2018 End-to-End Census Test
Baselined Version 2.2
October 14, 2016

The contents of this document are:

- List of the 34 Operations and Program Managers for the 2020 Census
- 2018 End-to-End Census Test Scope Diagram
- 2018 End-to-End Census Test – High Level Timeline
- Key information for the 2018 End-to-End Census Test
- Systems and Operations not previously included in a Census Test
- Operational Areas – Goals, Scope, Constraints and Issues

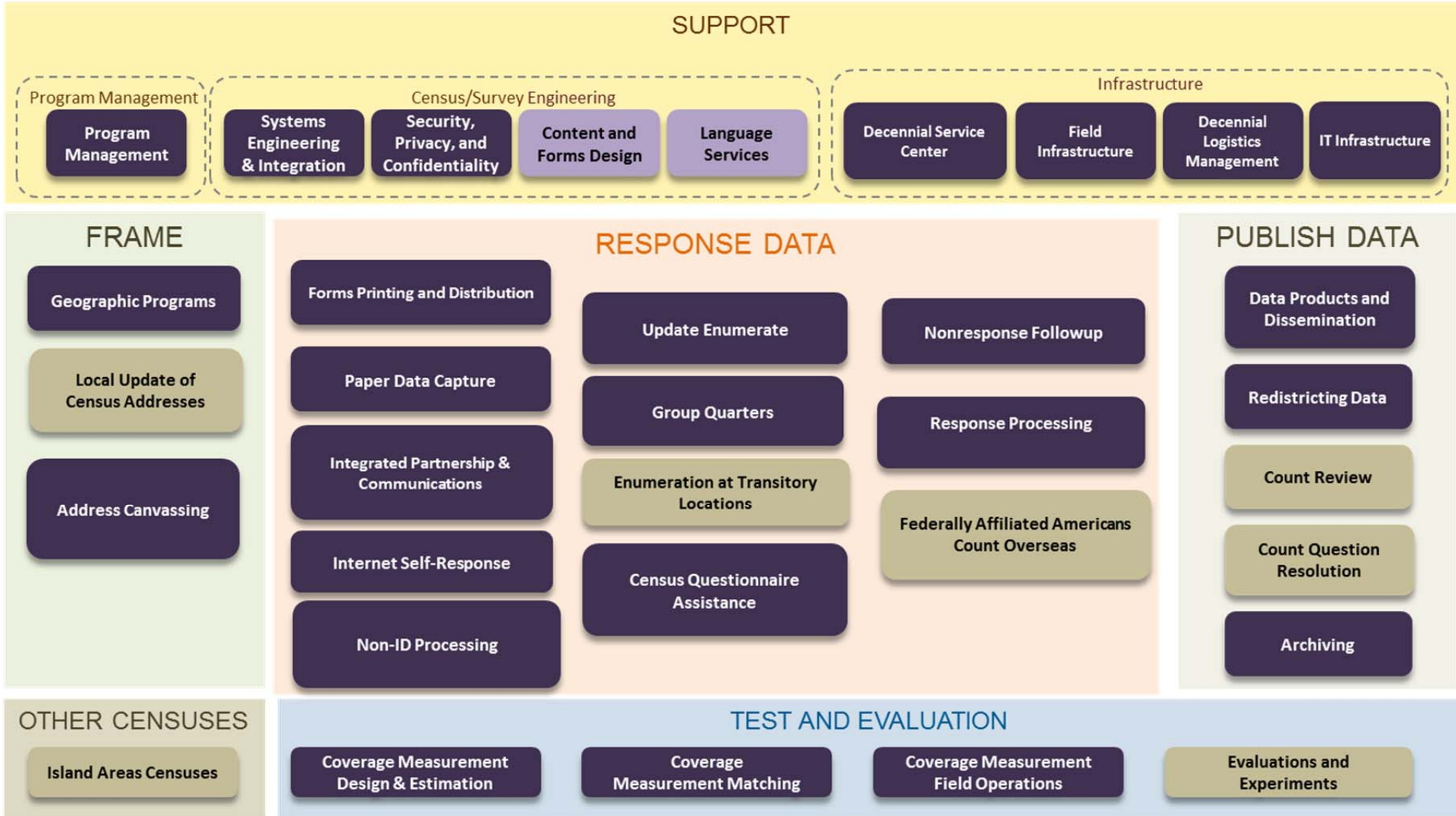| 34 Operations for the 2020 Census and 2018 End-to-End Census Test and Program Manager	
(Operations highlighted in RED are out of Scope for the 2018 End-to-End Census Test)	
Operation	**Program Manager**
Program Management	Deidre Hicks
Systems Engineering and Integration	Pete Boudriault
Security, Privacy and Confidentiality	Pam Mosley
Content and Forms Design	Jenny Kim
Language Services	Jenny Kim
Decennial Service Center	Raphael Corrado
Field Infrastructure	Bryn Johnson
Decennial Logistics Management	Bryn Johnson
IT Infrastructure	Pete Boudriault
Geographic Programs	Evan Moffett
Local Update of Census Addresses	Out of Scope
Address Canvassing (In-Office, In-Field)	Evan Moffett
Forms Printing and Distribution	Alexa Jones-Puthoff
Paper Data Capture	Alexa Jones-Puthoff
Integrated Partnership and Communications	Tasha Boone
Internet Self-Response	Alexa Jones-Puthoff
Non-ID Processing	Evan Moffett
Update Enumerate (Remote Alaska – out of Scope)	Evan Moffett
Group Quarters	Evan Moffett
Enumeration at Transitory Locations	Out of Scope
Census Questionnaire Assistance	Sheila Proudfoot
Nonresponse Followup	Maryann Chapin
Response Processing	Raphael Corrado
Federally Affiliated American Count Overseas	Out of Scope
Data Products and Dissemination	Jenny Kim

|	
Redistricting Data (Prototype Only)	James Whitehorne
Count Review	Out of Scope
Count Questionnaire Resolution	Out of Scope
Archiving	Jacqueline Eanes
Island Areas Censuses	Out of Scope
Coverage Measurement Design and Estimation	Maryann Chapin
Coverage Measurement Matching	Maryann Chapin
Coverage Measurement Field Operations	Maryann Chapin
Evaluations and Experiments	Out of Scope (Note – Assessments are included and are a part of the individual operations.)

2018 End-to-End Census Test

Focus of the Test
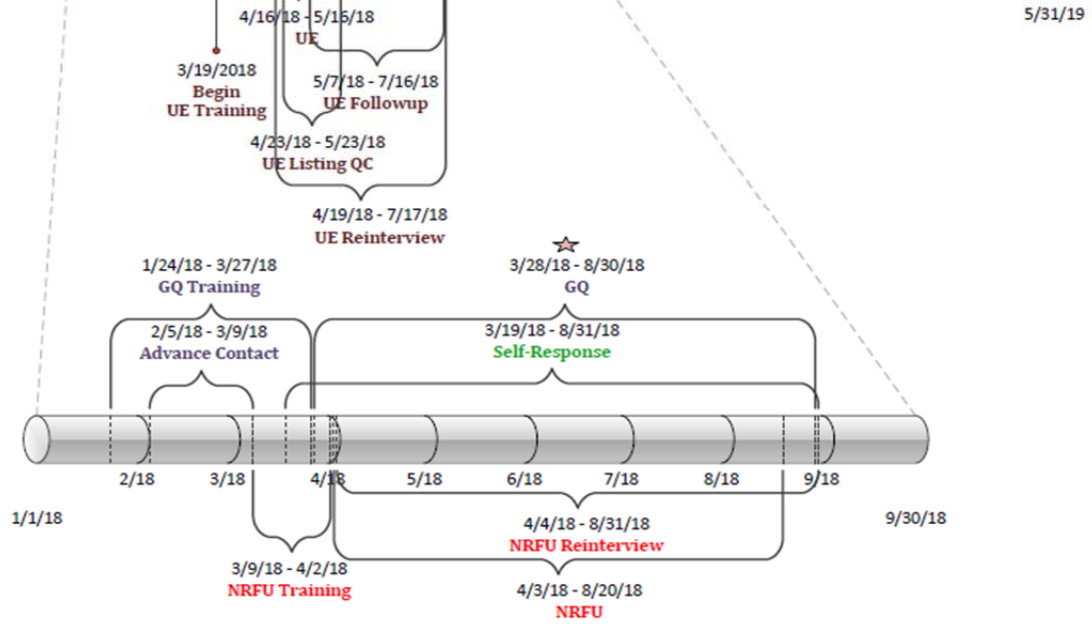
Required to Support the Test

NOT Included in the Test

SUPPORT

Program Management

Program Management

Census/Survey Engineering

Systems Engineering & Integration

Security, Privacy, and Confidentiality

Content and Forms Design

Language Services

Infrastructure

Decennial Service Center

Field Infrastructure

Decennial Logistics Management

IT Infrastructure

FRAME

Geographic Programs

Local Update of Census Addresses

Address Canvassing

RESPONSE DATA

Forms Printing and Distribution

Paper Data Capture

Integrated Partnership & Communications

Internet Self-Response

Non-ID Processing

Update Enumerate

Group Quarters

Enumeration at Transitory Locations

Census Questionnaire Assistance

Nonresponse Followup

Response Processing

Federally Affiliated Americans Count Overseas

PUBLISH DATA

Data Products and Dissemination

Redistricting Data

Count Review

Count Question Resolution

Archiving

OTHER CENSUSES

Island Areas Censuses

TEST AND EVALUATION

Coverage Measurement Design & Estimation

Coverage Measurement Matching

Coverage Measurement Field Operations

Evaluations and Experiments

2018 E2E -High level Timeline - 10/14/2016
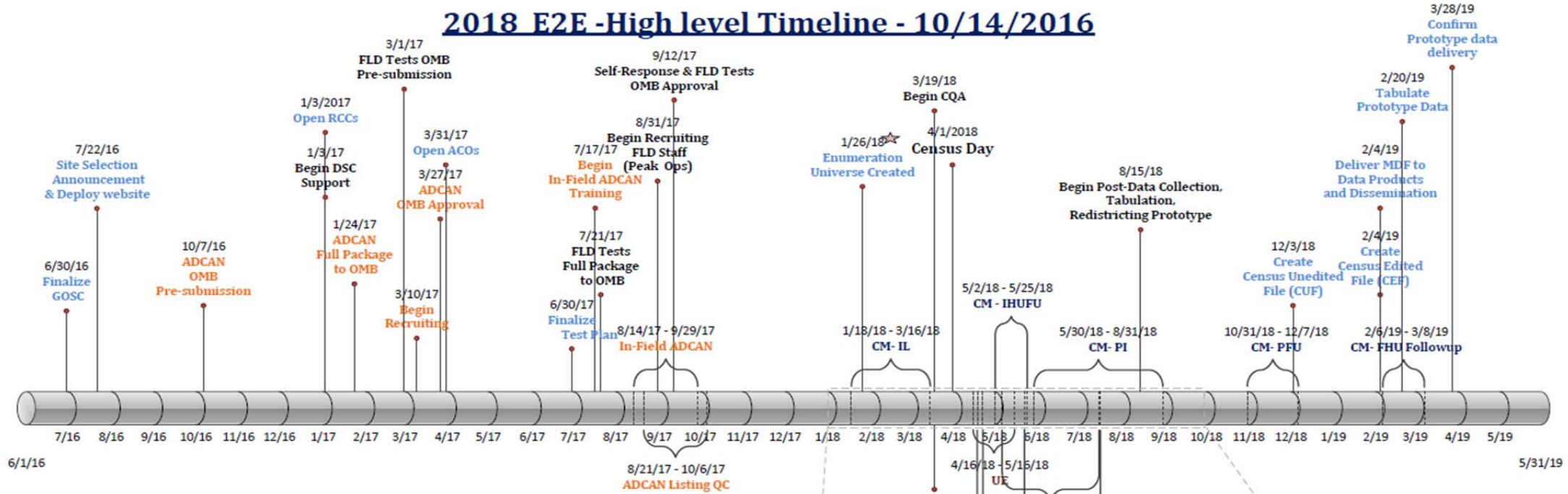
Partnership and Communication Activities	
Begin Partnership Staff Recruiting	8/18/2017
Begin Partnership Staff Training	10/30/2017
Begin FLD Recruitment Campaign Support	1/24/2017
Partnership Portal and Fulfillment Center launched	6/5/2017
Begin Awareness Phase	1/2/2018
Begin Motivational Phase	2/15/2018
Begin Co-operational Phase for NRFU	4/2/2018
Begin Thankyou Phase	9/4/2018

Notes:

- Dates are per the 9/29/2016 baselined IMS unless otherwise noted.

- A star (☆) indicates a date is per the POC for the Operation, and differs from the baselined IMS. POC seeking an IMS correction.

- Coverage Measurement training occurs in the week prior to start of each operation for listers/interviewers, and 2 weeks prior for field supervisors.

Key information for the 2018 End-to-End Census Test

Purpose	• To validate that the operations in scope for the 2018 End-to-End Census Test (2018 E2E) **are ready to go into production for the 2020 Census.** • To test and validate major operational threads, procedures, systems, and infrastructure (IT and non-IT) together to ensure proper integration and conformance with functional and non-functional requirements. • Produce a prototype of geographic and data products.
Constraints	Budget limitations might impact the end-to-end test scope impacting our ability to perform adequate testing in preparation for conducting the 2020 Census.

Considerations for Site Selection	**Considerations for site selection:**
	• Full-scale Area Census Offices (ACOs) to test organizational structure and IT considerations. (Test ACO model for staffing ratios and equipment.)
	• Areas cover all Regional Census Centers (RCCs). (Provides experience for RCCs. Also the first RCC will open in January 2017 and the first ACO in March 2017)
	• Consider leaving certain offices in place after this for 2020
	• Multiple time zones
	• Sites need to reflect what we want to test
	    ○ 1 Urban – Self-Response
	    ○ 1 Suburban/Rural - Update Enumerate (UE)
	• Languages – Sites should include as many languages as possible that we plan to support in 2020. These will most likely cluster in urban areas that will have been selected for other purposes too. The languages being planned for Internet are: English, Spanish, Chinese, Korean, Vietnamese, Russian, Arabic, and Tagalog.
	• Locating ACOs in existing GSA space speeds the space leasing process.
	• Self-Response – national representation for Type of Enumeration Area (TEA) in the 2020 Census (exception – Island Areas, Alaska and Military Update Leave (UL)/Update Enumerate (UE) are out of scope)
	• Puerto Rico is not in scope for the test.
	
	IT related site selection criteria:
	• Geographic considerations:
	    ○ Extreme heat (especially as we had issues with mobile instruments in the 2015 Census Test)
	    ○ Extremely humid area
	    ○ Extremely dry area
	    ○ High altitude area
	    ○ Extremely rural area
	    ○ Densely populated area

	- Listing and Mapping - Requires the testing of large blocks - Multi units - Group Quarters (GQ) (Military UL/UE are out of scope) - Densely populated blocks (1000+ addresses and map spots) - Physically large blocks (rural areas where a block can span many square miles) - Connectivity - Area that will test disconnected/limited bandwidth users for both mapping and enumeration - Areas with different cellular service providers - Test the ability to support areas of network limitations/degradation (i.e., stress) and network bandwidth requirements for 2020 Census (e.g., considering high latency and low bandwidth) - Select enough sites that are geographically dispersed to test latency and system performance. (Site may need to support full-scale ACO from beginning to end, if workload warrants it.)
Assumptions	- Census Day is April 1, 2018 - All systems that use Administrative Records will be tested in the 2018 E2E. - The following contracts will be in place and will participate in the 2018 E2E: - Census Questionnaire Assistance (CQA) – Award contract July 2016 - Decennial Service Center (DSC) – Award contract July 2016 - Integrated Partnerships and Communication (IPC) – Award Contract August 2016 - Field Infrastructure – - ACOs, Device as a Service, Government Furnished Equipment - Telecom - Office in a Box - Furniture - The results of the 2018 E2E will be used to finalize workload models for the 2020 Census. - Any support function, such as Systems Engineering & Integration, Language Services, and Security, Privacy & Confidentiality to support the 2018 E2E will be in scope. - Systems Requirements Reviews, Production Readiness Reviews and Operational Readiness Reviews will be implemented for the 2018 E2E. - System scalability will not be directly tested in the 2018 E2E. - Instrument, Format, Content and Contact Strategies will be finalized prior to conducting the 2018 E2E and will be used. - No research-related tests in the 2018 E2E. - Paper Data Capture will be performed at National Processing Center (NPC). (Jeffersonville campus only. Tucson Contact Center will not be available for the 2018 E2E.) - All of the Memoranda Of Understanding and inter-agency agreements have been activated for the 2018 E2E. - Any defects resulting from the 2018 E2E will be resolved during calendar year 2019. - Study Plans and Assessments will be performed to validate operations as applicable.

Systems and Operations <u>not previously included</u> in a Census Test

SYSTEMS	
System	**Description**
Group Quarter Enumeration Portal (TBD)	Group Quarters operation introduced (military bases, college campus, retirement homes, etc.) • Heavily administrative records-based (estimated 50%) 2018 E2E will need some capability to provide external interfaces where people can upload administrative records

eCorrespondence	In-Office Group Quarters Advance Contact will need capability to:
	    Send email to GQ POCs;
	    Share access letters, brochures, etc.
	    Store information collected for the upcoming enumeration, i.e. enumeration date, time, expected population count, preferred enumeration mode,

Partnership Communication System	Introduces new capabilities to include: • Partnership Fulfillment • Partnership Portal
American Community Survey Tabulation Services	System to perform data tabulation
Center for Enterprise Dissemination Services and Consumer Innovation (CEDSCI)I	System for data dissemination
Census Schedule A Human Resources, Recruiting, and Payroll System (C-SHaRPS)	System for recruiting, hiring and onboarding of field staff. C-SHaRPS essentially replaces the discontinued Census Automated Recruiting and Administrative Tools (CARAT) project. For 2020 Census, C-SHaRPS will not replace the Decennial Applicant Personnel and Payroll System (DAPPS), but must integrate with DAPPS. (A post-2020 replacement of DAPPS may be explored under the C-SHaRPS contract.)

Other:
- While the physical configuration of systems will be commensurate to the limited scale of 2018 E2E, all systems must be engineered to scale up to full 2020 Census size.
- Every system targeted to be in the cloud will be in the 2018 E2E.

OPERATIONS
Operations that will be introduced
For Address Canvassing, Listing QC, with full ECaSE / SMaRCS interface to support address listing operations
Group Quarters
Data Products and Dissemination
Redistricting Data
Archiving
Coverage Measurement – Design and Estimation Coverage Measurement – Matching Coverage Measurement – Field Operations

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
Census /Survey Engineering		
Program Management (Deidre Hicks)		
Define and implement program management policies, processes, and the control functions for planning and implementing the 2018 E2E.	1) Governance – Deidre Hicks (Adam Bacon) 2) Strategic Communication (internal/external) – Kim Higgenbotham 3) Strategic Management – Deidre Hicks (Adam Bacon) 4) Document Management – Deidre Hicks (Latasha Thompson) 5) Change Management – Deidre Hicks (Latasha Thompson) 6) Knowledge Management – Maryann Chapin (Randall Neugebauer) 7) Acquisition and Sourcing Management – Leslie Godwin (Rebecca Diaz-Cartegena) 8) Budget Management – Ed Kobilarcik 9) Schedule Management – Jacqueline Eanes (Kelly Gioffre) 10) Performance Management – Jacqueline Eanes (Sherry Thorpe) 11) Human Capital Management – Darlene Ursitti (Tia Lee) 12) Risk and Issues Management – Deidre Hicks (LaTasha Thompson)	
Systems Engineering and Integration (Pete Boudriault and Natasha Barilaro)		
• Manage the delivery of a system of systems that meets 2018 E2E program business and capability requirements. • At the program-level, manage the full Enterprise Systems Development Life Cycle for systems supporting the 2018 E2E.	• Exercise and test all included 2020 critical systems (CEDCaP and Non CEDCaP), operations and procedures together to ensure proper integration and conformance with functional and non-functional requirements. • Ensure data validation occurs at each dataflow interchange. • Verify inputs, outputs and data transformations. • Systems performance will meet service level agreements • Test latency and system performance in geographically dispersed sites.	

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
	• Verify through inspection of architectural artifacts that systems are engineered to be able to meet scalability requirements for 2020.	

Security, Privacy, and Confidentiality (Pete Boudriault and Pam Mosley)

Goals	Scope	Constraints/Issues
All planned security systems listed in the scope for Security, Privacy and Confidentiality are in place and operating	• Enterprise IT infrastructure and Telecommunications Systems • Enterprise Security Operations Center (SCC) • Enterprise Intrusion Detection Systems (IDS) • Enterprise Security Vulnerability management systems • Enterprise Audit Log Repository • Enterprise Operating System (OS) Security Baseline Management • Application Security Baseline Management System.	

Content and Forms Design (Jenny Kim and Acting Branch Chief for Content, Language and Data Products Branch)

Goals	Scope	Constraints/Issues
Identify and finalize content and design of questionnaires and other non-questionnaire materials, ensure consistency across data collection modes and operations, and promote high response rates and accurate and consistent responses across modes.	Data Collection Instruments • Internet • Paper, including GQ • CQA • Mobile Device • GQ (electronic) Non-questionnaire Mailing Materials • Letters • Postcards • Brochures • Informational Inserts • Envelopes Materials for field operations	Constraints: • Use and availability of ECaSE systems. • Paper questionnaire size limits (16 pages) due to serialization requirements Notes: • Final determination not made on serialization of bilingual questionnaires. The decision will depend on the final question wording for 2018/2020. We will need results of the 2017 test on the tribal enrollment question to determine the questionnaire length and whether or not they will exceed the 16 page limit. • More questionnaire pages impacts mailing, storage and data capture

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
	• Notice of Visit • Information Sheet (privacy notice and residence rules)	
Language Services (Jenny Kim and Acting Branch Chief for Content, Language and Data Products Branch)		
Assess and support language needs of non-English speaking populations for all modes and other mailing and field materials, determine the number of languages and level of support required, optimize non-English content, and ensure cultural relevancy and meaningful translation of non-English materials.	Non-English Data Collection Instruments • Internet (Spanish, Chinese, Vietnamese, Korean, Russian, Arabic, Tagalog) • Paper(Spanish) • CQA (Spanish, Chinese, Vietnamese, Korean, Russian, Arabic, Tagalog) • Enumeration Device (Spanish) • GQ (electronic) (Spanish) Non-English Mailing Materials (Spanish) • Letters • Postcards • Brochures • Informational Inserts • Envelopes Non-English Materials for field operations (Spanish) • Notice of Visit • Information Sheet (privacy notice and residence rules	Constraints/Issues: • Lengthy translation process • Pre-testing of non-English materials • Availability of language capabilities in ECaSE systems and timelines for incorporating content in non-English languages for the Internet self response instrument (Spanish, Chinese, Vietnamese, Korean, Russian, Arabic, Tagalog) and the enumeration instrument (Spanish)
Infrastructure		
Decennial Service Center (Raphael Corrado and Brian De Vos)		
Support 2018 E2E Census Field Operations and handle all service requests initiated by field staff.	• Support field applications (e.g., ECaSE) • Meet Service Level Agreements (SLA) • Collect metrics for service response time, staffing, etc.	

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
Field Infrastructure (Bryn Johnson and Acting Branch Chief for Field Infrastructure Branch*)*		
Coordinate space acquisition for and lease management of the Regional Census Centers and field offices and provide the administrative infrastructure for data collection operations.	• Open RCCs 1/2/17 • Open Early ACOs 03/31/17 • Test automation of recruiting, hiring and onboarding.	Constraints: • Not testing RCC/ACO space.
Decennial Logistics Management (Bryn Johnson and Acting Branch Chief for Field Infrastructure Branch)		
Provide logistics management services to include procuring warehouse space, warehousing, inventory management, kit assembly, deployment of materials, and receiving and excessing materials.	• Inventory management • Kit assembly • Deployment of materials • Receiving and excessing materials	
IT Infrastructure (Pete Boudriault and Dan Lewis) (Raphael Corrado and Brian De Vos, for Field IT Infrastructure)		
Provide the information technology-related infrastructure support to the 2018 E2E, including: • Enterprise systems and applications. • Decennial specific systems, applications, and interfaces. • Field IT infrastructure (including remote offices, data center, and the paper data capture center) • Mobile Computing	• Deploy IT infrastructure in RCCs to meet the needs of the 2018 E2E -- RCC Opens 01/02/17 • Deploy IT infrastructure in Early ACOs to meet the needs of the 2018 E2E – ACOs open 03/31/17	
Gain experience moving to new IT infrastructure, including cloud computing and services	• Any systems targeted to be hosted in the cloud in 2020 will be hosted in the cloud for the 2018 E2E. • Implement fingerprinting-as-a-service and verify it meets all functional and non-functional requirements.	

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
Frame		
Geographic Programs (Evan Moffett and Ross Davis)		
• Provide the geographic foundation in support of the 2018 E2E data collection and tabulation activities, including delineation of boundaries in the MAF/TIGER System, • Delivery of address and spatial extracts from the MAF/TIGER System, updates to the MAF/TIGER System.	• Site selection • Maps • Geocoding activities • Type of Enumeration Area • Basic Collection Unit (BCU)	
Local Update of Census Addresses (Evan Moffett and Mark Scheu)		
Out of Scope		
Address Canvassing (Evan Moffett and Shawn Hanks)		
Deliver a complete and accurate address list and spatial database for enumeration and determine the type and address characteristics for each living quarter.	• Conduct In-Office Address Canvassing. (This operation went into production in September 2015.) • Conduct In-Field Address Canvassing only for the BCUs that In-Office Address Canvassing identified as needing field work. • Conduct the planned listing QC (In prior tests we conducted a re-listing rather than a QC.)	
Response Data		
Forms Printing and Distribution (Alexa Jones-Puthoff and Mark Wolfram)		

Print and distribute Internet invitations, reminder postcards, and questionnaire mailing packages to support the 2018 E2E mailing strategy and enumeration of the population.	• 2020 Print Contract Award
	• Print and distribute Self-Response materials:
	  o Letters for internet invitations
	  o Reminder postcards
	  o Questionnaire mailing packages
		Issue:
		• If paper questionnaire fulfillment becomes in-scope (see Change Request P-0219), NPC may be the solution for on-demand printing, Decision pending.

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
Paper Data Capture (Alexa Jones-Puthoff and Acting Branch Chief for NPC and Paper Processing)		

Capture and convert data from the 2018 E2E paper questionnaires.	• Check-in and data capture paper questionnaires including:
	    o Document preparation
	    o Scanning
	    o Using Optical Character Recognition
	    o Using Optical Mark Recognition
	    o Key from Image
	    o Editing
	    o Checkout
	 • One paper data capture center, located at NPC.
	 • Staffing (NPC plans to hire staff for 2018 E2E.)
	 • Equipment
	 • Space on the current NPC campus will be utilized for the 2018 E2E.(A decision regarding space for 2020 is expected by 10/1/2016. E. JARRELL)	

Integrated Partnerships and Communications (Tasha Boone and Terri Long)		
Evaluate opt-out text messaging as a communications platform.	• Evaluate text messaging as an advertising tool with the option to opt out. • Provide response link directly through text messaging.	
Expanded use of digital address-based targeting.	• Digitally target IP addresses of all potential respondents, not just Hard To Count (HTC) groups. • Deliver stage-tailored messaging about response directly to nonrespondents. • Use non-HTC specific targeting (e.g., tailored messages by county) • Leverage learnings from all previous digital advertising tests.	
Implement Customer Relationship Management (CRM) functionalities (including the Partnership Website)and integration of components with data collection process.	• Evaluate the effectiveness of CRM as a robust and cohesive platform to manage partner and customer interactions. • Evaluate integration and multi-way communication between all components of the CRM for better data collection. • Evaluate the effectiveness of CRM in integrating online customer support	

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
	services (e.g. chat, access to FAQ, click to call, online support history) with online data collection processes to provide respondents with access to real-time help. • Deploy partnership website. • Measure acceptance and usage level of website by partners. • Measure reasons for use of portal by partners (e.g., is the portal mostly accessed to request materials, submit questions, or receive information on upcoming events?).	
Integrate with CQA for the coordination of comprehensive 2020 Census FAQs for use by all operations that have a need.	Develop and update FAQs to use across multiple operations to include: • data integration • reporting • process for call transfers	
Implement fulfillment center operations.	• Evaluate integration and communication between the fulfillment center and all customer point of access/contact channels (including partnership portal, CQA Program). • Evaluate integration of the partnership portal and fulfillment center with the Customer Interaction Platform.	
Use the Customer Experience Management (CEM) system as the primary source for test monitoring and success measurement.	• Incorporate more response and operational data into CEM. • Determine/display the correct site response rate. • Develop additional dashboard to monitor test components. • Test direct connection to data sources instead of manual loads to remove human error, improve data latency, and allow for more flexibility in analysis. • Identify potential recommendations for adjustments to improve response rate.	
Integrate the internally-owned Data Management Platform (DMP) and Demand-Side Platform (DSP) systems in support of programmatic buying.	• Evaluate DMP as a centralized data analytics and data distribution system to support decision-making for marketing strategy. • Evaluate integration and communication between DMP and DSP systems. • Evaluate usage of first, second, and third party data on our ability to effectively target digital advertising to drive response rates.	

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
Utilize Low Response Score (LRS)	- Conduct partnership surges in hardest to count tracts. - Determine how best to provide data for Rapid Response Outreach for partners.	
Develop, collect, track and analyze IPC performance metrics	Identify appropriate performance metrics that will more effectively determine success for partnership and communication efforts.	
Internet Self-Response (Alexa Jones-Puthoff and Jason Reese)		
Collect response data via the Internet to reduce paper and Nonresponse Followup and maximize online response via contact strategies and improved access to respondents.	- Mail Strategy for UE: - Invitation letter with questionnaire - Reminder 1 - Reminder 2 - Mail Strategy all other: - Invitation letter, with a questionnaire for a sample - Reminder 1 - Reminder 2 - Questionnaire - Reminder – "It's not too Late" - Validate the 2020 contact strategy workload model	
Non-ID Processing (Evan Moffett and Frank McPhillips)		
Make it easy for people to respond anytime, anywhere to increase self-response rates by providing response options that do not require a unique Census ID.	- Collect/Accept responses without IDs - Conduct both automated and clerical Non-ID operations - Conduct Non-ID Response Validation - Conduct Office-Based Address Verification (OBAV) for eligible Non-ID cases - Generate workload for Field Verification operation (for cases not resolved in OBAV)	Issue: a Fraud Detection team is being stood up. Fraud Detection is to subsume Non-ID Response Validation, but will also apply to ID responses. Fraud Detection is expected to effect the scope of both Non-ID Processing and Response Processing operations. Details are TBD.

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
Update Enumerate (Evan Moffett, Shawn Hanks, and Julia Lopez)		
Update the address and feature data and enumerate housing units in certain designated geographic areas with special enumeration needs (e.g., areas that do not have city-style addresses and areas with unique challenges associated with accessibility).	• Conduct UE, with improved technical implementation (based on lessons learned from 2017 Census Test and 2017 Puerto Rico Census Test). • Evaluate staffing ratios for UE. • In-Field listing QC	Issue: • The plan is to leave a paper questionnaire rather than a notice of visit for American Indian reservations that request paper, but the only opportunity to test this in 2018 E2E is in the one site with a reservation (Pierce Co, WA). UE counts are so small at that test site that discussion has been had about absorbing UE into other TEAs.
Group Quarters (Evan Moffett and Dora Durante)		

Enumerate people living or staying in group quarters.
Provide an opportunity for people experiencing homelessness, and people receiving service at service-based locations to be included in the Census.
	• Use administrative records to build frame and conduct enumeration.
	• Use applications to list and enumerate, if a GQ is discovered in the field.
	• Advance Visit – In-Office and In-Field. We will ask if the GQ can send electronic records. If yes, the electronic Administrative Records universe will be updated.
	• GQ Enumeration
	  o Electronic Administrative records
	  o In-Field enumeration - Includes the use of paper questionnaire for two enumeration methodologies (drop off/ pick up ICRs and Facility Self-Enumeration)
	• Military GQs (land based installations) – Included in the Electronic Administrative records universe
	• Military Vessels – Use electronic Administrative records
	• Maritime Vessels – Paper Questionnaire and mailed package tracking
		Constraints:
		• Census staff may not be allowed on Military bases.
		
		Issues:
		• We do not have a solution to link people/respondents to Maritime Vessels. If Maritime Vessels are enumerated using paper, what are the assumptions about the form: size, number of pages, iCADE data capture, Key from Paper, distribution of questionnaires and related instructional materials?

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
Enumeration at Transitory Locations (Maryann Chapin and Acting Branch Chief for Nonresponse Operations Branch)		
Out of Scope		
Census Questionnaire Assistance (Sheila Proudfoot and Kevin Zajac)		
Provide questionnaire assistance for respondents by answering questions about specific items on the census form or other frequently asked questions, provide an option for callers to complete a census interview over the telephone, and support Census Outbound Operations to verify respondent information as a follow up activity.	- CQA contract award in July 2016 - Several CQA Centers nationwide that will be linked - Estimated Workload is 15% of the HUs will contact CQA - Inbound Assistance includes: telephone, Web chat, and email - First implementation of Web chat and email - Outbound Operations: expect Reinterview operations, i.e. NRFU, UE - Non-English language to be supported: Spanish, Chinese, Vietnamese, Korean, Russian, Arabic, Tagalog,	Constraint: - Workload will not be representative of the national 2020 Census. Issue: - Ongoing research may point to the addition of a new operation, Coverage Followup (also referred to as Quality Improvement) for 2020 Census, and possibly 2018 E2E. If added, CQA outbound call support would be needed.
Nonresponse Followup (Maryann Chapin and Acting Branch Chief for Nonresponse Operations Branch)		
Determine housing unit status for nonresponding addresses and enumerate housing units for which a census response was not received.	- NRFU: - Use Administrative records modeling to limit workload - Use reengineered operations control system to optimize case assignments and routing - NRFU Re-Interview QC: - Standard sample of cases - CQA for phone followup to minimize field work - Operations Control System – for field alerts in areas of potential concern. - Conduct Field Verification for Non-ID cases that we do not have a sufficient match, or falls out of Non-ID. - Conducted by field enumerators - Contact managers of multiunit buildings prior to enumeration to identify	

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
	vacant and non-household units to reduce number of enumerator visits. • Incorporate procedures and questionnaire enhancements for proxy visits. • Test the capability to stop field work, pause field work, or reassign field work for special situations (i.e., flooding). • Process apartment mix-ups • Add cases to the NRFU workload from other sources (i.e. late adds, LUCA appeals).	
Response Processing (Raphael Corrado and Charles Fowler)		
Exercise and test each component within the three phases of the Response Processing Operation	Pre Data Collection Phase – • Create initial enumeration universe. • Manage initial universe address updates from Address Canvassing, and other update operations to create initial enumeration universes. • Deliver sample delivery files and workload management files in support of enumeration operations. • Manage contact strategies in support of self-response operations. Data Collection Phase – • Collect and process self-response questionnaire responses. • Collect and process Update Enumerate questionnaire responses. • Support NRFU (administrative records modeling, remove cases from the workload if eligible, create NRFU workloads, provide Field Verification workloads, support NRFU re-interview). • Collect and process group quarters enumeration responses. Post Data Collection Phase – • Conduct response data processing including race and Hispanic origin coding, residence coding, creating a final response file, running the Primary Selection Algorithm, and performing count imputation. • Create the Census Unedited File (CUF) (Stateside); send for development of an Apportionment Count prototype by Data Products	

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
	and Dissemination. • Create the Census Edited File (CEF). • Create the Microdata File; send for data products prototype development by Data Products and Dissemination.	
Federally Affiliated American Count Overseas (Judy Belton and Acting Branch Chief for Military and Overseas Enumeration Branch)		
Out of Scope		
Publish Data		
Data Products and Dissemination (Jenny Kim and Jane Ingold)		
Detailed planning for this operation has not started. The narrative that follows represents the Census Bureau's preliminary thoughts as of the release of this document. ***Purpose*** Data Products and Dissemination operation performs three primary functions: • Prepare and deliver the 2020 Census apportionment data for the President of the United States to provide to Congress by December 31, 2020. • Tabulate 2020 Census data products for use by the states for redistricting. • Tabulate and disseminate 2020 Census data for use by the public.	• Tabulate and disseminate Census Redistricting Prototype File and release geographic products for use by the states for redistricting. We will use the selected test area(s) as the prototype for all states to review. We will also have Voting Districts put back into current geography, with GEO's help, prior to the test. • Disseminate 2018 E2E data for use by the public. • Include end-to-end system readiness in the test with replication of the 2010 apportionment counts as well as the receipt of the 2018 E2E CUF. • Create GEO shape files. It is often included in the Redistricting Data Operation since it is part of the progression of the phases. CRVRDO expects shapefiles and maps for the test area to be delivered with the prototype data tabulations. • Development of summary levels to support both the Redistricting prototype and the Decennial product which is an API or Widget. • Tabulation by ACS [a Decision made]. • DCMD and POP have developed a strategy to fulfill the end-to-end testing for apportionment by replicating interface hand-offs and replicating the 2010 calculation with 2018 E2E test and verification plans.	

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
Redistricting Data (James Whitehorne)		
The purpose of the Redistricting Data operation is to provide to each state the legally required P.L. 94-171 redistricting data tabulations by the mandated deadline of 1 year from Census Day: April 1, 2021.	The major components in the 2018 E2E include: • Testing the method of product dissemination through CEDSCI and obtaining feedback from stakeholders • Obtaining feedback from stakeholders on content of the data and support products included in P.L. 94-171 data and geographic products.	
Count Review (Maryann Chapin)		
Out of Scope		
Count Question Resolution (Evan Moffett)		
Out of Scope		
Archiving (Jacqueline Eanes and Jennifer Saindon)		
The purpose of the Archiving operation for the 2018 E2E Census Test is to provide files containing individual responses to the National Processing Center (NPC) to use as source materials to conduct the Age Search Service and to provide images and data for research and evaluations in CIRA through DMS.	• Archiving response data in DMS • Archiving paradata in DMS • Archiving for CIRA • Archiving for NARA is out-of-scope	
Other Censuses		
Island Areas (Jenny Kim and Will Caldwell)		
Out of Scope		

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
Test and Evaluation		
Coverage Measurement Design and Estimation (Maryann Chapin and Tim Kennel)		
• Develop the initial survey design for the post-enumeration survey (or CM survey) for the 2020 Census and test that all the planned 2020 CM operations implemented in the 2018 E2E are: working as expected, that they are all integrated internally, provide the appropriate data required for estimation purposes, and that they are coordinated with the appropriate census operations.	Survey Design	Overall Research Question: Does the proposed 2020 survey design allow us to: • Collect, match and process the data required to estimate net coverage and components of census coverage for persons and housing units? • Process and analyze all estimates before October 1, 2019? Constraint: • The milestone dates for disseminating coverage estimates is dependent on dates for producing the CUF and the CEF.
• Develop the initial sampling plan for the post-enumeration survey (or CM survey) for the 2020 Census and test that all the planned 2020 CM sampling operations implemented in the 2018 E2E are working as expected, that they are integrated with the data collection and matching activities, and that they access the appropriate census data. • This will be the starting plan to develop the software systems to design and select the initial sample and subsequent subsampling operations to support the 2020 CM survey operations and the estimation of coverage estimates in the 2020 Census for the U.S. and Puerto Rico, excluding remote Alaska and Group Quarters.	• Sampling timing and operational feasibility • Persons in housing units, and housing units are in-scope. • Persons in group quarters, and group quarters are out of scope.	Constraints: • Stratification and sample allocation will be limited by the small number of sites. • Stratification and allocation for the full coverage measurement sample in 2020 will include additional variables. Issues: • What are the operational challenges associated with using ACS and Planning Database data to stratify the CM sample?

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
• To test that all (or possibly a subset) of the planned 2020 CM estimation activities are working as expected, including accessing appropriate census data. • This will be the starting plan to develop the software systems to produce 2020 Census CM estimates of net coverage error and the components of census coverage for housing units and persons living in housing units for the U.S. and Puerto Rico, excluding Remote Alaska and Group Quarters.	• Estimation timing and operational feasibility. • Persons in housing units, and housing units are in-scope. • Persons in group quarters, and group quarters are out of scope.	Constraints: • Estimates of net and gross coverage will be limited to the 2018 E2E sites. Matching outside the sites for duplicates and geocoding errors will not be possible since the census enumerations will be limited to sites. Furthermore full models for estimation cannot accurately be tested, because the 2020 models will have a larger sample size, making it possible to build larger models that draw strength from more areas. • Because Demographic Analysis is out of scope for the 2018 End to End Census Test, parts of the estimation process that use Demographic Analysis will not be fully tested prior to the 2020 Census.

Coverage Measurement Matching (Maryann Chapin and Magda Ramos)

	CM Housing Unit Computer (Automated) Matching	
Design, develop and test CM Housing Unit Computer (automated) Matching for the 2018 E2E, as a prototype for the 2020 Census CM automation. • Move HU matching and follow-up operations closer to the listing operation. • Test matching to a sample of housing units which appeared on the initial census, but were dropped at some point during census processing. This may help with the match to non-ID cases from the 2020 Census. • Rely more on the automated matching systems than the clerical	CM Housing Unit Computer (Automated) Matching	1. What are the requirements for computer matching for the CM program? 2. Can we improve the matching software to be able to send fewer cases to clerical matching operations? 3. How do changes on schedule of operations and survey design affect the matching results?

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
matchers. • Automate the assignment of status codes and address information where possible. • Determine if administrative records can be used in CM matching operations.		
Design, develop and test CM Housing Unit Clerical Matching for the 2018 E2E, as a prototype for the 2020 Census CM automation. 1. Refine Clerical Matching System Approach; simplify the CM clerical matching tasks. 2. Rely more on the clerical matching system than the clerical matchers. 3. Automate the assignment of match codes and address information where possible. 4. Develop and implement appropriate training.	CM Housing Unit Clerical Matching	**CM plans to refine the approach used for clerical matching——** Plan to develop new approach that puts more of the matching rules logic in the system. The new system would require the users to answer several key questions about a particular scenario, and using that information, the system would assign the appropriate code and determine any appropriate follow-up actions. 1. What are the requirements for the CM clerical matching system? 2. What are the requirements for the map viewing system used by the clerical matchers to compare CM and census maps? 3. How do changes on schedule of operations and survey design affect the matching results?
Design, develop and test CM Person Computer (automated) Matching for the 2018 E2E, as a prototype for the 2020 Census CM automation.	CM Person Computer (Automated) Matching	1. What are the requirements for the CM computer matching systems?

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
1. Test matching to a sample of persons which appeared on the initial census, but were dropped at some point during census processing. This may help with the match to non-ID cases from the 2020 Census. 2. Rely more on the automated matching systems than the clerical matchers. 3. Automate the assignment of match codes and address information where possible. 4. Determine if administrative records can be used in CM matching operations.		2. How do changes on schedule of operations and survey design affect the match results? 3. How can we use alternative address information, if collected in the census? 4. Can we implement matching to the imputation resulting from the use of administrative records?
Design, develop and test CM Person Clerical Matching for the 2018 E2E, as a prototype for the 2020 Census CM automation. 1. Refine Clerical Matching System Approach; simplify the CCM clerical matching tasks. 2. Rely more on the clerical matching system than the clerical matchers. 3. Automate the assignment of status codes and address information where possible. 4. Develop and implement appropriate training.	CM Person Clerical Matching and Geocoding	**CM plans to refine the approach used for clerical matching:** Plan to develop new approach that puts more of the matching rules logic in the system. The new system would require the users to answer several key questions about a particular scenario, and using that information, the system would assign the appropriate code and perform any appropriate follow-up actions. 1. What are the requirements for the CM clerical matching system? 2. How do changes on schedule of operations and survey design affect the matching results?

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
Coverage Measurement Field Operations (Maryann Chapin and Magda Ramos)		
Design, develop and test CM Survey automation and implementation for the 2018 E2E, as a prototype for the 2020 Census CM automation.	CM Field Operations Overall	1. What instrument form factor do we need for the CM Program? Laptop, tablet or smartphone? Preference is to use laptops as was done in 2010. 2. What are the effects of Reengineered Field Operations on budget and schedule? 3. Can CM operations properly interact with the new and corporate data processing and field management software? 4. How to ensure independence between the coverage measurement survey and the census? 5. Can we process CM operations on a flow basis as census and CM operations finish by geography? 6. What is the best schedule for the different CM data collection activities? 7. Can SMaRCS be used appropriately to sample cases for CM QC of field operations? 8. Test QC for CM field operations. This will require automated quality control instruments. 9. Use the same (or as similar as possible) demographic questions in the 2020 CM person operations as those used in the 2020 Census. 10. Determine any changes to the coverage questions, given the 2020 Census

Operations -- Goals, Scope, Constraints and Issues

Goals	Scope	Constraints/Issues
		addition of similar questions in the census.
	CM Independent Listing (IL)	1. How to automate and ensure appropriate implementation using the ECaSE application for CM Independent Listing from scratch (not using the MAF), and ensure appropriate implementation? 2. Consider if we need to actually talk to respondents during IL to try to identify hidden units or whether we could do that during the CM Person Interview. 3. Determine how to handle units identified as Group Quarters.
	CM Person Interview (PI) – Personal Visit (PV) Although the PI operation was automated in 2010, refinements are required to content and functionality and instrument needs to be operational with new corporate tracking and control systems and potentially with new instrument development (authoring) language and/or new platform.	1. How to improve on 2010 PV CAPI instrument automation? 2. Test any new questions needed for CM given changes to census questionnaire, in particular, coverage questions? 3. How to automate and ensure appropriate implementation?
	CM Person Followup Interview	1. Test any new questions needed for CM given changes to census questionnaire, in particular, coverage questions? 2. How to automate and ensure appropriate implementation?
	CM Housing Unit Followup – implement one or two HU Followup operations, based on pre-2018 E2E test research. (Do we need one after listing and another after the census is completed?)	1. How to automate and ensure appropriate implementation using the ECaSE application for CM Initial or Final Housing Unit Followup, and ensure appropriate implementation?

Operations -- Goals, Scope, Constraints and Issues		
Goals	**Scope**	**Constraints/Issues**
Evaluations and Experiments (Maryann Chapin and Randall Neugebauer)		
Out of Scope		

Document History		
Version	**Date**	**Changes**
1.0	June 1, 2016	Baseline to support Project Baseline Review (PBR)
2.0	August 26, 2016	• Updated for change in test name to 2018 End-to-End Census Test. • Replaced older system names with to-be system names based on Pega platform decision. • Removed references to CARAT based on Decision Memo 2016.13.i. • Updated references to C-SHaRPS scope for consistency with final Request For Proposal. • Updated to make Archiving operation in scope. • Updated for consistency with current OII Vision document and with Business Process Models, and generally for currency and accuracy. • Removed risks, questions and notes temporarily placed in Constraint / Issues column.
2.1	October 4, 2016	• Update program managers and points of contact for operations to reflect recent staffing changes
2.2	October 14, 2016	• Update High-level Timeline. Now in sync with IMS rebaseline of September 29, 2016.