

## **Management Approaches, Techniques and Practices Applied in the Preparation, Direction and Conduct of the Census 2000 Field Operations**

Michael J. Weiler, Special Assistant to the Associate Director for Field Operations  
U. S. Census Bureau, Washington, DC 20233-5780<sup>1</sup>

### **I. Introduction**

This paper will focus on a perspective of the Census with its own complexities, challenges and very direct impact on the results. What we are able to accomplish in terms of quantity and quality of Census results and how we are able to achieve these results is directly related to how well we manage, maintain control, and generate consistent results in the field operations.

Rather than looking at the Census as rows of numbers cross-tabulated either by geography or characteristics, this paper will look at the Census from the perspective of a manager in one of the Census 2000 Regional Census Centers or 520 Local Census Centers.

This paper reviews and summarizes the following specific management approaches, techniques and practices utilized by managers working the Census Bureau's 12 Regional Census Centers and 520 Local Census Offices to prepare, direct and conduct the Census 2000 field operations.

- "Frontloading" – Our Census 2000 staffing strategy for large-scale field operations
- Growing the Organization and Infrastructure
- Daily Payroll and Cost and Progress Reporting System
- Providing Operational, Technical, and Administrative Support and Monitoring Results and Quality
- Downsizing the Organization and Infrastructure

An often-used, but very accurate analogy, which describes the scope and size of the Census 2000 field operations, is that they are largest peace-time mobilization undertaken by the Federal Government. With operational workloads that are frequently in the millions, staffing levels that are frequently in the hundreds of thousands, a national scope, high standards of quality required for the completed work, firm time schedules and deadlines, and finite budgets, managing the Census 2000 posed many unique

challenges requiring creative and innovative approaches, techniques, and practices.

The U. S. National headcount was an endeavor huge in size, scope and impact.

- Size – 28.1 million people were counted
- The Census must be complete and inclusive. Unprecedented efforts were made to count ever household and person –citizens and non-citizens – from simpler, user-friendly forms to better design of census operations.
- The results from Census 2000 are used to apportion seats in the U. S. House of Representatives among the states. Eight states gained a total of 12 seats in the House of Representatives, while ten states lost a total of 12 seats in the House of Representatives.
- The result of the Census area also used in the allocation of approximately \$185 billion in Federal funding each year.
- 520 Local Census Offices were established. Space was leased and these offices had to be furnished and equipped.
- 3.7 million applicants were recruited.
- 960,000 employees were hired.
- Nonresponse Followup was the largest single operation. Enumerators went door-to-door to the households who did not mail back a questionnaire. The workload for this operation was 42.4 million housing units and it required approximately 500,000 temporary workers. The operation was completed on schedule in 9 weeks.

The Census Bureau had to rely on the cooperation and participation of a mobile, diverse population with many demands on their time, geographically distributed across urban, suburban, and rural areas occupying a variety of housing units and living arrangements. In conducting Census 2000, challenges such as many languages being spoken, fear and mistrust of government, and concerns about the privacy and confidentiality of individual information.

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<sup>1</sup> This paper reports the results of research and analysis undertaken by Census Bureau staff. It has undergone a Census Bureau review more limited in scope than that given to official Census Bureau publications. This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress.

## II. Key Phases of Census 2000 Field Operations

Census 2000 Field Operations spanned from July 1998 through May 2001 and were divided into 6 key phases.

- Address List Development  
Address Listing was conducted in generally rural areas with non-city-style addresses and was designed to compile the Census 2000 address list for these areas. Address Listing was conducted from the end of July through December, 1998.

Block Canvassing was a dependent check of the completeness and accuracy of city style addresses. It was conducted from mid-January through late May, 1999.

- Opening Local Census Offices  
Local Census Offices were temporary Census Bureau offices established for Census 2000 data collection purposes. The Census Bureau opened 130 Local Census Offices in October, 1998. These 130 Local Census Offices represented 25% of the total of 520 Local Census Offices needed to conduct Census 2000 and were designated as Early-Opening Local Census Offices (ELCOs). These Early-Opening Local Census Offices were needed to:

1. Establish recruiting networks and sources to provide the levels of qualified applicants needed to staff the field data collection operations.
2. Conduct aggressive and innovative partnership and outreach campaigns in hard-to-count communities.
3. Test vital automation and telecommunications networks.

The 390 Local Census Offices which made up the balance of the 520 Local Census Offices needed to conduct Census 2000 were opened in 3 waves during the months of July, August, and September, 1999.

- Early Operations, Recruiting and Questionnaire Delivery

The Local Census Offices conducted early operations, completed their peak recruiting efforts and undertook questionnaire delivery between January and March, 2000.

- Field Data Collection  
From late March through late June, 2000, the Local Census Offices conducted the Census 2000 field data collection operations including:

- Service-Based Enumeration
- Transient Night Enumeration
- Group Quarters Enumeration
- Military Enumeration
- Nonresponse Followup

- “Quality Counts”  
In July and August 2000, the Local Census Offices conducted operations included in the “Quality Counts” Campaign. These operations were:

- Coverage Improvement Followup
- Targeted Quality Enhancement

- Accuracy and Coverage Evaluation  
The Accuracy and Coverage Evaluation was an extensive independent statistical operation to measure the overall and differential coverage of U. S. residents in Census 2000. The major field activities which comprised the Accuracy and Coverage Evaluation and the time period in which they were conducted are listed below:

- Listing - September through mid December, 1999

- Housing Unit Followup – Mid February through early April, 2000

- Person Interviewing – May through August, 2000

- Person Followup – October through November, 2000

- Final Housing Unit Followup – January Through May, 2000

## III. Critical Characteristics of Census 2000 Field Operations

The following characteristics define the Census 2000 field operations and result in the need for unique and innovative management approaches, techniques and practices:

- People-intensive
- Huge, fast-paced operations
- Tight time schedules and firm deadlines
- High standard of quality
- Simultaneous operations and critical transitions
- Building block process with large-scale dependencies and linkages between operations and phases
- Finite budgets

Based upon their characteristics, a very accurate summary of conducting Census 2000 field operations is that there is only one opportunity to do them all right. There are no second chances and no restarts.

## IV. “Frontloading”

In the mid-1990s as we reviewed our 1990 Census recruiting and staffing performance and looked forward to the Census 2000 staffing requirements and tight time schedule and strengthening economy, we had very serious concerns about our ability to staff

the Census 2000 field operations. We had to embark on a new strategy. “Frontloading” was the primary Census 2000 field operations staffing strategy.

“Frontloading” was defined as a strategy of overselecting and overtraining staff for large-scale field operations implemented in advance and designed to:

- Combat turnover
- Launch the operations off to a fast start
- Keep fully-staffed
- Keep on schedule

The goal of “frontloading” was to have twice the required number of “production” enumerators complete training and take a field assignment. In past Censuses our staffing strategy had been constant and static, but we realized for Census 2000 that we had to have a staffing strategy that was reflective of the dynamic and ever-changing nature of staffing large-scale field operations.

“Frontloading” was a strategy designed not only to combat turnover at the various points at which it occurred, but it also overcame the

- Leaning curve which resulted in lower staff productivity in the early days of an operation.
- Impact of “Part-time, Part-time staff. Staff that worked only a few hours a day a few days.

“Frontloading” increased the flow of completed work early in the operation and for Nonresponse Followup resulted in more cases being completed closer to Census Day.

The concept of “Frontloading was covered in management training. Census staffing and recruiting requirements are counterintuitive. It is a challenge to get new managers to understand and accept these requirements. Their tendency is to believe that the staffing requirements cannot possibly be that high and that turnover will be lower.

“Frontloading” was a key determinant of the recruiting goal established for each Local Census Office. “Frontloading” was also built into the Local Census Office Automated Staffing Authorization.

Being cautious, however, at least one series of replacement training sessions was also required for each large-scale field operation.

## V. Growing the Organization and Infrastructure

The sequential and building block nature of major Census operations including field operations and address list development required that the Census Bureau grow its physical infrastructure, its management team, and its recruiting, selection, administrative and other key support organizations and activities.

The following table demonstrates how the organization and infrastructure had to grow from the first major large-scale field operation, Address Listing, to the largest single Census 2000 operation Nonresponse Followup:

### Address Listing

Workload:	23.5 million
Staffing:	65,000
Timing:	3 Six-Week Waves
Offices:	402 CFOs
Coverage:	Rural areas
Function:	Listing addresses

### Nonresponse Followup

Workload:	42.4 million
Staffing:	Nearly 500,000
Timing:	Completed in 9 weeks
Offices:	520 LCOs
Coverage:	Nationwide
Function:	Enumerating housing units

Another way to view how we had to grow our infrastructure was in the four types of facilities that supported Census 2000 field operations.

Type of Facility	Number
Regional Census Centers (RCCs)	12
Accuracy and Coverage Evaluation Regional Offices (ACEROs)	13
Census Field Offices (CFOs)	
• Rural	402
• Urban	92
Local Census Offices (LCOs)	
• Early-Opening	130
• Balance of Local Census Offices	390

As we grew our organization and infrastructure, the early Census 2000 field operations, in particular, the Address Listing and Block Canvassing provided a valuable opportunity to also “grow” our managers and supervisors, especially those who were newly-hired. While each Regional Census Center had a nucleus of experienced Census managers and Regional Technicians, the staffing requirements for Census 2000 required many new managers, especially in the management positions in the Local

Census Offices. Through the Address Listing and Block Canvassing operations, Census managers at all levels of the organization gained first-hand experience including simultaneous operations and gathered useful insights about the data collection environment and specific challenges. Census managers had to address and effectively handle many of the “counterintuitive” characteristics of managing Census operations, especially in recruiting and staffing.

The early Census 2000 field operations provided important opportunities and experience in the following areas:

- Established foundations for pools of job applicants in every neighborhood, community, and area across the country.
- Decentralized field staff, clerical support staff and selected supervisors were recruited and hired.
- Initial application of frontloading and implementation of locally competitive pay rates.
- Initial Nationwide utilization of automated daily payroll and personnel systems.
- Provided promotion opportunities allowed for distribution of experienced staff, especially managers, as the organization and infrastructure continued to grow.

Lessons learned in conducting earlier, typically smaller operations can be applied to later, usually larger operations. Directing earlier smaller operations provides managers and supervisors, especially those who are new with invaluable hands-on experiences, as well as opportunities for advancement as the organization grows and expands. Early operations provide opportunities to establish critical contacts and networks including recruiting sources and always critical sites for training and testing.

## **VI. Daily Payroll and Cost and Progress Reporting System**

The very successful 1990 system of daily payroll and cost and progress reporting system was designed into and implemented in all Census 2000 field operations from the very start of planning and operation. The daily payroll and cost and progress reporting system was based upon the fundamental practices of daily meetings between crew leaders – the first-line field supervisors – and each member of their crew of enumerators or listers. Each enumerator or lister would bring their completed work from the previous day – completed questionnaires or completed work in an Address Register – along with the payroll form for

that day. The crew leader would review the completed work, collect acceptable questionnaires or completed Address Registers from an Address List development operation, review and certify the payroll form indicating that it reasonably supported the amount of work completed, and answer any questions or provide any assistance that the enumerator or lister needed. For the major Census 2000 field operations, the assignments for the enumerators/listers were sized to provide them with a week’s worth of work.

The daily payroll and cost and progress reporting system was designed and implemented to meet 3 critical sets of goals and requirements of the Census 2000 field operations:

- Operational Requirements  
Schedules, production and productivity, quality, and budgets.
- Managers’ Requirements for detailed and timely progress/performance/cost measures
- Prompt payment of employees for completed work and provide them with support/assistance they need to complete their work.

### **Operational Requirements**

Each Census 2000 field operation had a tight schedule for completion, established standards for enumerator/lister production and productivity, expected standards of quality for completed work, and finite budgets.

Through daily meetings of crewleaders and each enumerator/lister where completed work was picked up, the daily payroll and cost and progress system provided for a definitive and tangible measure of the amount of work completed, both on a daily and cumulative basis. The daily payroll form used enumerators/listers to report their hours worked and other official reimbursable expenses such as mileage, telephone calls, parking, etc. was designed to provide for cost details on the operation on which the enumerator/lister was working, whether the hours were production or training hours, and for the crew leader to enter the amount of completed work associated with that payroll. By linking the systems through which completed work as checked-in and the payroll system, it was possible to quickly and closely monitor whether the daily and cumulative amount of work was sufficient to keep the operation on schedule, whether the actual staff productivity met, exceeded, or was lower than the established production standard, how actual costs compared to the operation’s budget. Daily meetings and review of completed work helped insure that standards of incoming quality were being met as well as

indicating where it was necessary to take corrective action.

Collecting completed work on a daily basis from the field staff permitted this work to be sent on to the data capture where it could be sent through the required data capture and processing on a flow basis as the field operation progress which further promoted the ability to meet tight overall Census operational schedules.

A staffing innovation introduced in Census 2000 was the Crew Leader Assistant position. For most of the large-scale field operations, each crew leader was authorized one or two assistants. While these assistants did not have supervisory responsibilities nor the authority to certify payrolls, they were able to review completed work, provide technical assistance to enumerators, and assist in shuttling completed work to the Local Census Office. Providing crew leaders with this assistance to review completed work and provide technical assistance, improved the quality of the completed work. Having crew leader assistants shuttle completed work to the Local Census Office had a positive impact on the overall workflow and kept both progress and performance reports and payroll processing operations timely.

#### Detailed Timely Progress / Performance Measures

The daily payroll and cost and progress system provided managers both at the Local Census Office and the Regional Census Center with detailed and timely measures of progress and staff performance for each field operations. Using information from the daily check-in of completed work gather from each enumerator/lister with information on hours worked and other reimbursable expenses claimed by each enumerator/lister on his/her daily payroll form, it was possible to generate daily aggregated progress reports for each Local Census Office based upon assignment areas and summarized by the working crews. A separate series of reports provided managers with key performance measures for the staff working on each operation. For both the progress and performance series of reports, it was possible for the managers to drill down through various levels of geography and staffing levels as necessary to identify the specific areas or staff were either progress or performance was deficient and corrective action was necessary.

Using information received from field supervisors it was possible to monitor staffing levels and determine where staffing resources needed to be injected either to combat turnover or boost the completion of work in an area. Having the capability of pinpointing the

exact area or staff where deficiencies were found and the exact progress or performance measure which was below pay enabled the managers to take the most effective corrective action or combination of actions which would promptly get an operation back on track or improve the performance of a staff or an individual.

Through a series of Performance Trouble Reports helped evaluate individual performance during Nonresponse Followup by pinpointing particular performance problems. The types of performance problems the Trouble Reports tracked included:

- Low cases per hour
- Low hours
- High miles
- High other costs

The D-908 Administrative Reinterview Trouble Report tracked problems with an Enumerator's work in the following areas:

- High numbers of vacants
- High numbers of deletes
- High numbers of partial interviews (*PIs*)
- Average population per return of an occupied household
- High percent of housing units with a population of one

#### Prompt Payment of Employees

The daily payroll forms submitted by enumerators/listers were aggregated each week and the enumerators/listers received weekly paychecks for both hours they had worked and reimbursement for their official business out-of-pocket expenses such as mileage, parking tolls, and telephone calls. Promptly paying employees on a weekly basis for the completed work and quickly reimbursing them for official business out-of-pocket expenses had a positive impact upon their continued work and retention.

## **VII. Operational, Technical, and Administrative Support and Monitoring Results and Quality**

The Regional Census Centers were the operational hubs for Census 2000. They provided support for Census 2000 field operations through the various levels of the organization and types of facilities. The Regional Census Centers:

- Prepared managers and field supervisors for new phases, operations and activities.
- Communicated changes and updates.

- Responded to questions and addressed unique circumstances.
- Assisted in maintaining control over simultaneous operations and activities.
- Ensured timely and orderly completion of operations and smooth transitions.

The results and quality of each Census 2000 field operation were monitored to ensure that each operation was:

- On schedule with adequate daily and cumulative progress.
- Within budget with major costs within an expected range.
- Fully staffed.
- Meeting production and productivity standards.
- Being completed with all procedures being correctly and fully implemented.
- Meeting established quality standards with quality assurance and quality control procedures and activities being correctly and fully implemented.

In addition to reviewing these individual measures, the relationship between key progress, performance, cost, and quality measures were also reviewed and monitored. Critical progress and performance milestones and production standards had been established in advance for each of the major large-scale Census 2000 field operations in advance and were well-communicated to all levels of the organization, including and especially the field supervisors and staff. Whenever necessary, prompt and precise corrective actions were taken.

As we debriefed our Regional and Local Census Office management staffs on best practices and lessons learned that attributed to the successful management of the Census 2000 field operations, they consistently pointed to constant communications both up and down the organizations as the key. They cited the frequent use of conference calls, memos and written reminders as some of the most effective and efficient methods that they had used to communicate.

In order to prepare for each major field operation, Just-In-Time training which focused on details and the specifics of the upcoming major operation was administered by the Regional Census Center to key management and operations staff in the Local Census Offices.

As in past Censuses, technical and operational support and the monitoring of results and quality was the primary responsibility of the on-site Regional

technicians. Each Regional Technician was assigned several Local Census Offices and made regular visits to each on a weekly basis – often they were able to visit each Local Census Office more than once each week. Working from an established checklist, the Regional Technicians closely monitored each operation to ensure that all procedures were followed and that quality control and quality assurance activities were fully completed. While most Regional Technicians were operations specialists, the Regional Census Centers also utilized a small number of Regional Technicians whose focus was on the administrative operations and the payroll and personnel operations in particular. This specialization of the Regional Technicians enabled to quickly provide focused on-site administrative support to the Local Census Offices which required it.

### **VIII. Downsizing the Organization and Infrastructure**

Downsizing the organization and infrastructure at the end of field operations was often more challenging than the build-up. Despite many references to the temporary nature of Census jobs and other signals like temporary offices with cardboard furniture and folding chairs, people often express surprise when told their job was ending.

Perhaps the most unique characteristic of the Census Enumerator job was that to be successful, Census Enumerators must work diligently, efficiently, meet a schedule, produce a quality product – and work themselves out of a job.

At the end of an operation or at the completion of the Census 2000 field operations, a crucial balance had to be maintained. In order to meet operational schedules, cases had to be completed and sent to processing, while to contain costs, staff had to be reduced and offices closed. At the same time, operational focus had to be maintained. Staff could not be allowed to rush to the completion of the operation, or drag out work. Procedures had to be followed fully. Corners could not be cut. Quality standards had to be maintained. Staff reductions were based upon objective performance criteria. For Nonresponse Followup, a specialized report which focused on key indicators of the quality of completed work was used to monitor each Local Census Office.

A 45-day closeout schedule with many interim milestones was used to ensure an orderly and timely shutdown of the Local Census Offices after field operations had been completed.