

Census 2000 Topic Report No. 5

*Census 2000 Testing, Experimentation,
and Evaluation Program*

Issued February 2004

TR-5

Special Place/Group Quarters Enumeration

U S C E N S U S B U R E A U

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Foreword

The Census 2000 Testing, Experimentation, and Evaluation Program provides measures of effectiveness for the Census 2000 design, operations, systems, and processes and provides information on the value of new or different methodologies. By providing measures of how well Census 2000 was conducted, this program fully supports the Census Bureau's strategy to integrate the 2010 planning process with ongoing Master Address File/TIGER enhancements and the American Community Survey. The purpose of the report that follows is to integrate findings and provide context and background for interpretation of related Census 2000 evaluations, experiments, and other assessments to make recommendations for planning the 2010 Census. Census 2000 Testing, Experimentation, and Evaluation reports are available on the Census Bureau's Internet site at: www.census.gov/pred/www/.

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1. Background

1.1 Scope of the topic report

The Special Place/Group Quarters (SP/GQ) Topic Report provides a synthesis of the Census 2000 results, lessons learned, and recommendations available on the development of the SP/GQ inventory, the enumeration of group quarters, and data processing operations that were unique to the group quarters records. Specifically, the report answers questions on how effective procedures were for developing the inventory of special places, how many people were enumerated in different types of special places, how well procedures worked, and how procedures might be improved.

The report also provides a historical perspective on SP/GQ enumeration from the 1990 Census and the tests leading up to Census 2000. Some operational background from Census 2000 is also provided. Most of the report is organized around three components of the SP/GQ operations: inventory development, enumeration, and data capture and processing. The discussion of data capture and processing is mostly limited to duplication of people in group quarters.

There are additional topic reports that address subjects that have some overlap with the information contained in the SP/GQ Topic Report:

- The Address List Development Topic Report provides information on operations used to develop the Master Address File

(MAF). Operations used to include group quarters addresses on the MAF are discussed in the SP/GQ topic report.

- The Coverage Improvement Topic Report provides information on the coverage gains from the service-based enumeration operations.
- The Coverage Measurement Topic Report provides similar information to the SP/GQ topic report on the evaluation of group quarters persons duplicated in housing units.
- The Data Collection Topic Report provides information on enumeration of housing units.
- The Data Processing Topic Report provides information on GQ processing, including issues with tracking GQ questionnaires and processing GQ responses with Usual Home Elsewhere (UHE) addresses.

1.2 Introduction

The vast majority of United States residents live in housing units (HUs). However, several million people in the United States live in group situations, collectively known as group quarters (GQs). While, overall, the decennial census was an HU based enumeration, unique operations were required to compile the list of special places and GQs and unique enumeration activities were required to include residents of GQs in Census 2000. Within SP/GQ enumeration, there were also unique operations to identify locations and to include

persons without conventional housing for the service-based enumeration (SBE).

Basic definitions of terms used in the report:

Housing Unit (HU): An HU can be a house, an apartment, a mobile home or trailer, a group of rooms, or a single room that is occupied as a separate living quarters, or, if vacant, is intended for occupancy as a separate living quarters.

Group Quarters (GQ): The Census Bureau defines GQs as places where people live or stay other than the usual house, apartment, or mobile home. Examples of GQs include college and university dormitories, hospital/prison wards, and nursing homes. For purposes of evaluation, the GQ types were classified into eight broad categories: Correctional Facilities, Juvenile Institutions, Nursing Homes, Hospitals, Colleges and Universities, Military Installations, SBE Facilities and Other GQs, and Group Homes.

Special Place: A special place is an administrative entity containing one or more group quarters where people live or stay, such as a college or university, nursing home, hospital, correctional facility, or military installation or ship. A special place can include one or more GQs. There can also be HUs at the special place, for example a college president's home on a college campus.

1.3 Historical background

Since the Census 2000 operational plan for GQ enumeration called for mostly using the same basic 1990 Census operations with some modifications, most of the testing involving GQs during the decade leading up to Census 2000 concentrated on revising the approach to enumerating people without conventional housing. The following describes the tests involving SBE enumeration. The major differences between the 1990 Census and Census 2000 SP/GQ inventory development and enumeration methods are noted in Section 1.4.

In the 1990 Census, Shelter and Street Night (S-Night) was an operation designed to count persons living in public and private shelters, pre-identified places of commerce (e.g., bus and train stations), and pre-identified street locations where people were visible on the streets during the early morning hours. Advocates for the people experiencing homelessness and some internal Census Bureau studies pointed out that the procedures used in S-Night still resulted in an undercount of the population the method was supposed to capture, since many of those people would not have been “visible” to the enumerators and would have had no opportunity to be counted. This led to research into other ways to enumerate people experiencing homelessness.

Beginning in late 1989, the Census Bureau began researching ways to improve coverage of this population in the census by:

- conducting a small scale pilot-study of a day time service-based enumeration operation,
- evaluating the 1990 Census S-Night operations to identify

areas where procedures could be improved,

- funding a study to learn about local area methods,
- funding a contract to research the issue of sampling this population group, and
- conducting meetings with knowledgeable researchers, representatives from national and state homeless coalitions, Federal agencies, and data users.

Based upon the research, the Census Bureau decided to test the feasibility of a service-based enumeration operation in the census.

In early 1994, Westat issued a report (Kalton et al, 1994) resulting from their work to assist the Census Bureau in developing procedures to be used in Census 2000 for counting persons with no usual residence. The report offered a number of suggested methods, including using service providers as enumeration sources and repeated enumerations at service providers over a period of time. They suggested that the 1995 Census Test be designed to collect information that could resolve many of the unanswered questions so that a decision could be reached on the broad general approach to be used in Census 2000. Specific recommendations were:

- Conduct a complete enumeration of all shelters.
- Include soup kitchens, and possibly other homeless outreach programs, as the most promising other sources for enumerating persons without conventional housing in the 1995 Census Test.
- Examine the use of repeated enumerations across time in the 1995 Census Test and consider

embedding an experiment to examine the effectiveness of different time periods and different timing for the re-enumerations.

- Further examine the use of capture-recapture methods for estimating the size of the population without conventional housing and assess the quality of the data collected.
- Conduct a street enumeration on a sample basis in the 1995 Census Test to determine the coverage rate achieved for persons without conventional housing.

The 1995 Census Test included the first attempt at a fundamentally different approach to providing opportunities for enumerating persons without conventional housing. These persons were enumerated at service locations such as shelters, soup kitchens, and hotels/motels. Using the SBE methodology was expected to improve coverage in the test areas. The 1995 Census Test methodology included one followup visit to shelters and soup kitchens to interview a sample of the clients and determine whether the data collected during the followup visits would be sufficient to make reliable statistical inferences about coverage.

Results from the 1995 Census Test of the SBE methodology (Martin, 1995) showed that:

- Enumerating clients at service locations should prove an effective means of including an at-risk population in the census count.
- Operational procedures and questionnaires need to be simplified.
- It may be beneficial to adapt the procedures so that a common

set of procedures could be implemented in shelters and soup kitchens.

- Multiple enumeration attempts resulted in unacceptable levels of respondent confusion.

Other Census Bureau research and testing leading up to implementation of the SBE in Census 2000 included:

- 1993 - Griffin (1993) documented preliminary research on sampling and estimation of the population experiencing homelessness. The two parts of this research included 1) estimation in conjunction with sampling and unduplicating (i.e., matching) persons enumerated more than once and 2) estimates of the total population not requiring matching.
- 1993 - The Census Bureau began a project to gather information on how communities were conducting their own counts of people experiencing homelessness. An aim of the project was to assess whether innovative local methods could be adapted for later census operations.
- 1994 - Cognitive testing to evaluate two forms specially prepared for the SBE initial and followup enumerations centered on respondents' comprehension of the usual residence question, general readability of a self-administered form to the target population, the ability of respondents to recall where they had stayed over a period of time, and the possible sensitivity of the questions.
- 1996 - A small scale test in New York City was conducted to simplify procedures and the questionnaire, to make them applicable to mobile food van sites as

well as soup kitchens, and to correct certain procedural problems in the 1995 Census Test.

- 1998 - Census 2000 Dress Rehearsal - In addition to shelters, soup kitchens, and regularly scheduled mobile food vans, targeted non-sheltered outdoor locations were enumerated as part of the SBE for the first time in the dress rehearsal. Be Counted forms were distributed at targeted locations in the dress rehearsal. People enumerated on Be Counted forms who indicated they had no address and marked the "No Address on April 18, 1998" box were included in the SBE universe. Also, respondents who gave a shelter as their usual residence on the Be Counted form became part of the SBE universe. Procedures for unduplicating people in the SBE universe were also developed and tested in the dress rehearsal.

In addition to the above research and testing, there was ongoing work throughout the decade to develop and improve operational procedures, questionnaires, and multiplicity estimation for the SBE. Concurrent with the internal research, testing, and development, the Census Bureau sponsored the following conferences and meetings with outside stakeholders:

- 1993 - Research conference entitled "Towards Census 2000: Research Issues for Improving Coverage of the Homeless Population"
- 1994 - Expert Panel Meeting to discuss the 1995 Census Test Service-Based Enumeration Operation
- 1994 - Informational Meeting about the "Service-Based

Enumeration Operation" planned for the 1995 Census Test

- 1998 - Expert Panel Meeting to discuss the inclusion of "Targeted Non-sheltered Outdoor Locations" in the Census 2000 Service-Based Enumeration Program

Concurrent with the development of the SBE for Census 2000, the Census Bureau worked with 12 sponsoring federal agencies¹ under the auspices of the Interagency Council on the Homeless to develop the 1996 National Survey of Homeless Assistance Providers and Clients. The Census Bureau designed and collected data for the 1996 survey, which furnished information about the providers of homeless assistance and the characteristics of the homeless population who use services, based on a statistical sample of 76 metropolitan and nonmetropolitan areas.

The 1996 survey was the first national study that produced information on the characteristics of people participating in homeless assistance programs since a 1987 study conducted by the Urban Institute. While using a similar methodology to the 1987 study, the 1996 survey was based on a larger sample, collected more comprehensive information, and included nonmetropolitan areas. It also included a wider variety of locations in order to reflect more accurately and fully the characteristics of homeless people who use services nationwide. The 76 geographic areas that were included in the national sample in 1996 were comprised of the 28 largest

¹ The 12 federal agency sponsors were the Departments of Housing and Urban Development, Health and Human Services, Veterans Affairs, Agriculture, Commerce, Education, Energy, Justice, Labor, and Transportation, as well as the Social Security Administration and the Federal Emergency Management Agency.

metropolitan areas, 24 randomly selected medium and small metropolitan areas, and another 24 randomly selected nonmetropolitan areas (small cities and rural areas).

1.4 Special place/group quarters operational background

Most of the information in this section was obtained from Jonas (2003). Information was also obtained from Gloster (2000), Halterman (2000), Schoch (2001), and Stackhouse (2000).

SP/GQ inventory development

Through 1998, the Census Bureau did extensive development to identify prospective special places, beginning with the cleanup of the 1990 base file. The resulting inventory formed the basis of the file known as the SP/GQ Master File. Additional special places from other pre-Census operations were added to the SP/GQ Master File.

The SP/GQ Master File was the main repository of what was known about each special place and each GQ. Additional files were developed from it to support updating operations involving GQs. Updates were sent to the Geography Division (GEO) to update the MAF and assign MAF Identification Numbers (MAFIDs). The SP/GQ Master File, updated with the addition of the MAFIDs, became the basis for later Census operations and enumeration.

For the 1990 Census, the local field office staff updated, added, and deleted special places from the Special Place Master Listing based on results from the Special Place Prelist operation. The operation produced too many changes to be processed in time for enumeration activities. From that experience and with improvements in technology, the Census Bureau planned

the Special Place Facility Questionnaire Operation to update and correct the SP/GQ Master File for Census 2000. The Census 2000 Special Place Facility Questionnaire operation was the means for gathering information about GQs and HUs in each special place. For the different types of special places, the interviewer asked the applicable questions to collect information to identify what GQs and HUs were at the special place, the hours of operation, the maximum number of clients or residents per GQ and the number expected in April 2000, the address of each GQ, and other information required for planning the enumeration.

For the 1990 Census, governmental units were invited to participate in Precensus Local Review only in mailout/mailback areas. They received census maps and housing unit counts by block (but not counts of special places or group quarters). The Census 2000 Special Place Local Update of Census Addresses (SP LUCA) operation allowed local and tribal governments to examine the Census Bureau's list of special places prior to GQ enumeration. They were asked to identify special places not on the list, to provide their physical location, mailing address, and other related information, and to assign special places to the Census 2000 collection blocks in which they were located.

Similar to the 1990 Census Local Knowledge Update operation, in the Census 2000 Local Knowledge Update operation, staff in each Local Census Office (LCO) reviewed the lists to identify missing or duplicate special places.

During the Special Place Advance Visit operation (a new operation for Census 2000), crew leaders vis-

ited special places on the address list to verify and correct information for the GQs and HUs at the special place, inform the contact person about the enumeration operations, assign missing geocodes, and leave recruiting materials.

Group quarters enumeration

GQ enumeration was conducted April 1, 2000 until May 6, 2000. GQ enumeration methods are distinct from HU enumeration methods. The household questionnaires that work well for people in an HU are inappropriate for enumerating larger groups of unrelated people in places such as college dormitories or nursing homes. The GQ questionnaires were person-based, rather than household-based, and they did not ask the relationship question or any housing questions.

There were four main types of GQ questionnaires: the Individual Census Report (ICR), the Individual Census Questionnaire (ICQ), the Military Census Report (MCR), and the Shipboard Census Report (SCR). The ICR was the form used to enumerate the vast majority of the GQ population. The ICQ (a new form for Census 2000) was used solely for enumeration at soup kitchens and regularly scheduled mobile food vans. The MCR was used solely to enumerate armed forces personnel. The SCR was used to enumerate both military and civilian shipboard residents.

During the enumeration at each GQ, enumerators obtained a list of residents, filled out a listing sheet, and distributed ICR packets to residents. In some instances where residents could not fill out the forms themselves, enumerators were allowed to use administrative records to augment the process. They also used enumerator

questionnaires to enumerate residents of HUs at the special place.

Certain GQs could request that they self-enumerate for the safety of the enumerator or for the benefit or confidentiality of the residents. The two most common types of self-enumerating GQs were hospitals and prisons.

Military enumeration operations counted military personnel assigned to stateside military installations on Census Day. Dependents of the military personnel living in family HUs on a military installation were enumerated by the same methodology used for HUs in the area around the installation.

The maritime/military vessels enumeration operations counted individuals assigned to ships based at American home ports (military vessels) and American flag ships (maritime vessels). In 1990, vessels in the 6th and 7th fleets were enumerated with the overseas population. In 2000, service members were allowed to list a UHE address. If the respondent didn't provide a UHE, they were counted at the home port of the vessel. Service members aboard vessels that were home ported overseas were counted as part of the overseas population.

The transient night (T-night) enumeration operation (conducted on March 31, 2000) enumerated people without a usual residence at locations such as campgrounds and parks, commercial or public fairs, carnivals, marinas, race-tracks, military hotels, and recreational vehicle (RV) parks. These are places where the residents tend to be highly transient.

SBE operations counted people without conventional housing who

could have been missed in the traditional enumeration of HUs and GQs. People were enumerated at shelters (March 27, 2000), soup kitchens (March 28, 2000), regularly scheduled mobile food vans (March 28, 2000), and targeted non-sheltered outdoor locations (March 29, 2000).

Other differences between 1990 Census and Census 2000 GQ enumeration include modifications to T-Night enumeration and targeting counties with high concentrations of migrant and seasonal farm workers at census time.

Data capture and processing

All GQ questionnaires were sent to the data capture center at the National Processing Center (NPC) in Jeffersonville, Indiana. After all the GQ questionnaires were data captured at the NPC and the captured data transmitted to Census Bureau headquarters, the SP/GQ Master File was updated.

The SBE enumeration involved a number of opportunities for persons to be counted multiple times. An unduplication process removed duplicate enumerations from the Census.

Respondents at certain types of GQs could declare a UHE.² That is, they could check a box to indicate that the GQ was not their usual residence and provide the address of their usual residence. If the Census was able to verify that an

² The types of GQs in which residents were not eligible to declare a UHE were prisons, juvenile institutions, hospital facilities, nursing homes, college dormitories, emergency shelters, and targeted non-sheltered outdoor locations. All others who filled out GQ questionnaires were eligible to declare a UHE, including armed forces personnel, those enumerated at soup kitchens and regularly scheduled mobile food vans, residents of group homes, worker dormitories, civilian ships, and religious GQs.

HU was at the given address, then the respondent was counted at that residence and not in the GQ.

Evaluations and assessments

There are three formal evaluations that were used in the preparation of this topic report, including one from the second Executive Steering Committee for Accuracy and Coverage Evaluation Policy (ESCAP II) series of reports.

The Census 2000 evaluations include:

- Evaluation E.5, Group Quarters Enumeration
- Evaluation E.6, Service-Based Enumeration

The ESCAP II report is:

- ESCAP II, Report Number 6, Census Person Duplication and the Corresponding Accuracy and Coverage Evaluation Enumeration Status

In addition, planning documents, operational assessments, and quality assurance profiles provided additional information. Refer to Section 7, References, for a complete list of the documents that were used in the preparation of this report.

Sections 2 and 3 discuss the methods used and the limitations, respectively. Section 4 summarizes the results, lessons learned, and recommendations contained in the reports mentioned above, specifically intended to answer research questions on inventory development, the number of people enumerated in GQs, operational issues, and recommendations for addressing those issues. Section 5 provides a synthesis of the major recurring themes contained in the reports mentioned above.

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2. Methods

The methodology of the programs involved in the source documents to this topic report varied greatly by whether the source was a statistical evaluation, an operational report, or a quality assurance profile.

2.1 Evaluations E.5 and E.6

The evaluations of the Group Quarters and Service-Based enumerations primarily provide descriptive statistics of the operations, using files that were already available from Census 2000 or data files that were specifically created for these evaluations. The files include:

- the SP/GQ Master File,
- the Hundred Percent Census Unedited File (HCUF),
- the Hundred Percent Census Edited File (HCEF),
- a data extract known as the Non-ID file which contained GQ person records that listed a UHE, and
- a data extract containing all SBE data captured records, as well as Be Counted form records for which the person indicated they did not have an address on April 1, 2000.

The Group Quarters evaluation also used a statistical sample of GQs designed to estimate the level of within GQ person duplication, not including military, correctional, and service-based facilities.

2.2 ESCAP II Report 6

The ESCAP II evaluation of Census Person Duplication used data from

another ESCAP II report on person duplication (Mule, 2001) to evaluate how the Accuracy and Coverage Evaluation (A.C.E.) coded E-Sample people (i.e., people enumerated in census HUs in the A.C.E. sample block clusters) duplicated to people outside the A.C.E. search area.

2.3 Decennial Management Division (DMD) operational assessments

The DMD operational assessments were the main vehicle for documenting Census 2000 information into a set of comprehensive, integrated reports. Participating divisions were asked to take an active role by preparing or supplying initial assessments of relevant aspects of particular operations or functional programs. The initial assessments made use of available sources (debriefing results, observation reports, formal and information reports from staff and contractors, memoranda, and the like) and resources within each participating division to assess the effectiveness of each operation or function as well as to identify lessons learned and recommendations for the next census. A team of representatives from DMD and the participating divisions subsequently organized and analyzed these initial assessments, along with other sources of information, to produce comprehensive assessments for the entire program. The development of the recommendations focused on the individual operations, without an attempt to assess the implications across the entire census process.

The DMD operational assessments used in this topic report include:

- SP/GQ Inventory Development
- SP/GQ Enumeration Operations
- 1998, 1999, and Special Place Local Update of Census Addresses and New Construction Programs

2.4 Decennial Statistical Studies Division (DSSD) quality assurance profiles

The DSSD Quality Assurance (QA) Profiles provide assessments of Census 2000 operations based on data collected from the QA programs instituted for those operations. Many of the QA programs involved relisting or reinterviewing procedures, usually conducted on a sample basis. The DSSD QA profiles used in this topic report include:

- Profile of the Military Group Quarters Address Listing Quality Assurance Operation
- Profile of the Census 2000 Group Quarters Reinterview Operation

2.5 Other source documents

Some other source documents were used as input to this topic report. They include the following operational planning documents: SP/GQ Inventory Development, Special Place LUCA, GQ Enumeration, Service-Based Enumeration, Military Installation Enumeration, and Questionnaire Assistance Center and Be Counted Program Master Plans.

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3. Limits

3.1 Topic report limits

The research questions mentioned in Section 1.1 are answered to the extent that information was available in the evaluation and assessment reports. Some questions could not be fully answered because of cancelled evaluations and/or reports not available at the time this report was written.

Most of the information on file development and enumeration activities is derived from operational assessments, rather than from empirical research. The assessments are useful for future planning in that they document lessons learned from Census 2000 and provide recommendations for operational planning and testing for the 2010 Census. However, although the assessments were intended to be comprehensive, many of the statements made in the reports do not include information that would help in understanding exactly what was learned or why a recommendation was presented.

3.2 Specific limits

The evaluation reports list the limits of the individual studies. They are briefly summarized here.

3.2.1 GQ enumeration

Individual GQ questionnaires contained a space where enumerators recorded the GQ identification number (ID) and the person number at the time of enumeration. This tracking information was not used to track the progress of individual forms from enumeration to data capture.

The limitations of the system designed to track special places and GQs from the beginning of the Special Place Facility Questionnaire process through tabulation reduced the ability to compare the same special place before and after the Special Place Facility Questionnaire Operation.

Furthermore, if special places and GQs were deleted and later re-added during enumeration, they received new ID numbers when they were re-added. As a result, comparing snapshots of the SP/GQ Master File at different times did not allow a record of a special place at different points in time to be identified as the same place, if the special place was deleted and re-added during enumeration.

3.2.2 SBE enumeration

A small percentage of the total GQ questionnaires were not data cap-

tured because the questionnaires could not be identified with a specific GQ as a result of blank, incomplete or erroneous GQ IDs. Some portion of these affected the SBE universe. Questionnaires not captured would affect the population counts for SBE locations but there is no information about the number or source of these missing questionnaires.

We accepted a UHE address from people enumerated at soup kitchens and regularly scheduled mobile food vans. The data available to the evaluation do not include information about UHE addresses reported by SBE respondents.

3.2.3 Census person duplication

The ESCAP II, Report Number 6 does not separately examine the issue of movers. It doesn't measure the amount of duplication due to people moving during the period of the enumeration.

3.3 General limits

In addition to the specific limitations, there were opportunities for field and processing operational deviations that could affect the data in the evaluation reports, the operational assessments, and the topic report.

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4. Major Findings

4.1 Special place/group quarters inventory development

Most of the information in this section came from Schoch (2003a) and Johanson and Oliver (2003).

Schoch (2003a) reported three major areas of success in the overall Census 2000 SP/GQ inventory development process:

- Census 2000 was the first census in which the SP/GQ Master File represented the creation and maintenance of a link between the special place and its associated GQs and the establishment of a centralized repository for the complete decennial inventory of GQs.
- The Special Place Facility Questionnaire provided a structured and consistent approach to obtain information about the GQs.
- The Special Place Advance Visit afforded a “last minute” opportunity to visit the facility and verify, update, and correct information prior to enumeration.

Aside from these major areas of success, there were some aspects of the development process where there were noteworthy lessons learned and recommendations. These areas were:

- Definitions and Classifications
- Duplication
- Geocoding

Issues and recommendations concerning definitions are discussed in

Sections 4.1, 4.2 and 5.1. Duplication issues and recommendations are discussed in Sections 4.3 and 5.6. Geocoding issues are discussed below.

4.1.1 Initial file development

The creation of the Census 2000 SP/GQ Master File began with the cleanup of the 1990 file. This included the creation of the linkage between the special place and its associated GQs. In order to update the 1990 file, most of the same sources used for the 1990 operation were contacted for each type of special place. Multiple sources were contacted for some special place types that contributed to duplication of facilities within the file. Due to a poor response from some of the initial sources, there were deficiencies in certain categories (particularly the migrant worker camp and group home inventories).

4.1.2 Special place facility questionnaire

The Special Place Facility Questionnaire was designed to provide a systematic method to verify and update information about known special place facilities and all associated GQs and HUs. The initial Special Place Facility Questionnaire information was collected through a Computer Assisted Telephone Interview (CATI) and the followup information was collected through field personal visit.

Although the Special Place Facility Questionnaire allowed for a more structured and consistent approach

for obtaining, correcting, and verifying information about special places and their associated GQs, the overall design of the Special Place Facility Questionnaire was complex, confusing, and not user-friendly. The amount of information initially collected was too detailed and lengthy for a telephone interview. This was especially true for large facilities containing multiple GQs. Also, trying to obtain geocoding information by telephone was very difficult.

A major component of the training and procedures was the geocoding of the physical location of the special place and its associated GQs and HUs. Although a detailed section on geocoding procedures was written and presented in the training sessions, the sizable number of problems suggests this process was not effective. The failure to consistently and correctly assign geocodes created problems from the time of enumeration and resulted in the geographic misallocation of GQs in data tabulations.

4.1.3 Special place LUCA, local knowledge update, and special place advance visit

There were three pre-enumeration operations to enhance and refine the SP/GQ inventory prior to enumeration.

- Special Place LUCA was an opportunity for participating governmental units to review the existing special place inventory list and provide feedback to the LCOs for additions, deletions, and corrections.

- Local Knowledge Update was an operation where the special place staff at the LCO reviewed the SP/GQ inventory list for completeness and accuracy using their local knowledge of the special place facilities and locations in their area.
- Special Place Advance Visit required the special place LCO staff to visit each special place on the final inventory list to verify, update, and correct all information about the special place and the associated GQs and HUs.

The Special Place Advance Visit was successful both in terms of timing (right before GQ Enumeration) and information verification.

Although the overall LUCA program was successful in fostering positive partnerships, exceeding local and tribal government participation, and contributing new addresses, deleting addresses, and making address corrections, one of the lessons learned was that special place addresses should have been included with housing unit addresses in LUCA.

Although these three operations were designed as distinct operations, time constraints of the pre-enumeration schedule forced them to overlap, reducing the impact and overall effectiveness of each individually.

4.1.4 Military group quarters address list development

As reported in Johanson and Oliver (2003), the Census Bureau conducted an operation called Military GQ Address Listing in 1999 to verify and update the database of GQs on military installations. For enumeration purposes, Military GQs included barracks, unaccompanied officer quarters, disciplinary bar-

racks, and military hospitals. (Military hotels and campgrounds were included in T-Night operations.) To ensure the quality of the address information, a QA program was instituted. Due to the relatively small workload and because the military installations are geographically scattered, address listers performed QA on their own work. They selected a sample of the GQs on the installation and for each selected GQ, they verified the address information and geocoding. They also performed a coverage check by inquiring about the function of the buildings to the immediate left and right of each sampled GQ.

There were 669 military installations for which QA data were received. Of these, 659 (98.5 percent) had no critical errors (i.e., no transcription, map spot, or geocode errors). In the ten military installations with errors, there were 57 errors: 15 transcription errors, 24 geocoding errors, and 18 map spot errors. The 57 errors came from four out of the 222 listers (1.8 percent of the listers).

4.1.5 Recommendations

The following recommendations were made by Johanson and Oliver (2003), Medina (2003), and Schoch (2003a and 2003b):

Reevaluate the role of the Special Place Facility Questionnaire.

Develop and design a streamlined user-friendly questionnaire, which incorporates terminology and classifications consistent with the current industry. Limit the amount of information collected through telephone contact.

Make use of Global Positioning System or other current technology to satisfy geocoding requirements.

Extend the Special Place Advance Visit operation to include a tele-

phone followup to the facility closer to the time of enumeration. The followup should include scheduling the enumeration appointment and final verification of the contact persons and expected populations of all the associated GQs.

Reevaluate the Local Knowledge Update and SP LUCA operations by looking at alternative points in the process to implement. Integrate the SP LUCA with the other LUCA operations.

Reevaluate and design a method to integrate the SP/GQ inventory development into the overall MAF development process.

Use more controls to track the SP/GQ inventory development QA operation and obtain more information to be able to determine the cause of errors.

Maintain the military installation lists between censuses by monitoring the status of closings, downsizing, etc.

4.2 Enumeration

Schoch (2003b) reported three areas of success in the overall Census 2000 SP/GQ enumeration:

- Service-Based Enumeration was an improvement over previous decennial operations to include people without conventional housing.
- Group Quarters Reinterview provided quality control and was a positive addition to the SP/GQ enumeration operations.
- Military Enumeration planning was supported by a cooperative effort between the military and the Census Bureau and provided a foundation for a smooth, timely operation. The Military Vessel Enumeration also highlighted the importance of accessible

liaisons from the Navy and Coast Guard.

Schoch (2003b) also reported some challenges:

- T-Night Enumeration raised questions if this operation really belongs under SP/GQ operations or should be covered by HU enumeration. Although the enumeration was part of the SP/GQ enumeration operations, the sites/slips/units with persons with no usual home elsewhere were enumerated as HUs rather than GQs.
- GQ Enumeration identified new issues for future consideration, including privacy/confidentiality issues³, gaining cooperation from managers at the appropriate levels of large special places, and properly linking

³ In Census 2000, some administrators of group quarters cited both Federal and state laws that prevented them from allowing census takers access to records or entry onto the premises to interview inhabitants. Issues were raised with regard to educational and medical records, nursing homes, and drug and alcohol abuse facilities. Census enumerators eventually got into every facility, but there is a need to know what Federal and/or state laws exist so that the Census Bureau can proactively develop measures to overcome this problem for the 2010 Census.

After Census 2000, the Census Bureau funded a contract with Privacy Journal to 1) research and identify Federal and state laws that could be interpreted to prevent access by census enumerators to the physical facilities of group quarters or to the records on inhabitants of the group quarters, 2) describe each such law, 3) consult with Census Bureau specialists to resolve any questions, 4) organize descriptions of laws by type, and 5) prepare interim and final reports.

The resulting report distinguishes between access to facilities and access to records. The laws and requirements on access to records are more highly developed than laws or requirements on access to facilities. In short, Privacy Journal's research uncovered only a few instances where there is a law that could be cited to deny physical access to census workers. Proprietors of group quarters may have been reacting to a generalized concern about privacy or to a general memory that there are laws on the books preventing access.

When confronted with denials of access, Census workers should be able to consult with a legal advisor who has on file a report like the one prepared by Privacy Journal.

Table 1.
Number of Special Places and Group Quarters Enumerated⁴

SP/GQ type	Special places		Group quarters		Population	
	Number	Percent	Number	Percent	Number	Percent
1. Correctional facilities	5,420	5.4	15,775	8.2	1,993,302	25.5
2. Juvenile institutions	2,440	2.4	6,335	3.3	129,132	1.7
3. Nursing homes	21,051	21.0	29,736	15.5	1,727,811	22.1
4. Hospitals	3,552	3.5	9,289	4.8	237,597	3.0
5. Colleges and universities	3,528	3.5	23,842	12.4	2,066,302	26.4
6. Military installations	916	0.9	6,104	3.2	356,354	4.6
7. SBE facilities and other GQs	38,783	38.7	56,092	29.1	854,435	10.9
8. Group homes	24,668	24.6	45,113	23.5	460,474	5.9
Total	100,358	100.0	192,286	100.0	7,825,407	100.0

Source: Jonas (2003), Tables 4.1a and 4.1b.

individuals to their associated GQs.

4.2.1 The GQ universe

Jonas (2003) reported the overall composition of the GQ universe as enumerated in Census 2000.

Approximately 7.8 million people were tabulated in places covered by the GQ universe in Census 2000. Most of these people lived in colleges, prisons, or nursing homes.

Roughly 78 percent of the special places enumerated consisted of only one GQ. Over 98 percent contained fewer than ten GQs. The largest proportion of special places with more than 50 GQs included military installations, colleges and universities, and correctional facilities. The smallest proportion of special places with more than 50 GQs included nursing homes and SBE facilities and other GQs.

Forty percent of special places had fewer than ten residents and 61 percent had fewer than 25 residents. These were mostly group homes, SBE facilities, and other small GQs. The 40 percent of special places with fewer than ten residents accounted for 2.3 percent of the GQ population.

Even though enumerators were allowed to use administrative records to augment the process only in cases where residents could not fill out the forms themselves, Jonas (2003) found that almost half (48.9 percent) of all GQ questionnaires were filled out from administrative data and that most GQ questionnaires at correctional facilities, hospitals, nursing homes, and group homes were filled out from administrative data. Other GQ questionnaires were either filled out by a respondent (24.8 percent) or by an enumerator (9.7 percent). The item indicating method of response was blank or invalid for 16.6 percent of the GQ questionnaires.

4.2.2 The SBE universe

McNally (2002) reported the following:

- There were 14,817 SBE sites in Census 2000. More than half (51 percent) of the locations were shelters.
- There were a total of 258,728 person records data captured from shelters, soup kitchens, regularly scheduled mobile food vans, and targeted

⁴ The data in Table 1 include counts from Puerto Rico.

non-sheltered outdoor locations. Most of the data captured person records (90 percent) were from shelters, soup kitchens and regularly scheduled mobile food vans.

- Almost all (99 percent) of the data captured person records had at least two or more data characteristics (name, sex, age and/or date of birth, Hispanic origin, or race) and were classified as data defined.
- Nearly three-fourths (72 percent) of the SBE person records had all five data characteristics completed. This compares to 88 percent for the HU person records with all five data characteristics reported.

Multiplicity estimation for SBE was intended to use service usage responses to adjust enumeration counts for persons who use services but not on the day of enumeration. During the SBE data collection operation, respondents were asked the number of times in a week that they use that type of facility.

- In shelters, respondents were asked “Including tonight, how many nights during the past seven nights did you stay in a shelter?”
- In soup kitchens and regularly scheduled mobile food vans, respondents were asked “Including today how many days during the past seven did you receive a meal from a soup kitchen or mobile food van?”

The responses to these questions could be from 1 to 7 or a nonresponse. A person who only used a service one night out of the seven nights in a week would be given a weight of seven since they only had one chance in seven to be enumerated on the day selected

for enumeration. Conversely, a person who used a service all seven nights in a week would be given a weight of one since they would be enumerated no matter what day was selected for enumeration.

Corrected census data would have had different counts of total population using SBE facilities than the uncorrected data if we had joined results from the SBE multiplicity estimation with results from the actual Census 2000 SBE enumeration. Specifically, the corrected data would have used SBE multiplicity estimation to estimate the number of people who use services but not on the day of enumeration.

A decision was made **NOT** to use SBE multiplicity estimation to estimate the number of people who use services but not on the day of enumeration. The usage responses had both a high nonresponse rate and, particularly in shelters, a very high level of response bias. Accurate responses to the usage question are critical for multiplicity estimation. For additional information on the multiplicity estimator and the decision to not use it, see Griffin, 2001.

4.2.3 Field operations

The issues and lessons learned outlined in sections 4.2.3.1, 4.2.3.2, and 4.2.3.3 come from Schoch (2003) and the QA results in section 4.2.3.4 come from Oliver (2002).

4.2.3.1 Planning

Schoch (2003) reported that even though the enumeration plans were tested in the field, there were changes made after the tests and before Census 2000.

- The late identification and solidification of requirements impacted the understanding of the details by headquarters staff for various operations. This was reflected in the inconsistency of the information on SP/GQs in different field operational materials.
- Delays in the final operational and procedural requirements delayed the completion of all required enumeration materials (training guides, job aids, etc.). This caused a delay in kit preparation and delivery, which subsequently diminished the time allowed for preparation of SP/GQ enumeration operations in the LCOs.

4.2.3.2 Staffing, training, and office operations

In the LCO, the operations were managed by the Special Place Operations Supervisor (SPOS). The SPOS trained the crew leaders and then the crew leaders trained the enumerators. Each operation had its own training guide, workbook, checklist, and job aid color coded by operation to help identify each operation’s materials. Among the lessons learned are:

- The SPOS was hired too late (late 1999) to adequately prepare for the job. A SPOS with little or no experience trained and managed people on detailed operations with little or no oversight or assistance from a supervisor.
- Problems also occurred after SP/GQ enumeration when questions involving SP/GQs continued through the different field followup operations and the SPOS position had already been terminated. The LCOs had difficulty handling these requests unless the SPOS was

still working in the office in some other position and was available to help.

- The number of work hours and weeks in the standard recruiting scripts did not apply to the SP/GQ operations.
- The different enumerator requirements for each SBE operation were difficult to maintain and track. For example, some operations required two-member teams and others required seven-member teams.
- SBE operations had the most difficulty hiring and training adequate, knowledgeable staff for consecutive one day operations.
- Special place staff left before completing their special place work due to overlapping field operations. For example, training for nonresponse followup began prior to the completion of GQ enumeration. Many of the experienced GQ enumerators were taken from the special place operation to work on non-response followup so they would have an opportunity to work longer. Additionally, the Accuracy and Coverage Evaluation (A.C.E.) operation paid their enumerators \$1.00 more per hour. Some GQ enumerators transferred to the A.C.E. operation for higher pay and more hours before completing their special place work.
- The training did not prepare enumerators to deal with the public. Enumerators had to contact management personnel at different levels at special places as well as interview individuals in unique situations encountered during the SP/GQ enumeration operations.

4.2.3.3 Enumeration operations

The SP/GQ enumeration operations were tightly scheduled, often overlapping the training of one operation with the field work of another. Each operation had its own set of instructions tailored to the population it was designed to enumerate. The documented lessons learned include:

- Types of living quarters such as assisted living facilities, personal care and retirement homes, and boarding schools were often misclassified as GQs during Census 2000. The GQ definitions did not specifically list these as exclusions. This resulted in confusion in the field.
- It was difficult to identify certain GQs because they often “look like” regular HUs (e.g., small group homes and off-campus, college owned or leased apartment buildings). This contributed to the creation of duplicates between the HU and GQ universes.
- The self enumeration option caused problems in the field. This option was presented to facilities during the Special Place Advance Visit, but was not completely understood by the facility contact person at that time. Many facilities chose this option because they planned to use administrative records. Once they received the actual training, they realized they were expected to conduct an enumeration operation.
- SBE had four separate components designed to count people without conventional housing who may be missed in the traditional enumeration of HUs and GQs. The four operations were Shelter Enumeration, Soup Kitchen Enumeration, Regularly

Scheduled Mobile Food Vans Enumeration, and Targeted Non-sheltered Outdoor Locations Enumeration. These were challenging operations to include persons without conventional housing in the Census. The timing for all four SBE Operations and the required training sessions over three consecutive days in addition to T-Night Operations at the end of the same week exhausted staff at the LCOs, Regional Census Centers (RCCS), and headquarters.

- The use of the ICR (designed for a respondent to complete) during the Targeted Non-sheltered Outdoor Locations Enumeration did not adapt well to use as an enumerator interview form.
- There were complaints from some soup kitchens that were not open on the one day designated for that particular enumeration.
- Transient Night (T-Night) Enumeration was part of the SP/GQ Enumeration operations. However, the sites/slips/units with persons with no UHE were enumerated as HUs rather than GQs.
- There was not enough time to thoroughly prepare GQ enumerators on how to administer the household questionnaire for a one night operation.
- Conducting T-Night Enumeration on a Friday evening increased the amount of screening enumerators had to do because many individuals were away from home for the weekend at T-Night locations. For individuals who had a usual home elsewhere but who were at the T-night location at the time of enumeration, the enumerator

had to give them a notice explaining they would be enumerated at their primary residence and then appropriately check the UHE column on the listing sheet. After enumeration, the enumerator had to tally the number of checks in the UHE column and enter the total on the GQ Enumeration Record.

- Military Group Quarters Enumeration was a combined planning effort by the Census Bureau and liaisons from each branch of the Armed Forces.
- FLD and GEO required a complete installation list but for different purposes and requirements which caused problems in initial installation list development.
- The concept of UHE was not clearly understood by military personnel.

In July 2000, after GQ data capture was completed, two special followup operations were undertaken to review and repair problems with the GQ enumeration counts. One telephone operation was conducted out of the RCCs to contact 'refusals' that would not allow enumeration to take place at their facilities. The other telephone operation was conducted out of the NPC to contact facilities whose data capture population of a GQ was substantially lower than expected. Both of these operations asked the contact persons at facilities what their Census Day population had actually been. If the facility provided a count of its population on April 1, 2000, that count was accepted as definitive for that facility, unless the count was lower than the actual number of forms captured for that facility. Together, these operations accounted for imputing over 100,000 persons in the GQ uni-

Table 2.
Percent of Small and Large GQs Reinterviewed

(In Percent)

Size of GQ	Stateside	Puerto Rico
Small.....	30.3	42.8
Large.....	62.9	59.3

Source: Oliver (2002) Tables 4.2b and 5.2b.

verse that were not included in the data capture count.

Another enumeration problem identified during processing was that 141,055 questionnaires were missing a GQ ID number or had an insufficient GQ ID number so that they could not be matched to a legitimate GQ ID on the SP/GQ Master File. These accounted for about 1.7 percent of the total GQ questionnaires. About 61 percent were found to be shifts or transpositions of legitimate GQ ID numbers and were ultimately matched. However, the remaining 39 percent (0.7 percent of the total GQ questionnaires) could not be matched.

4.2.3.4 QA reinterview

As reported in Oliver (2002), the Census Bureau conducted a comprehensive QA program that targeted all GQs except those involving the military, SBE facilities, and civilian ships. About 89 percent of all GQs were included in this QA program. Different QA procedures were used for the other 11 percent of the GQs.

The QA program involved three parts:

- A clerical completeness check compared the number of ICRs received from a given GQ to the number of residents listed.
- An automated population estimate check flagged those GQs where the number of checked-in ICRs did not fall within ten per-

cent of the estimated Census Day population (obtained from the Advance Visit).

- The reinterview program targeted all large GQs (population greater than or equal to 100) and any small GQs (population less than 100) that failed the population estimate check. Table 2 provides the percent of GQs that were actually included in the reinterview program. As stated in Section 4.2.1, 40 percent of special places had fewer than ten residents. Assuming an equal or greater percentage of GQs had an expected population of ten or less, than these "small" GQs would fail the population estimate check if the actual count was off by just one. This could account for the large percent of small GQs included in the reinterview sample. Oliver (2002) indicates possible reasons why less than 100 percent of the large GQs were included.

The overwhelming majority of the GQs reinterviewed passed the reinterview process (that is, the GQ contact person verified that an enumerator visited the GQ and obtained the correct Census Day count). Overall, 96.3 percent stateside and 97.7 percent in Puerto Rico passed the reinterview process.

The data also suggest that certain types of GQs (e.g., Colleges and Universities and Nursing Homes) had higher rework percentages than other GQ types.

4.2.4 Lack of tracking information for GQ questionnaires

GQs were tracked through the enumeration and data capture process and counts of the GQ questionnaires were recorded on each GQ control sheet at several points between enumeration and data capture, but the individual questionnaires were not tracked.

One of the problems resulting from this was that the official population counts for some GQs were indirectly derived. In August 2000, an effort was made to reconcile the count of questionnaires checked out of the LCO and the number of questionnaires data captured for that GQ. To avoid problems caused by forms from one GQ at a special place being incorrectly counted with those from another GQ at the same special place, the reconciliation was done at the special place level. The reconciliation consisted of taking the larger of the total LCO checkout population and the total data capture population for each special place as the "official population" for that special place. Reconciliation of the differing counts resulted in the imputation of over 100,000 person records.

The inability to track individual questionnaires also resulted in not having an exact count of persons added to or subtracted from the SP/GQ Master File. The GQ population count decreased between the time of the enumeration and the final Census count. Most of this decrease was a result of military population removed from the GQ universe if they listed a UHE on their questionnaire. (See Section 4.3.1 for more detail on Military UHEs.) However, since individual GQ questionnaires were not tracked, the only information available concerning the decrease is the

net gain or loss for each GQ. (For example, if a GQ gained two people and lost seven, all that is known is that there was a net loss of five people.)

4.2.5 Recommendations

The following recommendations were made by Jonas (2003), McNally (2002), Oliver (2002), and Schoch (2003b):

Begin planning SP/GQ Enumeration operations early in the decade so all plans are completed and in place to allow for consistency and timely completion of all the associated materials (job aids, workbooks, training guides, etc.).

Research and revise GQ definitions to include how to classify assisted living facilities, personal care homes, and retirement homes.

Meet with advocates and experts to update the GQ definitions by using current terminology. Although the definitions and classifications were researched and tested, there were some inherent weaknesses. The definitions and terminology used by the Census Bureau were not always consistent or current with that of other agencies, local governments, and the general public.

Reduce duplication between the HU and GQ address lists. Many small GQs are indistinguishable in appearance from single-family residences. As a result, some found their way into both the HU and GQ universes before being identified as the same place.

Establish a special place team at headquarters to keep SP/GQ Enumeration operational planning and implementation moving forward throughout the decade. This will provide a much needed consistent foundation to develop, ana-

lyze, and maintain these various operations.

Evaluate whether there are benefits to be gained in using different procedures for different categories of GQs in 2010, in building the SP/GQ inventory, in the enumeration itself, and in post-enumeration processing.

Investigate alternative methods of enumeration such as online response, proxy interviews, electronic files, and use of administrative records other than as a last resort for certain types of GQs. Research the quality of administrative records for GQs.

Anticipate and accommodate the use of administrative data. The Census Bureau should work with organizations representing those types of GQs that were the main sources of administrative data in Census 2000 to evaluate how best to gain complete information for each GQ resident in an environment where heavy use of administrative data may be unavoidable.

Bring the SPOS on board earlier in the schedule and maintain this position throughout nonresponse followup to oversee any SP/GQ questions/inquiries.

Develop a unique process to hire persons without conventional housing to assist in the SBE operations.

Train special place staff on how to deal with the public at all levels from leaders of organizations to the respondents.

Design the training schedule to allow time for the enumerators to absorb what they have learned before using the procedures in the field.

Emphasize and improve the geocoding and map spotting training through all the operations.

Improve the special place information in other field operations materials so there is a consistent understanding and approach to special places in all field operations.

Reduce the number of contacts to facilities to prevent ill will before enumeration begins.

Begin GQ enumeration earlier so that closeout does not compete with nonresponse followup.

Research and develop a method to link a GQ questionnaire with a specific GQ other than the current process of a handwritten ID on each questionnaire. The research must consider the data capture technology requirements in conjunction with the requirements of field automation.

Continue research on methods for enumerating people without conventional housing at service locations. The SBE operation appears to be a successful method of including people without conventional housing in the census.

Continue research on methods for enumerating people at targeted non-sheltered outdoor locations.

Remove T-Night Enumeration from SP/GQ Enumeration operations. One option is to use Update/Enumerate⁵ operations for T-Night locations.

Devise a method to link the HU questionnaires filled out at T-Night locations with the T-Night locations. This can be used to determine counts of the population enumerated at each T-Night location.

Reduce the size of the QA reinterview sample by relaxing the popu-

⁵ Update/Enumerate is a method of data collection in which enumerators canvass assignment areas to update the address listing pages and maps and to conduct interviews.

Table 3.
Non-ID Outcomes

	Military UHEs dropped	Matched to a GQ or returned to a GQ	Matched to an HU	Total	
				Number	Percent
Incorrectly	3.0	22.8	11.4	388,970	37.1
Correctly	17.9	1.6	43.4	659,566	62.9
Total	20.9	24.3	54.8	1,048,536	100.0

Source: Jonas (2003) Table 8.2b.

lation estimate check's tolerance level to reduce the number of small GQs included in the sample.

Modify enumeration procedures for certain types of GQs since some GQ types (e.g., Colleges and Universities and Nursing Homes) required more rework based on the QA reinterview. Schoch (2003) also suggests reevaluating the variables/criteria that select a GQ for reinterview and limiting the possible cases for reinterview to certain types of GQs.

4.3 Data capture and processing

4.3.1 Usual Homes Elsewhere (UHE)

As reported in Jonas (2003), the process designed to deal with all Census forms without a MAF ID, including GQ person records claiming a UHE, was called the Non-ID Process.

Not all GQ records providing the address of a claimed UHE were supposed to go into the Non-ID Process. Records with a UHE address were to be screened for exclusion:

- By GQ type
- By the outcome of a screening question on each GQ questionnaire

The screening by GQ type was done after the initial Non-ID processing, returning 1,892,742

records to their original GQs.

Excluding UHEs from the Non-ID Process for certain GQ types was done to prevent people in certain UHE-ineligible types of GQs from being improperly enumerated at a residence other than their GQ.

GQ questionnaires also were supposed to be screened from inclusion in the Non-ID Process by their responses to the residence question on each type of questionnaire. (For example, "Do you live or stay here most of the time?" on the ICR.) This screening was intended to ensure that if persons whose primary residence was the GQ also provided a UHE address, they would not be enumerated elsewhere on that basis. Excluding cases from the Non-ID Process based on the residence screening questions never took place. Of the 1,048,536 records that underwent the full Non-ID process, 388,970 would have been excluded if the residence screening question had been used as intended. Because the procedures to screen GQ questionnaires out of the Non-ID Process were applied incorrectly, 37 percent of the GQ questionnaires ultimately resolved by the Non-ID process were in that process inappropriately.

Of the 1,048,536 GQ person records that were ultimately included in the Non-ID Process:

- About 55 percent were matched to an HU.

- About 24 percent were either returned to the GQ from which they came or were matched to another GQ.
- About 21 percent were Military UHEs that did not geocode and were dropped from the Census. Most of these (about 86 percent of those dropped) were correctly included in the Non-ID process and were dropped to avoid potential duplication of military personnel.⁶ The remaining 14 percent (3 percent of the total Non-ID process) should not have been included in the Non-ID process and were lost to the Census.
- In addition to the 3 percent military UHEs that were dropped, another 11 percent that matched to HUs but that should not have been included in the Non-ID process were lost from the GQ universe. These were included in the Census in the HU universe.

4.3.2 Household forms and be counted forms included in GQ enumeration

Jonas (2003) also reported on the number of persons enumerated on household and Be Counted forms that were included in the GQ universe.

Some addresses had been in both the HU universe and the GQ universe in early versions of the Decennial MAF. These duplicates were identified after the Census mailing list was compiled. Thus, these units were mailed a Census household questionnaire. If the HU questionnaire was returned for a GQ, the persons enumerated on

⁶ The decision to not return ungeocoded military UHEs was based on 1990 Census Search/Match results that showed people claiming a UHE on MCRs and SCRs were listed at the HU address.

Table 4.
Persons in GQs from Household and Be Counted Forms

Group quarters category	Be counted forms	HU records	Total	Percent*
1: Correctional facilities.....	30	136	166	0.0
2: Juvenile institutions.....	1	494	495	0.4
3: Nursing homes.....	1,925	3,902	5,827	0.3
4: Hospitals.....	140	681	821	0.3
5: Colleges and universities.....	514	3,011	3,525	0.2
6: Military installations.....	10	11	21	0.0
7: SBE facilities and other GQs.....	33,264	14,246	47,510	5.6
8: Group homes.....	724	27,979	28,703	6.2
Totals.....	36,608	50,460	87,068	1.1

*Percent of GQ population.

Source: Jonas (2003) Table 8.3.

the HU form were included in the count for the GQ at that address.

The Be Counted program provided an opportunity for people without conventional housing to complete a questionnaire if they had reason to believe they were not enumerated through other SP/GQ operations. People who completed a Be Counted form and indicated that they had no address by marking the "No Address on April 1, 2000" box on the form or indicated in the address section that they did not have an address were included in the SBE universe.

Table 4 indicates the numbers of persons who were added to GQs from household and Be Counted forms:

- Approximately 6.2 percent of the Group Homes population came from Be Counted forms and household questionnaires.
- Approximately 5.6 percent of the population in the category SBE facilities and other GQs came from Be Counted forms and household questionnaires.
- For each of the other GQ categories, no more than 0.4 percent of the population came from Be Counted forms and household questionnaires.

4.3.3 Duplication in the GQ universe

4.3.3.1 SBE duplication

Since the SBE operation was conducted over a three day period, it was possible to enumerate people more than once. For example, if someone used a shelter on March 27 and received services at one or more soup kitchens and/or regularly scheduled mobile food vans on March 28 they may have been enumerated at each of these services. Also it was possible for persons who received services to fill out a Be Counted form. An attempt was made to unduplicate the SBE enumerations and count each person only once in the census.

As part of the unduplication process, individual demographic characteristics were assigned a weight based on whether they agreed or disagreed. Agreement weights had positive values and disagreement weights had negative values. Variables that were missing from one of the two person records involved in the comparison were assigned a weight of zero. A final weight assigned to the pair of person records was the sum of the agreement and disagreement weights for each matching characteristic. Two or more person

records were considered a match if the cumulative weight was above 0.95. The record for the primary source within each pair was included in the census. Refer to McNally (2002) for more details on the SBE unduplication process.

Table 5 provides the results of the unduplication of SBE person records at the national level as reported in McNally (2002). The first row represents the total number of data captured person records. The second row provides the number of person records that matched to another census person record and were not counted in the census. The third row indicates the total number of unique (unduplicated) people that were included in the Census 2000 results. The fourth row indicates the number of person records with sufficient data for matching. The fifth row represents the number of person records with insufficient data for matching.

A total of 241,941 data captured persons from SBE locations were included in the Census. Of those, approximately 87 percent had enough information for the questionnaire to be included in the unduplication process.

McNally (2002) also noted that numerous records were erroneously identified as duplicates. Of the 16,787 person records matched and unduplicated during data processing, 2,410 (14 percent) were most likely erroneously unduplicated. Targeted non-sheltered outdoor locations had the highest percentage (39 percent) of erroneous duplicates.

4.3.3.2 Within-GQ person duplication

Jonas (2003) conducted an evaluation of within-GQ person duplication

Table 5.
Results of the SBE Unduplication of Data Captured Person Records

	Number	Percent
TOTAL data captured person records from SBE locations	258,728	100.0
Data captured person records matched and not counted	16,787	6.5
Data captured person records counted in the Census	241,941	93.5
>Data captured person records with sufficient data for unduplication	209,488	86.6
>Data captured person records with insufficient data for unduplication	32,453	13.4

Source: McNally (2002).

tion based on early non-systematic observations of Census data that suggested there were a significant number of duplicate person records within GQs, particularly in group homes and other small GQs. He designed a stratified sample of 400 GQs in five strata to estimate the magnitude of duplication within the GQ population. It excluded correctional facilities, military installations, and SBE facilities⁷, but included the rest of the GQ universe. The portion of the GQ universe from which the sample was drawn included 154,042 GQs containing 5,156,168 person records, or 66 percent of the GQ population. The 400 GQs in the sample contained 18,650 person records.

The person records in each GQ were clerically examined to identify duplicates. Records with the same name, sex, and age/date of birth were considered duplicates. The estimated number⁸ of duplicate person records is 56,416 ± 34,409, which is 1.1 percent ± 0.7 percent of the persons in GQs from which the sample was drawn.

⁷ SBE facilities were excluded because unduplication was already being done on the service-based population; correctional facilities and military GQs were excluded because of the unlikelihood of matching HUs to prisons and barracks on the Master Address File.

⁸ Estimates are with a 95 percent confidence interval.

Group homes and religious GQs were found to be the largest single source of duplication, apparently because many such facilities returned household questionnaires in addition to being counted by GQ enumerators.

4.3.3.3 People in HUs duplicated to people in GQs

Feldpausch (2001) reported on the number and percent of E-sample people (i.e., people enumerated in census HUs in the A.C.E. sample block clusters) duplicated to people outside the search area. As shown in Table 5, she found there were over a half million E-sample people duplicated outside the search area to people in group quarters, with over half the duplicates to college dorms. Other types of GQs with a high percentage of duplication based on Feldpausch's results were nursing homes (about 10.9 percent), local jails (about 8.5 percent), military barracks (about 4.5 percent), and state prisons (about 4.5 percent).⁹

A person found duplicated was captured twice by the Census. The record of the person that was

⁹ The estimate of duplication between housing units and group quarters in the A.C.E. Revision II was similar to the ESCAP II estimate. There are no additional estimates from A.C.E. Revision II on people duplicated to GQs outside the A.C.E. search area.

captured in the correct place according to census residence rules should have been coded as a correct enumeration. The record of the person that was captured in an incorrect place according to census residence rules should have been coded as an erroneous enumeration.

Assuming the GQ enumeration was perfect, those people duplicated to GQs that could not claim a UHE should all be considered erroneous enumerations. For the majority of these people, it seems likely that the GQ was their April 1 residence.

Assuming the GQ enumeration was perfect, those people duplicated to GQs that could claim a UHE should all be considered correct enumerations. For most of these people, it seems likely that the HU was their usual April 1 residence.

4.3.4 Recommendations

The following recommendations were made by Feldpausch (2001), Jonas (2003), McNally (2002), and Schoch (2003a):

Institute safeguards to make it more likely that if the same special place or GQ is deleted and re-added, it is identified as the same entity and identified by the same Census identification number.

Create and maintain a source code and history of all actions for each facility from beginning of initial file creation through processing.

Track individual GQ questionnaires through post-enumeration processing, from enumeration through data capture. In Census 2000, each GQ questionnaire had a unique barcoded number printed

Table 6.
E-Sample Duplicates to People Outside the A.C.E. Search Area in GQs (Standard Errors)

	Could not claim a UHE		Could claim a UHE
	Not a dorm	Dorm	
Total	189,756 (11,028)	271,158 (34,806)	59,586 (5,915)

The numbers are weighted with the final E-Sample weight. They only include cases where the model probability of being a duplicate is greater than 0.5. Standard errors are shown in parentheses.

Source: Feldpausch (2001) Table 3.

on it; however, the barcode was not used to track GQ questionnaires.

Institute more effective software quality assurance programs.

Reevaluate the definitions to clarify the distinctions between what constitutes a GQ versus an HU. As pointed out by Jonas (2003), the largest single source of duplication was a result of small group homes being enumerated as housing units as well as GQs.

Research ways to improve the SBE unduplication process.

Research ways to revise residence rules instructions to reduce duplication between HUs and GQs. Some possible explanations for this duplication include:

- The instructions indicating who to include may have been misunderstood or ignored by the respondent. (Examples of people enumerated in HUs in error include college students, people in local jails, and people in nursing homes.)
- The respondent may not have realized that a household member was enumerated elsewhere.

- Some GQs were enumerated using administrative records that did not reflect the residents as of April 1, 2000.

There were many specific recommendations included in the evaluations, QA profiles, operational assessments, and headquarters debriefing report. Many of those are included in earlier sections of this report. This section discusses the major recurring themes that appeared across the source documents.¹⁰ As noted below, the SP/GQ 2010 Research and Development (R&D) Planning Group is already working on classification issues, SP/GQ inventory development operations, and integrating the HU and GQ address lists and operations. Research and development for GQ enumeration and processing is also planned.

¹⁰ Source materials suggest that there were a sizable number of problems with geocoding special places and GQs and that these problems resulted in geographic mislocation of GQs in data tabulations. Reviewers of this paper suggested geocoding problems as a recurring theme. However, while the Census Bureau is aware of the geocoding problems and is working to address them for the 2010 Census, there is no formal documentation that could be used as input for this report.

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5. Synthesis of Results and Recommendations for the 2010 Census

5.1 Revise group quarters definitions and classification of group quarters type codes

According to Schoch (2003a), the Census 2000 SP/GQ definitions and classifications were the foundation of the SP/GQ inventory development process. These definitions and classifications were developed to provide the parameters for determining the SP/GQ universe and to further define the specific type of facility.

Although the definitions and classifications were researched and tested over the decade, there were inherent weaknesses in the overall identification and classification of some facilities, which ultimately impacted the final enumeration. These were:

- The definitions and the terminology used by the Census Bureau were not always consistent and/or current with that of other agencies, state, local, and tribal officials, and the general public that resulted in discrepancies within the final SP/GQ universe.
- The concept of embedded HUs in GQs (such as a resident advisor's apartment in a college dormitory) was not clearly defined and was generally misunderstood by both staff and the general public. The lack of clarity associated with this concept impacted not only the identification of such units, but contributed to the duplication between the GQ and HU inventories.

- There were also duplicates between the GQ and HU inventories as a result of the failure to match the two separate inventory files and flag duplicate addresses. Another factor contributing to duplication was the lack of clarity and consistency in defining certain types of GQs.

Recommendations fall into two broad categories.

- **Revise the GQ definitions so that they are current, agree with terminology used by facility service providers, advocates, government officials, and the general public, and can be easily understood and implemented by field staff.** As part of the lessons learned from the Census 2000 Group Quarters operations and the 2010 Census planning effort, an interdivisional team of Census Bureau group quarters experts was formed to research and revise the Census 2000 group quarters definitions and detailed classifications. Further research will be undertaken to discuss these definitions with industry experts, representatives from local governments, and data users. Plans are to conduct focus groups and conferences to discuss the definitions, conduct cognitive testing to assess the changes, and conduct field work to test and implement the definitions.
- **Clarify the distinctions between GQs and HUs.** Many of the smaller GQs are indistin-

guishable in appearance from single-family residences. These facilities, therefore, may have received an HU questionnaire in the mail from the USPS or during the Update/Leave¹¹ operation and also may have been visited during GQ enumeration. One option that is being pursued by the SP/GQ 2010 R&D Planning Group is to enumerate these as HUs but tabulate their population as part of the GQ universe.

Include evaluation of the classification of GQs based on the revised definitions in future research. It was anticipated that Stevens (2003) would provide empirical results on classification issues; however, because of the design limitations of the study (evaluating special place rather than GQ type codes), the results are not pertinent for planning the 2010 Census.

5.2 Integrate housing unit and group quarters address list development activities

Re-evaluate and design a method to integrate the SP/GQ inventory development into the overall MAF development process. Develop an early integration and reconciliation of the group quarters and housing unit files. As previously stated, the

¹¹ Update/Leave is a method of data collection in which enumerators canvassed assignment areas to deliver a census questionnaire to each HU and update the address listing pages and maps. The household was asked to complete and return the questionnaire by mail.

duplication across inventories existed primarily due to the failure to match the two separate inventory files.

Integrate GQs with HUs in the LUCA operations. Because the Special Place Facility Questionnaire operation was not completed on time, SP/GQ could not be loaded into the MAF in time to be included in the LUCA 98/99 programs and this necessitated the separate SP LUCA program. Because of this delayed implementation, other operations were scheduled at the time the SP LUCA was conducted and therefore it was difficult to measure the success of the individual SP/GQ operations.

In order to resolve these issues, the SP/GQ 2010 R&D Planning Group, working with other planning and implementation teams, is developing and testing new procedures to integrate the HU and GQ listing operations. One part of this effort is to ensure that address lists for all field operations include both HUs and GQs. Instead of training all listers on identifying and classifying GQs, the listers merely have to identify units for which they are unsure of the status as “other living quarters”. Trained enumerators will go out to the other living quarters and using a specially designed Other Living Quarters Questionnaire, determine if the unit is an HU or, if a GQ, classify the GQ by the appropriate type code.

5.3 Begin planning the group quarters enumeration early

Begin planning SP/GQ Enumeration operations early in the decade so all plans are completed and in place to allow for consistency and timely completion of all the associated materials.

Ideally, all planning, procedures, and materials for the 2010 Census would be complete in time for the dress rehearsal in 2008.

Early planning for the 2010 Census enumeration of GQs has already begun. The first meeting of the SP/GQ 2010 R&D Planning Group took place in December 2001. Most of this early work centers on SP/GQ inventory development issues. A new procedure, Group Quarters Validation, using the Other Living Quarters Questionnaire will be tested in the 2004 Census Test.

Plan more tests involving SP/GQs to make sure we have used every opportunity to test all parts of the operation from SP/GQ inventory development to enumeration of the GQs. In addition to testing address list development procedures in the 2004 Census Test, other research and development work is planned, including focus groups and meetings with industry experts and service providers and special purpose tests to address GQ issues that may not be suitable for a site test. This work will be further developed for the 2006 Census Test.

5.4 Continue research on service-based facility enumeration operations

Continue supporting the SBE operations for the 2010 Census. According to McNally (2002), the service-based enumeration operation appears to be a successful method of including people without conventional housing in the census.

Revise the timing of SBE operations. Many of the operational reports indicated issues with timing of the SBE operations. Some of the timing issues concern the overlap of the SBE operations, training,

and T-Night operations and complaints from soup kitchens that were not open on the one day designated for enumeration.

There are also data quality issues that are affected by the timing of operations. There is the potential for duplication when SBE operations are scheduled for more than one night or are conducted much earlier than Census Day or earlier than the other GQ enumeration operations. These issues need to be taken into account when determining the schedule for operations.

5.5 Track group quarters facilities and questionnaires throughout the census

Jonas (2003) cited two global limitations that affected his evaluation. These were the absence of a system for tracking individual questionnaires through the enumeration process and the limitations of the system designed to track special places and GQs from the beginning of the Special Place Facility Questionnaire process through tabulation. These limitations could also affect the flow of operations and duplication of GQs in the Census.

Jonas (2003) offered two recommendations concerning these limitations:

- **Maintain all special place and GQ records throughout the census.** A file that uses flags to indicate deletes, rather than permanently removing records from the file, would provide much more complete information about the SP/GQ universe over time. Institute safeguards to make it more likely that if the same special place or GQ is deleted and re-added, it is identified as the same entity

and identified by the same census ID numbers.

- **Track individual forms from enumeration through data capture.** Differing counts of the number of completed questionnaires were obtained for many GQs because the number of questionnaires from each GQ was tracked, rather than the questionnaires themselves. The result would be a much more exact and reliable GQ population count.

5.6 Continue research on unduplicating people in group quarters

Review the residence rules to emphasize the instructions for

who to include in the household. Based on some of the possible explanations for duplication mentioned by Feldpausch (2001) (e.g., respondents not understanding or ignoring instructions for who to include/exclude, respondents including people who were actually enumerated elsewhere, and some GQs being enumerated using administrative records that did not reflect the residents as of April 1), some duplication may be reduced or eliminated by changes to or emphasis on adherence to the residence rules.

Reduce duplication between HUs and GQs. Jonas (2003) reported approximately 1.1 percent duplicate person records in

the GQ universe studied, largely a result of small GQs returning a household questionnaire and also being counted during GQ enumeration. He suggested that reducing the duplication between the HU and GQ universes would help reduce within-GQ person duplication.

Research ways to improve the SBE unduplication process. The accuracy of the SBE unduplication was affected by person records with insufficient data (13 percent of data captured persons records, while counted in the census, had insufficient data for unduplication) and by enumerators entering something other than a name, such as "Client" in the name field.

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6. Conclusion

There were approximately 7.8 million people tabulated in GQs in Census 2000. This is less than 3 percent of the total U.S. population on April 1, 2000. In order to enumerate people in the GQ universe, there are a variety of unique procedures required to identify GQs, assign them to the correct geography, enumerate the residents, and

data capture and tabulate the person records.

While the Census 2000 enumeration of GQs appears to have been operationally successful, the evaluations and operational assessments identified various issues resulting from list development, enumeration, and processing. The evaluations and assessments also

provide recommendations for improvements for the 2010 Census GQ enumeration.

Although the Census Bureau has already initiated research and testing to address these issues and recommendations, there is much work that needs to be done before the 2010 Census.

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