment surrounding the decennial census and inform planning for the next census. Coverage is measured through independent efforts using formal demographic analysis and coverage estimation methodologies. Once operations are finished, assessments are conducted to document details about the operations (e.g., final volumes, rates, and costs). Results of assessments, combined with lessons learned, inform early planning for the 2040 Census. Improvements for the 2030 Census include refining the approach for the evaluations, experiments, and assessments, as well as redesigning coverage estimation work.

The fourth concept area is to **Provide Census Results**. The 2030 Census data are prepared—counts are sent to the Secretary of Commerce to give to the president for apportionment, to the states for redistricting, and released to the public. The 2030 Census Program is developing a research plan to investigate disclosure avoidance options based on 2020 Census lessons learned and data user feedback. This will help assure the 2030 Census data products provide the appropriate balance of data confidentiality, accuracy, and availability.

A successful decennial census requires numerous support activities and starts with fundamental work to **Plan and Manage the Program**, our fifth concept area. The 2030 Census Program is expanding disciplined approaches for managing all aspects of the program: managerial, IT and operational, to plan and achieve the mission, i.e., to plan and execute a census of population and housing and deliver results to the president, the states, and the American public. This work also includes the policies, processes, and tools needed to run an effective and efficient 14-year program, including the following new or strengthened efforts:

- A single work breakdown structure to manage the program scope, schedule, and cost.
- A new program architecture process focusing on business and systems integration from early planning through execution to better meet program needs.
- A strengthened operational design and IT solutions through iterative development.
- A newly developed set of strategies for acquisitions based on experiences garnered during the 2020 Census.

Equally important are efforts under the sixth concept area required to conduct the 2030 Census: **Provide Solutions**, which includes operational (e.g., operational procedures) and IT solutions (e.g., software applications). The solutions are planned, designed, developed, and tested using disciplined systems engineering processes. The 2030 Census Program also embraces the expanded use of shared Census Bureau-wide programs and systems to reduce the number of decennial census-unique solutions, and thus increase efficiency. More information is available in Appendix A.

[6] Coverage—The number of people and housing units accurately counted as opposed to those missed or erroneously included in the decennial census. When summarizing or describing the coverage of the census or survey at the aggregate level (e.g., a geographic area or a race group), consider the terms “undercount” or “overcount.”

[7] Quality—An encompassing term comprising utility, objectivity, and integrity.

The seventh concept area, **Provide Infrastructure**, is the last step in the work to support the census and involves planning for and acquiring the services, staff, workspace, and environments needed to develop, test, deploy, operate, and maintain the solutions needed for large-scale tests in the field and for 2030 Census peak production.

As previously noted, the overview diagram describes the work in this document. **Figure 5** describes the terms used and referenced in this plan to describe the decomposition of our work:

- A concept area is a grouping of operational work that, when completed, achieves a defined outcome needed to conduct and support the 2030 Census Program. For example, the 2030 Census concept area, **Establish Where to Count**, is a grouping of all the work associated with determining all the locations where people live.
- An operational area is a subset of the work within a concept area that accomplishes a defined portion of the outcome associated with the concept area. For example, Decennial Address Frame Management is an operational area within the **Establish Where to Count** concept area.
- An operational activity (or an activity) covers a specific part of the scope of an operational area for a related set of work. All activities combined within an operational area represent the full scope of work. For example, Housing Unit Address Frame Monitoring and Decennial Address Products and Services are the activities within Decennial Address Frame Management.

As described in **Figure 5**, section 3 of this document describes the design and work needed to conduct the census, including all operational areas needed to complete the mission. Section 4 describes the design and work to support the census, including the operational areas needed to enable the mission. Each concept area in sections 3 and 4 includes a figure that summarizes the work and depicts the operational areas, and the operational activities included in that scope of work (refer to the section of **Figure 5** labeled "**Establish Where to Count**"). Additional summary information is included for key innovations or efficiencies since the 2020 Census and the types of work (functions) performed. Furthermore, for each operational area described in these sections, we include the following information:

- Purpose and Scope, including a mapping to 2020 Census operation(s).
- Description.
- Impact on Quality (Accuracy) of Census Results.
- Privacy and Confidentiality.
- Administrative and Supplemental Data Use.

1.5. An Iterative Approach to Maturing the Operational Design

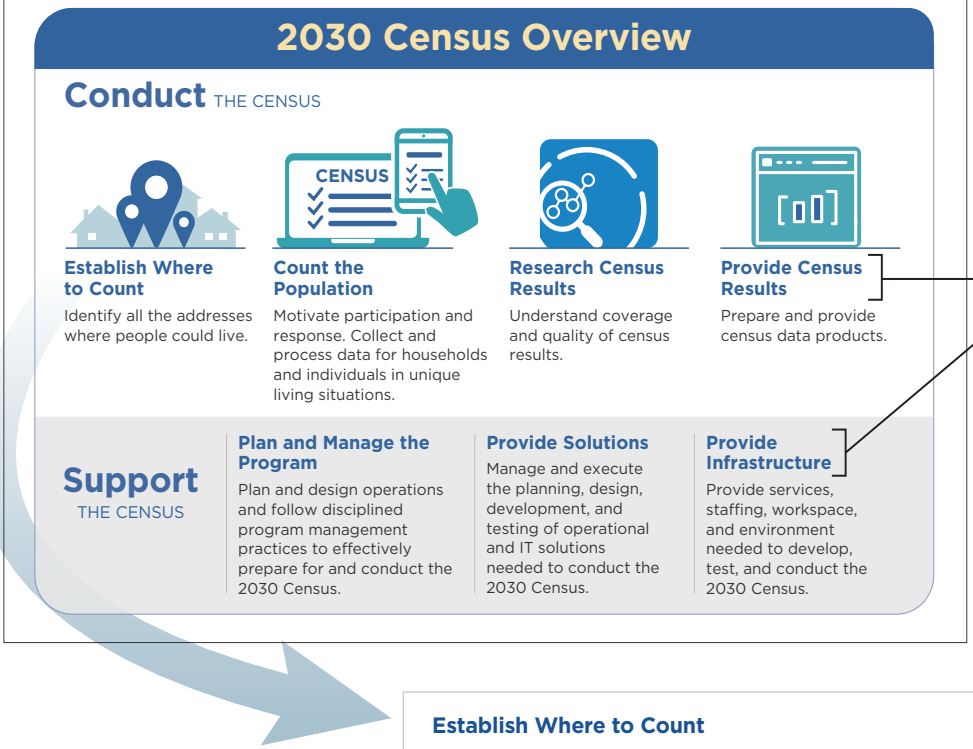
The 2030 Census operational design will mature over the decade. **Figure 6** details how the baselines evolve. Baseline 1 will build heavily on 2020 Census successes, best practices, and opportunities for modernization or efficiency. These opportunities, called Enhancement Areas, have been researched and investigated during the past several years (FY22–FY24). The results of small-scale testing also inform Baseline 1. The initial design, Baseline 1, (described in this document) is high level and conceptual at the middle of the decade.

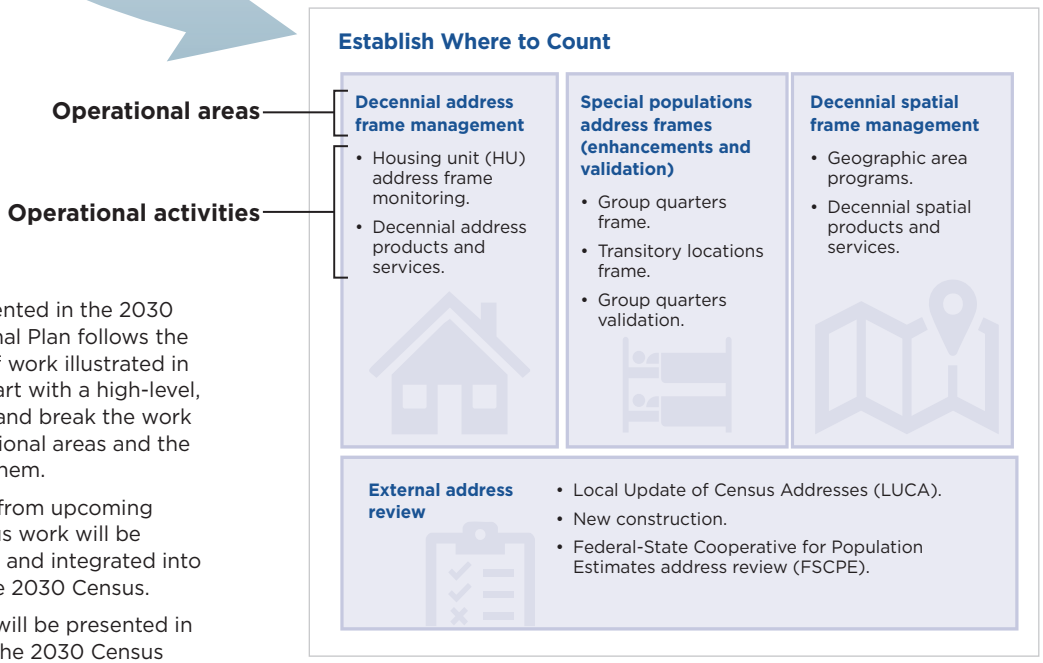
Baselines 2 and 3 of the operational design, described in subsequent updates to this plan, will be released over the next few years. We will share more details after we learn from the small- and large-scale tests intended to prove operational viability (the 2026 Census Test) and test end-to-end cohesion of operations (the 2028 Dress Rehearsal). Test results, such as exploring partnerships with other federal agencies to enhance coverage and reduce costs, will inform the operational design used for peak production, which starts in FY29 and peaks in FY30 before tapering down in FY31 and FY32. This iterative approach to maturing the design will allow for evidence-based decision-making and affords flexibility throughout the decade when we must adjust the design to accommodate potential budgetary uncertainty and other challenges.

Figure 7 highlights the process followed throughout the decade to ensure mature operations are ready for 2030 Census peak production. The Operational Design Activities section of the figure, which includes the Research Projects and Operational Design Definition sections, outlines where we are in the process as of FY25. Because the design process repeats three times in the census life cycle, we include it throughout this plan for ease of reference. Refer to the "Operational Strategy and Roadmap" at <https://www2.census.gov/programs-surveys/decennial/2030/program-management/planning/strategic-documents/2030-strategic-doc-operations-roadmap.pdf>, released April 2024, for additional information.

Figure 5.
2030 Census Program Components

Figure 4.
The 2030 Census Overview





Information presented in the 2030 Census Operational Plan follows the decomposition of work illustrated in this figure. We start with a high-level, conceptual view and break the work down into operational areas and the activities within them.

Based on results from upcoming testing, the census work will be further organized and integrated into operations for the 2030 Census.

This information will be presented in later versions of the 2030 Census Operational Plan.

Figure 6.
Iterative Design Approach

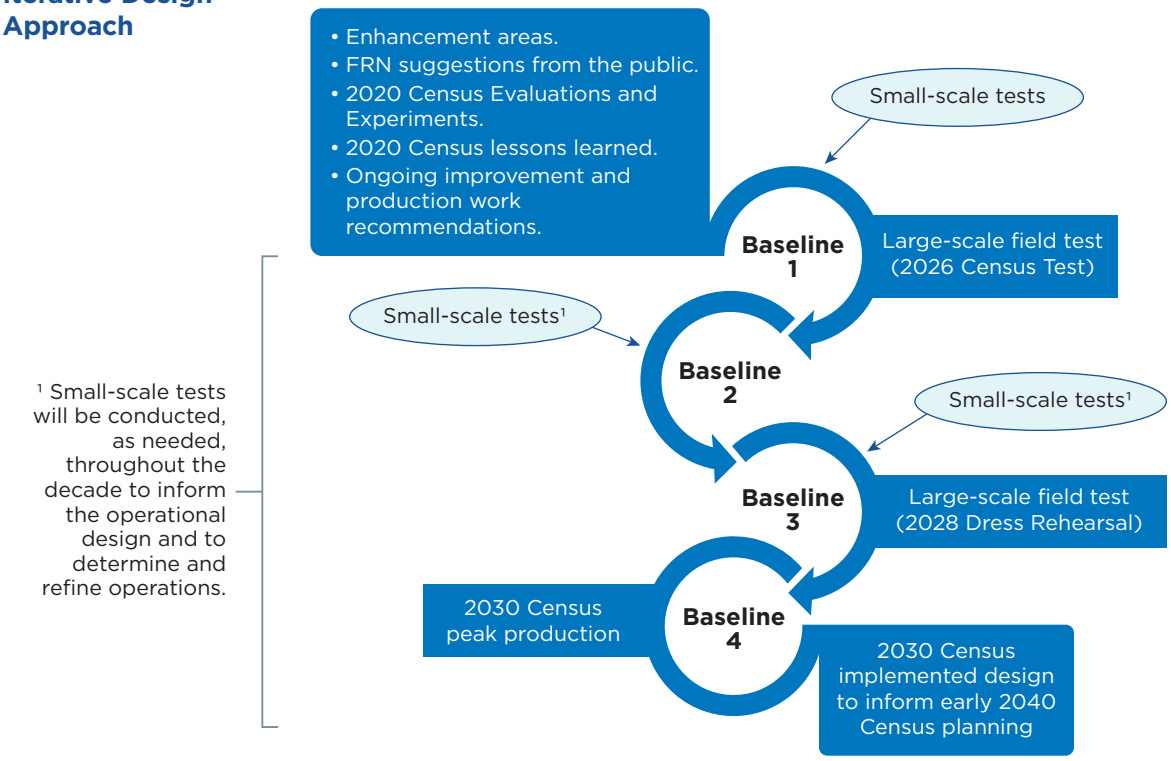


Figure 7.
Iterative Design Process

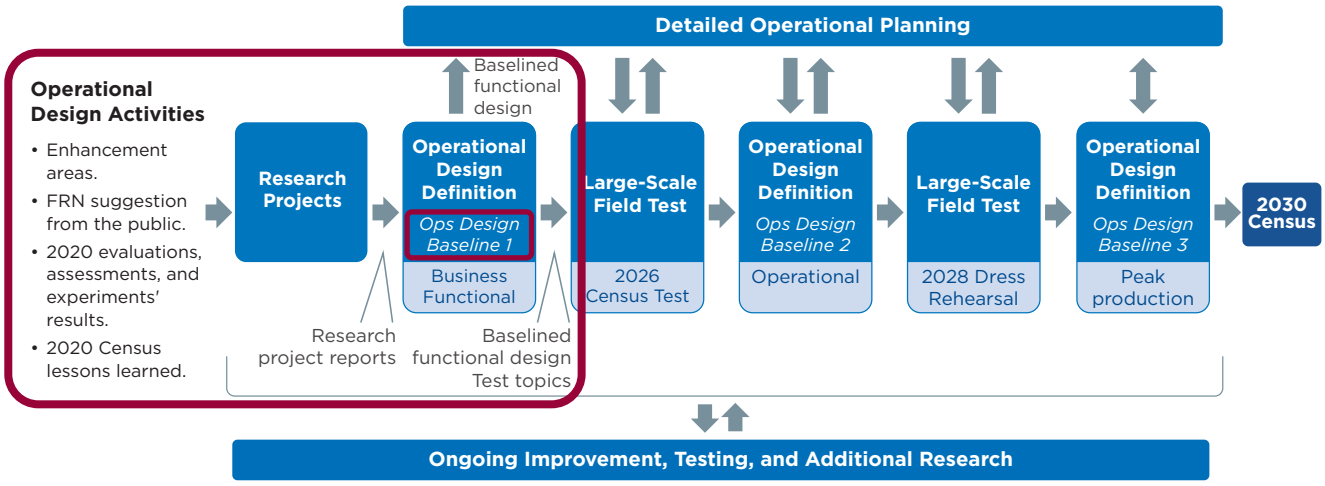


Table 1.
2030 Census Research Priorities (Enhancement Areas)

Enhancement Area	Description
Simplify data collection	Enhance data collection to reach and count everyone more effectively and to improve the efficiency of these activities while maintaining quality. This enhancement area includes four subenhancement areas (self-response, in-field and in-office enumeration, response data quality and questionnaire content, and coverage estimation). The research projects in the data collection enhancement area strove to: • Improve contact strategies. • Refine questionnaire content. • Innovate the operational design. • Increase response motivation.
Modernize group quarters and special populations enumeration	Addressed complex and evolving living situations by modernizing group quarters enumeration. Specifically, this enhancement area researched better ways to count people living in correctional facilities, nursing homes, college/university student housing, and other complex living situations. Key aspects of this research included efforts to: • Improve engagement with facilities and stakeholders. • Enhance the frame with a focus on group quarters and transitory locations. • Refine definitions for GQ-type codes. • Automate additional data collection options. • Improve Service-Based Enumeration to count people experiencing homelessness.
Integrate data processing with data collection in near real-time	Streamlined processing and improve data quality by determining how best to: • Process, review, and edit data concurrent with collection. • Streamline post-collection processing.
Optimize operational support infrastructure	Provided a strong foundation of people, places, and IT to support production operations by improving the effectiveness of decennial census field operations. A primary task for this enhancement area was to increase the use of innovative solutions for onboarding, training, and supporting decennial census field staff. Specific goals were to: • Reduce the physical footprint of infrastructure. • Increase the use of innovative solutions.
Streamline operational support infrastructure	Provide a strong foundation of people, places, and information technology to support production operations by improving the effectiveness of decennial field operations. A primary task for this enhancement area is to increase the use of innovative solutions for onboarding, training, and supporting decennial field staff. Specific goals are to: • Reduce the physical footprint of infrastructure. • Increase the use of innovative solutions.
Build on alternative data sources and methods for use throughout the decade[1]	Optimized continuous data collection and aggregation by leveraging existing data sources and seeking new ones while capitalizing on the Census Bureau's transformation. Key activities included research to: • Support continuous development of administrative and supplemental data sources for in-office enumeration and the assessment of coverage and quality. • Develop methods to effectively link the data within the Decennial Address and Person Characteristic Frames (refer to sections 3.1.1 and 3.2.12 for more information). • Conduct work to inform the enterprise Frames Program regarding coverage and quality of address and demographic data. • Pursue additional data sources for the Decennial Person Characteristic Frame.

[1] Related to Enhancement Area 5, the Continuous Count Study is an ongoing effort that provides important benchmarks for producing population and other estimates. More information about this work is available at <www.census.gov/about/adrm/linkage/projects/continuous-count-study.html>.

We are using 2020 Census lessons learned and opportunities for improvement as a foundation for the 2030 Census design. Aside from ongoing refinements, the research work conducted during the Design Selection Phase of the program (FY22–FY24) has provided crucial input. The research priorities were based on 2020 Census experiences and categorized into enhancement areas (refer to Table 1). In this way, Baseline 1 of the 2030 Census Operational Design reflects the experience of the 2020 Census. It merges the research, small-scale testing, and continuous improvements performed over the past few years to plan for the 2030 Census. The results of this work are documented in Sections 3 and 4.[8]

2. QUALITY: A CORNERSTONE OF THE CENSUS

The vision for the 2030 Census is to conduct and achieve an efficient, effective, and accurate count of the people in our nation, ensuring that each person is counted once, only once, and in the right place. To attain this vision, especially for the hard to count, the Census Bureau spends years extensively planning, researching, and testing. The 2030 Census Program engages with the public early in its planning and incorporates decades of quality assurance procedures into its preparations, building off previous censuses. Quality control measures are integrated into every stage of the census—from the initial collection of responses to data processing and confidentiality protection. After the census data are released, an evaluation is conducted to assess the accuracy of the census and compare the results with other population measures. Each operational area has quality processes and procedures specific to their work. Each operational area's impact on the overall quality of the census is described in sections 3 and 4.

2.1. Quality Assuarance and Control

For the 2030 Census, we are taking a long-term, holistic approach to quality for an accurate and efficient census. We have accumulated decades of quality assurance procedures that are the basis for our quality framework. Using this framework early in the decade helps us organize and coordinate quality assurance and monitoring activities. During the Design Selection Phase of the census life cycle, we researched quality improvements through research projects (additional information is found in section 1.5) in conjunction with ongoing improvements and small-scale testing. New strategies are being implemented to integrate and support cross-operational quality-related efforts. Benefits of this approach to quality include:

- Identifying opportunities for internal collaboration with subject-matter experts to help realize operational efficiencies.
- Developing a quality framework that evolves as research and planning continue.
- Integrating more quality checkpoints at every stage of data preparation, collection, and processing.

Quality control measures are integrated into every stage of the census, from the initial collection of responses to data processing and confidentiality protection. Even after the census data have been released, the Census Bureau continues assessing data quality. Final census results are compared with other population measures to evaluate the coverage and accuracy of the census numbers.

New for the 2030 Census is near real-time response processing, where data results are tallied as the data are collected. The advantage of compiling data continuously is that anomalies can be investigated and corrected during data collection, thereby improving data quality and accuracy.

[8] Additional research is occurring throughout the decade, as needed. One example is the disclosure avoidance research. Investigation into disclosure avoidance methods began after the 2020 Census data products were released in September 2024. disclosure avoidance methods began after the 2020 Census data products were released in September 2024.

Figure 8 describes data quality activities before, during, and after data collection.

Figure 8.
A Strong Focus on Quality and Accuracy

The 2030 Census program is incorporating a range of activities before, during, and after data collection to improve the quality and accuracy of the census results.[1]

Activities prior to data collection	Activities during data collection and processing	Activities after collection response processing	Activities evaluating quality after response data collection
• Develop and document quality control processes. • Perform quality control checks for self-response options. • Test solutions (IT and operational). • Develop quality processes for the translation of non-English language materials.	• Execute quality control processes to reduce the impact(s) of falsification and/or error. • Monitor to ensure operational quality. • Identify and remediate low-quality responses. • Perform near real-time data reviews.	• Implement imputation processes. • Perform final edits and consistency checks. • Apply disclosure avoidance methods to protect privacy and confidentiality. • Conduct final data reviews.	• Release operational quality metrics. • Conduct assessments and evaluations. • Compare census data to independent sources of data.

[1] Response processing is occurring in near real-time during and after data collection.

2.2. Hard to Count

One key to improving quality is reaching people in households that are more difficult to enumerate. When traditional enumeration methods may not capture a population fully in the census, that population is referred to as hard to count, as depicted in **Figure 9**. The Census Bureau considers the hard-to-count populations as belonging to one or more of the following segments:

- Hard to locate.
- Hard to contact.
- Hard to persuade.
- Hard to interview.[9]

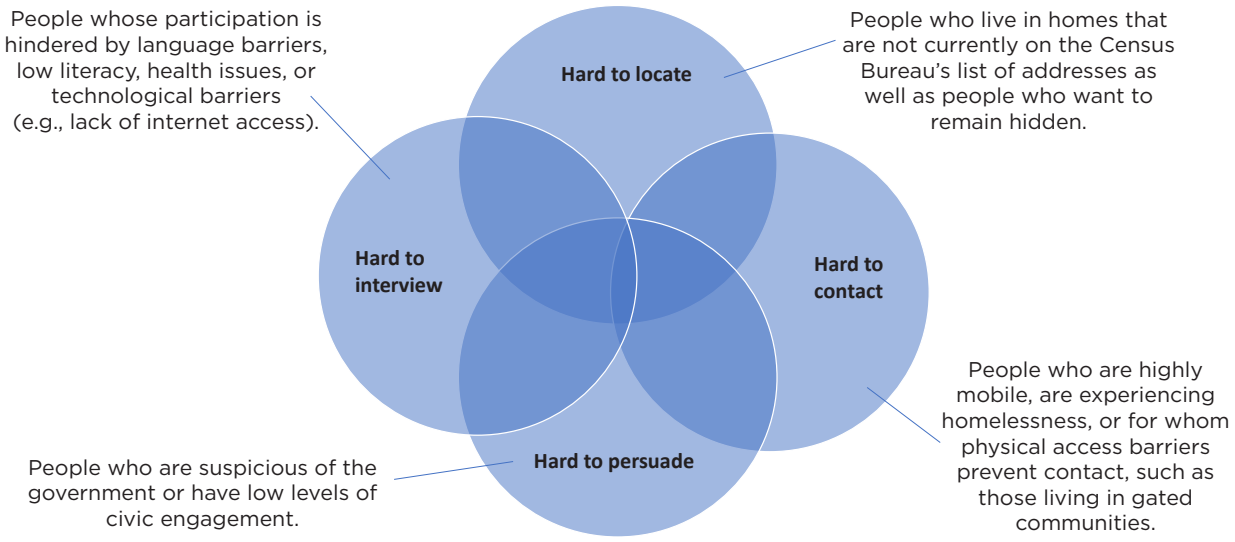
By increasing our understanding of these populations, the Census Bureau can determine new ways to engage with them, thus improving the likelihood that they are counted.

Examples of hard-to-count populations include the following groups:

- Limited English proficiency populations.
- Low-income populations.
- People who do not live in traditional housing.
- People with disabilities.
- Racial and ethnic minorities.
- Undocumented immigrants.
- Young children.

[9] "Counting the Hard to Count in a Census," Select Topics in International Censuses, July 2019, <www.census.gov/content/dam/Census/library/working-papers/2019/demo/Hard-to-Count-Populations-Brief.pdf>.

Figure 9.
Hard-to-Count Framework



By partnering with community leaders and engaging with stakeholders to improve outreach to these hard-to-count populations, the Census Bureau can better understand and plan for the challenges associated with enumerating them.

Another program that helps to enumerate hard-to-count populations is the Local Update of Census Addresses (LUCA) operational area, where tribal, state, and local governments can review and comment on the 2030 Census address list before the census begins. This process improves the address universe, which increases the likelihood of achieving an accurate population count for the communities that participate in LUCA. These processes also help identify hidden housing units (HUs), so they can be contacted as part of the census outreach.

Another area that helps to enumerate segments of the hard-to-count populations is the Language Program. Materials are provided to the public in numerous languages to support residents with limited English proficiency. For example, the 2020 Census Language Support program offered 12 non-English languages for online self-response and provided video and print language guides in 59 non-English languages.

To encourage self-response from as many people as possible (since self-response data are the most accurate), respondents are also offered a choice regarding their preferred format for completing the census questionnaire, including online, on paper, and by phone. In addition, Mobile Questionnaire Assistance promotes the census by stationing Census Bureau representatives in community gathering places, e.g., grocery stores, libraries, and senior centers, to help the public respond to the census. This program takes place primarily in communities with low response rates or other challenges to response, such as low internet connectivity or low literacy.

By comparing the final census results to other sources of population data, the Census Bureau measures the coverage of different demographic groups. Some groups may be consistently undercounted—these are considered historically undercounted populations and are a subset of hard-to-count populations—while others may be overcounted. Examples include the following groups:

- Black or African American.
- American Indian or Alaska Native living on reservations.
- People who indicate that they are some other race.
- Hispanic or Latino.
- Young children, aged 0–4.
- Renters.
- Males, aged 18–49.[10]

[10] Stempowski, Deborah, "Counting Every Voice: Understanding Hard-to-Count Populations," Random Samplings, November 7, 2023, <www.census.gov/newsroom/blogs/random-samplings/2023/10/understanding-undercounted-populations.html>.

Improvements to the internet self-response instrument aim to modernize the enumeration of hard-to-count populations. One enhancement involves collecting more accurate address information for people who respond without using their unique census identification number (Census ID). Another focus is the development of an internet self-response data collection instrument designed specifically for residents of certain types of GQs, such as college student housing and military barracks, enabling these residents to respond on their own.

The 2030 Census Program is undertaking quantitative and qualitative approaches to better understand why young children, aged 0 through 4, are persistently undercounted in the decennial census. A potential remedy for this group is leveraging birth records and other administrative and supplemental data to augment collected response data.

2.3. Using Administrative and Supplemental Data to Improve Quality

Administrative and supplemental data are key to improving the quality and accuracy of the 2030 Census. These data are used for frame development, motivating response, processing self-response, and validating the Census Bureau field staff's work. In this context, administrative and supplemental data refer to data collected and maintained by federal, tribal, state, and local governments, some commercial entities, and publicly available data sources, in addition to the Census Bureau's macro datasets and micro datasets.

Administrative and supplemental data are central to our efforts to modernize and improve the efficiency of the 2030 Census design. For each operational area described in sections 3 and 4, we indicate when administrative and supplemental data are used to improve data collection, support response processing, or otherwise improve the accuracy of the census. The following examples highlight where administrative and supplemental data can help modernize and improve the efficiency of the 2030 Census:

- Resolve coverage gaps in the address frame (refer to section 3.1.1, "Decennial Address Frame Management").
- Support self-response, including matching non-ID responses to the appropriate address (refer to section 3.1.1, "Decennial Address Frame Management").
- Supplement field enumeration for people living in nontraditional or unique living arrangements (refer to section 3.2.4, "Group Quarters and Special Populations Enumeration").
- Support in-field enumeration and quality follow-up activities (refer to Sections 3.2.2, "In-Field Enumeration" and 3.2.13, "Quality Assurance and Monitoring," respectively).
- Determine advertising and contact strategies to motivate the public to respond to the census (refer to Section 3.2.6, "Communications, Partnerships, and Engagement") and support hiring of workers in the field for enumeration work.
- Evaluate census data quality by comparing final census results to other population measures (refer to sections 3.3.2, "Demographic Analysis and 3.3.3 Coverage Estimation").

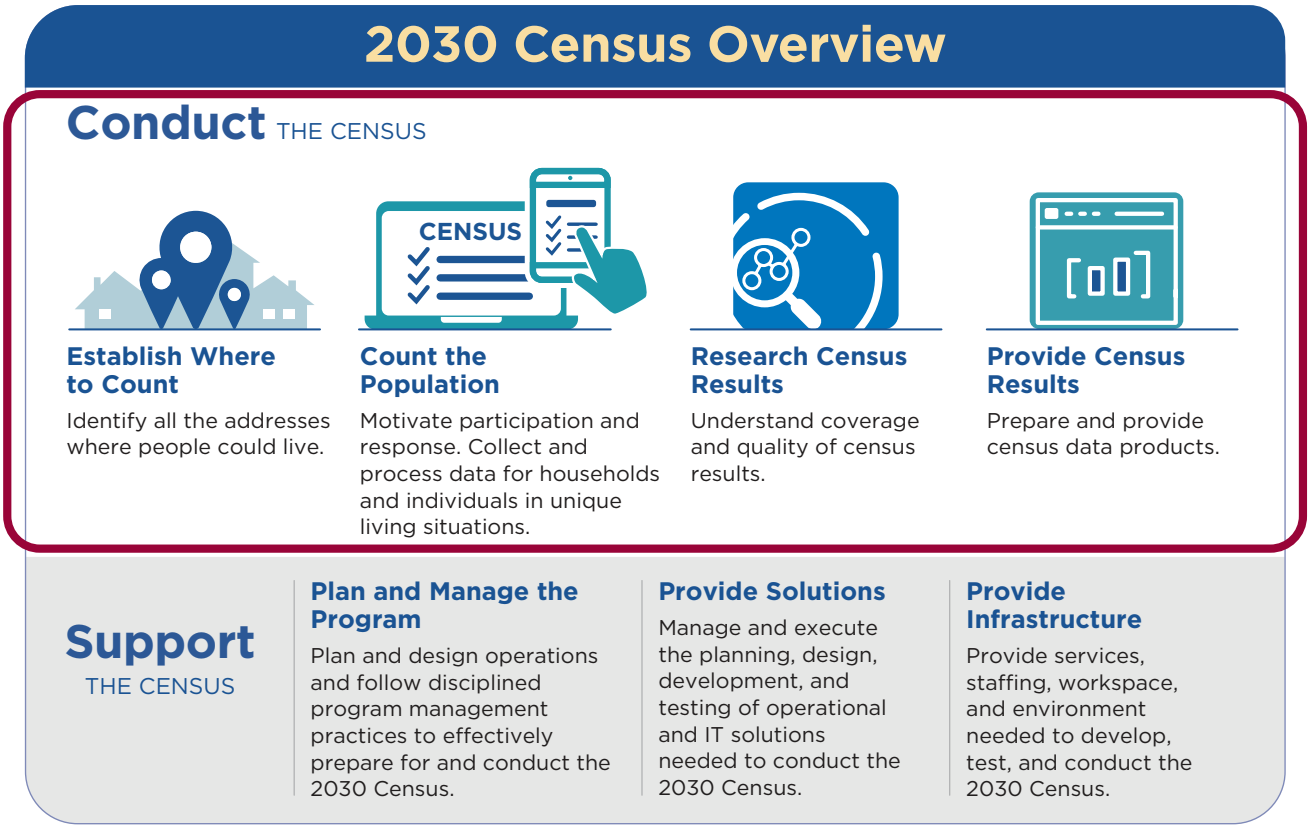
In summary, the Census Bureau is committed to achieving a well-managed, cost-effective census for our nation. Quality activities are highlighted in section 2 and the subsequent sections of this document because quality is a cornerstone of our efforts to plan and conduct an efficient and accurate census.

3. CONDUCT THE CENSUS

This section describes the operational design for the four concept areas within **Conduct the Census**. These concept areas (**Figure 10**) are:

- Establish Where to Count.
- Count the Population.
- Research Census Results.
- Provide Census Results.

Figure 10.
The 2030 Census Concept of Operations Overview



In **Figure 11**, the first two of the 2030 Census Program's goals and objectives are supported by activities under **Conduct the Census**.

3.1. Establish Where to Count

The purpose of **Establish Where to Count**, the first concept area of Conduct the Census, is to provide a complete and accurate inventory (or frame) of addresses and locations where people live to count them on Census Day. Each address or location is linked to a census block, which assists in data collection, tabulation, and publication. More information is available in section 3.1.1, Decennial Address Frame Management.

During the 2020 Census, **Establish Where to Count** work was encapsulated in six operational areas:

- Address Canvassing (ADC).
- Count Review Operation (CRO) including the Federal-State Cooperative for Population Estimates (FSCPE) address review.
- Geographic Programs (GEOP).
- Local Update of Census Addresses (LUCA).
- Update Enumerate (UE), which included Remote Alaska (RA).
- Update Leave (UL).

Figure 11.

Conduct the Census: Alignment to Program Goals and Objectives

Goal	Objectives	
1. Complete and Accurate Census	1.1	All Living Quarters Associated With an Address
	1.2	Accurate Response Data Obtained for All Identified Living Quarters and Persons
2. Trusted and Valued Results	2.1	Products, Data and Services Meet User Needs for Relevance and Usability, While Maintaining Confidentiality
	2.2	Positive and Continual Support From Oversight
	2.3	Positive and Continual Support and Participation From Partnering Organizations, Other External Stakeholders, and the Public
3. Well-Managed and Cost-Effective Program	3.1	Strategy and Performance-Driven Program
	3.2	Well-Managed and Integrated Scope, Schedule, and Cost
	3.3	Integrated, Robust, and Flexible Operational and IT Designs and Solutions
	3.4	Efficient and Effective Peak Production Operational Support Infrastructure
	3.5	Efficient and Effective Engineering Management Processes
	3.6	Effective Acquisition Approach and Management
	3.7	Effective Governance, Communications, and Decision-Making Processes
4. Stable and Appropriately Sized, Skilled, and Structured Workforce	4.1	Appropriately Sized, Skilled, and Structured Headquarters Workforce
	4.2	Appropriately Sized and Skilled Decennial Census Field Workforce

Figure 12 provides an overview of the **Establish Where to Count** concept area. **Establish Where to Count** is composed of four operational areas:

- Decennial Address Frame Management.
- Special Populations Address Frames.
- Decennial Spatial Frame Management.
- External Address Review.

Identifying all possible locations where people live, and the attributes of these locations, is the foundation for a complete and accurate census of population and housing. There are two types of frames that comprise the 2030 Census enumeration universe and guide the collection of census response data: (1) the address frame (set of addresses for HUs, GQs, or transitory locations) and (2) the spatial frame (boundaries and defined areas).

To prepare for the 2010 Census, a full Address Canvassing operation of the entire United States was performed the year before to validate and update the address and spatial frames compiled during the previous decennial census. Field address canvassing was necessary as the frames were not updated regularly between censuses.

For the 2020 Census, the Census Bureau conducted a targeted, rather than full, address canvassing operation for HUs, GQs, and transitory locations. In-office validation work using satellite imagery and other techniques significantly reduced the need for full field canvassing. The Census Bureau's Geographic Support Program (GSP), an enterprise initiative that supports many surveys and censuses, maintains the most accurate address frame possible. (In addition, the GSP improves geographic data, the use of administrative and supplemental data, and automated methods for change detection.)

Corresponding 2020 Census Operations

The work covered in the **Establish Where to Count** concept area was performed in the 2020 Census by the following operations:

- Address Canvassing (ADC).
- Count Review Operation (CRO) including Federal-State Cooperative for Population Estimates (FSCPE) address review.
- Geographic Programs (GEOP).
- Local Update of Census Addresses (LUCA).
- Update Enumerate (UE), including Remote Alaska (RA).
- Update Leave (UL).

Because of the success of this approach, the Census Bureau decided to further enhance the use of automated change detection by utilizing the increased availability of satellite imagery and faster geographic information processing in a cloud environment. Therefore, for the 2030 Census, a major change is the reliance on the GSP to update the addresses on an ongoing basis throughout the decade, instead of having a separate operation for targeted address canvassing, before peak production, as was done for the 2020 Census.

The address frame also undergoes various partnership reviews and updates before the census. One such review, the Local Update of Census Addresses (LUCA), is conducted under Title 13 U.S.C.§ 16. LUCA is the only opportunity offered to tribal, state, and local governments to review and comment on the Census Bureau's address list for their jurisdictions before the decennial census. We have developed additional tools and provided more time for training to improve the quality of submissions from these entities. We have also partnered with agencies and stakeholders in various states to identify and increase the coverage of service-based enumeration locations (e.g., community meal kitchens and regularly scheduled mobile meal vans).

The 2030 Census Program aims to implement several enhancements to the MAF/TIGER System. One is to help improve the quality of the information in the address frames for GQs and transitory locations (TLs). These address frames are referred to as the Special Populations Address Frames.

Another enhancement for the MAF/TIGER System is to include, for the first time, the location and characteristic information for HUs, GQs, and TLs in all four Island Areas: American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands.

Figure 12 also summarizes some additional items of note. First, there are six key innovations or enhancements for the 2030 Census work associated with **Establish Where to Count**:

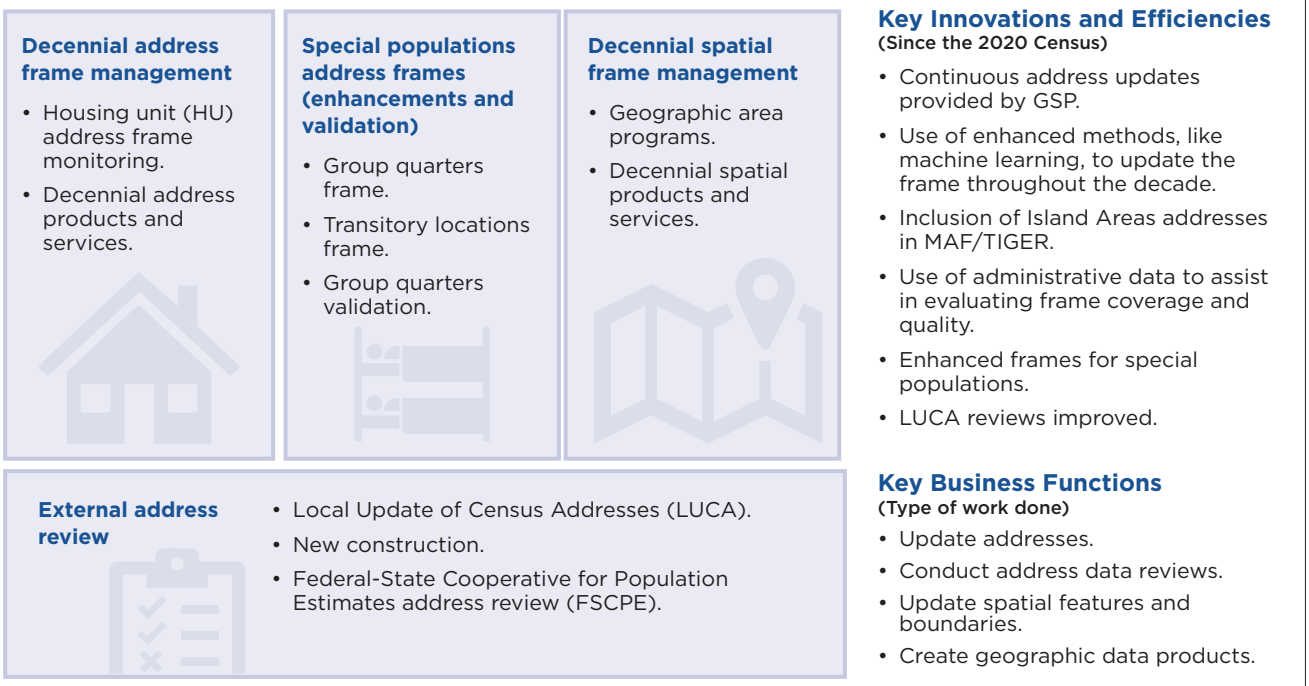
- Continuous address updates provided by GSP.
- Use of enhanced methods, like machine learning, to update the frame throughout the decade.
- Inclusion of Island Areas addresses in MAF/TIGER System.
- Use of administrative and supplemental data to assist in evaluating frame coverage and quality.
- Enhanced frames for special populations.
- LUCA reviews improved.

Additionally, building on experience from previous censuses, we use four key business functions to do the work of **Establish Where to Count**. Business functions are the different kinds of work required to conduct a census and include the following for **Establish Where to Count**:

- **Update addresses**: Add, delete, and move the addresses in the address frame to reflect the reality of what is on the ground.
- **Conduct address data reviews**: Provide an opportunity for specific partners, such as tribal, state, and local governments, and representatives, to review and provide updates to the census address list (e.g., LUCA).
- **Update spatial features and boundaries**: Add, delete, and move spatial data, including features (such as rivers and roads) and boundaries for entities (such as census tracts, cities, and counties).
- **Create geographic data products**: Produce address and spatial data products for use by other operational areas. These include filters for extracting data from the MAF, extracts from the MAF, and geographic data products sent to the states by the Redistricting Data Program.

More details on each of the four operational areas are discussed in the following sections. Many aspects of the operational design for the **Establish Where to Count** will be tested further before the 2030 Census operations are baselined in 2027.

Figure 12.
Establish Where to Count



3.1.1. Decennial Address Frame Management

Purpose and Scope

The purpose of the **Decennial Address Frame Management** operational area is two-fold: to monitor the readiness of the census housing unit address frame and to produce high-quality address frame products and services to support the 2030 Census. The census address frame is the set of addresses used to establish where to collect census responses. The address frame also includes housing unit characteristics, which become part of the results for the decennial census.

This operational area was covered in portions of the GEOP, ADC, UL, and UE operations in the 2020 Census and includes two activities for the 2030 Census:

- Housing Unit Address Frame Monitoring.
- Decennial Address Products and Services.

Description

The first activity of **Decennial Address Frame Management** is Housing Unit Address Frame Monitoring. This operational activity monitors the ongoing maintenance of the housing unit address inventory. We will use an enterprise system to generate the housing unit address frame for the 2030 Census. A key improvement for the 2030 Census shifts all census address update work before enumeration to the GSP, an enterprise program described in Appendix A. The GSP encompasses the in-office and in-field address update scope that, in the 2020 Census, was a part of operations such as Address Canvassing, Update Leave, and Update Enumerate. Before the 2030 Census enumeration, Housing Unit Address Frame Monitoring performs the following work to confirm the readiness of the housing unit address frame for census data collection:

- **MAF/TIGER System Update Progress Metrics:** The 2030 Census Program reviews a combination of semiannual measures produced by the GSP (e.g., housing unit addresses added, deleted, and moved) and an independent analysis conducted by other 2030 Census stakeholder areas to observe the GSP's progress.
- **Mid-Decade Small and Large-Scale Tests:** As outlined in the "2030 Census Operations Strategy and Roadmap" and **Figure 7**, we conduct various small- and large-scale tests to mature our operations for the 2030 Census. An example of a small-scale test is the Locate Address Test. This test, performed periodically, assesses the ability of field staff to find addresses in areas of the country where location addresses and

mailing addresses are often not the same, particularly in rural and remote areas. Field staff are provided with descriptive and location data from the MAF/TIGER System to simulate how they would receive and use the data to conduct traditional enumeration activities. These capabilities are further tested and evaluated in the small and large-scale tests in 2026 and 2028.

Results from the metrics review and the Locate Address Tests inform 2030 Census planning discussions about the best approach for data collection, particularly in areas that do not receive mail. The 2030 Census and the GSP also use analyses and test results to identify areas of concern that may require more focused GSP updates before the 2030 Census.

The second activity of **Decennial Address Frame Management** is Decennial Address Products and Services. This operational activity includes creating, managing, and delivering address products and services by the MAF/TIGER System to support the External Address Review and response data collection. Decennial Address Products and Services provides products and services for all living quarters, including HUs, GQs, and TLs. It includes an Address Products component and an Address Services component.

- The Address Products component includes requirements for MAF extracts and defines the census address filter, which identifies MAF/TIGER System addresses eligible for census enumeration.
- The Address Services component includes operational geocoding as well as partner address matching. The address matching and geocoding service provides the results of the matching addresses to the census address frame and associates addresses with census geographic units. The purpose is to determine where to assign work, how to organize workloads for field staff, and how to link census responses to the correct geographic area for data tabulation.[11]

Impact on Quality (Accuracy) of Census Results

Decennial Address Frame Management significantly impacts the quality of the census results by monitoring the quality of the address frame and producing high-quality address frame products.

For the 2030 Census, the GSP updates the census address frame, and Decennial Address Frame Management monitors the GSP address maintenance progress metrics. This operational area also uses the middecade Locate Address Test results to identify specific concerns with some types of addresses or updates in certain geographic areas to confirm readiness for census enumeration.

Decennial Address Products creation uses a series of reviews, edits, and checks to verify data quality. Edits are created to confirm that geographic relationships are maintained. Failures are reviewed and resolved. At each stage of processing, quality checks are performed to improve accuracy. Research conducted during the Design Selection Phase also assessed the census address filter and recommended changes to help improve census address coverage.

Materials prepared for census data collection operations or address review partners undergo subject-matter expert and management reviews.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Decennial Address Frame Management** include, but are not limited to, Title 13, Title 26, and laws and policies protecting Personally Identifiable Information (PII).

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

Decennial Address Frame Management relies on administrative and supplemental data provided by the enterprise Geographic Support Program.

[11] While the Census Bureau's ongoing address maintenance efforts, along with work performed by LUCA, provide new addresses or opportunities to update the census geographic codes for living quarters in our national address inventory, operations conducted during the decennial census can contribute these updates as well. Examples include In-Field Enumeration (where adds and deletes may occur) and Self-Response (where new addresses may be provided by the respondent), for which a geocode must be derived and confirmed.

3.1.2. Special Populations Address Frames

Purpose and Scope

The purpose of **Special Populations Address Frames** is to assist the GSP in enhancing quality address frames for GQs and TLs. This purpose is achieved by providing quality sources for GQs and TLs that can be used to verify, update, and add to these address frames. Examples of GQs include nursing facilities, group homes intended for adults, and college or university student housing. TLs include recreational vehicle parks and campgrounds; marinas; hotels, motels, and hostels; and racetracks, circuses, and carnivals/fairs/rodeos. This operational area was covered across multiple operations during the 2020 Census, including In-Office Address Canvassing and the full suite of GQ operations.

The 2030 Census design of the **Special Populations Address Frames** includes three activities:

- Group Quarters Frame Enhancements.
- Transitory Locations Frame Enhancements.
- Group Quarters Validation.

Description

The first two activities of **Special Populations Address Frames** are Group Quarters and Transitory Locations Frames Enhancements. These activities focus on improving the accuracy of these frames by using:

- Facility administrative and supplemental data received from umbrella GQ or TL organizations.
- Additional administrative and supplemental data, where available.
- Other techniques such as web scraping.

The 2030 Census Program is working with the GSP to continually capture timely, high-quality data from various sources to update and maintain the Group Quarters and Special Populations Address Frames throughout the decade. Some potential sources for large GQ types include nursing home data from the Centers for Medicare and Medicaid Services, correctional facility data from the Census of Jails, and data from other federal agencies and private organizations. All potential sources, including the Business Register, are being evaluated for fitness for use by examining matching rates with current GQ/TL address data, expected duplicate rates, timeliness of data sources, and operational feasibility.

The 2030 Census Program is exploring a technique called "web scraping" to develop specialized processes and procedures per the Census Bureau's web scraping best practices and policies.[12] This technique would involve extracting accurate, timely, and reliable information about GQs and TLs from the internet. This information could then be used with administrative and supplemental data to enhance the quality of the corresponding frames.

The third activity of **Special Populations Address Frames** is Group Quarters Validation (GQV). This activity aims to improve the quality of the GQ and TL address frames by ensuring proper classification of living quarters as HUs, GQs, or TLs. This activity involves reinstating the Group Quarters Validation field operation conducted in the 2010 Census and performed in part by In-Office Address Canvassing during the 2020 Census. The purpose of the 2010 Census GQV operation was to visit and classify addresses identified as Other Living Quarters (OLQ) during the ADC operation. OLQ addresses were not commonly recognized as housing units (HUs) and included places such as GQs and TLs. The 2010 Census GQV operation used specially trained field staff to validate and classify the address as an HU, GQ, TL, nonresidential, vacant unit, or address requiring deletion. If the address was validated as a GQ, the staff also determined the type of GQ and collected information about it to prepare for the upcoming GQ operations. The 2010 Census GQV operation significantly improved the quality of the GQ and TL address lists and identified almost 43 percent of the OLQs as nonvalid living quarters. For the 2030 Census, we anticipate a new GQV-lite operation to validate data preenumeration for only the GQs and TLs in the **Special Populations Address Frames** tagged as requiring validation. GQ and TL definitions are being refined to assist field staff in making these determinations.

[12] The Census Bureau abides by website owners' scraping prohibitions and scrapes responsibly, as outlined in <https://www2.census.gov/foia/ds_policies/ds026.pdf>.

Impact on Quality (Accuracy) of Census Results

Enhancing address frames for the Special Populations Address Frames impacts quality by improving the likelihood that residents will be contacted and accurately counted.

All data sources used to enhance the GQ and TL frames are first reviewed for fitness to confirm that the updates reflect the most accurate data available. Similarly, information gathered through web scraping and similar techniques is verified to enhance, rather than detract from, the quality of the frames. It is important to validate the data before enumeration so that the enumeration of GQs and TLs begins with the most accurate address frame possible.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Special Populations Address Frames** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

As previously noted, this operational area relies on various sources of facility administrative and supplemental data and other government and commercial records.

3.1.3. External Address Review

Purpose and Scope

The purpose of the **External Address Review** operational area is to allow tribal, state, and local governments to review and provide updates to the 2030 Census address list. This may be before the start of enumeration or during the census. This work was covered in the 2020 Census LUCA operation, which included New Construction and portions of the 2020 Census Count Review Operation (CRO) relating to address review activities. For the 2030 Census, **External Address Review** includes the following activities:

- Local Update of Census Addresses (LUCA).
- New Construction.
- Federal-State Cooperative for Population Estimates (FSCPE) Address Review.

Description

Under Title 13 U.S.C. § 16, the Census Bureau must provide tribal, state, and local governments with the opportunity to review the census residential address list for their jurisdictions before the decennial census.

The first activity of **External Address Review** is Local Update of Census Addresses. This operational activity provides the opportunity mandated by Title 13 U.S.C. § 16. Participating governments can submit suggestions to the Census Bureau to add missing addresses, delete addresses that no longer exist, or update the geographic location of an address. Participants receive feedback on their submissions and can appeal results to the Office of Management and Budget (OMB).

LUCA enhancements for the 2030 Census include:

- Improved communications and registration processes.
- An extended review period.
- Online tools that eliminate wait times for conducting participant reviews.
- A web browser-based interface for online edits and submissions.
- Improved training and reference materials.

New Construction is the second activity of **External Address Review**. This activity invites tribal, state, and local governments to provide addresses for newly built living quarters, such as HUs, GQs, and TLs for the period following the submission of their LUCA updates. Collecting information on new construction immediately before enumeration helps improve the accuracy and completeness of the address list and the final census results.

The third activity is the **Federal-State Cooperative for Population Estimates (FSCPE) Address Review**. FSCPE representatives, designated by their respective governors and with Special Sworn Status, review and compare their state's address data to the data in the Census Bureau's address list. Specifically, this review involves processes for identifying HUs and GQs that are hidden or missing from the Census Bureau address list and GQs that are geographically misallocated.

Impact on Quality (Accuracy) of Census Results

Partnerships between LUCA, New Construction, tribal, state, and local governments, as well as CRO partnerships with FSCPE, contribute to a complete and accurate address frame and are essential for high quality, accurate 2030 Census data.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **External Address Review** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII. Appropriate security protocols are maintained for data management and processing of any address-level data obtained from these operations.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for complying with the 2030 Census mission and legal requirements. The Census Bureau's Disclosure Review Board provides guidance on disclosure protection.

Additionally, LUCA participants requesting access to address data must agree to the statutory terms and conditions for data confidentiality. They must also guarantee the security of the data and certify that it has been properly disposed of before closeout of the 2030 Census.

Administrative and Supplemental Data Use

This operational area uses geographic reference information to validate participant submissions to determine if they are of sufficient quality for continued processing. This geographic reference information includes imagery, local data sources, and administrative and supplemental data.

3.1.4. Decennial Spatial Frame Management

Purpose and Scope

The purpose of the **Decennial Spatial Frame Management** operational area is to develop, update, and provide spatial data to conduct the 2030 Census. This work was covered in the 2020 Census by portions of the GEOP/Geographic Delineations, GEOP/Geographic Partnerships, and GEOP/Geographic Data Processing operations. For the 2030 Census, this work includes two activities: Geographic Area Programs and Decennial Spatial Products and Services.

Description

The first activity of **Decennial Spatial Frame Management** is Geographic Area Programs. This activity identifies and defines specific geographic areas needed for the 2030 Census. It also manages several geographic programs that allow for reviews of geographic spatial data. The geographic areas identified through this activity include:

- Collection Geography (collection blocks and field management areas): Collection blocks are the smallest geographic unit used in census field operations and are the building blocks for all field collection/management areas, which include regional census centers, management and supervisor areas, and any other geographic levels needed to support the 2030 Census.
- Tabulation Blocks: Tabulation blocks are statistical areas bounded by visible features, such as streets, roads, streams, and railroad tracks, and by nonvisible boundaries, such as property lines, and city, township, school district, and county boundaries. A tabulation block is the smallest geographic unit for which the Census Bureau tabulates decennial census data.
- Geographic Area Reconciliation Program (GARP): GARP is an internal decennial census geographic program that checks the accuracy of all geographic areas and features maintained by the Census Bureau within the MAF/TIGER System. This program is specific to the decennial census; it is the last effort to resolve any remaining boundary and feature discrepancies before the initialization of the final tabulation block delineation for the 2030 Census.

- ZIP Code Tabulation Areas (ZCTAs): The Census Bureau created ZCTAs as approximate area representations of U.S. Postal Service (USPS) ZIP Codes for statistical purposes.
- Urban Areas: These are densely developed territories that encompass residential, commercial, and other nonresidential urban land uses. Urban areas are defined primarily based on housing unit density measured at the census block level. The Census Bureau's urban-rural classification delineates geographic areas, identifying both individual urban and rural areas of the nation.

The geographic area programs that allow designated groups to review and suggest modifications for geospatial information include the following:

- Participant Statistical Areas Program (PSAP): The PSAP allows designated participants to review and suggest modifications to the boundaries of various statistical areas such as census tracts, census block groups, census county divisions, and tribal census tracts. Designated participants include federally recognized tribes, state tribal liaisons, local governments, councils of governments, and regional planning organizations. These geographies have multiple uses within and outside the Census Bureau. For the 2030 Census, they are used to disseminate data.
- Boundary Validation Program (BVP): The BVP provides the highest elected official or appointed official of each legal entity a final opportunity to review their jurisdictional boundaries before the 2030 Census data tabulation.

The second activity of **Decennial Spatial Frame Management** is Decennial Spatial Products and Services. This activity provides spatial products such as spatial extracts, entity relationship files, cartographic boundary files, and TIGER/Line products. Geospatial services comprise web map services, vector tile services, imagery, and geocoding applications. These products serve many purposes from providing the mapping base for field operations to disseminating tabulation data. Enterprise solutions for data sharing reduce the number of deliveries to individual systems. In addition, standard formats (to the extent practical) reduce the need for custom geographic solutions.

Impact on Quality (Accuracy) of Census Results

Spatially accurate boundaries and features are critical to conducting a complete and accurate census. They provide geographic areas for managing field data collection operations and for tabulating population and housing data. Quality control measures include both automated edits and interactive reviews.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Decennial Spatial Frame Management** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Many geographic products are created for external products, requiring no additional privacy and confidentiality considerations. Collection geography is generally intended for internal use, and any requests to make the data available will go through the Disclosure Review Board process before release. Spatial data are stored in a secure environment.

Administrative and Supplemental Data Use

Administrative and supplemental data are not anticipated to play a role in creating spatial data products, supporting spatial services, or creating geographic areas. Tallies or other statistical data may be used to support these operations.

3.1.5. Intended Outcomes for Establish Where to Count

A summary of the intended outcomes for **Establish Where to Count** includes:

- **Updated addresses**: Additions, deletions, and moves from one location to another are updated to reflect the reality of what is on the ground in the address frames.

- **Completed address data reviews**: Opportunities are given to specific partners, such as tribal, state, and local governments and representatives to review and provide updates to the census address list and to verify those updates after they have been added.
- **Updated spatial features and boundaries**: Additions, deletions, and moves to spatial data are updated, including features such as roads and boundaries for entities (i.e., census tracts, cities, and counties).
- **Created geographic data products**: Address and spatial data products are created for use by other operational areas, filters are created for extracting data and other extracts from the MAF, and geographic data products are sent to the states by the Redistricting Data Program.

3.2. Count the Population

The second concept area of the 2030 Census Overview is **Count the Population**. The work covered in this area consists of the activities the public most often associates with the census: Enumerating the people living in the locations identified across all the 50 states, the District of Columbia, Puerto Rico, and the four Island Areas: American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands on Census Day (April 1, 2030).

During the 2020 Census, **Count the Population** included 14 operations:

- Census Questionnaire Assistance (CQA).
- Count Review (CRO).
- Federally Affiliated Count Overseas (FACO).
- Enumeration at Transitory Locations (ETL).
- Forms Printing and Distribution (FPD).
- Group Quarters Enumeration (GQE).
- Internet Self-Response (ISR).
- Island Areas Censuses (IAC).
- Non-ID Processing (NID).
- Nonresponse Followup (NRFU).
- Paper Data Capture (PDC).
- Response Processing (RPO).
- Update Enumerate (UE).
- Update Leave (UL).[13]

Figure 13, Count the Population Summary, provides a summary of the work performed in the **Count the Population** area, which for the 2030 Census, includes 14 operational areas:

- Self-Response.
- In-Field Enumeration.
- In-Office Enumeration.
- Group Quarters and Special Populations Enumeration.
- Island Areas Censuses.
- Communications, Partnerships, and Engagement.
- Content and Materials Design.
- Language Program.
- Printing and Mailing.
- Paper Data Capture.
- Census Questionnaire Assistance.

[13] Last decade, there was a stand-alone concept area called "Motivate People to Respond," which included the Integrated Partnership and Communications Operation. This decade, this type of work is covered in the Communications, Partnerships, and Engagement operational area under the Count the Population concept area.

- Person Characteristic Frame Management.
- Quality Assurance and Monitoring.
- Response Processing.

Figure 13 also summarizes several additional items of note. First, there are six key innovations or enhancements for the 2030 Census associated with the work in **Count the Population**:

- Responses processed in parallel with data collection for streamlined processing.
- Expanded use of internet self-response for in-field and group quarters data collection.
- Use of person characteristic frame for housing unit (HU) enumeration.
- Combined targeted address updates and enumeration activities for HUs.
- Expanded use of administrative and supplemental data to inform operational decisions.
- Introduction of multi-operational enumerators.

Second, building on our experience from the previous censuses, there are four key business functions associated with **Count the Population**. Business functions are the different kinds of work required to conduct a census, and for **Count the Population** they include the following:

- Manage Universe and Workloads: Support universe creation and workload requirements for operations as well as ongoing analysis and maintenance of the census universe to obtain high-quality responses from all living quarters.
- Collect Responses: Collect decennial census response data through various data collection modes (e.g., internet, paper, phone, or in-field visits to living quarters). Response data status is tracked and integrated for later response processing work.
- Process Responses: Perform activities that transform this data into a standardized set of responses corresponding to the set of cases in the census universe. Responses are normalized, and coding is performed for write-in values (and translation when needed). A standardized response is selected for each case, and data are subjected to edits and imputation as required to produce the finalized response data. These data are provided as inputs to subsequent Data Products Creation and Dissemination work.
- Ensure Quality including Data Reviews: Coordinate and conduct activities that track collected response data and examine them for anomalies relating to the data collection process, potential data falsification, and completeness of responses. Additional quality assurance activities coordinated and conducted include reinterview work, processes to monitor the quality of in-field collection efforts, processes to identify and resolve data falsification, and targeted quality improvement activities such as follow-up visits or phone calls to collect missing information or address quality concerns.

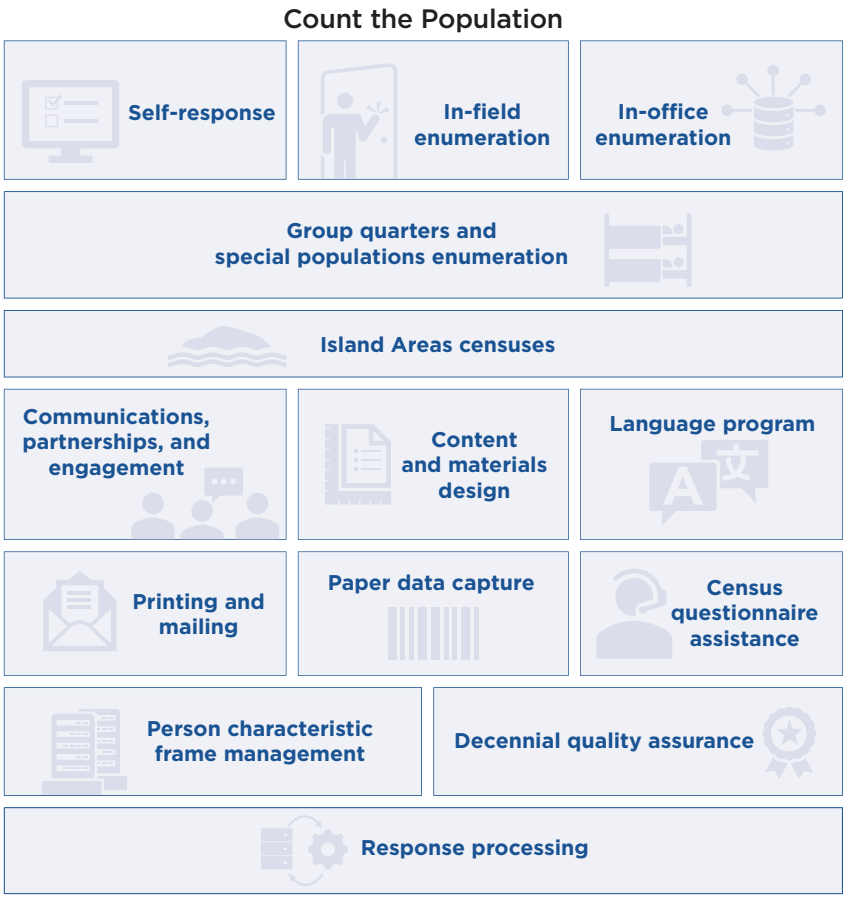
To increase the likelihood of success when counting the population, extensive preparation occurs before enumeration begins. The first concept area, **Establish Where to Count**, lays the groundwork by determining and characterizing all possible locations where people live. **Count the Population** also sets the stage for the last two concept areas: **Research Census Results** and **Provide Census Results**.

Count the Population enumerates people living in traditional HUs and nontraditional living quarters and locations, such as GQs, TLs, and other places where people experiencing homelessness may be living. The three operational areas associated primarily with HU enumeration are described in **Figure 13**. Residents of GQs, TLs, people experiencing homelessness, and individuals affiliated with the federal government while living overseas are enumerated as part of the Group Quarters and Special Populations Enumeration operational area (depicted in **Figure 13**). These operational areas (HUs and GQs, and Special Populations) enumerate people living within the nation. The enumeration of residents of the four Island Areas (American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands) is done as part of the Island Areas Censuses operational area (**Figure 13**).

In keeping with the fourth guiding principle (to optimize field data collection using high-quality administrative and supplemental data sources), **Count the Population** expands on the use of administrative and supplemental data during the 2030 Census to guide enumeration for the next decennial census. The increased use of administrative and supplemental data is covered primarily by two new operational areas: In-Office Enumeration (section 3.2.3) and Person Characteristic Frame Management (section 3.2.12).

Figure 13.

Count the Population Summary



Key Innovations and Efficiencies

(Since the 2020 Census)

- Responses processed in parallel with data collection for streamlined processing.
- Expanded use of internet self-response for in-field and group quarters data collection.
- Use of person characteristic frame for housing unit (HU) enumeration.
- Combined targeted address updates and enumeration activities for HUs.
- Expanded use of admininistrative data to inform operational decisions.
- Introduction of multi-operational enumerators.

Key Business Functions

(Type of work done)

- Manage universe and workloads.
- Collect responses.
- Process responses.
- Ensure quality including data reviews.

Finally, given the breadth of work covered under **Count the Population**, we parse the work into three groupings for ease of discussion in this document: Housing Unit Enumeration, Other Enumerations, and Work That Enables Enumeration. **Table 2** depicts the organization of this work.

Table 2.

Groupings of Types of Enumerations and Enablers

Grouping	Operational Area
Housing unit enumeration	• Self-Response (via the internet, phone, and paper). • In-Office Enumeration. • In-Field Enumeration.
Other enumerations	• Group Quarters and Special Populations Enumeration. • Island Areas Censuses.
Work that enables enumeration	• Communications, Partnerships, and Engagement. • Content and Materials Design. • Language Program. • Printing and Mailing. • Paper Data Capture. • Census Questionnaire Assistance. • Person Characteristic Frame Management. • Decennial Quality Assurance. • Response Processing.

Housing Unit Enumeration Background

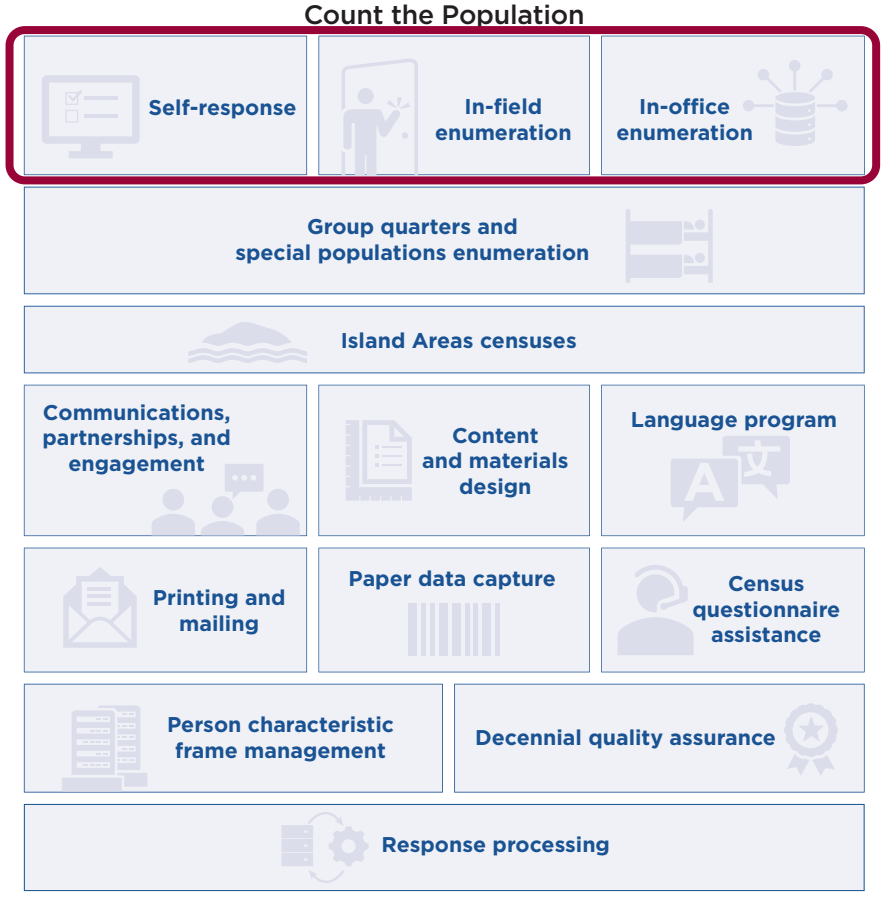
Housing unit enumeration occurs primarily in three ways. Ideally, the public initiates its response to the census. This is called self-response. The Self-Response operational area collects responses from three modes: internet (section 3.2.1), phone (section 3.2.11), and paper questionnaires (section 3.2.10). Households that do not respond will receive one or more visits from field staff to collect census information. This is part of the In-Field Enumeration operational area, which collects responses in person. The In-Office Enumeration operational area counts nonresponding HUs using high-quality administrative and supplemental data. Self-Response, In-Field Enumeration, and In-Office Enumeration build on innovations introduced in the 2020 Census. **Figure 14** is a notional depiction of the HU enumeration scope.

Corresponding 2020 Census Operations

The work covered in the **Count the Population** concept area was performed in the 2020 Census by the following operations:

- Census Questionnaire Assistance (CQA).
- Count Review Operation (CRO) - Census Count and File Review.
- Federally Affiliated Count Overseas (FACO).
- Enumeration at Transitory Locations (ETL).
- Integrated Partnership and Communications (IPC).
- Content and Forms Design (CFD).
- Language Services (LNG).
- Forms Printing and Distribution (FPD).
- Group Quarters Enumeration (GQE).
- Internet Self-Response (ISR).
- Island Areas Censuses (IAC).
- Non-ID Processing (NID).
- Nonresponse Followup (NRFU).
- Paper Data Capture (PDC).
- Response Processing Operation.

Figure 14.
Operational Areas Responsible for Housing Unit Enumeration



Key Innovations and Efficiencies
(Since the 2020 Census)

- Responses processed in parallel with data collection for streamlined processing.
- Expanded use of internet self-response for in-field and group quarters data collection.
- Use of person characteristic frame for housing unit (HU) enumeration.
- Combined targeted address updates and enumeration activities for HUs.
- Expanded use of admininistrative data to inform operational decisions.
- Introduction of multi-operational enumerators.

Key Business Functions
(Type of work done)

- Manage universe and workloads.
- Collect responses.
- Process responses.
- Ensure quality including data reviews.

3.2.1. Self-Response

Purpose and Scope

The purpose of the **Self-Response** operational area is to collect self-responses to the 2030 Census for housing unit respondents via the internet, phone interviews, and paper questionnaires. In the 2020 Census, self-response activities were conducted through the ISR, PDC, and CQA operations. For the 2030 Census, this operational area includes four activities:

- Self-Response Contact Strategy.
- Internet Self-Response.
- Paper Self-Response.
- Phone Self-Response.

Description

Self-Response covers all the ways by which HU respondents actively respond for their households. Respondents can self-respond in three modes—the internet, paper questionnaires, or phone interviews. The internet response mode is facilitated by the internet self-response instrument, which is available online. The paper questionnaire response mode is facilitated by mailings of paper questionnaires as part of the self-response contact strategy. The phone response mode is facilitated by respondents calling Census Questionnaire Assistance (CQA) to speak to an agent to provide their census response data.

Other operational areas overlap with the **Self-Response** operational area but are distinct because they serve purposes other than or in addition to active self-response and are better classified as operational areas that support or enable Self-Response. CQA is the mechanism for households to respond via phone. However, the primary purpose of CQA is to serve as the avenue for respondents to receive assistance and information about the 2030 Census, which can be unrelated to self-response. Respondents can also request a paper questionnaire (paper questionnaire fulfillment), if needed, through CQA. The Paper Data Capture (PDC) operational area captures the data from paper questionnaires returned by households opting for that self-response mode. While PDC makes the self-response data from paper questionnaires available for processing, it is a step in the processing and not the actual activity of self-response. Finally, the Printing and Mailing operational area is responsible for notifying households of the self-response options and providing paper questionnaires to HUs; as with PDC, it is not the actual self-response but rather a supporting task.

The first activity of **Self-Response** is the HU Self-Response Contact Strategy. This operational activity defines how HUs will be invited to self-respond to the census. The primary contact strategy is expected to be like the 2020 Census self-response contact strategy, with invitations to respond to the census being mailed to HUs over several weeks. Those invitations will encourage online self-response and include information about how to respond by phone or by completing a paper questionnaire. The mailed materials will provide a preassigned census identification number (Census ID). Enhancements expected for the 2030 Census include incorporating quick response (QR) codes for easy access to the internet self-response website, and further refining the identification of areas that will receive a paper questionnaire early in the contact strategy as well as locations that need bilingual English/Spanish materials.

The second activity of **Self-Response** is Internet Self-Response. This activity is the cornerstone of HU self-response. In the 2020 Census (the first decennial census to make online response widely available), nearly 80 percent of all self-response was collected through the internet self-response instrument. For the 2030 Census, the internet self-response data collection instrument will be further refined to make it even easier for the public to respond online. As was done for the 2020 Census, the 2030 Census will allow people to respond with or without a Census ID. Internet Self-Response is expected to be offered in multiple languages, facilitating access to self-response for limited English proficiency populations.

The third activity of **Self-Response** is Paper Self-Response. This activity is the enumeration of HUs using a paper questionnaire. Paper questionnaires are delivered to HUs as part of the self-response contact strategy and are typically sent to nonresponding HUs in the fourth mailing. A possible enhancement for the 2030 Census would be to allow respondents to request a paper questionnaire at any point during the self-response data collection period. The respondent mails the completed paper questionnaire in an enclosed return envelope to the Census Bureau, where the Paper Data Capture operational area captures the response data. Refer to section 3.2.10 for more information on Paper Data Capture.

The fourth and final activity of **Self-Response** is Phone Self-Response. This activity is the enumeration of HUs by phone. The Census Questionnaire Assistance operational area provides live customer service representatives who can take a caller's 2030 Census response over the phone via a personal interview. The caller's responses to the questionnaire are collected using a data collection instrument designed specifically for phone enumeration. Phone self-response is expected to be offered in multiple languages, most likely the same languages supported by internet self-response. Refer to section 3.2.11 for more information on Census Questionnaire Assistance.

Impact on Quality (Accuracy) of Census Results

The **Self-Response** operational area directly impacts quality because research has shown that data collected through self-response are of the highest quality. Therefore, the Census Bureau is committed to providing opportunities for the public to respond to the census through the easiest mode for respondents, whether by internet, paper, or phone. Maximizing self-response improves the quality and accuracy of the census data. Additionally, online and phone self-response include consistency checks as the response is provided, further increasing data quality. Various quality checks are performed on self-response data during response processing (refer to section 3.2.13, "Quality Assurance and Monitoring").

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

All modes of self-response are being developed to adhere to the highest data security standards. Staff who interact with respondent data (e.g., office staff, paper data capture staff) are trained on their responsibilities for protecting it. Respondent data are encrypted throughout the collection process.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

Administrative and supplemental data help identify areas that will receive a paper questionnaire early in the contact strategy and locations to which bilingual English/Spanish materials will be provided.

3.2.2. In-Field Enumeration

Purpose and Scope

The costliest undertaking for the entire census is the work of **In-Field Enumeration**. The purpose of **In-Field Enumeration** is to record the status of and enumerate HUs that do not or cannot respond, those with nonmailable and remote addresses, and those in designated remote geographical areas (e.g., Remote Alaska). This operational area also includes work needed to verify or validate addresses or data (i.e., responses without an ID or for quality control purposes). The Census Bureau gives the public multiple opportunities to respond. During Early In-Field HU Enumeration activities, field staff provide respondents with information on all response options, including conducting the traditional in-person interview.

In-Field Enumeration covers the scope of three 2020 Census operations (NRFU, UL, and UE), all of which have been integrated into a single operational area for the 2030 Census. Building on the success of the 2020 Census NRFU operation, **In-Field Enumeration** will be fully automated.

This operational area for the 2030 Census includes five activities:

- In-Field Enumeration Contact Strategy Development.
- In-Field HU Enumeration (including address verification visits and other auxiliary HU visits).
- Early In-Field HU Enumeration.
- Remote Enumeration (including in-field enumeration for remote Alaska, remote Maine, and other designated remote areas).
- In-Field Quality Control.

Description

In-Field Enumeration is the largest effort in peak production, requiring hiring hundreds of thousands of people for a short period. Reducing the number of visits (or contacts) can result in smaller field workloads, less time spent in the field, and lower costs.

In-Field Enumeration Contact Strategy Development is the first activity in **In-Field Enumeration**. The contact strategy defines the approach for HU enumeration and dictates the number and type of visits a HU will receive throughout the data collection period. The contact strategy intends to develop a set of rules that allows for the resolution of cases based on an optimal amount of fieldwork.

The second activity, In-Field HU Enumeration, includes visits to addresses from which a response has not been received (nonresponding addresses) to determine the unit's status. The Census Bureau may not receive a response from an address for many reasons: the HU at that address is vacant, the building is uninhabitable or destroyed, or the address is not an HU but a GQ, TL, or a business. Alternatively, the HU could be occupied, but the occupants have not yet responded or have elected not to respond. During the field visit, the field staff will record the status of the unit as vacant, occupied, or a nonhousing unit. If occupied, the field staff will attempt an interview to enumerate the HU.

For the 2030 Census, some 2030 Census field staff may be cross-trained to enumerate HUs, GQs, and TLs. Cross-trained field staff can reassign a misclassified HU address to the GQ or TL operational workload and then interview the occupants using the corresponding questionnaire. Other 2030 Census enhancements may include enabling field staff to update address information or use real-time data to determine daily case assignments.

The third activity in I**n-Field Enumeration** is Early In-Field HU Enumeration. This operational activity mirrors In-Field HU Enumeration but requires in-field visits to be conducted before or immediately following Census Day. For this activity, field staff attempt to reach people who:

- Are unlikely to be present when In-Field HU Enumeration begins (e.g., in areas with high concentrations of college students living in off-campus housing).
- Live in areas where mail is not delivered to the physical location of the housing unit (such as those with a post office box).
- Live in areas where the mail information for the housing unit could not be verified.
- Live in other areas that would benefit from earlier and more proactive in-person engagement.

The fourth activity in **In-Field Enumeration**, Remote Enumeration, covers the functionality of the UE operation from the 2020 Census. This activity consists of the enumeration of HUs, GQs, and TLs in rural, remote, or sparsely populated areas, or other areas that prefer to be enumerated through field interviews (e.g., some select tribal reservations).

The final activity in **In-Field Enumeration** is In-Field Quality Control. This work covers field visits performed as part of quality control processes. Field staff may need to confirm the status of selected units (HUs) that have already been visited or reinterview the occupants of those units. The Self-Response quality control processes involve the re-collection of information from a portion of the self-response universe to verify the accuracy of the information. For more information on the coordination of quality assurance work, refer to section 3.2.13, "Quality Assurance and Monitoring."

Impact on Quality (Accuracy) of Census Results

In-Field Enumeration directly impacts the quality of census results. To increase the likelihood of high-quality census results, **In-Field Enumeration** must:

- Correctly identify the status of nonresponding HUs.
- Accurately collect or record complete responses for occupied nonresponding HUs and reinterview cases.
- Verify addresses for self-responses that do not have Census IDs.
- Accurately collect responses for all living quarter types in rural and remote areas and for HUs that may have limited ability to respond because they are in areas where mail delivery is difficult. (Many of the populations in these areas are part of the hard-to-count populations; refer to section 2.2.)

Numerous quality control procedures within **In-Field Enumeration** aid in ensuring that the data collected meets the highest quality standards.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to In-Field Enumeration include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

In addition to these protections, the Census Bureau is testing features, such as removing completed cases from field staff's devices and limiting access to responses once the cases are completed, that further secure a respondent's data.

Administrative and Supplemental Data Use

The **In-Field Enumeration** operational area uses administrative and supplemental data to reduce the workload by removing occupied, vacant, and nonexistent HUs from additional follow-up when high-quality information is known about the HU and its occupants. We will use the most cost-effective approach to contact and count people who do not respond to the 2030 Census, after at least one in-person visit.

3.2.3. In-Office Enumeration

Purpose and Scope

The **In-Office Enumeration** operational area is a major enhancement for the 2030 Census and is critical to the housing unit enumeration activities. The purpose of **In-Office Enumeration** is to develop and implement models and other methods that: (1) enable the effective use of administrative and supplemental data to inform operational decisions, and (2) enumerate households for whom there are no responses using high-quality administrative and supplemental data after multiple contact attempts.

This operational area is new for the 2030 Census; however, this area builds upon the administrative records modeling and enumeration work done to support the NRFU operation in the 2020 Census. **In-Office Enumeration** includes four activities:

- Data Compilation.
- Model Creation.
- Contact Strategies Inputs.
- Administrative and Supplemental Data Enumeration.

Description

The first activity of **In-Office Enumeration** is Data Compilation. This activity identifies and compiles the data needed to inform operational decision-making. It also involves conducting research to identify, define, and aggregate the data inputs such as:

- Operational paradata.
- Person Characteristic Frame (PCF), which comprises administrative and supplemental data and auxiliary data generated by the Census Bureau (refer to section 3.2.12).

Additionally, as part of the Data Compilation activity, the quality of these inputs is factored into decision-making. All sources are evaluated within the context of their expected usage against criteria such as availability, ability to address coverage gaps, quality, and possible limitations.

The second activity of **In-Office Enumeration** is Model Creation. This activity includes integrating data and creating statistical models and decision rules to inform 2030 Census operational decisions for resolving cases. As part of this component, the interaction of administrative, auxiliary, and operational paradata is evaluated to create models that reduce respondent burden, as compared to the 2020 Census, while maintaining data quality. The models will be used to identify things like:

- The sufficiency of administrative and supplemental data coverage for households.
- The likelihood that a housing unit is vacant.
- The propensity of a household to respond.
- Other household characteristics related to how it should be contacted.

Since the models are created to support operational areas like In-Field Enumeration, the scope of the models generated will vary based on operational area needs. For instance, models will help inform the contact strategy for HUs that potentially have young children, when field staff should visit a proxy respondent (e.g., a neighbor), and other unique aspects of the operational area.

The third activity of **In-Office Enumeration** is Informing Contact Strategies. This operational activity includes executing the modeling during 2030 Census production (and large-scale field tests) to produce recommendations for other operational areas. These recommendations are primarily focused on informing strategies for case resolution. They are also sent to the Response Processing operational area so the appropriate workloads (i.e., Printing and Mailing, and In-Field Enumeration) can be adjusted, as necessary. In addition, these recommendations help to determine which cases to include in Early In-Field Enumeration and identify responses with potential coverage issues or other concerns that will be addressed through the Targeted Quality Improvement activity in Quality Assurance and Monitoring.

The final activity of **In-Office Enumeration** is Administrative and Supplemental Data Enumeration. During production, model results will inform when data collection for a housing unit is complete, and administrative and supplemental data can be used to enumerate the housing unit. The results of the models can also be used to support the processing of the responses, including the determination of which data to use when multiple responses are received from a single household.

Impact on Quality (Accuracy) of Census Results

The **In-Office Enumeration** operational area directly impacts the quality of the census by helping to identify cases to include in Early In-Field Enumeration and for Targeted Quality Improvement. In addition, this work directly impacts quality by providing recommendations to support decisions on which data to use when multiple responses are received from a single household.

Significant efforts are included in this operational area to verify that the administrative and supplemental data used are of a high quality and appropriate for census use. Specifically, this operational area uses tested administrative and supplemental data models that permit the Census Bureau to identify and use those of high quality. That analysis, in turn, allows fine-tuned calibration of when to use the administrative and supplemental data to make operational decisions, and when to use administrative and supplemental data to enumerate nonresponding households.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **In-Office Enumeration** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

In addition, this operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

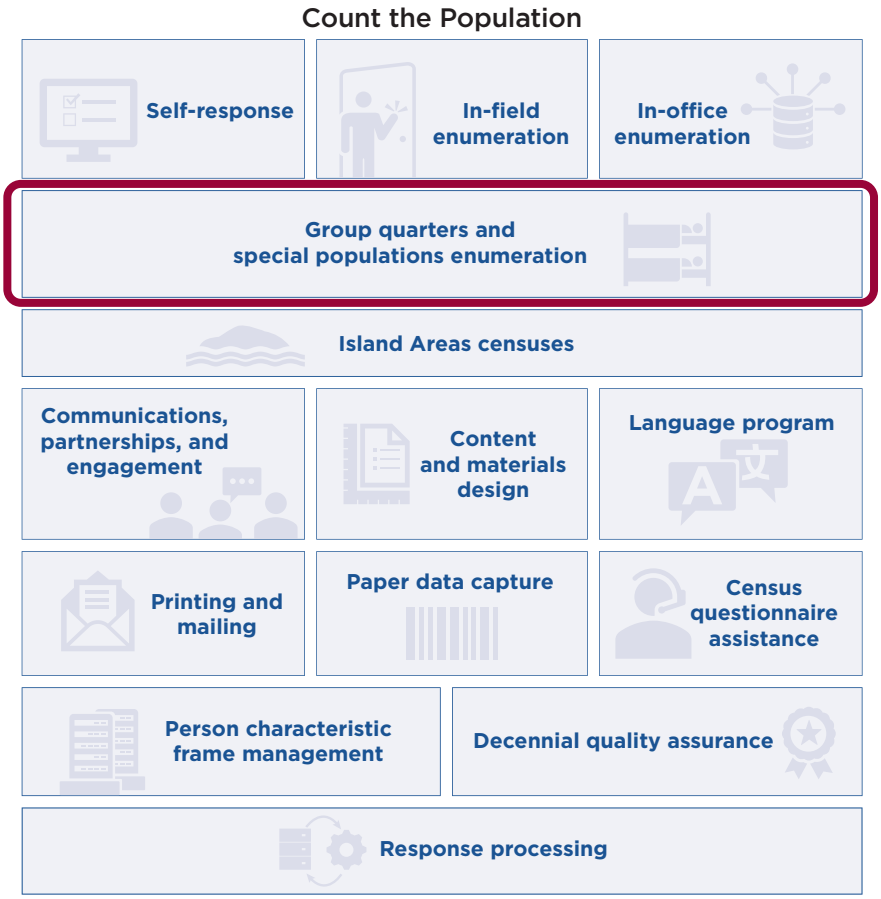
Administrative and Supplemental Data Use

The work of the **In-Office Enumeration** operational area is rooted in using administrative and supplemental data from multiple sources.

Other Enumerations/Group Quarters Enumerations Background

Count the Population work continues with Group Quarters and Special Population Enumeration (Figure 15). We do this work, which has many facets, to count the people of our nation who do not live in typical household-type living arrangements or locations such as GQs and TLs. This area also obtains counts by the home state of U.S. armed forces and federal civilian employees stationed or assigned overseas and their dependents living with them. This operational area is one of the other types of enumerations conducted by **Count the Population** and depicted in **Figure 15**.

Figure 15.
Operational Area Responsible for Group Quarters and Special Populations



Key Innovations and Efficiencies
(Since the 2020 Census)

- Responses processed in parallel with data collection for streamlined processing.
- Expanded use of internet self-response for in-field and group quarters data collection.
- Use of person characteristic frame for housing unit (HU) enumeration.
- Combined targeted address updates and enumeration activities for HUs.
- Expanded use of admininistrative data to inform operational decisions.
- Introduction of multi-operational enumerators.

Key Business Functions
(Type of work done)

- Manage universe and workloads.
- Collect responses.
- Process responses.
- Ensure quality including data reviews.

3.2.4. Group Quarters and Special Populations Enumeration

Purpose and Scope

The purpose of **Group Quarters and Special Populations Enumeration** is to count people who live in GQs and TLs across the 50 states, the District of Columbia, and Puerto Rico. GQs are facilities where people live or stay in a group living arrangement or receive services. GQs include places such as college/university residence halls, nursing facilities, and group homes. People experiencing homelessness who live in outdoor encampments or receive services at places such as community meal kitchens and regularly scheduled mobile meal vans are also counted during Service-Based Enumeration (SBE).

TLs are places where people are unlikely to live year-round because of the transitory, temporary, or impermanent nature of the locations. Generally, people living or staying at a transitory location either pay fees to stay there or work there temporarily. TLs include recreational vehicle parks and campgrounds; marinas; hotels, motels, and hostels; racetracks; circuses; and carnivals/fairs/rodeos. This area also obtains counts by the home state of U.S. armed forces and federal civilian employees stationed or assigned overseas and their dependents living with them.

In the 2020 Census, **Group Quarters and Special Populations Enumeration** work was covered in the GQAC, GQE, SBE, TLAC, ETL, MVE, and FACO operations. For the 2030 Census, this operational area still includes seven activities:

- Group Quarters Advance Contact.
- Transitory Locations Advance Contact.
- Group Quarters Enumeration.

- Service-Based Enumeration.
- Enumeration at Transitory Locations.
- Maritime Vessel Enumeration.
- Federally Affiliated Count Overseas.

The 2030 Census Program plans to automate, in some cases for the first time, the enumeration of many special populations. We may also allow residents of certain group quarters (such as university residence halls) to self-respond to the census. These changes are major improvements over the 2020 Census operational design for enumerating people living in group quarters or transitory locations.

Description

Within the **Group Quarters and Special Populations Enumeration** operational area, Group Quarters Advance Contact (GQAC) and Transitory Locations Advance Contact (TLAC) are the first two activities. GQAC and TLAC are preenumeration steps (along with Group Quarters Validation mentioned in the Frames section). These two activities verify information about the facility or transitory location and are used to schedule an enumeration appointment date and time.

Group Quarters Enumeration is the third activity within **Group Quarters and Special Populations Enumeration**. The GQ administrator can select one of several ways to count the residents living in GQs. For the first time, residents of specific group quarter types (e.g., college/university student housing) can respond via the internet. Other ways to count group quarter residents include:

- Field staff interview residents individually, using a mobile device (in-person interview).
- Field staff drop off questionnaires for completion by each resident and collect them on an agreed-upon date (drop off/pick up of questionnaires).
- GQ administrators respond by completing an electronic file containing required GQ resident-level data and submitting it via a secure portal (eResponse).
- GQ administrators are sworn in, distribute questionnaires to residents, and collect completed documents (facility self-enumeration). This method is limited to correctional facilities, healthcare facilities, and military group quarters.
- GQ administrators provide a paper listing containing resident data (Paper Response Data Collection).

Service-Based Enumeration (SBE) is the fourth activity of **Group Quarters and Special Populations Enumeration**. SBE counts people experiencing homelessness, living in transitional shelters, receiving services at community meal kitchens and at regularly scheduled mobile meal vans, or who are not counted elsewhere. The SBE activity is conducted over 3 days (i.e., the same 3 days across the country) by field staff using a mobile device.

The fifth activity of **Group Quarters and Special Populations Enumeration** is Enumeration at Transitory Locations. This activity counts people living or staying at TLs who do not have another place where they live or stay most of the time. TLs are places where people are unlikely to live year-round because of the transitory, temporary, or impermanent nature of the locations. Generally, people living or staying at a transitory location either pay fees to stay or work there temporarily. As previously noted, TLs include recreational vehicle parks and campgrounds; marinas; hotels, motels, and hostels; racetracks; circuses; and carnivals/fairs/ rodeos. For the 2030 Census, Enumeration at Transitory Locations is being planned as an electronic data collection activity allowing field staff to collect information using an automated instrument.

The sixth and seventh activities of **Group Quarters and Special Populations Enumeration** are Maritime Vessel Enumeration (MVE) and the Federally Affiliated Count Overseas (FACO). During the MVE activity, we contact maritime agencies to obtain a list of vessels and to determine if the ship operators have crew members who live on them. We mail kits to the vessel operators, who then distribute Maritime Vessel Questionnaires (MVQs) to the crew members to complete. Vessel operators mail completed MVQs back to the Census Bureau for data capture. The FACO activity obtains counts by the home state of U.S. armed forces and federal civilian employees stationed or assigned overseas and their dependents living with them. “Overseas” includes all foreign countries and their territories. Counts are obtained from administrative records provided by federal agencies (the Department of Defense, the Department of Homeland Security, and others) and are used to allocate the federally affiliated population living overseas to a home state to apportion seats in the U.S. House of Representatives. 2030 Census improvements are focused primarily on improving the instrument used to collect the count information.

Impact on Quality (Accuracy) of Census Results

Group Quarters and Special Population Enumeration endeavors to count people residing in untraditional living quarters or locations and include them in the final census results. The work of this operational area directly impacts the quality of the census results because our goal is to count everyone where they live, and some of the populations enumerated are hard to count.

The 2030 Census approach benefits from collaboration with experts from the Department of Housing and Urban Development, numerous organizations that provide continuums of care, and others. This collaboration intends to identify ways to make procedures for enumerating people experiencing homelessness more efficient and effective, ultimately improving coverage. The Group Quarters and Special Enumerations also partners with the American Association of Collegiate Registrars and Admissions Officers (AACRAO) and the Association of College and University Housing Officers International (ACUHO-I) to help build the inventory of special populations addresses and enumerate college students.

To improve the quality of the data collected during the GQ and Special Populations enumerations, quality control processes are incorporated into each of the operational activities.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Group Quarters and Special Populations Enumeration** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII. All GQ and TL administrators and residents are provided information that describes how Title 13 protects their data.

This operational area will also adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Lastly, additional rules apply to some types of GQs. For example, GQ administrators for colleges and universities must comply with the Family Educational Rights and Privacy Act (FERPA), a federal law protecting the privacy of student education records. When collecting information from people who live or stay in nursing/skilled nursing facilities, residential treatment centers, and group homes, the Census Bureau must observe the Health Insurance Portability and Accountability Act of 1996 (HIPAA) requirements. HIPAA permits a covered entity to disclose protected health information to the Census Bureau, to the extent required by Title 13.

Administrative and Supplemental Data Use

The **Group Quarters and Special Populations Enumeration** operational area uses several sources of administrative and supplemental data. For instance, records may be provided by the GQ umbrella organization (such as from federal or state agencies using the eResponse data collection method). In cases where GQ residents cannot respond or the Census Bureau cannot contact residents personally, the GQ administrator may provide facility-maintained records about the residents directly to the Census Bureau.

Other sources of administrative and supplemental data are being studied for their availability and relevance. For example, the 2030 Census plans to leverage person-level administrative records for people living in correctional facilities from the Census Bureau's Criminal Justice Administrative Records (CJARS) program. CJARS collects GQ and person-level data monthly; these data can be used when quality issues are identified in the response data.

Other Enumerations/Other Censuses Background

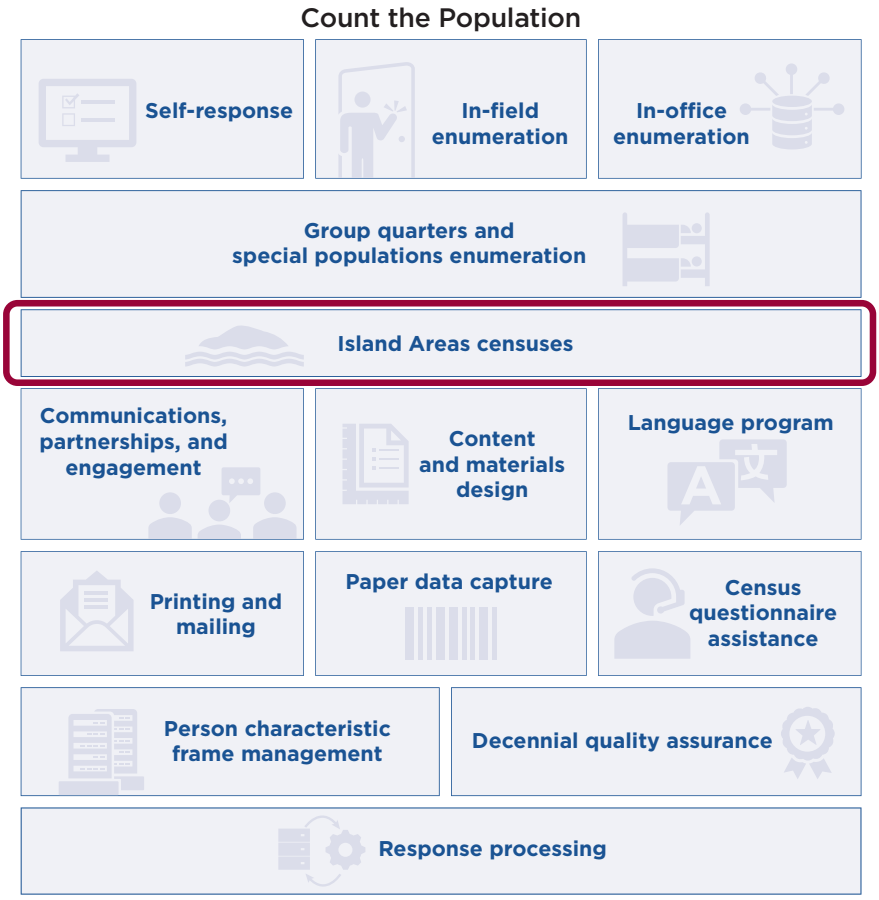
The **Count the Population** concept area includes other enumerations or other censuses to count the people living in the Island Areas (refer to **Figure 16**). The Island Areas Censuses operational area conducts separate censuses for each of the four Island Areas.[14]

These censuses use a questionnaire like that used by the American Community Survey (ACS), and the data are collected, processed, and tabulated separately from the data collected for the nation. A key enhancement proposed for the 2030 Island Areas Censuses is to start with the address data collected from the 2020 Census and update it through an in-field address updating activity. In addition, the Census Bureau plans to automate at least some address updating and enumeration activities based on the ACS instruments and IT solutions developed for stateside data collection.

[14] For the purposes of the decennial census, Puerto Rico is part of the stateside enumeration. The remaining four Island Area territories are covered by the Islands Areas Censuses.

Figure 16.

Operational Area Responsible for Other Enumerations/Other Censuses



Key Innovations and Efficiencies
(Since the 2020 Census)

- Responses processed in parallel with data collection for streamlined processing.
- Expanded use of internet self-response for in-field and group quarters data collection.
- Use of person characteristic frame for housing unit (HU) enumeration.
- Combined targeted address updates and enumeration activities for HUs.
- Expanded use of admininistrative data to inform operational decisions.
- Introduction of multi-operational enumerators.

Key Business Functions
(Type of work done)

- Manage universe and workloads.
- Collect responses.
- Process responses.
- Ensure quality including data reviews.

3.2.5. Island Areas Censuses

Purpose and Scope

The **Island Areas Censuses** operational area enumerates residents of American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands. The data collected will be captured, processed, and tabulated to produce the data products specific to the Island Areas and then disseminated to the public.

In the 2020 Census, the Island Areas Censuses operation covered the Island Areas Censuses. For the 2030 Census, the **Island Areas Censuses** operational area includes two activities: Operational Planning and Data Collection.

Description

The first activity of **Island Areas Censuses** is Operational Planning. The Census Bureau conducts the **Island Areas Censuses** through contract agreements with the local governments of each Island Area. These contract agreements are established as part of the Operational Planning activity. The Census Bureau provides the funds, materials, methodologies, and guidance to the local governments. The local governments recruit, hire, and train the staff who perform the work. Operational Planning works with the governments and their liaison agencies, such as universities or commerce organizations, to finalize the questionnaire content and other materials. The Content and Materials Design operational area provides Operational Planning with guidance and support. The **Island Areas Censuses** uses a questionnaire similar in content and format to the American Community Survey (ACS) questionnaire.

The Operational Planning activity is responsible for the outreach and communications required for the **Island Areas Censuses** and develops the office and field data collection procedures. This activity also develops, collects, and documents the requirements and specifications for other operational areas and systems used to conduct the **Island Areas Censuses**.

Some enhancements planned for the 2030 Census related to the Operational Planning work include earlier involvement of Island Area governments, improved communication strategies and staffing plans, and improvements to the questionnaire content.

The second activity of **Island Areas Censuses** is Data Collection, covering three primary functions: address updating, enumeration, and quality control. Workloads for these functions were managed locally within each Island Area for the 2020 Census using Census Bureau-provided electronic instruments.

- Address updating involves sending staff to the field to verify and update the master address list for each Island Area. Information collected during this work includes the geocode for the address and characteristics of the address, for example, if it is a living quarters and the type of living quarters (HU, GQ, or TL). The starting point for the address frame is provided by the Decennial Address Frame Management operational area; address and spatial updates are sent to the Geographic Support Program after the data collection work.
- To automate address updating and enumeration activities for the 2030 Island Areas Censuses, the Census Bureau is considering using the American Community Survey instruments and IT solutions developed for stateside data collection. Response data collected electronically are sent to the Response Processing operational area. Information collected on paper is sent to the Paper Data Capture operational area where the data are converted to a digital format and then sent to the Response Processing operational area for processing.
- Quality control procedures check for complete and accurate coverage of the Island Area Censuses address updating and enumeration activities. With the proposed introduction of automation, quality control activities may be enhanced to match techniques used in the stateside effort more closely. The Census Bureau is also investigating the feasibility of using administrative and supplemental data to support enumeration and quality control activities.

Census advisors are deployed to the Island Areas for the entire Island Areas Censuses cycle (preparation, field data collection, and closeout). The census advisor serves as the technical expert on field data collection and the technical monitor of the contract between the Census Bureau and the Island Areas' governments.

Impact on Quality (Accuracy) of Census Results

The **Island Areas Censuses** operational area directly impacts the quality of census results for the four Island Areas. The data collection activity must correctly update the address information for all addresses, identify the status of all living quarters (vacant, occupied, or nonresidential), and collect and record complete response information for all living quarters.

As previously noted, the data collection activity includes comprehensive quality control components that may take advantage of other proposed enhancements such as automation.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Island Areas Censuses** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements. Practices include ensuring that security protocols and data security requirements are upheld in the systems supporting the enumeration effort, secure shipping of sensitive materials when necessary, and proper disposal of Title 13 materials.

Administrative and Supplemental Data Use

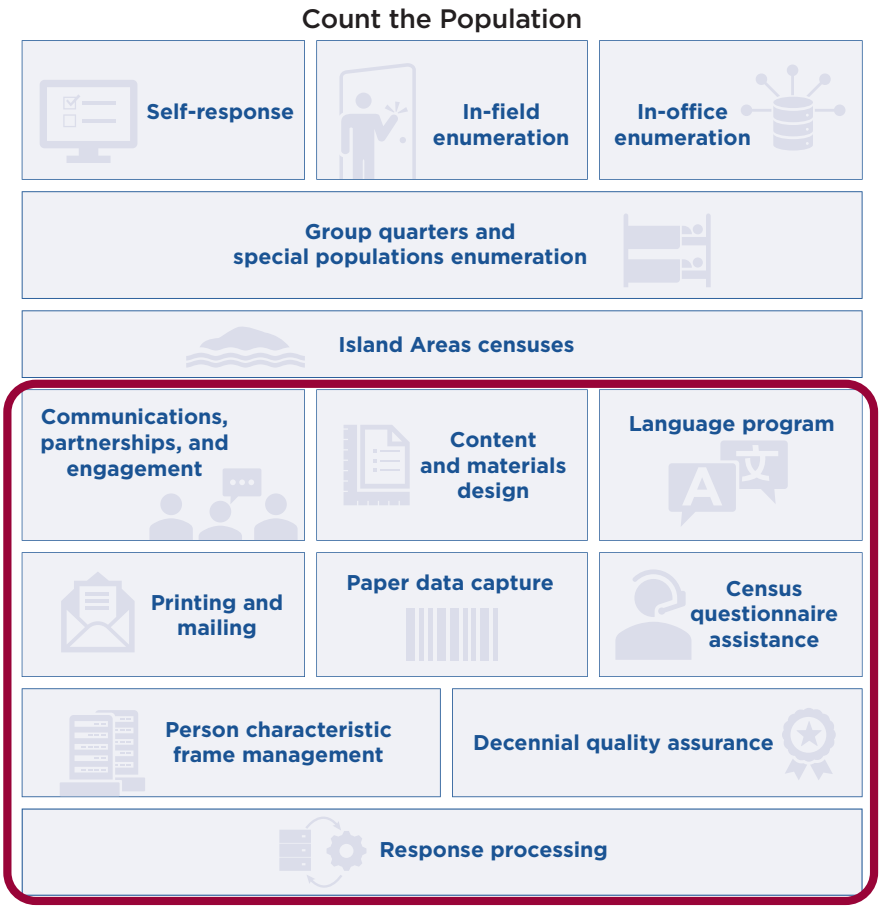
The 2020 Census Island Areas Censuses operation did not use administrative and supplemental data. However, the Census Bureau is researching the availability and quality of administrative and supplemental data for Island Areas that could be used in the 2030 Census to improve the address updating and enumeration activities.

Background: Count the Population/Work That Enables Enumeration

Many activities occur to promote self-response and to enable the enumeration work described above. We refer to this as Work That Enables Enumeration (**Figure 17**). The following operational areas are considered Work That Enables Enumeration:

- Communications, Partnerships, and Engagement: Promotes the census throughout the decade with national and local partners, supports recruiting and hiring of temporary census workers, and motivates the American people during peak production to respond to the census.
- Content and Materials Design: Develops respondent questionnaires and related materials that provide a clear call to action and make responding easy.
- Language Program: Facilitates responses from populations with limited English proficiency and/or low literacy by providing respondent materials and questionnaires in multiple languages.
- Printing and Mailing: Prints and mails respondent materials to HUs to provide them with the information needed to respond; also produces some materials for in-field enumeration.
- Paper Data Capture: Captures the data from paper questionnaires and other forms.
- Census Questionnaire Assistance: Assists the public by answering questions about the 2030 Census questionnaire.
- Person Characteristic Frame Management: Provides high-quality, person-level administrative and supplemental data for the 2030 Census.
- Quality Assurance and Monitoring: Uses multiple approaches to verify that accurate data are obtained for all living quarters and people in our nation.
- Response Processing: Integrates and processes census responses.

Figure 17.
Operational Areas That Enable Enumeration



Key Innovations and Efficiencies
(Since the 2020 Census)

- Responses processed in parallel with data collection for streamlined processing.
- Expanded use of internet self-response for in-field and group quarters data collection.
- Use of person characteristic frame for housing unit (HU) enumeration.
- Combined targeted address updates and enumeration activities for HUs.
- Expanded use of admininistrative data to inform operational decisions.
- Introduction of multi-operational enumerators.

Key Business Functions
(Type of work done)

- Manage universe and workloads.
- Collect responses.
- Process responses.
- Ensure quality including data reviews.

3.2.6. Communications, Partnerships, and Engagement

Purpose and Scope

The purpose of the **Communications, Partnerships, and Engagement** operational area is to convey the importance of participating in the 2030 Census to the entire nation. Ultimately, the goal is to encourage response to and participation in the 2030 Census.

Communications, Partnerships, and Engagement also helps with recruiting and hiring temporary census field workers. In 2020, this operational area was performed by the Integrated Partnerships and Communications (IPC) operation. For the 2030 Census, this work includes three major activities that work together holistically to motivate the public to respond to the census:

- Communications.
- Partnerships.
- Engagement.
- Description.

Communications is the first activity of this operational area. The first step is primarily related to the development of the public campaign supporting the decennial census. The campaign's primary focus is to encourage response by raising and keeping awareness high throughout peak production of the 2030 Census. The campaign also provides support for recruiting a qualified field workforce and disseminating census data to partners and the public.

Research and analytics help develop and adjust messaging to effectively reach and motivate target audiences. The campaign relies on multiple communication channels and methods to increase awareness and encourage participation. The internet (including a variety of social media platforms, wireless technologies, and mobile personal devices) has opened new communication channels and media. Television, radio, print, and outdoor advertising still occupy an important segment in the market, but consumption has changed with the arrival of streaming channels, subscription services, newsletters, podcasts, and other modes.

Communications with all audiences is crucial to the success of the 2030 Census. This includes using the most innovative and effective methods to:

- Promote applying for and filling millions of temporary census jobs.
- Increase the public's awareness of the importance of responding to the 2030 Census.
- Increase response rates.
- Enhance outreach and engagement strategies both on a national and local level.

Over the next few years, the Census Bureau will be identifying new communications strategies using new technologies in a cost-effective manner.

Partnerships is the second activity of **Communications, Partnerships, and Engagement**. The 2030 Census employs the strengths of an array of national and community partnerships to increase awareness and participation in the 2030 Census. Examples of partners include congressional; intergovernmental; federal, tribal, state, and local governments; community and faith-based organizations; philanthropic entities; schools; media; businesses; social services; and organizations that work on behalf of specific populations and groups. Partner relationships are established and maintained throughout the decade. An important focus for the 2030 Census is to communicate and interact more effectively with national and local partners. Another important focus is to initiate partnerships for connecting with the hard-to-count populations; this includes the support needed to interface with young children, the disabled community, individuals with low literacy, and rural communities.

Census Bureau engagement with local partners and stakeholders is critical to the success of motivating individuals to respond the census. Therefore, Engagement is the third activity of this operational area. Mobile Questionnaire Assistance (MQA) events are examples of engagements jointly hosted by Census Bureau staff, partners, and other stakeholders. At MQA events, the public can respond to the census in the following ways: (1) the Census Bureau provides devices for the public to respond on their own, (2) Census Bureau staff interview the public directly, or (3) the public completes the census questionnaire on their personal device. The Census Bureau staff are also present to answer questions and provide additional information and promotional materials.

The Census Bureau is testing a data-driven approach to determine the most effective locations for community engagements. This approach examines historical and real-time data about response propensity (likelihood of different demographic groups or geographic areas to respond to the decennial census) alongside other demographic data to target areas with historically low response rates.

Impact on Quality (Accuracy) of Census Results

Communications, Partnerships, and Engagement directly impacts the quality of the census results in several ways. First, the primary goal of an effective communications, partnerships, and engagement program is improved self-response rates, which contribute directly to high-quality census results. Second, communications support for field staff recruitment is expected to contribute to hiring qualified candidates, whose training will emphasize the importance of complete and accurate data collection. Finally, the focus on establishing partnerships and directing communications to hard-to-count populations is expected to improve self-response and therefore the accuracy of the census.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Communications, Partnerships, and Engagement** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

Additionally, this operational area communicates and engages with the public about the importance of data privacy and confidentiality to the Census Bureau, the 2030 Census, and the various methods used to protect these data.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

Communications, Partnerships, and Engagement relies on administrative and supplemental data to develop its messages and strategies for effectively communicating with different audiences. These data include response rates from prior decennial censuses, demographic data, and public opinion survey results (e.g., the Census Barriers, Attitudes, and Motivators Studies). Administrative and supplemental data and response propensity data use are being tested to guide decisions on locations of community engagements.

3.2.7. Content and Materials Design

Purpose and Scope

The purpose of **Content and Materials Design** is to identify and finalize content and materials that will help us enumerate the population and verify consistency across data collection operations and response modes. This work was performed by the Content and Forms Design (CFD) operation in the 2020 Census. For the 2030 Census, the **Content and Materials Design** operational area covers the following:

- Identifying and finalizing content and design of questionnaires and other associated
- materials such as letters, postcards, inserts, envelopes, and field enumeration
- materials.
- Providing consistency across data collection modes and operations, including (but not limited to) questionnaire content, help text, mailing materials, and field enumeration materials.
- Optimizing questionnaires to encourage high response rates.

Description

The **Content and Materials Design** operational area is responsible for identifying and finalizing the content and design of questionnaires and associated materials. To support the 2030 Census, this area checks for content consistency across data collection modes and operational areas, as wording may vary depending on the mode of data collection. This area is responsible for creating, refining, and finalizing instrument specifications for all data collection modes: internet, phone, paper, and field enumeration.

The **Content and Materials Design** operational area includes the following activities:

- Developing content specifications for all data collection modes: internet, phone, paper, and field enumeration.
- Pretesting questionnaire content (e.g., cognitive testing, focus groups).
- Finalizing content development and design of questionnaires across all modes: internet, phone, paper, and field enumeration.
- Finalizing content development and design of associated materials including letters, postcards, inserts, envelopes, the Notice of Visit, and the Confidentiality Notice.
- Optimizing questionnaire designs for each mode and all supporting materials according to systems specifications.
- Ensuring questionnaire content and supporting materials are accurate, appropriate, consistent, inviting, and easy to understand across self-response and nonresponse data collection modes.

Impact on Quality (Accuracy) of Census Results

Content and Materials Design contributes to a quality census by ensuring the accuracy of all data collection materials. Questionnaire design is an area in which **Content and Materials Design** supports quality by creating well-designed questionnaires in all response modes. For example, paper questionnaires are designed to be easy for respondents to understand and complete, to be produced by the final print production solution, to be accurately mailed by the final mail production solution, and for the data to be accurately processed by the Paper Data Capture solution.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Content and Materials Design** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

Additionally, this operational area adheres to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

Content and Materials Design does not use administrative and supplemental data.

3.2.8. Language Program

Purpose and Scope

The purpose of the **Language Program** operational area is to assess and support the language needs of limited English proficiency populations. It does this by determining the number of non-English languages and the level of support needed for the 2030 Census, translating the non-English content of questionnaires and associated respondent-facing materials, pretesting the non-English materials, and optimizing non-English content across data collection modes and operational areas.

In the 2020 Census, the Language Services (LNG) operation primarily performed this work. Other operations also engaged in translation services. For example, the IPC operation translated selected partnership and communications materials. For the 2030 Census, this operational area includes two activities: Language Support and Translation Services.

Description

The first activity of **the Language Program** operational area is Language Support. This activity includes:

- Assessing the nation's language needs and identifying ways to reduce language barriers to enumeration for respondents within limited English proficiency populations.
- Motivating people to respond by identifying language needs and providing data collection operational areas with materials to meet those needs.
- Determining the number of non-English languages and the level of support needed. (For context, during the 2020 Census, we offered online self-response and phone self-response in 12 non-English languages. We also provided video and print language guides in 59 non-English languages.)

- Optimizing the non-English content of questionnaires and associated materials for internet, phone, paper, and field enumeration data collection modes.
- Producing language guides in multiple formats and languages, including American Sign Language, large print, and braille.

The primary goal of the Language Support activity is to deliver appropriate questionnaire design and content across non-English data collection instruments. The second goal is to confirm the consistency of language materials across data collection modes and operational areas. Additionally, the third goal is to produce non-questionnaire materials such as field materials and language goals. These goals are achieved through rigorous testing and reviews.

The second activity of the **Language Program** is Translation Services. This activity makes certain that the Census Bureau speaks with one voice across multiple languages by providing professional, consistent, high-quality translations for materials and products that require translation from English to another language. Materials translated include text for data collection questionnaires and supporting paper and electronic materials, as well as communications, training, webpages, video, audio, and scripts. Translation Services also augments the work of the Communications, Partnerships, and Engagement operational area by providing high-quality translations to motivate and help limited English proficiency populations to complete the census.

Impact on Quality (Accuracy) of Census Results

The **Language Program** operational area impacts the quality of decennial census results in several ways. The Language Support activity impacts the quality of decennial census results by determining the language needs of the population and providing the necessary components for the data collection operational areas to meet those needs. For example, a key part of the Language Support work is providing Self-Response with translated materials that can be used to offer online and phone self-response in multiple non-English languages. Translated materials improve the quality of decennial census results by allowing more people to respond more readily.

The Translation Services activity intends to provide limited English proficiency populations with high-quality, culturally meaningful translations to use so they can provide accurate data when completing the census.

Privacy and Confidentiality

The **Language Program** operational area adheres to all relevant privacy and confidentiality laws, policies, and procedures.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

The **Language Program** operational area uses American Community Survey data to determine which languages are supported for the decennial census and the level of support needed. The languages supported are those spoken by the largest number of limited English proficient households, that is, the households in which no one (age 15 or over) speaks or understands English very well.

3.2.9. Printing and Mailing

Purpose and Scope

The purpose of **Printing and Mailing** is to print and distribute materials that invite the public to respond to the census. In the 2020 Census, the Forms Printing and Distribution operation performed the Printing and Mailing work. For the 2030 Census, the work includes two activities:

- Printing and Mailing: Pertaining to the materials to support self-response.
- Other Printing and Distribution: Distribution of questionnaires and associated materials for other data collection operations.

Note: Some printing is out of scope for this operational area. Field Support prints nonquestionnaire materials to support field staff needs. Communications, Partnerships, and Engagements provides the printed materials for outreach and communications efforts.

Description

The first activity of Printing and Mailing is Self-Response Printing and Mailing. This operational activity is one of the foundations of the Census Bureau's efforts to solicit self-responses to the 2030 Census. This activity is responsible for executing the primary contact strategy, wherein HUs are contacted via United States Postal Service (USPS) mail and provided a Census ID that is used to respond to the decennial census. In the 2020 Census, the printing and mailing operation printed and distributed 1.85 billion pieces of printed material that included internet invitations, reminder cards, letters, and questionnaires. The mailing efforts conducted during the 2020 Census, totaling nearly 600 million pieces of mail, represented the single largest First-Class Mail mailing within 90 days in USPS history.

For the 2030 Census, this operational activity prints and mails the materials sent to respondents in multiple languages as determined by the Language Program operational area (more information is provided in the Communications, Partnerships, and Engagement area in section 3.2.6.)

Efforts to refine and improve the printing and mailing activity for self-response are centered around new offerings such as:

- The provision of paper questionnaires upon request from the public (a service that was not available during the 2020 Census.)
- Technical improvements to paper materials construction methods.
- Operational advancements.

The second activity of **Printing and Mailing** is Other Printing and Distribution. This activity prints and distributes materials requested by other operational areas as required. Examples include questionnaires and materials for In-Field Enumeration, Group Quarters and Special Populations Enumeration, and Island Areas Censuses.

Impact on Quality (Accuracy) of Census Results

Printing and Mailing contributes to a quality census by providing Census IDs to housing units. This activity confirms that the self-response for the housing unit is accurately linked to its address or physical location. HUs will also be able to respond without a Census ID—a capability successfully used for the first time in the 2020 Census.

Printing and Mailing includes a robust quality assurance (QA) activity. The QA components, executed by Government Publishing Office personnel, Printing and Mailing operational staff, and National Processing Center employees, support the accurate production and distribution of printed census materials. This is especially important for printed paper questionnaires, which must meet certain print quality standards to facilitate accurate and timely capture of the paper questionnaire responses.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

This operational area does not use administrative and supplemental data.

3.2.10. Paper Data Capture (PDC)

Purpose and Scope

Another enumeration enabler of **Count the Population** is **Paper Data Capture**. This operational area conducts paper data capture for all 2030 Census questionnaires, including those collected as part of Self-Response, In-Field Enumeration, Group Quarters and Special Populations Enumeration, and Island Areas Censuses. This area receives paper forms, captures and processes the data (i.e., responses on paper questionnaires), and then sends the data for downstream processing. For the 2020 Census, the PDC operation performed this work.

Description

PDC captures information from paper questionnaires and other forms. In the 2020 Census, more than 21 million paper questionnaires were data captured. Because of the likely increase in automation of enumeration operations, the number of paper questionnaires is expected to be lower for the 2030 Census.

For the 2030 Census, PDC processes responses provided on paper questionnaires and other paper forms, as required by the data collection operations. The paper data capture process involves a series of steps, including mail receipt, document preparation, scanning, and keying. A quality assurance (QA) process is included so the data are captured correctly. For the 2030 Census, improvements are focused on system and processing efficiencies.

Impact on Quality (Accuracy) of Census Results

The **PDC** operational area contributes to a quality census by efficiently and

accurately capturing responses on paper forms and meeting processing targets that facilitate timely follow-up in the field such as for households that do not respond.

Privacy and Confidentiality

PDC supports privacy and maintains confidentiality of paper questionnaires, scanned images, and data files through strict protocols. Physical paper questionnaires with respondent or field staff data are retained at the Paper Data Capture Center until confirmation that the data from each questionnaire have been captured and received by downstream systems, at which point the physical paper form is sent for secure destruction.

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

The **Paper Data Capture** process uses preloaded administrative and supplemental data (e.g., name data) to assess the accuracy of captured data.

3.2.11. Census Questionnaire Assistance (CQA)

Purpose and Scope

Census Questionnaire Assistance is the sixth component in Work that Enables Enumeration within **Count the Population**. This operational area assists HU respondents over the phone by answering questions about the census questionnaire or other decennial census-related topics. This operational area supports GQ operations as required. This work was covered in the CQA operation in the 2020 Census and, for the 2030 Census, includes three activities:

- Housing Unit Respondent Assistance, including fulfilling requests for paper forms (section 3.2.1).
- Group Quarters Support (section 3.2.4).
- Phone Self-Response (section 3.2.1).

The primary activity for the **Census Questionnaire Assistance** operational area is Housing Unit Respondent Assistance. The Census Bureau provides toll-free phone numbers for HU respondents to call for help completing the 2030 Census questionnaire. We use Interactive Voice Response (IVR) technology to resolve basic questions from callers, thereby reducing the number of call center staff required. Questionnaire assistance is provided for the nation in multiple languages as determined by the Language Program operational area.

Planning for this operational activity involves determining the expected inbound call volumes, the timing of peak volumes, and a plan for handling unanticipated volumes. As the call centers are stood up, this activity is responsible for staffing and training the center staff. During peak production, the Questionnaire Assistance activity within this operational area manages the day-to-day work of the call center staff. This activity also analyzes data trends to improve the customer experience and provide efficient and accurate assistance.

This operational area is expected to provide a mechanism for respondents to confirm that the Census Bureau has received their responses. By providing information about response status upon request, **CQA** will be able to serve the public more effectively. An additional **CQA** activity supports GQs managers and likely will include providing questionnaire assistance to some group quarters respondents.

For the 2030 Census, this operational area plans to reduce the physical call center footprint and define an optimal operational structure. This structure may include using a work-at-home contact center workforce to add flexibility in meeting requirements and improving the caller experience.

Impact on Quality (Accuracy) of Census Results

Census Questionnaire Assistance contributes to the quality of the census by answering questions from the public and collecting response data via Self-Response (section 3.2.1).

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII. Data provided by the respondent are secure and confidential throughout the data collection process.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

The **Census Questionnaire Assistance** operational area does not use administrative and supplemental data.

3.2.12. Person Characteristic Frame Management

Purpose and Scope

The **Person Characteristic Frame Management** operational area is new for the 2030 Census and is another type of work that enables enumerations. The purpose of this operational area is to serve as the source of high-ity, person-level administrative and supplemental data for the 2030 Census. **Person Characteristic Frame Management** includes three activities:

- Development and Maintenance of the Person Characteristic Frame (PCF).
- Development and Maintenance of Administrative and Supplemental Data Quality Measures.
- Person-Level Matching Services.

As context for this operational area, the PCF is the person-level administrative and supplemental data frame for 2030 Census operations and processes. It includes lists of people linked to specific addresses, their characteristics, and the household composition associated with the addresses. It also includes quality metrics about the data. Data sources for the PCF are the Census Bureau's Demographic Frame, other enterprise datasets, and decennial census-specific administrative and supplemental data. Other operational areas use the PCF to improve the quality of the census results. For example, the PCF supports the In-Office Enumeration operational area (refer to section 3.2.3).

Description

The first activity of the **Person Characteristic Frame Management** operational area is Development and Maintenance of the PCF. This activity starts by accessing data from the Census Bureau's Demographic Frame and supplementing it with any decennial census-specific elements needed to satisfy unique 2030 Census administrative and supplemental data requirements. While the Demographic Frame is designed to be an enterprise-wide solution, developed, and managed by the Census Bureau's Frames Program, the PCF is owned by the 2030 Census Program.

The development and maintenance of the PCF relies on a "living frame" of administrative and supplemental data, rather than composites created for specific purposes or operations. A living frame gives us access to the most recent administrative and supplemental data, new datasets, and new vintages of existing datasets as soon as they have been ingested and processed into the Demographic Frame.

A critical function of **Person Characteristic Frame Management** is to improve administrative and supplemental data coverage while ensuring existing datasets are available for decennial census tests and peak production. Thus, this activity works with other operations and programs to identify, acquire, and assess new administrative and supplemental data sources that either: (1) increase coverage or (2) provide information for a specific use case.

The development and maintenance of the PCF requires coordination with stakeholders across the Census Bureau to identify new sources, conduct outreach, and develop necessary agreements that incorporate all potential 2030 Census uses of the data to remain valid throughout the 2030 Census life cycle. Once new data sources have been acquired, subject-matter experts must assess them to determine their utility, quality, and coverage, including whether they cover populations that are hard to count and may not be included in existing administrative and supplemental data sources. The data source assessment process evaluates the quality and utility of new sources, confirms that they meet 2030 Census quality standards, and provides valuable information to administrative and supplemental data users (modelers, analysts, etc.).

The second activity of **Person Characteristic Frame Management** is Development and Maintenance of Administrative and supplemental data Quality Measures. This activity establishes measures that allow administrative and supplemental data users to evaluate the quality, completeness, and consistency of administrative and supplemental data. Administrative and supplemental data quality measures assess whether the information within the administrative and supplemental data is the same as what would have been provided via a response. Administrative and supplemental data quality is measured at various levels, including person, household, frame, and different levels of geography between household and frame. These quality measures provide key information to administrative and supplemental data users about how and when to use administrative and supplemental data.

The third activity of **Person Characteristic Frame Management** is Person-Level Matching Services. This activity performs all types of person-data matching functions. The work includes matching:

- Response data to administrative and supplemental data.
- Response data to response data.
- Reinterview/re-collect data to response data.
- Any other matching that requires matching person records.

This activity coordinates with other operational areas that use this service in developing the matching methodology, matching quality metrics, and their respective thresholds.

Impact on Quality (Accuracy) of Census Results

Person Characteristic Frame Management impacts the quality of the census results by improving coverage and reducing undercounts and overcounts using administrative and supplemental data. Administrative and supplemental data help improve the quality of census results by identifying potential quality issues in response data, improving imputation, and supplying missing response data. The PCF also provides administrative and supplemental data quality measures at the household, individual, and individual characteristics levels, enabling other operational areas to use the administrative and supplemental data more effectively.

This operational area also supports increasing coverage of hard to count populations within administrative and supplemental data by working to acquire additional sources of data focused on this population. Many traditional administrative and supplemental data sources do not capture certain hard-to-count groups, such as highly mobile individuals, individuals for whom language or literacy is a barrier, and individuals who may have concerns about providing information to the government. To reduce these coverage gaps, the **Person Characteristic Frame Management** operational area is working to acquire resources that include different types of hard-to-count populations.

Finally, **Person Characteristic Frame Management** incorporates quality control processes and measures to check the accuracy and quality of data within the PCF. Before adding new administrative and supplemental data sources to the PCF, we evaluate them for quality and coverage so that they meet quality standards. 2030 Census staff also apply quality control processes to new vintages of administrative and supplemental data before entering them into the Demographic Frame to maintain the quality of the updated PCF.

Privacy and Confidentiality

Person Characteristic Frame Management provides a secure service with quality measures and enhancements to receive and store administrative and supplemental data and to conduct person matching. The operational area is also focused on maintaining the confidentiality of respondent data, including respondent data obtained through administrative and supplemental data.

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

Person Characteristic Frame Management relies on administrative and supplemental data since the PCF is the primary source of demographic administrative and supplemental data for the 2030 Census. The PCF is created using the Census Bureau's Demographic Frame, supplemented with data used only for decennial census purposes, such as operation-specific items.

3.2.13. Quality Assurance and Monitoring

Purpose and Scope

Another enumeration enabler within **Count the Population** is **Quality Assurance and Monitoring**. As noted in earlier sections, the vision of the 2030 Census is to count everyone in our nation once, only once, and in the right place, particularly those who are often overcounted or hard to count. The purpose of this operational area, **Quality Assurance and Monitoring**, is to enable this vision. We achieve this through collaboration with other operational areas, including (1) Self-Response, (2) In-Field Enumeration, (3) Group Quarters and Special Populations Enumeration, and (4) Response Processing. In the 2020 Census, this operational area was covered in portions of Response Processing (RPO) (including Self-Response Quality Assurance) and NRFU Reinterview. For the 2030 Census, **Quality Assurance and Monitoring** focuses on four activities:

- Targeted Quality Improvement.
- Census Data Quality Assurance.
- Decennial Field Quality Monitoring.
- Real-Time Analysis of Data.

Additional quality assurance work occurs in other, specific operational areas as noted above. Since all quality assurance work is interconnected, it is planned and designed in an integrated manner. **Quality Assurance and Monitoring** coordinates and integrates across operational areas to complete these activities.

Description

The first activity within **Quality Assurance and Monitoring** is Targeted Quality Improvement (TQI). This operational activity involves detecting and resolving cases with coverage issues, such as missing, incomplete, or inconsistent response data. This activity selects cases for additional follow-up based on analyses of response data and comparisons with administrative and supplemental data. Selection is based on a predefined set of selection rules and criteria. Cases requiring field follow-up are added to the In-Field Enumeration workload for field staff to conduct a follow-up interview. The additional data obtained during the follow-up interview can be used to improve the original response. In past censuses, this activity was called Coverage Improvement.

The second activity of **Quality Assurance and Monitoring** is Census Data Quality Assurance (CDQA). This activity performs quality control checks on responses obtained through Self-Response, In-Field Enumeration, and Group Quarters and Special Populations Enumeration. The process uses automated and interactive checks to identify questionable returns requiring field follow-up to validate data quality. These cases are added to the In-Field Enumeration workload. For the 2020 Census, this activity was known as Self-Response Quality Assurance and NRFU Reinterview.

The third activity of **Quality Assurance and Monitoring** is Decennial Field Quality Monitoring (DFQM). This activity covers monitoring and benchmarking to detect patterns that may signal potential field staff performance issues during in-field data collection. Performance metrics used in DFQM include the percentage of:

- Interviews completed using proxy respondents.
- The cases selected for reinterview.
- The cases recommending the address be deleted.

Unusually high or low metrics may signal the need for supervisors to investigate the field staff's work and the operating procedures they followed to complete that work. Field staff performance issues may range from difficulties using the data collection instrument to data falsification. Remedies include retraining, observations, and when necessary, separation from employment. When performance issues affect the data quality, the affected cases are returned to the appropriate field operational area for rework.

The fourth activity of **Quality Assurance Monitoring** is Real-Time Analysis of Data (RTAD). This activity covers the aggregation of response data and the production of population metrics at different levels of geography so that the data collected match expected patterns. Anomalies may signal underlying quality issues. By running these metrics early and often, potential problems can be identified, investigated, and remedied while data collection is underway. In addition to the predetermined metrics, RTAD can also generate other metrics on an ad hoc basis. The issues surfacing from this analysis are identified for evaluation and resolution by the appropriate operational areas.

The final activity of **Quality Assurance and Monitoring** is Data Review. This includes data review by demographers and housing subject-matter experts for demographic reasonableness during collection processing and falls within the near real-time processing (NRTP) covered under Response Processing. This also contributes to creating workloads for In-Field Enumeration when anomalies indicate the need for rework. Data review continues during post-collection processing at key operational milestones. Refer to section 3.2.14.

Impact on Quality (Accuracy) of Census Results

Quality Assurance and Monitoring directly impacts the accuracy of the census results as it is specifically designed to improve quality. Quality monitoring activities allow us to identify issues in near real-time and remediate low-quality responses.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

Administrative and supplemental data will be used to improve post-data collection activities, such as Census Data Quality Assurance (CDQA), by providing independent data sources to compare with the data collected.

3.2.14. Response Processing

Purpose and Scope

The final component of **Count the Population** is **Response Processing**, which underpins virtually all enumeration and enumeration enabling work. The purpose of this operational area is to ensure that all known living quarters (cases) have been enumerated, processed, and prepared to create data products. **Response Processing** is performed for the data collected for the 50 states, the District of Columbia, Puerto Rico, and the four Island Areas.

In the 2020 Census, the **Response Processing** operational area was covered by the Response Processing Operation (RPO) and portions of the Count Review Operation (CRO) (i.e., Census Count and Data Review). For the 2030 Census, **Response Processing** includes the following activities:

- Universe Creation.
- Universe and Workload Management.
- Quality Control Workload Creation.

- Data Integration.
- Processing for Stateside and Puerto Rico.
- Processing for Island Areas.
- Data Review.

Description

The first activity of **Response Processing** is Universe Creation. This activity creates the initial universe of cases, using the address and spatial data for the nation received from Decennial Address Frames Management and Decennial Spatial Frame Management. These inputs populate the initial content of the Centralized Decennial Address Control System (CDAC) repository used for subsequent decennial census universe creation and maintenance activities (explained in the Data Integration section that follows). The initial universe is created to generate the initial printing and mailing workload before the start of data collection. The universe also supports self-response activities. The 2030 Census universe applies to United States and Puerto Rico addresses only. For each of the Island Areas, a separate Island Areas universe is created and managed by the Island Areas Censuses operational area.

The second activity of **Response Processing** is Universe and Workload Management. This activity manages updates to the 2030 Census universe during data collection. These can take the form of supplemental address information that results from updates to the MAF based on USPS inputs or from decennial census activities such as LUCA Appeals and New Construction. In addition, address updates based on field observations made during data collection are reflected as universe updates.

Universe and Workload Management creates and updates the workload for the data collection activities based on many factors, including status updates from the various enumeration modes (including whether a response is sufficient), recommendations from In-Office Enumeration, and tracking information on paper questionnaire returns from the USPS.

The Universe and Workload Management activity also tracks the status of each case in these workloads. Workloads are managed for the following operational areas:

- Printing and Mailing.
- Self-Response.
- Paper Data Capture.
- Census Questionnaire Assistance (for phone self-response).
- In-Field Enumeration (including reinterview/re-collect and field verification).
- Group Quarters and Special Populations Enumeration (including reinterview/re-collect).

The third activity of **Response Processing** is Quality Control Workload Creation. This activity provides the workloads for cases used by operational quality control processes. Quality Control Workload Creation selects a sample of cases from the **In-Field Enumeration** workload. These cases are designated for a second interview (reinterview) to verify the quality of the data collected from the initial interview. Based on plans for GQ automation, a sample of cases may also be created for GQ quality control purposes. The field enumeration work may identify additional cases requiring rework because of field staff performance issues.

In some instances, questions arise around the responses received, and **Response Processing** helps to resolve those questions by adding the case to the follow-up workload. For example, in some instances, self-enumeration HU cases may require an interview. Census Data Quality Assurance (CDQA), within Quality Assurance and Monitoring, identifies these cases (known as re-collect cases), which are then added to the In-Field Enumeration workload. Also, cases with coverage and completeness issues may require a Targeted Quality Improvement (TQI) field visit to resolve the inconsistencies. A separate TQI operational activity identifies these TQI cases, which are added to the In-Field Enumeration workload. Quality Assurance and Monitoring also contains a TQI activity. For more information on coordination of quality assurance work, refer to section 3.2.13.

The fourth activity of **Response Processing** is Data Integration. This activity covers two areas: Response Data Integration and Geographic Data Integration. Response data integration coalesces all decennial census response information gathered from the different enumeration modes during data collection. The response data are stored in the Enterprise Data Lake (EDL) repository. Responses are normalized to a common format before processing of stateside and Puerto Rico data. Geographic data integration assembles all the decennial

census address information used and updated during data collection. The creation and maintenance of a Centralized Decennial Address Control (CDAC) for the 2030 Census supports this function. This repository of addresses stays current for the duration of the data collection activities, i.e., as updates are received from the Decennial Address Frames Management operational area or the data collection activities. CDAC is a new capability that facilitates using near real-time analytics to identify and remediate address issues and reduce processing time. It also improves address matching results for non-ID self-response and supports clerical matching by identifying cases requiring field verification.[15] CDAC also makes it easier to conduct research for issues raised as part of the Count Question Resolution (section 3.4.3).

The fifth activity of **Response Processing** is Processing for Stateside and Puerto Rico. This activity processes the response data for cases considered complete or resolved. A focus for the 2030 Census is to begin processing response data during data collection and as the cases are completed (near real-time processing). This is a change from the 2020 Census when all cases were collected before processing began.

NRTP helps improve quality by identifying potential issues early, which allows us to apply the appropriate quality enhancement strategy (e.g., sending these cases back to the field for resolution). The kinds of processing performed during data collection may include, but would not be limited to, matching of non-ID respondent addresses to the CDAC, coding, editing, and imputation. Enhancements for the 2030 Census may include refining and developing a residual coding process that integrates coding modules and dictionary updates with the NRTP framework and exploring an enhanced use of administrative and supplemental data throughout the process.

Additionally, NRTP includes applying the primary selection algorithm and resolving person duplication across addresses. For example, we might receive two or more valid responses for some addresses in the census; one person at an address might respond on the internet, while another person at the same address returns the completed paper questionnaire. The primary selection algorithm will address this situation. The Census Residence Criteria determine where people are counted during the census. If person duplication is identified across addresses, business rules that follow the residence criteria will be used so that we count a person at only one address. Count Imputation is another type of processing used to impute the household count when key indicator information is missing in the decennial census response. Administrative and supplemental data, including PCF data, are used to support these activities. Other work includes supporting data input needs required for final data reviews, tabulation, data product creation, and archiving.

The sixth activity of **Response Processing** supports Island Areas. This activity is performed on the response data collected for the Island Areas Censuses. Processing activities produce the files needed for Island Areas data product creation and archiving.

The final activity of **Response Processing** is Data Review. This activity is performed throughout response processing. It involves sharing preliminary data from stateside and Puerto Rico processing with internal Census Bureau staff so that they can review response data and the counts. Experienced subject-matter experts with decennial census knowledge conduct these extensive reviews as a final step to reduce the likelihood of data collection or processing issues.

Impact on Quality (Accuracy) of Census Results

Response Processing impacts the quality of census results in three ways. First, this area includes a notable, new capability for near real-time data monitoring, which allows for issues and areas of concern to be identified and resolved early while data collection is still occurring. The ability to conduct field interviews and field verification of non-ID addresses to resolve quality concerns is expected to improve the overall quality of the census results. Second, the various methods, such as coding, editing, and imputation used to process the data, can impact the quality. These methods and their supporting systems are rigorously tested so that they do not introduce unintended errors. Lastly, data review by Census Bureau subject-matter experts provides additional checks with Census Bureau-wide data benchmarks.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Response Processing** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII, so the response data collected are fully protected at rest and during transit.

[15] When a respondent cannot provide a Census ID during self-response, CQA, or during fulfillment when requesting a paper form, the Census Bureau will collect their address and compare it to the census address frame to try to determine the Census ID; doing so helps reduce the In-Field Enumeration workload and adds missing address records, when appropriate.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

Response Processing uses administrative and supplemental data. One example includes applying the results of models from the In-Office Enumeration operational area to help inform decisions on workload management. Another example is when cases require further processing to resolve potential issues and to enhance data quality.

3.2.15. Intended Outcomes for Count the Population

A summary of the intended outcomes for **Count the Population** includes:

- **Conducted public-facing communications**: Tailored messaging for the public is delivered through multiple communication channels and methods to increase awareness and encourage participation in the 2030 Census.
- **Facilitated partnership relationships**: National, tribal, state, and local partnerships are established and strengthened throughout the census life cycle.
- **Performed content planning and design**: 2030 Census questionnaires and other respondent-facing materials are planned, designed, produced, and provided to the public.
- **Supported multiple languages**: Questionnaires and associated materials are created and available in identified languages for limited English proficiency populations, and content is translated into those languages.
- **Supported universe and workload management**: Provision of universe and workload requirements for operations, including ongoing analysis and maintenance of the census universe to obtain high-quality responses from all living quarters.
- **Collected responses**: 2030 Census data are collected through various modes, tracked for status, and integrated for later response processing work.
- **Processed responses**: 2030 Census data are transformed into a standardized set corresponding to the set of cases in the decennial census universe. Responses are normalized, and write-in values are coded (and translated when needed). Standardized responses are selected for each case, and data are subjected to edits and imputation. Finalized response data are used as input into the Data Products Creation and Dissemination work.
- **Focused on quality**: There are two components to this intended outcome:
  - Data anomalies: 2030 Census response data are tracked and examined for anomalies in the data collection process to identify potential falsification of data, and to validate completeness of responses.
  - Quality monitoring: Reinterview work and in-field collection efforts are coordinated and monitored, processes to identify and resolve data falsification are coordinated and monitored, and targeted quality improvement activities are coordinated and monitored (such as follow-up visits or phone calls to collect missing information or address quality concerns).

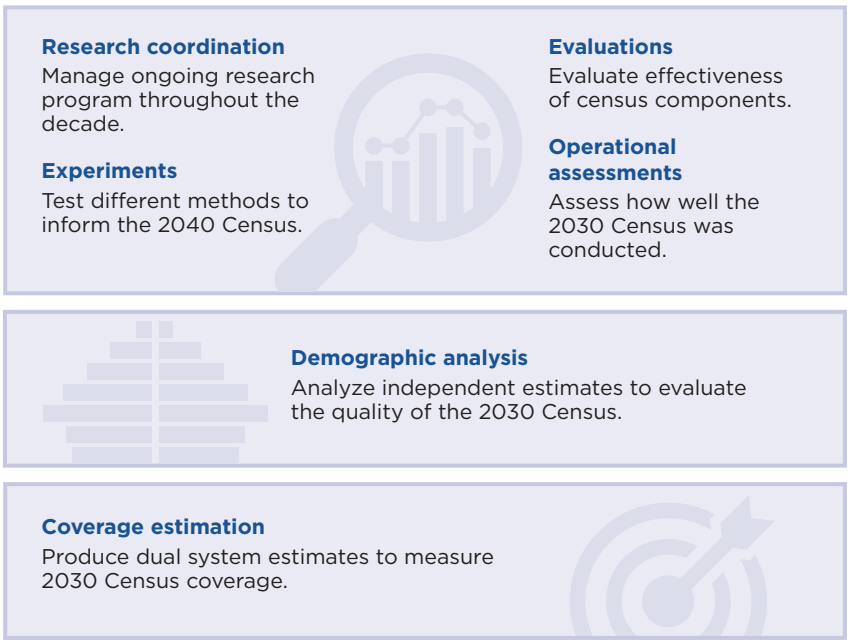
3.3. Research Census Results

The fourth step in conducting the census is to **Research Census Results**. The purpose of the **Research Census Results** concept area is to conduct a comprehensive and methodologically sound set of research and analysis activities that facilitate the design of efficient and effective operations for the 2030 Census, measure the coverage of the 2030 Census results, and provide input to the 2040 Census design.

Figure 18 provides a summary of the **Research Census Results** concept area, and it includes three operational areas:

- Research Support.
- Demographic Analysis.
- Coverage Estimation.

Figure 18.
Research Census Results Summary



Key Innovations and Efficiencies
(Since the 2020 Census)

- Improved demographic analyses measures.
- Redesigned coverage estimation methods.

Key Business Functions
(Type of work done)

- Conduct evaluations and experiments.
- Conduct operational assessments.
- Perform independent analysis.
- Measure census coverage.

Corresponding 2020 Census Operations

The work covered in the **Research Census Results** concept area was performed in the 2020 Census by the following operations:

- Evaluations and Experiments (EAE).
- Coverage Measurement Design and Estimation (CMDE).
- Coverage Measurement Matching (CMM).
- Coverage Measurement Field Operation (CMFO).

As context for the work described in **Research Census Results**, different types of research occur before, during, and after the 2030 Census data collection activities. Therefore, the first component of **Research Census Results** is Research Support. The research activities must be coordinated and managed. Some of the research is performed early in the decade, such as during the Design Selection Phase (FY22–FY24), as various methodologies and approaches for conducting the decennial census are explored, analyzed, and tested. Research is accomplished with ongoing small-scale response tests, as operations are tested or executed. For the 2030 Census, evaluations analyze, interpret, and synthesize the effectiveness of census components and assess their impact on coverage and quality. Experiments allow Census Bureau subject-matter experts to tap into the unique environment surrounding the decennial census to experiment with different methodologies and approaches. The 2030 Census Program also produces operational assessments to document lessons learned and how operations performed (e.g., final volumes, rates, and costs). Lastly, information from the evaluations, experiments, and operational assessments is used to inform early planning for the 2040 Census.

As previously mentioned, one enhancement for 2030 Census research is the addition of small-scale response testing throughout the decade. This allows for strategies to be tested before inclusion in larger tests. The work of the Research Support operational area was performed by the Evaluations and Experiments (EAE) operation in the 2020 Census.

Demographic Analysis and Coverage Estimation are additional components of **Research Census Results**. Demographic Analysis and Coverage Estimation are independent efforts to measure the coverage of the decennial census. Demographic Analysis leverages demographic methods and administrative and supplemental data to measure net coverage error accurately in the 2030 Census. Coverage Estimation uses independent data

to estimate census coverage. For the 2030 Census, the demographic analysis includes improved measures, more details on race and ethnicity, and state and county-level estimates for young children. Demographic Analysis was covered in the 2020 Census as part of the EAE operation.

Coverage Estimation is being redesigned for the maximum use of existing independent administrative and supplemental data to estimate census coverage. Demographic Analysis was covered in the 2020 Census as part of the EAE operation. Coverage Estimation was covered by three operations in the 2020 Census: Coverage Measurement Design and Estimation (CMDE), Coverage Measurement Matching (CMM), and Coverage Measurement Field Operation (CMFO).

Figure 18 also summarizes several additional items of note. First, there are two key innovations or enhancements for the 2030 Census associated with the work in **Research Census Results**:

- Improved demographic analyses measures.
- Redesigned coverage estimation methods.

Second, building on the experience from previous censuses, we use four key business functions to **Research Census Results**. Business functions are the different kinds of work required to conduct a census and include the following for **Research Census Results**:

- Conduct research, evaluations, and experiments: Design and conduct formal research projects, evaluations, and experiments, before, during, and after peak production to inform planning for the next decennial census.
- Conduct operational assessments: Assess the effectiveness and efficiency of operations, and document lessons learned and details such as final volumes, rates, and costs.
- Provided data access: Researchers have access to data in the Federal Statistical Research Data Centers.
- Measure census coverage: Use independent U.S. population data to measure specific aspects of coverage of the 2030 Census results.

The following sections provide more details on each operational area. Operational Assessments and Experiments are the only portions of **Research Census Results** that will be used during upcoming testing as we determine viability for the 2030 Census operational design.

3.3.1. Research Support

Purpose and Scope

Within Research Census Results, the first component is **Research Support**. This operational area coordinates research early in the life cycle (refer to section 1.5, "An Iterative Approach to Maturing Operations" and Table 1). **Research Support** also verifies the formulation and execution of sound and meaningful evaluations and experiments during testing and production later in the life cycle. The Decennial Research Objectives and Methods (DROM) working group is the governing board for decennial census research.

This operational area was covered in the EAE operation in the 2020 Census. The 2030 Census includes the following activities:

- Research Coordination.
- Evaluations.
- Experiments.
- Operational Assessments.

Description

As mentioned earlier, different types of analysis and research occur before, during, and after the 2030 Census data collection activities. The Research Coordination activity coordinates and oversees all this work. The first tranche of research supported the early 2030 Census operational design work, which occurred in FY22–FY24 (refer to Table 1). The Research Coordination activity also includes the evaluations, experiments, and operational assessments performed for 2030 Census production work, as well as operational assessments for the 2026 Census Test and the 2028 Dress Rehearsal. It also coordinates and oversees Small-Scale Response Testing (SmaRT), an ongoing experimental program throughout most of the decade, or until 2029, that allows for testing response and mode strategies before inclusion in large-scale tests.

Specific management responsibilities include:

- Overseeing the research program scope, schedule, budget, and risks.
- Supporting logistics for the DROM working group and the governance of experiments and operational assessments.
- Developing and maintaining the study plan, report, briefing templates, content guidelines, workflows, and the standard schedule of activities/durations.
- Ensuring compliance and consistency across all products by conducting quality process reviews of study plans and reports.
- Capturing and managing recommendations stemming from decennial census research reports and tracking action plans on how they are addressed.
- Facilitating the release of final study plans and reports in the 2030 Census internal memorandum series.

Since the 1950 Census, the Census Bureau has incorporated an evaluation and experimental program to assess the current census and facilitate planning for the next decennial census cycle. For the 2030 Census, the **Research Support** operational area coordinates the efforts to derive the scope of evaluations and experiments that will gauge the effectiveness and efficiencies for some operations. It will help identify potential designs for early 2040 Census life cycle research and testing. The specific set of evaluations and experiments for the 2030 Census will be defined later in the decade. The DROM working group provides guidance and recommendations on the formulation of evaluations and experiments.

Operational Assessments document how well the 2030 Census was conducted. The inventory of 2030 Census operational assessments is derived from the final 2030 Census design. Generally, all operations needed to conduct the census are expected to produce assessments the DROM working group advises on the research assessment questions and the proposed methods to address them. For the 2030 Census, there are opportunities to innovate that focus primarily on aspects of the planning and scope definition process for the research program. These opportunities include:

Formulating a program of 2030 Census evaluations and experiments guided by the decisions on the 2030 Census operational design and external input from the 2030 Census Federal Register Notice.

Informing the 2032–2034 research and testing objectives for the early 2040 Census planning efforts.

Transforming, maintaining, and building on a recommendation management system and application that includes decennial census research and oversight recommendations.

Impact on Quality (Accuracy) of Census Results

The **Research Support** operational area impacts the quality of the census by ensuring that the research conducted throughout the decade is methodologically sound and produces meaningful results to enable data-driven design decisions, leading to a high-quality census.

Privacy and Confidentiality

The **Research Support** operational area adheres to all applicable laws, regulations, and policies in the design of any evaluations and experiments. The security, privacy, and confidentiality controls applicable include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

Some 2030 Census evaluations and experiments may use census and other federal agency administrative and supplemental data for modeling and statistical analysis; however, specific uses have not yet been identified.

3.3.2. Demographic Analysis

Purpose and Scope

The second component of Research Census Results is **Demographic Analysis**. The purpose of this operational area is to produce accurate estimates of net coverage error in the 2030 Census. These U.S. population estimates are independent of the 2030 Census and inform improvements for planning and designing future decennial censuses. This operational area was covered in the Demographic Analysis portion of the EAE operation in the 2020 Census.

Description

Demographic Analysis is one of two programs the Census Bureau uses to estimate coverage in the decennial census. The other method for measuring coverage is a dual system estimation (refer to section 3.3.3).

Demographic analysis produces national-level estimates of the U.S. population by age, sex, race, and ethnicity and compares the estimates to the census counts to evaluate the quality of the census. The demographic analysis estimates leverage demographic methods and are developed using contemporary and historical vital statistics, estimates of international migration, Medicare enrollment records, and other data sources independent of the census being evaluated.

The demographic analysis method starts with birth cohorts from 1945 to 2030 and accounts for changes in those cohorts from mortality, immigration, or emigration. Births are the largest component of the estimates; deaths are another important component. The birth and death data come from current and historical vital records from the National Center for Health Statistics (NCHS). International migration is the movement of people across a national border and is measured as a stock population or flows into a country (immigration), out of a country (emigration), or a combination of the two (net migration). The immigration and emigration components are developed using data from the American Community Survey (ACS), administrative and supplemental data from the Department of Homeland Security, survey and census data, and other sources. The demographic analysis estimates include five components of international migration: foreign-born immigration, foreign-born emigration, net native-born migration, net migration from Puerto Rico, and the population born abroad of U.S. citizen parents. The international components account for the largest part of the uncertainty in the estimates.

Key enhancements for demographic analysis for the 2030 Census include:

- Increasing the level of race and ethnicity detail for the estimates.
- Developing uncertainty measures for the estimates.
- Producing official estimates at the state and county levels for young children.

Impact on Quality (Accuracy) of Census Results

While the **Demographic Analysis** operational area measures the quality of the census results, it is an independent program that does not directly impact the quality of the census, but rather informs improvements for planning and designing future decennial censuses.

Privacy and Confidentiality

The **Demographic Analysis** operational area produces aggregated estimates at the national level by age, sex, limited race categories, and ethnicity. This area will also generate state- and county-level estimates for the population on April 1, 2030. The population estimates will adhere to disclosure avoidance policies to ensure the confidentiality of respondent data. The decennial census data used to calculate the net coverage error estimates must apply appropriate disclosure avoidance techniques.

The security, privacy, and confidentiality controls applicable to **Demographic Analysis** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

The demographic analysis estimates are developed using contemporary and historical vital statistics, estimates of international migration, Medicare enrollment records, and other data sources independent of the census being evaluated. The 2030 demographic analysis estimates will include data from 1945 to 2030. The Population Estimates Program (PEP) safeguards and maintains historical files. PEP also has arrangements with other federal agencies to obtain current data to produce the annual population estimates. The most up-to-date data will be used for the 2030 Demographic Analysis. PEP receives the birth and death records directly from NCHS; the Census Bureau's Center for Economic Studies receives data from the Social Security Administration and the Office of Immigration Statistics.

3.3.3. Coverage Estimation

Purpose and Scope

The third and final component of Research Census Results is **Coverage Estimation**. The purpose of this operational area is to estimate the coverage of the 2030 Census and provide data to improve future censuses. In the 2020 Census, this operational area was covered by the Coverage Measurement Design and Estimation (CMDE), Coverage Measurement Matching (CMM), and Coverage Measurement Field Operation (CMFO). The Coverage Estimation operational area will perform this function for the 2030 Census.

Description

Coverage Estimation provides estimates of net coverage error for HUs and people. This operational area is being redesigned from previous years and features new goals and innovations that coalesce to provide insights into the net coverage of the 2030 Census. **Coverage Estimation** plans to:

- Estimate 2030 Census net coverage error at the state level for population totals and the national level for demographic groups.
- Estimate substate population sizes and census net coverage error.
- Produce reports analyzing census coverage errors and the quality of the census coverage estimates.

This operational area builds on the 2020 Census processes by continuing to produce national and state-level dual system estimates of census coverage. New for the 2030 Census, **Coverage Estimation** will use national administrative and supplemental data to create substate dual system estimates and conduct analyses to improve our understanding of census coverage errors. Reports analyzing census coverage errors are expected to provide guidance and advice for 2040 Census planning.

The 2030 Census **Coverage Estimation** operational area includes four activities to support these goals:

- Methodological Design.
- Data Collection.
- Matching.
- Estimation.

Methodological Design involves developing the overall design needed to produce the coverage estimates of the population.

The Data Collection activity collects person and housing unit information for **Coverage Estimation** independently from the other 2030 Census operational areas. This activity collects information from administrative and supplemental data and field interviews. The fieldwork features an automated data collection instrument, thus eliminating previous paper-based data collection activities.

The Matching activity compares the HUs and people from **Coverage Estimation** data collection to the 2030 Census data and identifies matches and nonmatches. Research in this area continues with a major focus on leveraging administrative and supplemental data and protected identification keys (PIKs) to simplify computer matching. Additional research is focused on using artificial intelligence and machine learning to reduce clerical matching operations.

Finally, the Estimation activity estimates census net coverage error for people and HUs. **Coverage Estimation** is leveraging the full potential of administrative and supplemental data to create population estimates that can be compared to census counts below the state level.

Impact on Quality (Accuracy) of Census Results

As with the Demographic Analysis operational area, the **Coverage Estimation** operational area measures the coverage of the census results, but it does not directly impact the quality of those results. Coverage Estimation is an independent study that informs future decennial census planning and design work.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII. This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

The **Coverage Estimation** design uses administrative and supplemental data instead of some of the costly fieldwork required in past censuses, thus increasing efficiency in the 2030 Census. Specifically, administrative and supplemental data are used to create a national list of HUs and are the primary source for creating rosters of people (although some independent rosters might be created from field data collection). The results of matching a national administrative and supplemental data file of people to census data before field data collection will allow **Coverage Estimation** to focus field interviews at households where the two lists are different, that is, households with high likelihoods of coverage errors. Additionally, this operational area is independent from all others.

3.3.4. Intended Outcomes for Research Census Results

A summary of the intended outcomes for **Research Census Results** includes:

- **Conducted research, evaluations, and experiments**: Formal research projects, evaluations, and experiments are designed, conducted, and completed before, during, and after peak production to help with planning for the next decennial census.
- **Completed operational assessments**: Documentation on the effectiveness and efficiency of operations that are completed and delivered, including lessons learned and details such as final volumes, rates, and costs.
- **Provided data access**: Researchers can access appropriate 2030 Census data in the Federal Statistical Research Data Centers.
- **Measured census coverage**: Independent U.S. population data are utilized to measure specific aspects of coverage of the 2030 Census results.

3.4. Provide Census Results

Provide Census Results describes the work needed to deliver the results of our enumeration. The purpose of this concept area is to:

- Create and disseminate data products for the 50 states, District of Columbia, Puerto Rico, and the Island Areas.
- Deliver apportionment data to the Secretary of Commerce, who then delivers them to the president.
- Provide states with data tabulations to support legislative redistricting.
- Provide a mechanism for governmental units (GUs) to request a review of their official 2030 Census results.
- Coordinate the storage of materials, data, and records for archiving.

Provide Census Results represents many of the final steps in the complex undertaking of conducting a decennial census, as depicted earlier in **Figure 10** and circled on the inset.

Figure 19 provides a summary of the **Provide Census Results** concept area.

Provide Census Results includes four operational areas:

- Data Products Creation and Dissemination.
- Redistricting Data Program.
- Count Question Resolution.
- Archiving.

Figure 19.
Provide Census Results Summary

Data products creation and dissemination
Create and disseminate data products to the President (apportionment), states, and public of the United States, Puerto Rico, and the Island Areas.

Redistricting data program
Provide each state with data tabulations to support legislative redistricting.

Count question resolution
Provide a mechanism for governmental units to request a review of counts.

Archiving
Coordinate the storage of materials and data and provide census records to the National Archives and Records Administration (NARA) and to the National Processing Center (NPC).

Key Enhancements
(Since the 2020 Census)

- Leveraging enterprise improvements for disseminating data products.
- Improved processes based on lessons learned.

Key Business Functions
(Type of work done)

- Create census data products and explanatory materials.
- Provide data for apportionment, redistricting, and public use.
- Implement privacy and confidentiality measures.
- Provide opportunity for governmental units to request a review of 2030 Census counts.
- Provide data for archiving and census research.

Highlights of the **Provide Census Results** concept area are delineated at the end of this section.

The Data Products Creation and Dissemination operational area prepares and delivers apportionment data to the Secretary of Commerce, for the president of the United States to provide to Congress by December 31, 2030, and tabulates and disseminates data products to the 50 states, the District of Columbia, and Puerto Rico for redistricting in coordination with the Redistricting Data Program. A wide array of other data products and data visualizations are also designed and disseminated. As in the 2020 Census, the 2030 Census plans to rely on a shared, enterprise solution to disseminate its data. The 2030 Census Program also plans to leverage any improvements to the enterprise disclosure avoidance methods to protect information against disclosure in published tabulations and appropriately balance data confidentiality, accuracy, and availability of 2030 Census data.

Corresponding 2020 Census Operations

The work covered in the **Provide Census Results** concept area was performed in the 2020 Census by the following operations:

- Data Products and Dissemination (DPD).
- Redistricting Data Program (RDP).
- Count Question Resolution (CQR).
- Archiving (ARC).

The redistricting data tabulations required by P.L. 94-171 must be disseminated to the 50 states, the District of Columbia, and Puerto Rico within 1 year of Census Day (i.e., no later than April 1, 2031). These tabulations are disseminated by the Redistricting Data Program operational area, which also provides the states, the District of Columbia, and Puerto Rico the opportunity to identify, delineate, and update the small area geographies needed for legislative redistricting.

The Count Question Resolution (CQR) operational area provides a mechanism by which tribal, state, and local GUs in the 50 states, the District of Columbia, and Puerto Rico may request the Census Bureau to review their 2030 Census counts of living quarters. These reviews are used to detect possible data processing errors and to correct boundary errors and living quarters counts if such errors are discovered in the census results. Corrected boundaries and reallocation of housing, when applicable, are reflected in a disposition report sent to the participating government after a CQR case review. CQR cases are focused on allocating living quarters in the census address inventory to specific census blocks. It is not an opportunity to reinstate living quarters

suspected to have been incorrectly deleted or to challenge the overall population count or demographic data associated with a population at any geographic level. It is a reexamination of data collected during the census to determine if a data processing error or boundary error led to misallocation of population and demographic data.

By law, decennial census results are archived and released by the National Archives and Records Administration (NARA) to the public 72 years after the census. The **Archiving** operational area provides census records to NARA for permanent archival and to the National Processing Center (NPC) to use as source materials to conduct an Age Search Service (a service where the Census Bureau searches confidential decennial census records and issues an official transcript of the results to the named person, their heirs, or legal representatives). This operational area also archives materials and data for Census Bureau research and other uses.

Figure 19 summarizes several additional items of note. First, there are two key innovations or enhancements for the 2030 Census associated with the work in the **Provide Census Results** concept area. Second, building on the experience from previous censuses, we use five key business functions to **Provide Census Results**. Business functions are the different kinds of work required to conduct a census and include the following for **Provide Census Results**:

- **Create census data products and explanatory materials**: Use the data collected to create data products and explanatory materials for the decennial census, as required by law and for dissemination to the public.
- **Provide data for apportionment, redistricting, and public use**: Provide the data required for apportionment and redistricting in accordance with the law and to disseminate data to the public.
- **Provide an opportunity for GUs to request a review of 2030 Census counts**: Give local GUs the capability to request that we review their housing counts, errors are corrected, and revised counts are given to the GUs for their use.
- **Provide data for archiving and census research**: Coordinate the archiving of census results and other official data, consistent with records retention law (Public Law 95-416) and with the needs of internal Census Bureau organizations for future research.

3.4.1. Data Products Creation and Dissemination

Purpose and Scope

The **Data Products Creation and Dissemination** operational area prepares and delivers the 2030 Census apportionment data to the Secretary of Commerce, for the president of the United States to provide to Congress, tabulates 2030 Census data products for use by the states for redistricting, and tabulates and disseminates 2030 Census data for use by the public. It also tabulates the results of the Island Areas Censuses (American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands) and delivers these results to the respective Island Area government officials and the public.

Data Products Creation and Dissemination was covered in the Data Products and Dissemination (DPD) operation in the 2020 Census and includes four activities for the 2030 Census:

- Create and Provide Apportionment Data Products.
- Create and Provide State Redistricting Data Products.
- Create and Disseminate Other Data Products.
- Create and Disseminate Island Areas Censuses Data Products.

Note: Research and planning for this operational area is underway but lags behind other 2030 Census operational areas since data dissemination activities for the 2020 Census ended in September 2024. The following description explains what was done for the 2020 Census with expected improvements based on operational assessments and changes to enterprise capabilities.

Description

The first activity in **Data Products Creation and Dissemination** is Create and Provide Apportionment Data Products. This operational activity fulfills a legal mandate. Title 13 U.S.C. § 141(b) requires that the tabulation of the total population of the states for the apportionment be delivered by the Secretary of Commerce to the Office of the president within 9 months of Census Day. Since Census Day is April 1, 2030, the president must receive these products by December 31, 2030.

Apportionment population counts are created by tallying the final 2030 Census results from the Response Processing operational area, addressing any anomalies for living quarters that must be tabulated in a different state because of changes between collection and tabulation geographic boundaries, and adding in the count of federally affiliated people living overseas. Apportionment formulas are then applied, and the results are validated to create the final apportionment results. These results undergo independent verification and validation by Census Bureau staff and are then used to create the final apportionment tables, which illustrate the apportionment population by state and the corresponding number of seats in the U.S. House of Representatives. The last step is to create a memo and a draft letter to the president from the Secretary of Commerce and submit these items (with the final apportionment tables) to the Secretary of Commerce. The final tables are also made available to the Decennial Spatial Products and Services operational activity (within the Decennial Spatial Frame Management operational area [refer to section 3.1.4]), which produces map illustrations of the population results. The data and maps are published on the Census Bureau website after a news conference with the media.

The second activity of **Data Products Creation and Dissemination** is Create and Provide State Redistricting Data Products. This operational activity generates and provides detailed census results to each state's governor, legislative leaders, and other public bodies responsible for legislative redistricting. These results include pertinent census population totals and other congressional, tribal, state, and local redistricting data used by states to perform intrastate redistricting and legislative apportionment, i.e., geographically defining the boundaries of their congressional, state legislative, and other election districts. The initial redistricting data files use data from the Response Processing operational area and undergo several processing and review steps before being disseminated. Embargoes are used to achieve the proper timing of the release and receipt of the data.[16] The redistricting information is accompanied by census maps and other geographic support products, all of which are provided by the Redistricting Data Program (section 3.4.2), which also coordinates with the states to confirm that the data are received. Under Title 13 U.S.C. § 141(c), the Census Bureau must provide redistricting information by April 1, 2031.

The third activity, Create and Disseminate Other Data Products, develops specific 2030 Census products for the public. These products cover the 50 states, the District of Columbia, and Puerto Rico. Tabulations created from the census results and geographic data from the spatial frame are reviewed for accuracy. This operational activity creates data products, including geographic and visualization products, to make the data more usable. These products are reviewed by subject-matter experts and approved by Census Bureau executive leadership before being published on the Census Bureau's website.

The final activity, Create and Disseminate Island Areas Censuses Data Products, provides data products for the Island Areas. The operational activity produces a set of data products for the four Island Areas Censuses using the Island Areas Tabulation Geography data from the spatial frame and response data for the Island Areas Censuses.

The Communications, Partnerships, and Engagement operational area (section 3.2.6) plans for and supports efforts to communicate and demonstrate to data users how the 2030 Census data can be used in their communities. **Data Products Creation and Dissemination** provides ongoing technical support on these various data products and receives and responds to customer feedback and inquiries.

The 2030 Census Program also plans to research and develop improved disclosure avoidance methods. (Note: disclosure avoidance is not applied to apportionment counts.) The Census Bureau introduced a new approach to disclosure avoidance for the 2020 Census to counter new privacy threats posed by the proliferation of third-party, supplemental data sources and increasingly powerful computing algorithms that make it easier to reidentify individual respondents in data products. The 2030 Census Program plans to research and develop improvements and alternatives to the disclosure avoidance methods and algorithms used for the 2020 Census to improve the quality and confidentiality of the 2030 Census data products. It also plans to develop a robust communications effort on disclosure avoidance implementation. In addition, by engaging with stakeholders earlier and more often, we aim for a mutual understanding of data needs and how those relate to data products.

[16] An embargo is a requirement that the information not be published until a certain date, or until certain conditions have been met.

Impact on Quality (Accuracy) of Census Results

Data Products Creation and Dissemination provides the census results in a variety of data products. This operational area contributes to the quality of data products through rigorous reviews to increase the likelihood that we meet thresholds for quality and interface standards.

Implementation of disclosure avoidance also impacts the quality of the census results, particularly their fitness for use. This is essential to achieve the objective of producing high-quality data that meets data users' needs while ensuring that respondents' data are protected against new threats to data confidentiality.

Privacy and Confidentiality

As discussed, protecting respondent confidentiality means that the data provided by individual respondents cannot be identified in published data products. The threat of reidentification grows with the proliferation of data and advances in technology. The Census Bureau continues to work to counter this threat with modernizing its disclosure avoidance system. The 2030 Census will continue to use these science-driven solutions for protecting confidentiality while optimizing the quality of the resulting data products to serve the needs of the data users.

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

Data Products Creation and Dissemination will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

The use of administrative and supplemental data by the **Data Products Creation and Dissemination** operational area is still under investigation.

3.4.2. Redistricting Data Program

Purpose and Scope

The purpose of the **Redistricting Data Program** operational area is to provide the 50 states, the District of Columbia, and Puerto Rico with the opportunity to identify, delineate, and update the small area geographies needed for legislative redistricting. It also delivers the legally required (P.L. 94-171) redistricting data tabulations to the states within 1 year of Census Day (April 1, 2031). This operational area allows for continuous process improvement through an evaluation of the program with recommendations for the next decennial census cycle in an official publication titled "Designing P.L. 94-171 Redistricting Data for the Year 2030 Census: The View From the States."

This operational area was covered in the Redistricting Data Program operation in the 2020 Census and, for the 2030 Census, includes five activities delineated by phase:

- Phase 1: Block Boundary Suggestion Project.
- Phase 2: Voting District Project.
- Phase 3: Delivery of the 2030 Census Redistricting Data.
- Phase 4: Collection of Post-2030 Census Congressional and State Legislative District Plans.
- Phase 5: Review of the 2030 Census Redistricting Data Program and Recommendations for the 2040 Census.

Description

The 2030 Census redistricting data process unfolds in phases over several years, from 2024 to its conclusion (2032–2033). It begins with an announcement in the Federal Register. Following that announcement, the legislative leaders from the majority and minority parties in each state, the District of Columbia, and Puerto Rico jointly appoint a nonpartisan liaison(s) to work with the Census Bureau for the duration of the program.

During Phase 1 and Phase 2, the **Redistricting Data Program** solicits suggestions for 2030 Census tabulation blocks and voting district boundaries from officially designated, nonpartisan liaisons for each state, the District of Columbia, and Puerto Rico. The program coordinates with the Decennial Spatial Frame Management operational area to insert these boundaries into the Census Bureau's MAF/TIGER System (section 3.1.4).

During Phase 3, the **Redistricting Data Program** designs and coordinates with the Data Products Creation and Dissemination operational area to deliver data products to the states, the District of Columbia, and Puerto Rico for redistricting purposes.

Once the states complete their redistricting, Phase 4 of the **Redistricting Data Program** solicits the newly drawn congressional or state legislative district plans from each state, the District of Columbia, and Puerto Rico. The 2030 Census data are retabulated, and new datasets and geographic products are prepared based on those new districts.

During Phase 5, the **Redistricting Data Program** conducts meetings and listening sessions with the states to gather lessons learned and formulate recommendations for how the work should be completed in the 2040 Census.

The 2020 Census Redistricting Program operation was largely met with positive feedback. However, the following enhancements are being made for the 2030 Census:

- Redistricting data delivered during Phase 3 will be embargoed for the official state recipients before being publicly released. An embargo was successfully tested and planned for the 2020 Census redistricting data release. However, due to the COVID-19 pandemic-related delay in releasing the data, the embargo period for state officials was suspended to avoid additional delays in releasing the data to the public.
- New technologies under development for collecting geographic area boundaries will be leveraged to improve the submission process for the nonpartisan state liaisons.

Impact on Quality (Accuracy) of Census Results

The **Redistricting Data Program** operational area contributes to the quality of census results by ensuring that the underlying geography used to tabulate the 2030 Census data is accurate. This operational area also verifies that the redistricting data products meet state-requested specifications, to the extent possible. Finally, it provides states with the data they need for redistricting, as required by P.L. 94-171.

Redistricting Data Program confirms that the geographic updates submitted by the official nonpartisan state liaisons meet quality standards. Automated checks and manual reviews verify that required data elements are present, and that the geographic data meet all necessary integrity standards for insertion into the MAF/TIGER System. After the boundaries are inserted into the MAF/TIGER System, geographic data files are generated for the liaison to review, verify, and update if necessary. The verification cycle allows states to confirm that the boundaries submitted were captured correctly before any data tabulation.

Privacy and Confidentiality

All data released through the **Redistricting Data Program** operational area use the appropriate disclosure avoidance tools. The Census Bureau works closely with the scientific and data user communities to determine the best science-based approaches available and feasible, so that we protect the confidentiality of all responses while still releasing quality statistics that meet data user needs.

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

The **Redistricting Data Program** operational area does not directly use administrative and supplemental data.

3.4.3. Count Question Resolution

Purpose and Scope

Another component within Provide Census Results is **Count Question Resolution** (CQR). This operational area allows tribal, state, and local GUs in the 50 states, the District of Columbia, and Puerto Rico to request that the Census Bureau review their 2030 Census counts of living quarters. We correct boundary errors or living quarter

count errors if they are discovered in the census results. This operational area was covered in the CQR operation in the 2020 Census and, for the 2030 Census, includes three activities:

- Initial Case Processing.
- Case Review.
- Case Resolution.

Description

The first activity in **CQR** is Initial Case Processing. Inquiries submitted by GUs undergo an Initial Case Processing step where they are logged into a control system and reviewed to determine if there is sufficient information to initiate a case. There are two types of cases: living quarter count cases and boundary cases. Living quarter count cases affect the placement of living quarters and the associated population within the correct boundaries and census blocks (geocoding issue). The counts of living quarters and the population may change if housing was erroneously excluded or included during census data processing (coverage issue). Boundary cases concern incorrect reporting of data because of inaccurate or missing boundaries. If the case moves forward after the initial review, the Census Bureau notifies the GU representative that it has been received and assigns it for further review and research.

The second activity in **CQR**, Case Review, involves a more detailed review of the case information and determination of the appropriate action.

If a case is associated with a living quarter count error, staff review the submitted block counts of living quarters and research to verify the geographic placement and counts of living quarters within those GU-submitted blocks. Living quarter count cases that are resubmitted or that dispute the result of a completed count question case must include a list of addresses with map spots or coordinates to support additional case research.

If a case is associated with the inaccurate recording of a legal boundary, the boundary change must be effective on or before January 1, 2030. If the change is an outcome of legal action, such as an annexation, deannexation, disincorporation, or new incorporation, case information must include legal documentation authorizing the boundary change.

The final operational activity in **CQR** is Case Resolution. Based on the review findings, Case Resolution resolves all cases and notifies affected GUs of findings. Applicable updates are made to the MAF/TIGER System. The Census Bureau does not change the apportionment counts delivered to the president by December 31, 2030, or the data used for redistricting purposes to reflect the results of a case. Furthermore, the Census Bureau does not incorporate Count Question Resolution corrections into 2030 Census data products. Instead, we issue the revised, certified population and living quarter counts for each affected GU, maintain a list of the corrected geographic areas, and incorporate corrections into other postcensal estimate programs, as necessary. Count Question Resolution cases and results are tracked, verified, completed, and reported to all stakeholders in the Census Bureau and each GU.

Improvements for **CQR** focus on earlier communication and planning. Over the decade, the 2030 Census Program plans to leverage already established relationships and partnerships (e.g., Federal-State Cooperative for Population Estimates [FSCPE] and State Data Centers) to identify areas that are difficult to enumerate throughout the country that may require Count Question Resolution attention post-enumeration.

Impact on Quality (Accuracy) of Census Results

The **CQR** operational area is one of many quality checks in place for the decennial census counts and address lists. This operational area is responsible for researching GUs' perceived errors and implementing corrections or omissions to living quarter locations because of processing errors. While the 2030 Census data products are not changed to reflect the corrections, the changes are reflected in future population estimates, thus improving the quality of census results for the next decennial census.

Privacy and Confidentiality

CQR adheres to all laws, policies, and regulations required to protect the privacy and confidentiality of respondents. The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII. This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

This operational area is not planning to use administrative and supplemental data.

3.4.4. Archiving

Purpose and Scope

The fourth and final component of Provide Census Results is **Archiving**. The purpose of this operational area is to store materials, data, and records from the 2030 Census according to public law and Census Bureau needs. This operational area was covered in the ARC operation in the 2020 Census and, for the 2030 Census, includes the following activities:

- Support the Records Management Process.
- Provide Records to NARA.
- Store Materials for In-House Needs.
- Provide Records to NPC.

Description

2030 Census data must be archived so that they can be released to the public by NARA 72 years after the completion of the census. NARA archives the census results and other permanent records for the Census Bureau.

The first activity of **Archiving** includes the Support the Records Management Process activity for the 2030 Census. This activity is responsible for producing the Census Bureau Records Schedule relating to the 2030 Census. The Records Schedule lists all artifacts created during the 2030 Census operation. The Records Schedule is provided to NARA to determine whether the records are:

- Temporary: Records with a temporary disposition that are destroyed by the Census Bureau once they are no longer needed to support the 2030 Census.
- Permanent: Records with a permanent disposition are delivered to NARA for permanent retention, where they are preserved and stored for 72 years before they are released to the public.

We are also developing requirements for the retention of records needed for Census Bureau research and legal purposes.

2030 Census data will be delivered to NARA in electronic format, when feasible. Specific NARA staff have been granted Special Sworn Status to handle census records after obtaining suitable background clearance and completing Title 13 and Title 26 awareness training.

Archiving also includes an operational activity to Provide Records to NARA according to the agreed-upon 2030 Census records schedule signed by NARA. Examples of the kind of records sent to NARA include:

- Individual responses to the 2030 Census.
- Final records used to capture, process, and tabulate respondent data.
- Final records used to collect and update address and map information.
- Planning, management, and evaluation files that document policy decisions.
- Information related to the census such as manuals, promotional materials, and evaluation reports.

The Census Bureau and NARA negotiate the specific format, media, and timing for delivering the records to NARA.

The third **Archiving** activity, Store Materials for In-House Needs, defines how materials are archived at the Census Bureau. Data and paradata, along with the recruiting, payroll, personnel, hiring, retention, and time and expense data for temporary field and office staff, are stored. These data are used for research to support planning performed by the Research Support operational area for future censuses. These data also support legal inquiries related to temporary field personnel.

Finally, **Archiving** includes a fourth activity to Provide Records to NPC to support the Census Bureau Age Search Service at NPC in Jeffersonville, Indiana. The 2020 Census successfully created a central data repository that

allowed approved users to store and access 2020 Census records, including final 2020 Census data. For the 2030 Census, **Archiving** plans to continue this process using enterprise solutions.

Impact on Quality (Accuracy) of Census Results

The **Archiving** operational area does not have a direct impact on the quality of census results.

Privacy and Confidentiality

The **Archiving** operational area will follow all necessary laws, policies, and regulations to maintain the privacy and confidentiality protections of the data being transferred for archival purposes. This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

Administrative and Supplemental Data Use

The **Archiving** operational area does not use administrative and supplemental data.

3.4.5. Intended Outcomes for Provide Census Results

A summary of the intended outcomes for **Provide Census Results** includes:

- **Created census data products and explanatory materials**: 2030 Census data are used to create data products and explanatory materials for the public, as required by law, and to support user needs.
- **Provided data for apportionment, redistricting, and public use**: 2030 Census data are delivered, as required by law for apportionment and redistricting, and disseminated to the public.
- **Provided opportunity for GUs to review 2030 Census counts**: Local GUs are given the capability to request that we review their housing counts; errors corrected if detected, and revised counts are provided to the GUs for their use.
- **Provided data for archiving and census research**: 2030 Census results and other official Data are delivered to NARA, as required by law, and provided to Census Bureau organizations for future research.

4.0. SUPPORT THE CENSUS

Three major types of work lay the foundation for an effective and efficient 2030 Census Program. Summarized as **Support the Census**, these concept areas are discussed in **Figure 20** and in the following list:

- Plan and Manage the Program.
- Provide Solutions.
- Provide Infrastructure.

As described in **Figure 21**, most of the program's goals and objectives are supported by this work.

4.1. Plan and Manage the Program

Plan and Manage the Program encompasses the work needed to deliver a complete and accurate census with valued and trusted results, and to do so with an efficient, well-managed, and appropriately sized workforce. To that end, this work has two elements. The first element includes achieving the 2030 Census Mission outlined in the "2030 Census Strategy." The second element includes the provision of the program management (PM) processes and tools needed to plan, execute, monitor, and control resources over the 14-year life cycle of the 2030 Census. These processes were used during the 2020 Census and have been matured and enhanced for the next decennial census; in some cases, new processes have been introduced to support the 2030 Census Program. The array of activities in this area is heavily documented in strategic, management, and process plans.

Figure 22 summarizes several items of note. First, there are four key efficiencies we are building into our work for **Plan and Manage the Program** based on the 2020 Census experience:

- Disciplined acquisition, contract, program, and engineering management.
- Cost estimation and budget management processes refined and expanded.
- Established memoranda of agreement updated regularly so intra-agency products and services meet 2030 Census requirements and are delivered as agreed upon.
- Simplified designs that use a program architecture to ensure integration and reduce redundancy.

Figure 20.
The 2030 Census Concept of Operations Overview

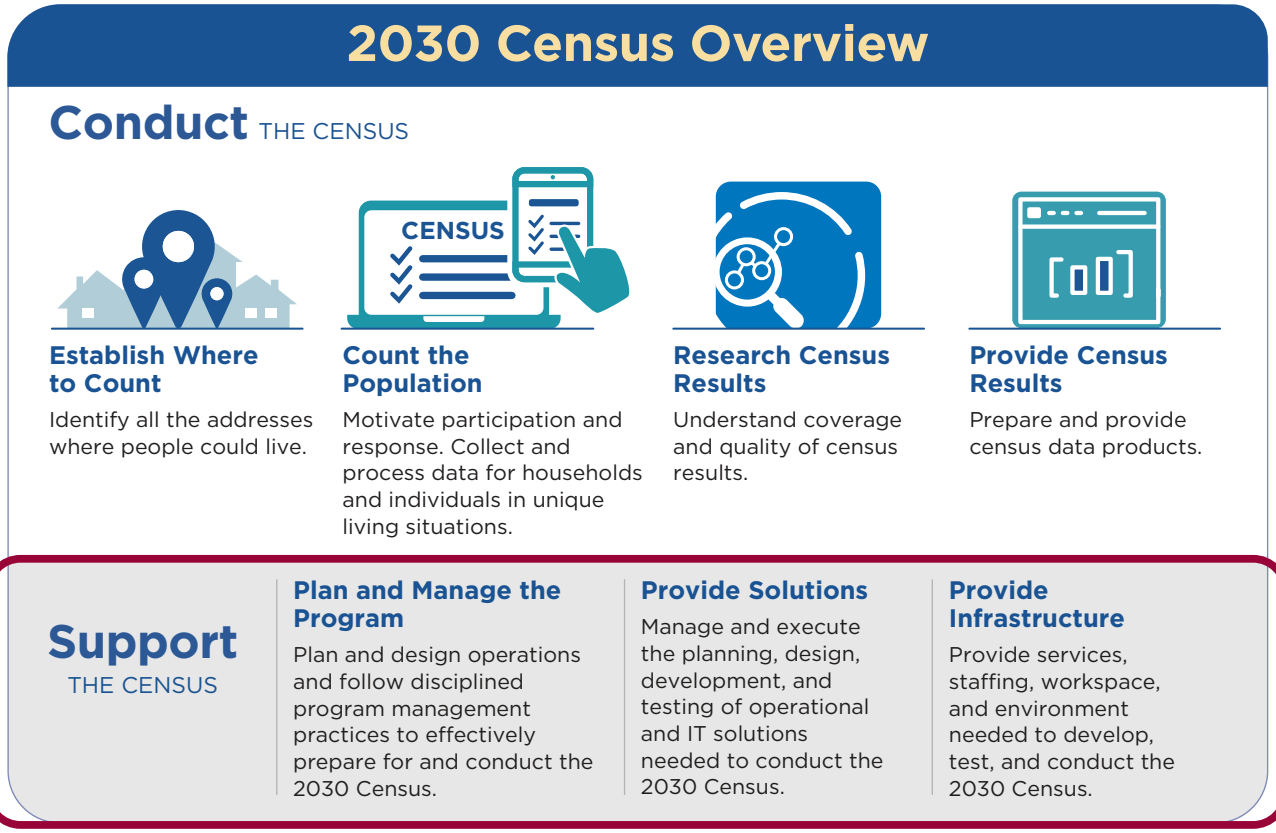


Figure 21.
Support the Census: Alignment to Program Goals and Objectives

Goal	Objectives
1. Complete and Accurate Census	1.1 All Living Quarters Associated With an Address 1.2 Accurate Response Data Obtained for All Identified Living Quarters and Persons
2. Trusted and Valued Results	2.1 Products, Data and Services Meet User Needs for Relevance and Usability, While Maintaining Confidentiality 2.2 Positive and Continual Support From Oversight 2.3 Positive and Continual Support and Participation From Partnering Organizations, Other External Stakeholders, and the Public
3. Well-Managed and Cost-Effective Program	3.1 Strategy and Performance-Driven Program 3.2 Well-Managed and Integrated Scope, Schedule, and Cost 3.3 Integrated, Robust, and Flexible Operational and IT Designs and Solutions 3.4 Efficient and Effective Peak Production Operational Support Infrastructure 3.5 Efficient and Effective Engineering Management Processes 3.6 Effective Acquisition Approach and Management 3.7 Effective Governance, Communications, and Decision-Making Processes
4. Stable and Appropriately Sized, Skilled, and Structured Workforce	4.1 Appropriately Sized, Skilled, and Structured Headquarters Workforce 4.2 Appropriately Sized and Skilled Decennial Census Field Workforce

Figure 22.
Plan and Manage the Program Summary

Key Enhancements
(Since the 2020 Census)

- Disciplined acquisition, contract, program, and engineering management.
- Cost estimation and budget management processes refined and expanded.
- Established memoranda of agreement updated regularly so intra-agency products and services meet 2030 Census requirements and are delivered as agreed upon.
- Simplified designs that use a program architecture to ensure integration and reduce redundancy.

Key Business Functions
(Type of work done)

- Plan and execute program mission.
- Manage census program and resources.

Second, we use two key business functions to **Plan and Manage the Program**. Business functions are the different kinds of work required for a census and include the following for **Plan and Manage the Program**:

- Plan and execute the program mission.
- Manage census program and resources.

The work of **Plan and Manage the Program** spans the 14-year life cycle, like most of the other support work included in Provide Solutions. Additionally, the work of "plan and execute the program mission," the first business function, encompasses the entire program. This includes all the managerial, operational, and IT work needed to plan, design, develop, test, integrate, and deploy staff and solutions to implement and closeout the 2030 Census. This document, on the other hand, speaks to the operational work at a point in time, i.e., in the middle of the decade, after the Design Selection Phase and early in the Development and Integration Phase, before the operational work has been organized and integrated into operations. Refer to the "2030 Census Strategy" at <https://www2.census.gov/programs-surveys/decennial/2030/program-management/planning/strategic-documents/2030-strategic-doc-strategy.pdf> and the "Operational Strategy and Roadmap" at <https://www2.census.gov/programs-surveys/decennial/2030/program-management/planning/strategic-documents/2030-strategic-doc-operations-roadmap.pdf> for a high-level understanding of all the work needed to plan and execute the program mission.

4.1.1. Program Management

Purpose and Scope

Program Management (PM) is work performed to ensure an effective and efficient program throughout the 14-year decennial census life cycle. Part of Plan and Manage the Program, this operational area's purpose is to define and implement program and project management policies, processes, and control functions for planning and implementing the 2030 Census. This operational area was covered in the Program Management operation in the 2020 Census. As noted in **Figure 22** for the 2030 Census, **PM** includes three operational activities:

- Program and Resource Management.
- Program Architecture and Integration.
- Contract Management.

Description

The first activity of **PM** is **Program and Resource Management**. This activity is responsible for developing and implementing program and project management policies, processes (including tools), and control functions for planning and implementing an efficient and well-managed 2030 Census Program. Program and Resource Management includes the following processes:

- **Governance and Decision-Making Management**: Develops a comprehensive and consistent method for controlling and monitoring the 2030 Census Program. It documents and facilitates:
  - The overall management structure.
  - Decision-making authority.
  - Program gate reviews.
  - Priority setting.
  - Resource utilization.
  - Performance verification at each level of the program.
- **Crisis Management** is also developed within this area and outlines how the program will handle a major catastrophic event, or a series of escalating events that threaten the mission, strategic objectives, reputation, or viability of the 2030 Census.
- **Strategic Management**: Ensures the right work is being done to achieve the program's strategic goals, objectives, and outcomes by integrating and operationalizing Strategic Planning, Portfolio Management, and Outcome Management:
  - **Strategic Planning**: Provides a line of sight from the mission and vision through goals, objectives, and strategies aligned with the work performed.
  - **Portfolio Management**: Develops and maintains the Portfolio of Projects based on the Strategic Framework to confirm that the right work is being done.
  - **Outcome Management**: Monitors and reports on the progress of the 2030 Census Program to identify variances, assign corrective actions, and make timely changes. This is a new process for the 2030 Census.
- **Performance Management**: Manages the activities required to develop and manage metrics to measure the effectiveness of the 2030 Census Program.
- **Risk and Issue Management**: Facilitates the identification, analysis, mitigation, and contingency planning for risks and issues related to achieving the program's objectives. Risk and Issue Management is conducted at the program and project levels and integrates with the Census Bureau's enterprise risk process.
- **Schedule Management**: Manages the processes to schedule activities required to produce program deliverables, monitors interdependencies and integration points among activities, and provides the tool to allow managers to track progress against the plan and understand the impacts of changes against the overall schedule. Schedule Management includes estimating the required resources to complete an activity. It also ensures that schedules supporting the 2030 Census are developed, monitored, and controlled continuously throughout the census life cycle.
- **Process Quality Assurance Management**: Identifies PM process quality requirements and standards based on industry best practices. It also performs process quality audits to identify compliance issues and opportunities for improvement. This is a new process for the 2030 Census Program.
- **Change Management**: Manages and controls the process of making changes to scope, schedule, and baselined documents. This includes analyzing the impacts of changes, approving or denying them, and ensuring program and operational configurable items are updated and baselined.
- **Recommendations and Lessons Learned Management**: Develops and facilitates the process of collecting, assigning, and managing key research recommendations from 2030 Census Program research reports and lessons learned to support data-driven decision-making. During the 2020 Census, this area was referred to as Knowledge Management.
- **Document Management**: Establishes and executes the processes for receiving, reviewing, baselining, and storing strategic and program documentation. It also provides a centralized repository for the 2030 Census Program documentation.

- **Memoranda of Agreement (MOA) Management**: Defines the internal Census Bureau processes (including roles and responsibilities) for establishing and managing memoranda of agreement, with regular updates, so that intra-agency products and services meet 2030 Census requirements and are delivered as agreed. This is a new process for the 2030 Census Program.
- **Office of Management and Budget (OMB) Clearance Management**: Performs work necessary to support OMB clearances required by the Paperwork Reduction Act, and to authorize us to collect data from the public, including small- and large-scale tests and peak production.
- **Stakeholder Management**: Identifies the people, groups, or organizations that could impact or be impacted by the program and develops appropriate management strategies for effectively engaging the stakeholders in program and project decisions and execution.
- **Communications Management**: Establishes the messaging and identifies the vehicles to effectively communicate, educate, and collect feedback on the 2030 Census Program's planning, development, testing and execution progress.
- **Cost Estimation**: Creates the official Life Cycle Cost Estimate for the 2030 Census Program, according to Government Accountability Office (GAO) best practices and updates it continuously. This work includes maintaining key operating assumptions and supporting program managers by assisting with cost estimation practices.
  - **Budget Management**: Budget Formulation: Creates the estimated costs and the president's annual budget submissions for the 2030 Census Program, based on the life cycle cost estimate and programs' specifications.
  - **Budget Execution**: Develops a budget execution plan, based on the president's budget and final appropriation levels. The plan allocates the approved budget, tracks actual expenditures against plans to allow managers to monitor progress against the plan and take appropriate actions so funding is spent efficiently on high-value activities, and provides cost analyses to inform program decisions.
- **Human Capital Management**: Provides a coordinated approach to attract, develop, and retain a workforce that will meet the objectives of the 2030 Census Program throughout the census life cycle. This work includes determining the competencies and skill sets the program needs and developing strategies to obtain them.

Program Architecture and Integration is the second activity of **PM**. This activity is a new effort we are introducing to help us achieve the first and second Guiding Principles, i.e., disciplined PM and engineering management, throughout the decade, and simplified solutions. **Program Architecture and Integration** is responsible for the work required to establish, test, and document the operational design (i.e., to integrate census operations), and to integrate and test census operations with the IT capabilities required to support them. It includes the following processes:

- **Program Architecture, Requirements, and Operational Design Management**: Performs business analysis and develops reference materials that document business needs and architectural structures of the 2030 Census. This work is the foundation from which the Solution Architecture and subsequent System of Systems (SoS) are derived. The requirements (the documented scope of the census) and business integration activities (how components interact with and depend on one another) all reside within this area. This process also includes activities supporting the development and maintenance of the operational design, including documenting and maintaining the design in this plan and subsequent detailed plans.
- **Operational Readiness, Integration, and Testing Management**: Oversees the testing of systems and instruments supporting the 2030 Census. This work includes:
  - Coordination of all testing strategies.
  - Solution-level operational testing.
  - User acceptance integration testing.
  - Readiness testing.
  - Path testing.
  - Exception testing for mid-decade small- and large-scale operational tests and 2030 Census peak production.

The third activity of PM is Contract Management. This activity manages contracts from creation (pre-award activities) to execution (post-award activities) and contract closeout. Additionally, this area monitors contract scope, tracks deliverables, adds funding, and processes necessary contract modifications and invoices. Contract Management complies with federal acquisition regulations and includes the following processes:

- **Contract Business Management**: Provides coordinated and consistent acquisition processes to support the 2030 Census Program. It includes developing contracting procedures and monitoring the status of all contracts and using reliable and continuous reporting.
- **Government Program Management Offices (GPMO) Management**: Performs day-to-day contract administration activities for large contracts supporting the 2030 Census. It also oversees the full contract life cycle, including preaward activities, post-award contract management, performance monitoring, and contract closeout.

Impact on Quality (Accuracy) of Census Results

Sufficient investment in robust PM processes enables an efficient 2030 Census and makes it easier for the other operational areas that directly impact the quality of the census results to accomplish their objectives on time and within budget.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to this operational area include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

PM will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for complying with the 2030 Census mission and legal requirements.

Administrative and Supplemental Data Use

As support work, the PM operational area has no planned direct involvement with the use of administrative and supplemental data.

4.1.2. Intended Outcomes for Plan and Manage the Program

A summary of the intended outcomes for **Plan and Manage the Program** includes:

- **Planned and executed program mission**: Management, operational, and IT components are effectively and efficiently planned and implemented over the 14-year life cycle to achieve the 2030 Census mission, i.e., a census of population and housing conducted with results delivered to the president, states, and the American people.
- **Managed census program and resources**: There are three components to this intended outcome:
  - Managed Program, Projects, and Resources: 2030 Census Program policies, processes, tools, and control functions are implemented throughout the census life cycle.
  - Implemented Program Architecture and Integration: Operational design is established, census operational processes are integrated, and operations are tested and integrated with the IT capabilities that support them.
  - Managed Contracts: Processes are developed and used to manage contracts from creation (pre-award activities) to execution (post-award activities) and closeout, in keeping with the federal acquisition regulations.

4.2. Provide Solutions

Provide Solutions is another concept area needed for a successful 2030 Census, depicted earlier in **Figure 10** and circled in the inset. This work establishes, manages, and reports on the IT architecture, engineering, and systems integration processes and solutions to support 2030 Census business capabilities and functions. It encompasses the entire life cycle of IT solutions from planning to decommissioning.

Figure 23 summarizes several items of note. First, there are four key efficiencies since the 2020 Census that we are building into our work for **Provide Solutions**:

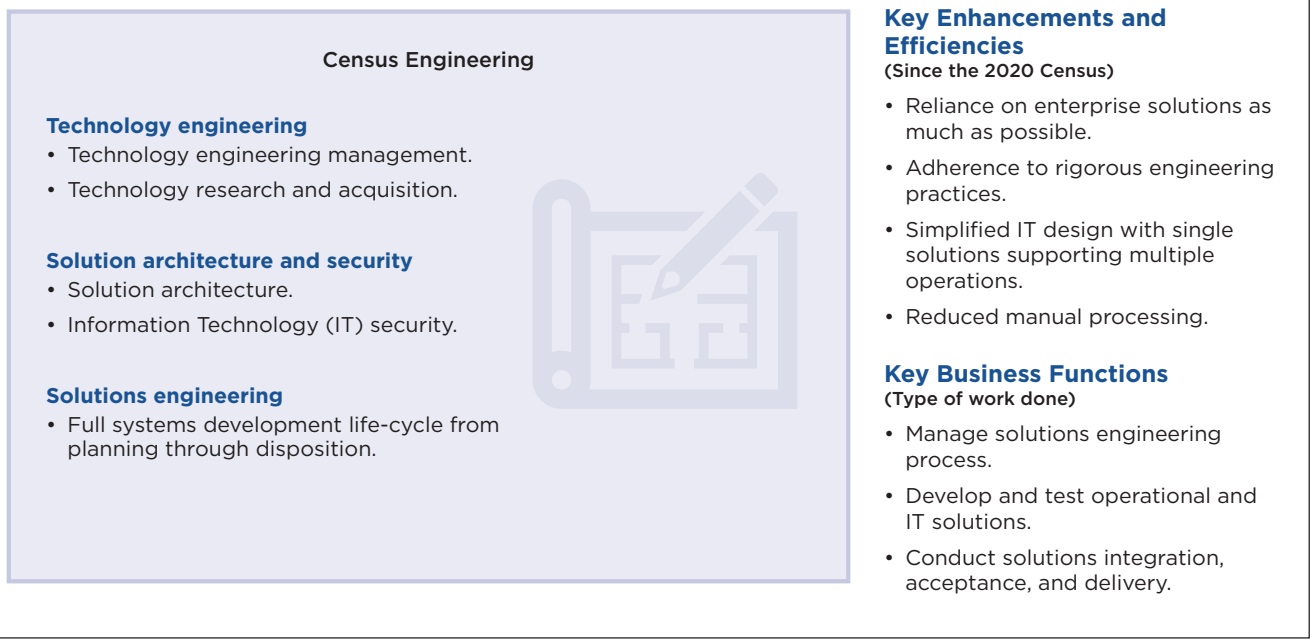
- Reliance on enterprise solutions as much as possible.
- Adherence to rigorous engineering practices.
- Simplified IT design with single solutions supporting multiple operations.
- Reduced manual processing.

Second, we use three key business functions to do the work of **Provide Solutions**. Business functions are the different kinds of work required for a census and include the following for **Provide Solutions**:

- Manage solutions engineering process.
- Develop and test operational and IT solutions.
- Conduct IT solutions integration, acceptance, and delivery.

The census engineering processes and techniques used during the 2020 Census have been matured and enhanced to support the 2030 Census and are described in **Figure 23**. More details are discussed in the following sections.

Figure 23.
Provide Solutions Summary



4.2.1. Census Engineering

Purpose and Scope

The principal purpose of **Census Engineering** is to provide an SoS that meets the business needs of the 2030 Census Program. Use of the Census Bureau's modernized statistical foundation (Business Ecosystem) within the SoS, where possible, is one key efficiency. Additionally, based on our experiences with the last decennial census, we will use a rolling wave planning approach to manage integration and implementation for testing and deploying solutions.[17]

[17] The PMBOK provides the following definition of rolling wave planning: " . . . an iterative planning technique in which the work to be accomplished in the near term is planned in detail, while work farther in the future is planned at a higher level."

During the 2020 Census, this work was covered in the Systems Engineering and Integration (SEI) operation and the Security, Privacy, and Confidentiality (SPC) operation. For the 2030 Census, **Census Engineering** includes three activities:

- Technology Engineering.
- Solution Architecture and Security.
- Solutions Engineering.

Corresponding 2020 Census Operations

The work covered in the **Census Engineering** concept area was performed in the 2020 Census by Systems Engineering and Integration (SEI) and Security, Privacy, and Confidentiality (SPC) operations.

Description

The first activity of **Census Engineering** is **Technology Engineering**. This activity encompasses the entire life cycle of IT solutions from planning to decommissioning. It focuses on developing a comprehensive engineering framework to define and document how people, processes, operations, and technology will work together to support the 2030 Census Program.

Technology Engineering includes:

- Research.
- Design.
- IT solutions development.
- Maintenance of uniform engineering methods, processes, and practices for IT.
- System engineering.
- Evaluations and analysis.
- Integration and testing.
- Validation.
- Deployment.
- Operations and maintenance.

This work also includes establishing, implementing, and maintaining IT management processes (e.g., cost, schedule, risks, and change), and ensuring these processes align with the 2030 Census Program's PM processes.

The second activity of **Census Engineering** is Solutions Architecture and Security. This activity includes planning, researching, acquiring, piloting, and providing the status of solutions needed to develop and maintain the 2030 Census solution architecture. The development of the solution architecture involves many different architectural components, including, but not limited to, an SoS. Given the scope and complexity of the 2030 Census Solution Architecture, the SoS is used to describe the collection of interconnected, dedicated systems (hardware, software, network, and services) that provide the full range of capabilities and performance required to achieve the 2030 Census Program's business needs.

Solution Architecture and Security also encompasses work that defends against cyberthreats and safeguards the components of the IT infrastructure. It involves establishing standards, policies, and the functional behavior of the IT infrastructure, with a particular focus on the network infrastructure. This collaboration will enable the creation of a layered IT security architecture, enhancing overall security.

Solutions Engineering is the third activity in **Census Engineering**. This operational area is responsible for ensuring that all systems used by the 2030 Census Program adhere to the Software Development Life Cycle (SDLC).[18] There are 13 categories of systems supporting the 2030 Census Program, some are shared across programs within the Census Bureau, and some are specific to the 2030 Census Program. The categories of systems are:

- Decennial Address and Spatial Frames Systems.
- Administrative and Supplemental Data Systems.

[18] The SDLC includes guidance and standards for planning, requirements definition, design and development, documentation, solution integration, test and validation, deployment, operations and maintenance, and disposition of all Census Bureau systems including the 2030 Census SoS.

- Universe and Operational Control Systems.
- Outreach and Marketing Systems.
- Human Resources Support Systems: Hiring, Onboarding, Payroll.
- Paper Data Capture Systems.
- Computer-Assisted Enumeration Systems.
- Data Quality Assurance Systems.
- Response Processing Systems.
- Performance and Progress Reporting Systems.
- Disclosure Avoidance, Data Products, and Dissemination Systems.
- Coverage Estimation Systems.
- Special Census Systems.

Solutions Engineering is looking to optimize and modernize 2030 Census solutions, as appropriate, driven by cloud-native pillars such as:

- Microservices.
- Containerization.
- Application programming interface-first design.
- Automation.
- Infrastructure as Code (IaC).
- Development, Security, and Operations (DevSecOps) principles.

We are pursuing these enhancements to aid in identifying and assessing security vulnerabilities and weaknesses early in the system's development life cycle process.

Another part of the **Solutions Engineering** activity is the IT Program-level Testing and Delivery. This work includes:

- Test data management, including test data creation.
- Test reporting.
- Independent verification and validation of SoS (end-to-end testing).
- Performance and scalability testing (integration of SoS).
- Program-level regression testing.

Finally, the Solutions Engineering activity also works closely with the Census Bureau's enterprise initiatives supported by the Office of the Chief Information Officer (OCIO). This work includes leveraging the cloud-first initiative and, where possible, leveraging the Business Ecosystem (BE) solutions in the 2030 Census SoS architecture. More information is available in Appendix A.

Impact on Quality (Accuracy) of Census Results

Sufficient investment in the full complement of robust **Census Engineering** processes enables an efficient 2030 Census and provides timely and useful solutions that make it easier for other operational areas (that directly impact the quality of the census results) to accomplish their objectives on time and within budget.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **Census Engineering** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

Census Engineering ensures that systems adhere to appropriate information security policies to collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements. The chief information officer and the chief information security officer are vital to ensuring this adherence. They manage the authority to operate (ATO) process, which reviews controls of systems seeking to gain or maintain authorization within the Census Bureau environment.

Additionally, **Census Engineering** ensures that 2030 Census operations and systems adhere to the Census Bureau and Department of Commerce (DOC) policies and regulations, thus helping to provide data security, protect respondent and employee privacy, and maintain confidentiality. More information is available in Appendix B.

Administrative and Supplemental Data Use

Census Engineering expands the use of administrative and supplemental data by integrating big data analytics, artificial intelligence and machine learning, and advanced data science solutions into the SoS architecture and system designs. Following the Census Bureau's digital transformation effort, the 2030 Census IT strategy emphasizes a data-centric approach, leveraging data science algorithms and designs. This includes leveraging the enterprise Business Ecosystem (BE), specifically, the enterprise frames data, as key data sources and the processing engine.

4.2.2. Intended Outcomes for Provide Solutions

A summary of the intended outcomes for **Provide Solutions** includes:

- **Implemented solutions engineering processes**: A comprehensive engineering framework is developed and maintained to define and document how people, processes, operations, and technology will work together to support the 2030 Census Program.
- **Developed and tested operational and IT solutions**: Operational and IT solutions are designed, developed, and tested to support large-scale census tests in 2026, 2028, and 2030 Census production.
- **Completed IT solutions integration, acceptance, and delivery**: The 2030 Census Program's IT solutions are integrated, deployed, and maintained. A System of Systems is provided to support the needs of the 2030 Census Program.

4.3. Provide Infrastructure

The third and final concept area needed to Support the Census is **Provide Infrastructure**. This work provides the services, staffing, workspace, and underlying IT infrastructure to develop, test, and conduct large-scale tests in 2026 and 2028 and to perform 2030 Census peak production work. During the 2020 Census, **Provide Infrastructure** was encapsulated in three separate operations: Field Infrastructure (FLDI), Logistics Management (DLM), and IT Infrastructure (ITIN), which included the Decennial Service Center (DSC). For the 2030 Census, **Provide Infrastructure** consists of two operational areas, which are depicted in **Figure 24**:

Corresponding 2020 Census Operations

The work covered in the **Provide Infrastructure** concept area was performed by the following operations:

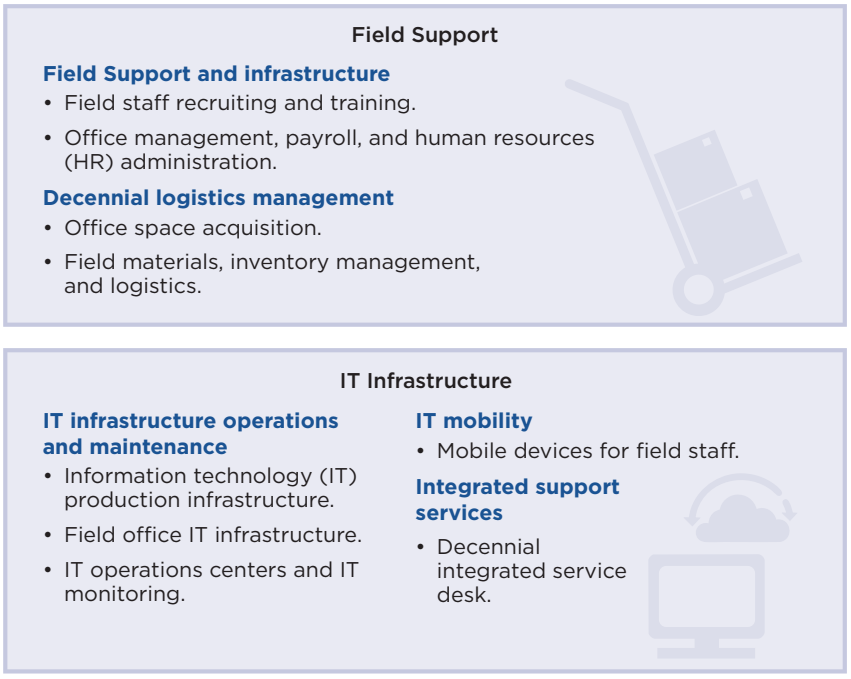
- Field Infrastructure (FLDI).
- Decennial Logistics Management (DLM).
- Information Technology Infrastructure (ITIN).

- Field Support.
- Information Technology (IT) Infrastructure.

Within **Provide Infrastructure**, Field Support includes many elements because of the size, scope, and complexity of a nationwide undertaking, occurring once every 10 years, and with limited time to complete. It requires a large, trained, well-equipped field workforce, fully functional offices, and an operational and supported set of IT applications, data, equipment, and networks to support 2030 Census production. Field Support also provides infrastructure for large-scale testing, such as the 2026 Census Test and the 2028 Dress Rehearsal.

Hiring the necessary staff and securing the office space to conduct the census can be time-consuming and costly. We are developing methods to improve the recruitment and management of staff for the 2030 Census by enhancing the solutions and processes that support these activities. Over the decades, the demand for physical office space in the field has decreased as operational tasks have become less dependent on paper, and technological advances have made remote work viable. The 2030 Census aims to continue this trend by replacing many physical field offices with virtual offices.

Figure 24.
Provide Infrastructure Summary



Also, within the **Provide Infrastructure** area, IT Infrastructure includes the systems, hardware, data, services, and communications equipment to conduct and support the census. IT Infrastructure is needed in the field offices, data storage and processing sites, headquarters, and any location requiring automation. For the 2030 Census, most operations will be supported by automated systems, many of which support the entire enterprise. These enterprise systems are designed and operated by the Census Bureau and support multiple programs across the Census Bureau (refer to Appendix A).

Figure 24 summarizes several additional items of note. First, there are four key efficiencies that we are building into our work for **Provide Infrastructure** based on the 2020 Census experience:

- Reduced physical footprint of field infrastructure through use of virtual offices.
- Improved solutions for field staff recruiting, payroll, HR, and training.
- Mobile device contract that starts earlier and has more flexibility.
- Integrated service desk with more efficient incident response.

Second, we use three key business functions to do the work of **Provide Infrastructure**. Business functions are the different kinds of work required for a census and include the following for **Provide Infrastructure**:

- **Provide field infrastructure, staffing, space, and logistics**: Recruit, hire, onboard, train, and out-process field staff; provide administrative support for staff; acquire, lease, furnish office space; and provide logistical support for field offices and staff.
- **Perform IT operations and maintenance and provide field IT Infrastructure**: Provide, operate, and maintain IT Infrastructure for offices and staff to support data collection production work.
- **Provide IT mobility and integrated support services**: Equip, maintain, and disposition of mobile devices for field staff, and provide IT service support for field offices and staff.

More details on the two operational areas within **Provide Infrastructure** are discussed in the following sections. Many aspects of the operational design for **Provide Infrastructure** will be tested before 2030 Census operations are defined.

4.3.1. Field Support

Purpose and Scope

A major component of **Provide Infrastructure** is Field Support. The purpose of this operational area is to provide the field staff (i.e., nonheadquarters staff) with the administrative structure, skill set, guidance, and non-IT office infrastructure needed for large-scale field tests and 2030 Census data collection across the 50 states, the District of Columbia, and Puerto Rico. (The Island Areas Censuses are out of scope for Field Support since fieldwork is conducted by the local governments.)

Description

Field Support consists of two operational activities:

- Field Workforce.
- Space and Logistics Management.

The first activity, Field Workforce, operates and maintains the field offices, and it recruits, onboards, trains, and out-processes the field staff needed for census tests and production data collection for the 2030 Census. Examples of specific support functions include:

- Recruiting, selection, and hiring.
- Fingerprinting and background checks.
- Onboarding (including badging and training).
- Personnel and payroll administration.
- Administration of claims related to occupational health, employee assistance, safety, Workers' Compensation, and personal property.
- Staffing.
- Management and supervision.
- Out-processing temporary staff (i.e., separation from federal service) when their employment period ends.

Most of the changes to field infrastructure for the 2030 Census involve reorganizing systems and processes to increase efficiency and effectiveness. For example, the 2030 Census Program aims to create a single recruiting, selecting, hiring, and payroll/personnel system that can be used for all temporary decennial census staff. Similarly, the 2030 Census plans to simplify the processes for background checks and badging by reducing the quantity and types of checks and badges required. The 2030 Census Program also plans to make official personnel files completely electronic by automating forms that were not automated in the 2020 Census. Additional system and process improvements are being planned to improve efficiency.

The type and quantity of management staff for the 2030 Census closely mimic the 2020 Census, adjusted to address enhanced automation, changes to office configurations, and estimated workload inputs from field operations such as those supporting In-Field Enumeration, Group Quarters Enumeration, and Coverage Estimation fieldwork. Staffing models are used to determine the specific staffing needs at each location. These needs drive space needs and recruiting goals.

The second activity of **Field Support** is Space and Logistics Management. This activity coordinates both the space acquisition and lease management activities for temporary field offices for large-scale field census tests and the 2030 Census peak production. This activity is also responsible for the logistics management support work associated with field operations.

The types of temporary field offices planned for the 2030 Census include:

- Regional Census Centers (RCCs): Physical offices that manage field operations within an assigned geographic area.
- Census Administrative Technical Support (CATS) centers: Centralized offices that provide administrative and technical support for field operations.
- Field office space: Additional physical locations needed to perform and manage field operations.

Space acquisition and lease management is a collaborative effort between the 2030 Census Program, the Census Bureau's Field Division, and the General Services Administration. Space and lease work involves several steps and starts with working with the Field Support operational activity to understand the requirements

for physical space and the optimum locations. Other steps include developing space requirement packages for each office, securing bids, awarding contracts and leases, monitoring the procurement and buildout of the space, and ensuring all office locations meet physical security requirements. Once the field operations are completed, Space and Logistics Management oversees the closing of the offices.

The 2020 Census significantly reduced the number of field offices required for peak production compared to past censuses. The 2030 Census is looking to further reduce the required number of physical offices by centralizing administrative functions and maximizing the number of work-at-home options available for regional staff. Transitioning to a more virtual office environment increases flexibility and reduces costs.

Other enhancements for Space and Logistics Management within Field Support are based on 2020 Census lessons learned, such as:

- Adjusting space requirements.
- Starting the process earlier.
- Adapting the timeline to allow sufficient time to obtain funding and complete procurements and buildouts.
- Developing detailed plans for the disposition of logistics warehouse materials and equipment.

In addition to 2030 Census space acquisition and lease management support, this operational activity in **Field Support** provides logistics management support for staff. Examples of such support include:

- Kit assembly and delivery.
- Warehousing.
- Inventory management.
- Printing, shipping, and delivery of supplies and furniture.

During the 2020 Census, we shipped most of our technical and operational kits to the field offices where they were distributed during staff training. For the 2030 Census, we plan to ship directly to the field staff. Logistics management support services are a collaborative effort between the 2030 Census Program and the Census Bureau's National Processing Center and Field Division.

Impact on Quality (Accuracy) of Census Results

The **Field Support** operational area directly impacts the quality of census results by recruiting and hiring qualified candidates and then training and equipping them to complete their work successfully. This applies to all field staff, particularly to those tasked with enumeration.

Supporting administrative and logistical processes and systems, as well as the design of the physical space, can impact staff performance and productivity. This, in turn, affects the quality of the work performed by field staff and thus the quality of the census results. Examples of specific changes being made to this operational area that impact quality include:

- Using automation to improve training methodology and supervision capabilities.
- Using automated post-deployment remediated training when needed.
- Emphasizing data quality in management training.
- Incorporating a focus on data quality so that it is always at the forefront of operations.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to Field Support include, but are not limited, to Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for complying with the 2030 Census mission and legal requirements.

Many of the staff in the field have access to data protected by the Privacy Act and Title 13 of the United States Code. Privacy and confidentiality policies and procedures are developed, implemented, and monitored so that staff understand how to comply with these laws and their responsibility to do so. As part of the hiring process, new staff are sworn in to comply with the Census Bureau Special Sworn Status policies and procedures, or risk significant fines and possibly imprisonment. Staff training also includes modules on protecting confidential

data. Administrative staff thoroughly review records and categorize them for proper handling (e.g., shredding or shipping the files to the designated federal records center). Automated tools for field and other staff with access to protected information are designed to reduce the possibility of exposure. Physical security measures protect sensitive data in offices, and staff follow guidelines for handling and transmitting materials with confidential information.

Administrative and Supplemental Data Use

While in-field contact strategies, work assignments, and other enumeration-related activities may rely on administrative and supplemental data, the work performed as part of the **Field Support** operational area does not use administrative and supplemental data.

4.3.2. Information Technology (IT) Infrastructure

Purpose and Scope

The second component of **Provide Infrastructure** pertains to supplying IT systems. The purpose of the **Information Technology (IT) Infrastructure** operational area is to operate, maintain, and provide support for the systems, hardware (including field hardware and mobile devices), data storage, networks, and services needed to conduct the 2030 Census. This operational area was covered in the IT Infrastructure (ITIN) and Decennial Service Center (DSC) operations in the 2020 Census and, for the 2030 Census, includes the following activities:

- IT Infrastructure Operations and Maintenance.
- IT Mobility.
- Integrated Support Services.

Description

Within **IT Infrastructure**, the first activity is IT Infrastructure Operations and Maintenance. This activity supports decennial census-specific applications, including the planning, implementing, managing, and monitoring of all Census Bureau-owned hardware and software needed for small- and large-scale census tests and 2030 Census production operations.

This operational activity starts by phasing in the IT Infrastructure to achieve production operation status at the right time, with the right capacity, based on the 2030 Census production operation schedule. This phase-in stage also includes delivering IT capabilities, such as office automation services, to any work location (including Census Bureau headquarters, field offices, and work-at-home offices) and ensuring they are operational.

As implied by the name, IT Infrastructure Operations and Maintenance also handles the operation and maintenance (O&M) of the IT capabilities. Examples of O&M activities include:

- E-provisioning new users.
- Providing capacity for peak user demand.
- Managing backup, restore, recovery, and Continuity of Operations Planning (COOP) activities.
- Monitoring systems.
- Managing software maintenance, patches, and version control.

As production winds down and operations begin closeout activities, IT capabilities and resources undergo a disposition process. This work also is a responsibility of IT Infrastructure Operations and Maintenance and includes rolling back capacity based on changes to demand, dispositioning data and physical resources, and decommissioning residual hardware.

The second activity of **IT Infrastructure** is IT Mobility. This activity supports field staff who require mobile devices to perform their jobs. For the 2020 Census, the Census Bureau contracted with a vendor to provide, service, and disposition mobile devices for the field staff. The 2030 Census Program will use a similar approach for handling devices.

IT Mobility also manages mobile devices and leverages technologies such as:

- Mobile device management (MDM): A methodology and toolset to provide the workforce with secure mobile productivity tools and applications.
- Device-as-a-Service (DaaS).
- Direct ship to user model to provide mobile devices and services for field workers.

Numerous improvements are being considered based on the 2020 Census mobile device experience. In general, the 2030 Census Program plans to emphasize flexibility in the DaaS contract to enable changes in device types and cellular carriers, allowing for adjustments to fluctuating demand during peak production. Additional enhancements under consideration for mobile devices include:

- Reducing the number of images/profiles so that devices are more generic and flexible.
- Limiting the type of devices.
- Improving training for field staff on acceptance, use, and recovery of devices.
- Conferring with American Indian Reservations on their cellular carriers since many do not use the mainstream carriers.

The third and final activity of **IT Infrastructure** is Integrated Support Services. This activity designs and deploys a service center (the Decennial Integrated Services Desk) to support field operations. The service center seamlessly integrates all help or service requests submitted by the 2030 Census staff during large-scale census tests and the 2030 Census production. The support service areas of focus include:

- Safety.
- Security.
- Incident management.
- Learning management.
- Integrated asset management.
- RCC administrative department support.
- Field operational procedures support.
- Customer relationship management support.
- Decennial census operations technical support.
- Interactive voice response (IVR).
- Paper data capture IT services.

Integrated Support Services anticipates improvements for the 2030 Census in the following ways:

- Providing better training and instructions for all staff about the most effective ways to use the service desk.
- Building a service desk system that integrates all aspects of the IVR system to enable more efficient incident resolution within the required timeframe.
- Exploring ways to verify staffing levels are adequate throughout peak production.

Impact on Quality (Accuracy) of Census Results

The **IT Infrastructure** operational area impacts the quality of the census results by minimizing IT-related disruptions during census production activities. The infrastructure is designed to provide flexibility and security to create an efficient work environment for all staff. A consistent IT infrastructure across offices helps ease support. A well-run support desk allows for quick resolution of issues in the field, allowing field staff to spend more time collecting quality data.

Privacy and Confidentiality

The security, privacy, and confidentiality controls applicable to **IT Infrastructure** include, but are not limited to, Title 13, Title 26, and laws and policies protecting PII.

This operational area will adhere to all appropriate systems and information security policies, and any systems needed will collect only the information necessary for achieving the 2030 Census mission and complying with legal requirements.

As required by law, the Census Bureau must protect privacy and maintain the confidentiality of respondent data. The **IT Infrastructure** maintains confidentiality by:

- Incorporating processes that protect privacy into system maintenance based on applicable policies.
- Assisting with the transfer of all 2030 Census data to secure archives.
- Properly sanitizing and decommissioning hardware and mobile devices.

Administrative and Supplemental Data Use

While **IT Infrastructure** provides the necessary infrastructure and tools for the Census Bureau to receive and use administrative and supplemental data, it does not use administrative and supplemental data to perform its work.

4.3.3. Intended Outcomes for Provide Infrastructure

A summary of the intended outcomes for **Provide Infrastructure** includes:

- **Provisioned field staffing, space, and logistics**: Field staff are recruited, hired, onboarded, trained, and out-processed; administrative support is provided for field staff; acquisition/leasing/furnishing of field office space is provided; logistical support for field offices and staff is provided.
- **Implemented IT operations and maintenance of IT Infrastructure**: Offices and staff are provided IT infrastructure to support data collection production work.
- **Provisioned IT mobility and integrated support services**: Field staff are provided mobile devices and IT service support is provided for field offices and staff.

5.0. CONCLUSION

The 2030 Census Program is building on the success of the 2020 Census and enhancing the design to:

- Infuse high-quality administrative and supplemental data throughout the program to improve efficiency and accuracy.
- Automate most of the enumeration of people living in group quarters and other unique living arrangements.
- Expand the use of shared, enterprise solutions and services to reduce cost, schedule, and performance risks.
- Transform the design for processing responses to improve the quality of response data.
- Optimize field support operations and infrastructure.

The Census Bureau has a strong base for the 2030 Census. We have several years of research and small-scale testing that have been completed, as well as the numerous innovations proven in during the 2020 Census. Looking ahead, we are preparing for field tests that will help mature our initial design and arrive at a set of integrated operations for the 2030 Census.

The high-level, operational design documented in the "2030 Census Operational Plan" bridges the 2020 Census design with the results of recently completed research (FY22–FY24), small-scale testing results, ongoing improvements, and public input on the next decennial census. The 2030 Census design will continue to mature incrementally over the rest of decade as development and integration get underway, weaving the work done to date with the results of upcoming large-scale field tests in 2026 and 2028. This process will yield an evidence-based design, predicated on the importance of delivering quality results, ready for 2030 Census production.

5.1. What's Next for the Operational Design

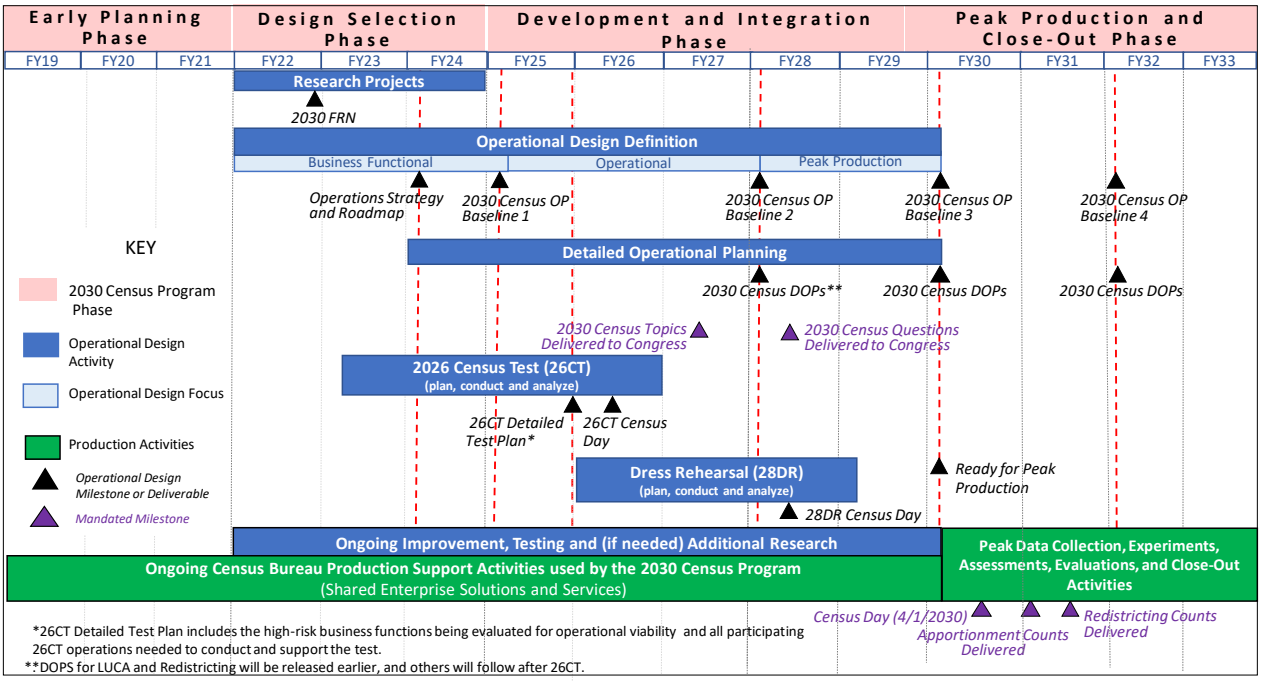
Each iteration of the "2030 Census Operational Plan" between now and early 2030 will document refinements to the operational design as the work matures and is organized and integrated into operations (refer to Figure 6). The following are milestones for updates to the operational design and supporting documentation:

- **Late 2025**: Release the "Detailed Plan for the 2026 Census Test." Provide information on the test objectives and corresponding operations to assess operational viability for the 2030 Census. Test results inform both the second version of the 2030 Census operational design and what will be tested in the 2028 Dress Rehearsal.

- **Summer 2027**: Release the second version of the "2030 Census Operational Plan (Baseline 2)." Present the operations for the 2030 Census based on the results of the 2026 Census Test and determine what will be tested for end-to-end cohesion in the 2028 Dress Rehearsal.
- **Early 2028**: Release of initial "Detailed Operational Plans" will be complete by early 2028. Operations will be documented at a more granular level to support program integration and solution engineering, as well as keep readers informed.
- **Summer 2029**: Release the third version of the "2030 Census Operational Plan (Baseline 3)." Present what is planned for operations refined for the 2030 Census Peak Production and Closeout Phase, informed by results of the 2028 Dress Rehearsal.
- **Late 2029**: Release refined "Detailed Operational Plans" based on the results of the 2028 Dress Rehearsal.
- **Early 2032**: Release the "as was" versions of the operational design ("2030 Census Operational Plan, Baseline 4") and "Detailed Operational Plans" to inform early 2040 Census planning.

The dates are notionally displayed in **Figure 25**. Note: This figure was first released in the "**2030 Census Operational Strategy and Roadmap**" at <https://www2.census.gov/programs-surveys/decennial/2030/program-management/planning/strategic-documents/2030-strategic-doc-operations-roadmap.pdf> in April 2024 and is updated as of June 30, 2025.

Figure 25.
Operational Roadmap Summary



Our intent with the "2030 Census Operational Plan" is to:

- Keep Census Bureau staff and external stakeholders informed of our plans and progress as we move forward in the decade and prepare for the 2030 Census of Population and Housing.
- Demonstrate the right mix of practicality, such as reuse of 2020 Census successes and shared enterprise services and solutions, and innovations to address opportunities for improvement and advance the science of taking the census.
- Illustrate our commitment to an efficient and accurate census "that counts everyone in our nation once, only once, and in the right place."

APPENDIX A. ENTERPRISE SERVICES AND SOLUTIONS

Introduction

The 2030 Census Program depends on many entities within the Census Bureau for its success. The U.S. Census Bureau provides a variety of services and solutions shared by numerous programs across the agency. For example, physical security, human resources, acquisition, IT Infrastructure, and space are services that support headquarters staff. The Enterprise Fusion Center is another example that provides the ability to collect and analyze information 24/7 to quickly identify and respond to a crisis. These services are not discussed in this appendix but are necessary for the success of the 2030 Census Program. This appendix focuses on IT and data-related services. It provides context for the suite of IT services and solutions the 2030 Census Program uses and shares with other programs at the Census Bureau. With a focus on quality and accuracy in the 2030 Census, the Census Bureau is innovating enterprise-wide technologies and capabilities to support its surveys and censuses with key products and services. It is also instituting a business ecosystem of systems centered on modernizing data collection, processing, and dissemination. This transforms its core interest to improve efficiencies and cost-effectiveness. The Census Bureau depends upon many of these innovations to conduct the 2030 Census.

Geographic Support Program

The Geographic Support Program (GSP) maintains and provides the most current, accurate, and complete address, feature, boundary, and geographic reference data (e.g., satellite and aerial imagery) possible for the Census Bureau's customers and data users. It provides the necessary infrastructure for the 2030 Census's data collection, processing, tabulation, and dissemination programs for the United States and its territories. It also provides geospatial data and products, and shares experience with Census Bureau partners from federal, tribal, state, and local governments as well as international and other organizations.

Modernizing Disclosure Avoidance

The Modernizing Disclosure Avoidance Program is an enterprise-wide program that provides modern methods and tools to protect respondents' privacy and maintain the confidentiality of their data in published statistics.

Decennial census data determine congressional apportionment and are used by states for redistricting and other entities to inform the allocation of federal funding each year. The challenge for the Census Bureau is collecting and reporting census data while adhering to the statutory obligation to protect respondent privacy and maintain respondent confidentiality.

The statistical safeguards that the Census Bureau uses to protect confidentiality (also known as disclosure avoidance) are continuously evaluated and improved to keep pace with emerging threats. The Census Bureau is actively researching improved disclosure avoidance methods for the 2030 Census that will effectively protect privacy, maintain confidentiality, and ensure the quality of the resulting statistical products.

The Census Bureau has long been a global leader among national statistical offices in the research and development of data protection solutions. The Center for Enterprise Dissemination's Disclosure Avoidance staff is the Census Bureau's principal development team for these efforts.

The 2030 Census plans to continue researching new, state-of-the-art privacy protection systems to uphold the Title 13 confidentiality oath and to keep pace with emerging threats in today's digital world.

Census Bureau Business Ecosystem

The Census Bureau Business Ecosystem represents a modernized and integrated approach to data collection, management, and dissemination. It is a series of enterprise-wide system capabilities that provide the 2030 Census with more accurate, granular, and customizable information in real time. The Ecosystem consists of four program services:

- Data Ingest and Collection for the Enterprise (DICE).
- The Frames Program.
- The Enterprise Data Lake (EDL).
- Center for Enterprise Dissemination Services and Consumer Innovation (CEDSCI).

From these services, the Census Bureau is creating statistical data products to enable the 2030 Census Program to respond more effectively to increased demand for information, data collection challenges, and new data sources and technology. To facilitate this approach, the Business Ecosystem is built around the following four key innovations: Data Ingest and Collection for the Enterprise (DICE), the Frames Program, Enterprise Data Lake (EDL), and the Center for Enterprise Dissemination Services and Consumer Innovation (CEDSCI).

Data Ingest and Collection for the Enterprise (DICE)

The DICE program provides data collection for the enterprise. It offers a comprehensive platform for gathering existing data from external sources and for conducting censuses and surveys. DICE enhances the Census Bureau's ability to collect data at an enterprise level by providing the following attributes:

- Simplified survey design.
- Multiple modes that integrate response data.
- Near real-time collection status.
- Earlier access to data.
- Improved user experience.
- Scalability and cost-effectiveness.

The Frames Program

The Frames Program enables the Census Bureau to use its data in innovative ways. The program's vision is to create enterprise-wide frames that are linkable in nature, agile in structure, and accessible for production or research on a need-to-know basis while adhering to best practices for technology usage, data management, and methodology.

The Frames Program defines frame as any foundational dataset that forms the basis for much of the work we do at the Census Bureau. Each frame is organized around one of four basic units of observation: addresses, businesses, jobs, and people.

Linked frames centralize and harmonize data currently collected by the Census Bureau (using multiple methods) and provide the following capabilities:

- Increased exploration of complex and broad-scoped research.
- Simplified, repeatable, ongoing data analysis.
- Reduced duplication.
- Targeted sample selection.

The Frames Program encompasses four core frames:

- **Geospatial Frame**: Provides the MAF/TIGER System (refer to the previous GSP section). The MAF/TIGER System, along with other linkable geospatial data (such as parcels, building footprint files, and imagery), underpins the Census Bureau's mission; that is, all activity measured by the Census Bureau occurs at a location, or in the case of migration, commuting, or commodity flows, between multiple locations. The Geospatial Frame is used in the 2030 Census to inform Decennial Address Frame Management, Special Populations Address Frames, External Address Review, and Decennial Spatial Frame Management activities.
- **Business Frame**: Collects rich, harmonized business data across multiple sources, including, but not limited to, the Longitudinal Business Database, Governments Master Address File, and third-party supplemental data sources linked to the Business Register and stored in a central location. The Business Frame contains information about business establishments such as campgrounds, marinas, hotels, motels, and other types of TLs that could be a group quarters in the 2030 Census.
- **Job Frame**: Expands on the job frame built as part of the Longitudinal Employer-Household Dynamics (LEHD) Program. It contains the Quarterly Job Frame (derived from quarterly unemployment insurance wage records supplied by states) and the Annual Job Frame (derived from W-2 tax records). It also adds self-employment jobs data.

- **Demographic Frame**: Consists of demographic and residential characteristics of individuals derived from Census Bureau surveys, as well as administrative and supplemental data sources. It includes unique person-level identifiers used to link individuals across datasets, and over time can be aggregated into household units. The Demographic Frame is used in the 2030 Census to create the Person Characteristic Frame.

The Enterprise Data Lake (EDL)

The Enterprise Data Lake (EDL) centralizes data storage, management, and processing that enables more efficient access to and use of census data. It is a central repository for all types of Census Bureau data. This cloud-based platform allows users to conduct project-based big data analytics and research to create new and innovative data products. Additionally, it provides scalable data storage and processing for survey operations, concurrent research analytics, post-collection processing, data product creation and innovation, data dissemination, and archiving.

EDL provides the following attributes through its extensive data hosting solution:

- Discoverable data.
- Improved security.
- Multiple environments.
- Quick and cost-effective computing.
- Software and environments to meet project needs.
- Better monitoring capabilities.

Center for Enterprise Dissemination Services and Consumer Innovation (CEDSCI)

The Center for Enterprise Dissemination Services and Consumer Innovation (CEDSCI) makes Census Bureau data and statistics more accessible. It develops and implements state-of-the-art tools for disseminating statistical products to the public. Allowing for the discovery of statistical products, visualizations, and data renderings, CEDSCI provides a scalable solution for long-term data dissemination. It also gives a better experience for the data user through three modes including the Census Data API, web-based applications such as <data.census.gov>, and table creators such as our Microdata Access Tool. By adhering to standards established by cutting-edge platforms and websites, the Census Bureau is addressing how contemporary data users navigate and access statistical products, making complex data easier to understand.

CEDSCI provides the following attributes for managing data accessibility:

- Reliability.
- User-driven platform.
- Trusted source of information.
- Set standards and data integrity.
- Improved user experience.

Summary

These enterprise-wide, shared services and solutions offer the capability to enhance the quality of the 2030 Census. They bring sound program and engineering management, systems integration, and control methodologies to support decennial census operations directly.

APPENDIX B. SECURITY, PRIVACY, AND CONFIDENTIALITY

Introduction

The U.S. Census Bureau is committed to safeguarding the information and data of respondents to provide the country with high-quality statistics. We are obligated to handle this information responsibly and keep it confidential. This commitment applies to the individuals, households, and businesses that answer the decennial census and Census Bureau surveys and those who browse the Census Bureau website.

To honor this commitment, all 2030 Census operational areas and systems will adhere to laws, policies, and regulations that:

- Provide appropriate systems, data, and physical security.
- Protect respondent and employee privacy, civil liberties, and confidentiality.
- Remain current with privacy-compliant public documents that are mandated by law (Privacy Impact Assessments [PIAs], Systems of Records Notices [SORNs], and Privacy Act Statements).

To achieve this purpose, the 2030 Census Program works with the Office of Information Security (OIS) so that 2030 Census systems and data meet federal, Department of Commerce, and Census Bureau IT security policy requirements as identified in the Census Bureau IT Security Program Policy and relevant National Institute of Standards and Technology documentation. We also implement policies to protect confidentiality and maintain privacy. Confidentiality is required for information collected by the Census Bureau under the Census Act (Title 13, United States Code [U.S.C.] section 9). The Census Bureau must keep information acquired from the Internal Revenue Service confidential under the Internal Revenue Code (Title 26, U.S.C.). The Census Bureau also observes the privacy requirements prescribed by the Privacy Act of 1974 and the E-Government Act of 2002.

The 2030 Census Program also adheres to data stewardship policies that apply the preceding legal obligations. Additionally, we are preparing for an increased use of administrative and supplemental data for the 2030 Census. The Census Bureau maintains security, privacy, and confidentiality standards as data moves through its life cycle: creation, transfer, and retrieval between systems, storage, utilization in workload creation and data analysis, and archiving or destruction.

Finally, all Census Bureau staff take an oath to protect the confidentiality of all data collected from respondents in perpetuity.

This appendix has two main sections (as noted in **Figure 26**): (1) Ensuring Security and (2) Protecting Privacy and Maintaining Confidentiality. Within each section, key components are addressed to demonstrate how the 2030 Census Program will comprehensively address the security, privacy, and confidentiality constraints that face the 2030 Census.

Figure 26.
Ensuring Security, Protecting Privacy, and Maintaining Confidentiality

For the 2030 Census and its preceding small- and large-scale tests, the Security, Privacy, and Confidentiality Area safeguards respondents' information and data, handles data responsibly, and keeps data confidential while providing the country with high quality statistics.

Ensuring Security	Protecting Privacy and Maintaining Confidentiality
System Security: Protecting the systems (IT systems, infrastructure, devices, applications, platforms, etc.) that intake, create, and manage census data so they are secure and locked down throughout the data life cycle. **Response Integrity**: Implementing measures to address the kinds of vulnerabilities associated with response data collection and protect against bad actors affecting the quality of 2030 Census data. **Physical Security**: Enforcing security standards for those involved in the 2030 Census.	**Self-Response Systems Privacy**: Enacting procedures throughout Self-Response, such as security measures for respondents to go paperless in a trusted and transparent manner. **Field data Collection Confidentiality**: Setting procedures to protect individual response data as they are collected in the field, under various conditions. **Disclosure avoidance (Confidentiality)**: Protecting individuals' identities so they cannot be identified in released data.

Ensuring Security

The 2030 Census Program provides security safeguards for respondent information through secure systems design and data collection, encryption protocols, and multi-factor authentication and access control. Recognizing the rapidly changing cybersecurity landscape and threats, the 2030 Census Program understands the need to secure systems, protect staff, and build confidence in the census. The 2030 Census Program implements an agile, resilient, and extensible security architecture in consultation and partnership with federal and industry leaders—especially the Department of Homeland Security. We work with intelligence partners and industry leaders to stay ahead of the latest cyberthreats, continuously monitor the use of IT systems to make sure information stays secure and remain ready to respond immediately to any potential cyberthreats. We also provide a secure environment to receive and utilize administrative and supplemental data.

The 2030 Census Program aligns with and adheres to security best practices: federal and legislative requirements, standards, guidelines, policies, procedures, and protocols to protect the systems and infrastructures supporting the 2030 Census operations. On these matters, the 2030 Census Program is governed by the Census Bureau's Data Stewardship Executive Policy (DSEP) Committee. The DSEP Committee is an interdisciplinary body of experts across security, privacy, confidentiality, policy, methodology, IT, and communications to advise operations and systems implementation teams.

Ensuring Security consists of three major elements, which are discussed in the following sections: System Security, Response Integrity, and Physical Security.

System Security

The first element of Ensuring Security is system security. Safeguarding data for the 2030 Census is critical to protect it from potential attacks, such as distributed denial-of-service (DDoS) attacks and malicious attacks, that could disrupt or shut down census services or expose sensitive data. Proper system security verifies that the systems (IT systems, infrastructure, devices, applications, platforms, etc.) that intake, create, and manage census data are secure throughout the data life cycle.

Managing security for decennial census production (large-scale field tests and 2030 Census data collection) begins with a 2030 Census Security Operations Center (SOC). This work includes security monitoring and incident response, continuous penetration testing, ongoing cybersecurity threat hunting, and digital and network forensics analysis. The SOC also hosts a cybersecurity threat intelligence program.

The Census Bureau anchors a modern platform for enterprise governance, risk, and compliance management that implements cybersecurity best practices and enhancements to the Census Bureau's IT Security Program Risk Management Framework (RMF). The RMF is implemented following National Institute of Standards and Technology (NIST) requirements and represents an organizational shift in cybersecurity risk management that allows for the introduction of the next generation of security and privacy protections. Additionally, the ever-changing field of cybersecurity risk necessitates a Cybersecurity Risk Management process that includes:

- Federal Information Security Management Act (FISMA).
- IT system boundary consolidation and simplification.
- Authority to operate (ATO) authorization process that maximizes security control inheritance, reduces the level of effort and lowers cost.
- Transformation of cybersecurity into a service model enabling all IT systems to be onboarded to the Census Bureau-wide services to gain broad visibility of the agency/directorate security posture while achieving economy of scale.

The cybersecurity risk management process increases efficiency in new and ongoing authorizations, enhances visibility into cybersecurity risk posture, expands utilization of enterprise shared services, and creates a future-state cybersecurity risk management model for the 2030 Census that:

- Understands the cyberthreat landscape through cybersecurity threat intelligence (CTI), being prepared to anticipate, protect, and respond to emerging cyberthreats and trends including supply chain attacks, fileless attacks, and cloud threats.
- Works with interagency cybersecurity and intelligence organizations to develop a custom cyberthreat profile for the 2030 Census, such as identifying specific advanced persistent threats (APT) and cybercriminal actors with a higher probability of targeting the Census Bureau.
- Incorporates IT security policies to prioritize security requirements based on impact and threats.

We use information protection capabilities to encrypt data at rest and in motion and to prevent data loss. Additionally, continuous vulnerability scanning, and remediation activities are in place that will be used during the 2026 Census Test, 2028 Dress Rehearsal, and 2030 Census operations.

Proactive measures enable ongoing monitoring of permissions, privileges, and access rights to already established network and information resources. Strong digital identity and authentication methods are also being established to monitor and automate response procedures for privileged accounts that conform to federal requirements for all users and system maintainers accessing the 2030 Census systems.

Finally, all 2030 Census IT acquisitions undergo the Department of Commerce's Supply Chain Risk Assessment to confirm that acquired assets are protected against vulnerabilities and backdoor risks.

Response Integrity

The second element of Ensuring Security is response integrity. Because of the nature of response data collection processes (including the self-response data), bad actors, for various reasons, could potentially attempt to manipulate the census count by trying to disrupt the census or create an undercount or overcount situation. These scenarios could occur through available interfaces and systems, ransomware attacks, or potentially fraudulent paper responses. For context, the 2020 Census used the Internet Self-Response (ISR) operation to increase participation and reduce costs. ISR constituted approximately 80 percent of the over 100 million individual self-responses. In addition, phone and internet respondents could complete their census questionnaire online with or without a predetermined Census ID (non-ID response). The emphasis on the internet and, particularly, the option to respond without an ID presented potential vulnerabilities to the security of response data for the 2020 Census.

The 2030 Census Program is implementing measures to address the vulnerabilities associated with response data collection. These measures are undertaken so that bad actors do not affect the quality and accuracy of the 2030 Census data. They include tools restricting access to possible bad actors and enacting continuous quality assurance measures to flag suspicious activities. We are addressing individual and widespread suspicious responses to cover the broad spectrum of business cases (risks) that may occur during the census. We will analyze responses (all modes—internet, phone, and paper) for predefined quality issues to safeguard the quality of small- and large-scale field tests and production census data. We assess the quality and accuracy of response data by comparing these data to administrative and supplemental data.

Physical Security

The third element of Ensuring Security is physical security. Ensuring the physical security of those working for the Census Bureau is critical at headquarters and in the field. Since the 2030 Census peak production will require a massive civilian mobilization, proper security protocols must be followed in field offices and official census sites around the 50 states, the District of Columbia, and Puerto Rico and for the four Island Areas: American Samoa, Commonwealth of the Northern Mariana Islands, Guam, and U.S. Virgin Islands. Buildings and offices must have appropriate entrance and exit security protocols (security personnel, badging where feasible, entrance and exit locking, etc.).

Safety training takes place for Census Bureau staff. Site safety training is imperative to understand protocols at respective sites (e.g., active shooter, or severe weather events like fire or tornado). Background checks ensure that the staff hired do not pose a potential threat to fellow staff or the public.

In-field staff are protected by additional protocols while conducting fieldwork, such as measures to take or whom to call if their safety is threatened (e.g., confrontations with dangerous individuals or being caught in a weather event). The Census Bureau's Dangerous Address Database, used by the RCCs and field offices, is designed to track, maintain, and identify addresses determined to be safety risks to field staff and provide instructions on how to proceed with enumeration.

Protecting Privacy and Maintaining Confidentiality

The 2030 Census Program is committed to protecting the privacy of respondents and maintaining the confidentiality of their data. A continuing concern for the 2030 Census is that public attitudes about privacy and confidentiality may affect people's willingness to respond. The Census Bureau continues to research and understand the perceptions, attitudes, and behaviors associated with privacy and confidentiality, and the 2030 Census plans to use the results of this research to enhance the robust privacy and confidentiality measures and communications campaign used previously for the 2020 Census.

We are committed to protecting the respondent's data from initial data collection, throughout data computation, in final data product releases, and while stored or sent to NARA for archiving purposes. These efforts strive to earn respondents' understanding and confidence to improve response rates.

Additionally, the Census Bureau is committed to securing the data of respondents and staff by protecting the confidentiality of all data received, whether through self-response, field data collection, HR/Payroll (e.g., PII), or the receipt of administrative and supplemental data. We will keep the Decennial Privacy Impact Assessments and Privacy Threshold Analyses current and in alignment with the Census Bureau's IT Security Program policies for granting systems authority to operate (ATOs).

Protecting Privacy and Maintaining Confidentiality consists of three major elements: Self-Response Systems Privacy, Field Data Collection Privacy, and Disclosure Avoidance.

Self-Response Systems Privacy

The Census Bureau will have privacy procedures in place throughout the 2030 Census life cycle. For those responding online, privacy is protected through the security protocols for systems and data (referenced previously in Systems Security and Response Integrity). Respondent privacy is protected as the data are encrypted throughout the data collection process, and all encrypted data are made inaccessible.

Self-Response Privacy: Enacting procedures across 2030 Census operations throughout the self-response reporting, such as security measures for respondents to go paperless in a trusted and transparent manner.

Where paper questionnaires are used, the printing, mailing, and processes conform to the confidentiality requirements of Title 13, U.S.C., the Privacy Act, and applicable implementing regulations. At processing facilities, the Paper Data Capture operational area manages paper questionnaires, the resultant scanned images, and data files in accordance with these requirements. Paper questionnaires with respondent or field staff data are retained at the Paper Data Capture Center until confirmation that the data from each questionnaire have been captured and received by downstream systems, at which point the physical paper form is sent for secure destruction.

Field Data Collection Confidentiality

How enumeration will be conducted in the field can vary greatly depending on the types of living quarters field staff encounter during census operations. Ensuring the confidentiality of responses in open or public spaces is necessary to keep trust in an accurate decennial census. For instance, navigating GQs like college student housing, typified by crowded spaces, merits a discrete approach to safeguarding confidentiality. At the same time, transient locations (such as a homeless encampment by a major thoroughfare) pose different challenges. There are procedures for protecting the confidentiality of individual response data as it is being collected in the field under these and other conditions. Field staff are appropriately trained to protect data throughout the data collection life cycle. Field staff must obtain Special Sworn Status. Field staff also inform respondents that their information is confidential by law. For example, during field data collection, GQ administrators and residents are provided information that describes the protection of their data based on Title 13.

Depending on the types of respondents and locations encountered, field staff need to observe the requirements of certain specific privacy laws and policies in addition to Title 13. Field staff must observe the Family Educational Rights and Privacy Act (FERPA) when enumerating at colleges and universities. FERPA is a federal law that protects the privacy of student education records. For those who live or stay in nursing facilities, residential treatment centers, and group homes, the Health Insurance Portability and Accountability Act of 1996 (HIPAA) may apply. HIPAA permits a covered entity to disclose protected health information to the Census Bureau, to the extent required by Title 13.

Disclosure Avoidance (Confidentiality)

At the Census Bureau, disclosure avoidance is defined as a process used to protect the confidentiality of the information provided by our respondents, while allowing the publication of statistical outputs about the nation and its people. The Census Bureau has applied disclosure avoidance methods for decades to keep respondents' information confidential and to maintain public trust in the data.

Over time, advances in data science, more powerful computers, and externally accessible data have increased the risk of identifying individuals from published statistics. With ever-advancing technology, the threats to confidentiality protections are expected to continue growing. To reduce this risk, the Census Bureau will research and implement a disclosure avoidance system capable of capturing the degree of data protection and the availability and utility of the statistics. The system will allow for the implementation of the DSEP Committee's decisions regarding the triple tradeoff while maintaining the Census Bureau's lawful commitment to respondent confidentiality.

Summary

The 2030 Census Program strives to:

- Provide appropriate systems, data, and physical security.
- Protect employee privacy and civil liberties.
- Protect respondent privacy and maintain respondent confidentiality.
- Remain current with privacy-compliant public documents that are mandated by law (Privacy Impact Assessments [PIAs], Systems of Records Notices [SORNs], and Privacy Act Statements).

APPENDIX C. ACRONYMS

Acronym	Definition
AACRAO	American Association of Collegiate Registrars and Admissions Officers
ACS	American Community Survey
ACUHO-I	Association of College and University Housing Officers International
ADC	Address Canvassing
AI	Artificial intelligence
API	Application programming interface
APT	Advanced persistent threats
ARC	Archiving
ATO	Authority to operate
BE	Business ecosystem
BVP	Boundary Validation Program
CATS	Census Administrative Technical Support
CDAC	Centralized Decennial Address Control System
CDQA	Census Data Quality Assurance
CEDSCI	Census Enterprise Dissemination Services Consumer Innovation
CFD	Content and Forms Design
CJARS	Census Bureau's Criminal Justice Administrative Records
CMDE	Coverage Measurement Design and Estimation Operation
CMDE	Coverage Measurement Design and Estimation
CMFO	Coverage Measurement Field Operations
CMM	Coverage Measurement Matching Operation
COOP	Continuity of Operations Planning
CPE	Communications, Partnerships, and Engagement
CQA	Census Questionnaire Assistance
CQR	Count Question Resolution
CRO	Count Review Operation
CTI	Cybersecurity threat intelligence
DA	Demographic Analysis
DaaS	Device-as-a-Service
DAS	Disclosure Avoidance System
DC	District of Columbia
DCMD	Decennial Census Management Division
DDoS	Distributed denial-of-service
DFQM	Decennial Field Quality Monitoring
DICE	Data Ingest and Collection for the Enterprise
DLM	Decennial Logistics Management
DOC	Department of Commerce
DPD	Data Products and Dissemination
DROM	Decennial Research Objectives and Methods
DSC	Decennial Service Center
DSEP	Data Stewardship Executive Policy

Acronym	Definition
EAE	Evaluations and Experiments
EDL	Enterprise Data Lake
EEO	Equal Employment Opportunity
ETL	Enumeration at Transitory Locations
FACO	Federally Affiliated Count Overseas
FERPA	Family Educational Rights and Privacy Act
FISMA	Federal Information Security Management Act
FLDI	Field Infrastructure
FPD	Forms Printing and Distribution
FSCPE	Federal-State Cooperative for Population Estimates
FY	Fiscal year
GAO	Government Accountability Office
GARP	Geographic Area Reconciliation Program
GEO	Geography Division
GEOP	Geographic Programs
GPMO	Government Program Management Offices
GQ	Group quarters
GQ/TL	Group quarters/Transitory locations
GQAC	Group Quarters Advance Contact
GQE	Group Quarters Enumeration
GQV	Group Quarters Validation
GSP	Geographic Support Program
GU	Governmental unit
HIPAA	Health Insurance Portability and Accountability Act
HR	Human resources
HTC	Hard to count
HU	Housing unit
HUP	Historically undercounted populations
IAC	Island Areas Censuses
ID	Identifier
IIP	Integration and Implementation Plan
IPC	Integrated Partnership and Communications
ISR	Internet self-response
IT	Information technology
ITIN	IT infrastructure
IVR	Interactive voice response
LEHD	Longitudinal Employer-Household Dynamics
LNG	Language Services Operation
LUCA	Local Update of Census Addresses

Acronym	Definition
MAF	Master Address File
MAF/TIGER	Master Address File / Topologically Integrated Geographic Encoding and Referencing
MDM	Mobile device management
ML	Machine learning
MOA	Memoranda of agreement
MQA	Mobile Questionnaire Assistance
MVE	Maritime Vessel Enumeration
NARA	National Archives and Records Administration
NCHS	National Center for Health Statistics
NID	Non-ID Processing
NIST	National Institute of Standards and Technology
Non-ID	Nonidentification
NPC	National Processing Center
NRFU	Nonresponse Followup
NRTP	Near real-time processing
O&M	Operations and Maintenance
OCIO	Office of the Chief Information Officer
OIS	Office of Information Security
OLQ	Other Living Quarters
OMB	Office of Management and Budget
OSA	Office of Strategic Alliances
PCF	Person Characteristic Frame
PDC	Paper Data Capture
PEP	Population Estimates Program
PIAs	Privacy Impact Assessments
PII	Personally identifiable information
PIKs	Protected identification keys
PM	Program management
PR	Puerto Rico
PRDC	Paper Response Data Collection
PSAP	Participant Statistical Areas Program
QA	Quality Assurance
QAM	Quality Assurance and Monitoring
QDM	Questionnaire Design and Metadata
QR	Quick response
RCC	Regional Census Center
RDP	Redistricting Data Program Operation
RMF	Risk Management Framework
RPO	Response Processing Operation
RTAD	Real-Time Analysis of Data

Acronym	Definition
SBE	Service-Based Enumeration
SDLC	Software Development Life Cycle
SEI	Systems Engineering and Integration
SmaRT	Small-Scale Response Testing
SOC	Security Operations Center
SORNs	Systems of Records Notices
SoS	System of Systems
SPC	Security, privacy, and confidentiality
TIGER	Topologically Integrated Geographic Encoding and Referencing
TL	Transitory locations
TLAC	Transitory Locations Advance Contact
TQI	Targeted Quality Improvement
UE	Update Enumerate
UL	Update Leave
USPS	United States Postal Service
WBS	Work Breakdown Structure
ZCTAs	ZIP Code Tabulation Areas
ZIP	Zone Improvement Plan