



This memorandum is intended for internal Census Bureau use only. If you have any questions regarding the use or dissemination of this information, please contact James L. Dinwiddie, Assistant Division Chief for Program Information, Decennial Management Division, at (301) 763-3770.

September 18, 2012

2010 CENSUS PLANNING MEMORANDA SERIES

No. 238

MEMORANDUM FOR The Distribution List

From: Burton Reist *[signed]*
 Acting Chief, Decennial Management Division

Subject: 2010 Census of Puerto Rico Assessment Report

Attached is the 2010 Census of Puerto Rico Assessment Report. The Quality Process for the 2010 Census Test Evaluations, Experiments, and Assessments was applied to the methodology development and review process. The report is sound and appropriate for completeness and accuracy.

If you have any questions about this document, please contact Enid Santana Ortiz at (301) 763-1781 or Shirley Druetto at (301) 763-6224.

Attachment

September 17, 2012

2010 Census of Puerto Rico Assessment Report

U.S. Census Bureau standards and quality process procedures
were applied throughout the creation of this report.

Enid Santana Ortiz and Shirley Druetto

Decennial Management Division



(This page intentionally left blank.)

TABLE OF CONTENTS

LIST OF TABLES.....	V
LIST OF FIGURES.....	VII
EXECUTIVE SUMMARY	IX
1 INTRODUCTION.....	1
1.1 Purpose and Scope.....	1
1.2 Intended Audience.....	1
1.3 Assumptions	1
2 BACKGROUND.....	2
2.1 Introduction.....	2
2.2 Memorandum of Agreement	2
2.3 Census 2000 of Puerto Rico.....	3
2.4 2010 Census of Puerto Rico.....	5
2.4.1 Budget	5
2.4.2 Enumeration Methodology	7
2.4.3 Questionnaire Content Development.....	7
2.4.4 Office Organization	8
2.4.4.1 U.S. Census Bureau Field Division.....	8
2.4.4.2 Boston Regional Census Center.....	9
2.4.4.3 Puerto Rico Area Office.....	9
2.4.4.4 Early Local Census Offices.....	10
2.4.4.5 Local Census Offices	10
2.4.4.6 Puerto Rico, Island Areas, and Overseas Branch	15
2.5 Integrated Communications Program	17
2.5.1 Research	17
2.5.2 Promotional Materials	19
2.5.3 Paid Advertisement	21
2.5.4 2010 Census Website.....	22
2.5.5 Portrait of America Road Tour.....	23
2.5.6 Rapid Response	23
2.5.7 Partnership Program	23
2.5.8 Mail Response Rate Program and Take 10 Program	24
2.5.9 Census in Schools Program	25
2.5.10 Earned Media/Public Relations	27
2.6 Puerto Rico Geography and Addresses.....	27
2.6.1 Census Geography.....	28
2.6.2 Address Formats	29
2.7 2010 Census Operations	31
2.7.1 Local Update of Census Addresses	33
2.7.2 Address List Development Operations.....	37
2.7.2.1 Address Canvassing	37
2.7.2.2 Group Quarters Validation.....	44

2.7.3	Enumeration Operations	49
2.7.3.1	Update/Leave	49
2.7.3.2	Group Quarters Operations	53
2.7.3.3	Enumeration at Transitory Locations.....	56
2.7.3.4	Nonresponse Operations	57
2.7.4	Non-ID Processing	61
2.7.5	Field Verification.....	65
2.7.6	Census Coverage Measurement.....	68
2.7.7	Count Question Resolution.....	71
2.8	Data Capture	71
2.9	Data Processing	73
2.10	Data Products	73
3	METHODOLOGY	75
3.1	Study Questions.....	75
3.2	Quality Assurance Procedures for the Report	75
4	LIMITATIONS.....	75
5	RESULTS	76
5.1	What was the mail participation rate in the 2010 Census of Puerto Rico? How does that compare to Census 2000? What factors were attributed to this change?	76
5.2	How successful was the integration of the Puerto Rico operations to the stateside 2010 Census?.....	78
5.3	Which 2010 Census operations were tailored for Puerto Rico? In what areas? Did these adaptations accomplish their purpose?.....	79
5.4	Given the differences in addressing conventions, were there any outstanding issues in the execution of field operations in Puerto Rico?	80
5.5	What was the final outcome of the 2010 Census address list development operations in relationship to the Puerto Rico Master Address File? Were there any issues with data capture and Master Address File Tiger updates?	81
6	RELATED EVALUATIONS, EXPERIMENTS, AND/OR ASSESSMENTS	86
7	LESSONS LEARNED, RECOMMENDATIONS, AND CONCLUSIONS.....	87
7.1	Key Lessons Learned.....	87
7.1.1	Successes	87
7.1.2	Challenges	88
7.2	Recommendations for the 2020 Census.....	90
7.3	Conclusions.....	92
8	ACKNOWLEDGEMENTS.....	93
9	REFERENCES.....	94
	APPENDIX A: EXAMPLES OF ADAPTATIONS FOR PUERTO RICO ADDRESS STANDARDS TO MATERIALS FOR THE GROUP QUARTERS VALIDATION AND UPDATE/LEAVE OPERATIONS.....	97
	APPENDIX B: PUERTO RICO DECENNIAL FORMS, MANUALS, AND TRAINING GUIDES FOR FIELD OPERATIONS	99
	APPENDIX C: PUERTO RICO PUBLIC USE FORMS.....	113

**APPENDIX D: PUERTO RICO LOCAL UPDATE OF CENSUS ADDRESSES (LUCA)
FORMS..... 114**

**APPENDIX E: MATERIALS DEVELOPED FOR THE EARN MEDIA PROGRAM OF
THE 2010 INTEGRATED COMMUNICATIONS CAMPAIGN..... 115**

LIST OF TABLES

Table 1. Fiscal Year 2009 Allocations for Puerto Rico Census Activities.....	6
Table 2. Fiscal Year 2010 Allocations for Puerto Rico Census Activities.....	6
Table 3. Fiscal Year 2011 Allocations for Puerto Rico Census Activities.....	7
Table 4. Number of Office Staff That Worked in the Local Census Offices Throughout the 2010 Census of Puerto Rico.....	14
Table 5. Number of Field Staff that Worked on Each Operation by Local Census Office in Puerto Rico	15
Table 6. Address Types Defined by Geography Division for Puerto Rico	30
Table 7. Address Fields in the MAF/TIGER Database Exclusive to Puerto Rico	30
Table 8. 2010 Local Update of Census Addresses Government Participation and Address Records Received, Rejected and Processed	36
Table 9. 2010 Local Update of Census Addresses Program Addresses Submitted by Participants and Processed by the Census Bureau by Processing Code on the Detailed Feedback Address List for Puerto Rico	37
Table 10. Final Address Actions Applied for Address Canvassing in Puerto Rico	42
Table 11. Final Address Actions Applied to MAF/TIGER database by Housing Type for Puerto Rico	43
Table 12. Final Address Actions Applied to MAF/TIGER database by Type of Living Quarters for Puerto Rico.....	44
Table 13. Number of Other Living Quarters Addresses From the Group Quarters Validation Operation Universe for Puerto Rico	47
Table 14. Summary of Group Quarters by Group Quarters Categories for Puerto Rico...	48
Table 15. Number of Group Quarters Selected for Reinterview for Puerto Rico	48
Table 16. Update/Leave Counts by Field Action Codes for Puerto Rico.....	52
Table 17. Update/Leave MAF/TIGER Database Update by Action Codes for Puerto Rico	53
Table 18. Update/Leave MAF/TIGER Database Update by Address Type for Puerto Rico	53
Table 19. Frequency of Puerto Rico Type A and Type C Cases Found During Nonresponse Followup and Nonresponse Followup Vacant Delete Check	59
Table 20. Content of Address Field for Puerto Rico Type A and Type C Cases From Nonresponse Followup.....	60
Table 21. Results of Automated Processing for Type A Cases for Puerto Rico.....	64

Table 22. Results of Automated Processing for Type C Cases for Puerto Rico.....	64
Table 23. Results of Clerical Processing for Type A Cases for Puerto Rico	65
Table 24. Distribution of 2010 Field Verification Addresses by Address Type for Puerto Rico.....	67
Table 25. 2010 Field Verification Final Outcome for Puerto Rico.....	68
Table 26. Top Five Municipios With Largest Increase in Mail Participation Rate Between 2000 and 2010	77
Table 27. Top Five Municipios With Largest Decrease in Mail Participation Rate Between 2000 and 2010	77
Table 28. Puerto Rico Master Address File Universe Before and After Major 2010 Census Operations	83
Table 29. Puerto Rico Master Address File Unit Counts Before Major 2010 Census Operations and Final Tabulation for the 2010 Census Eligible Universe by Address Type.....	84

LIST OF FIGURES

Figure 1. 2010 Census Puerto Rico Local Census Offices	12
Figure 2. Clusters Identified in Puerto Rico Through the Audience Segmentation Model for the 2010 Census	18
Figure 3. Example of Promotional Materials Created Specifically for Puerto Rico	20
Figure 4. Hierarchy of Administrative Areas in Puerto Rico	28
Figure 5. Census Statistical Areas in Puerto Rico	29
Figure 6. Example of the Same Puerto Rico Address Presented in Different Ways	31
Figure 7. Example of Adaptation on the Hand-Held Computer for Puerto Rico Address Standards	32

(This page intentionally left blank.)

EXECUTIVE SUMMARY

Introduction

The 2010 Census of Puerto Rico Assessment gathers the detailed information necessary to analyze the quality of the integration of Puerto Rico operations into the stateside census. It documents the results of the 2010 Census of Puerto Rico including the workload, production rates, cost, improvement of the Puerto Rico Master Address File, and other major findings and lessons learned for all decennial operations conducted in Puerto Rico. This report also covers the planning, coordination, development, data collection, data capture and data processing phases. This analysis identifies what aspects of the 2010 Census of Puerto Rico worked well, what needs improvement, and what issues affected the operations. It also documents improvements and recommendations that will aid stakeholders and Census management with 2020 Census planning for Puerto Rico.

The history of the decennial census in Puerto Rico dates back to 1910 when the United States conducted the first population count after acquiring the island as a territory. In 1958 a Memorandum of Agreement was signed with the government of Puerto Rico to define the need for a partnership for the execution of censuses in Puerto Rico. This agreement also established the responsibilities and mutual interests for each party. Until Census 2000, the Puerto Rico Planning Board was the agency appointed by the government of Puerto Rico as the liaison that worked with the Census Bureau on these matters.

For Census 2000, the Government of Puerto Rico requested that the Census Bureau use the same decennial questionnaire content as stateside. Because of this request, respondents' data processing was handled the same as stateside and statistical data were tabulated using the same procedures as stateside. Since then, Puerto Rico was treated as a state equivalent for most data products. Product layouts, tabulations, and schedules were also the same as stateside.

Until the 1990 Census, the population of Puerto Rico was enumerated using the Update/Enumerate methodology. In 2000, the Census Bureau decided to switch to Update/Leave methodology because of the increase of limited-access communities on the island and the increase of people in the household working and staying out of the home for longer periods of time. The Census Bureau also determined that there was a significant cost savings involved in having only one methodology for the entire island. In addition, reporting and monitoring requirements for one methodology were simpler. For 2010, the Census Bureau decided to continue with the same enumeration methodology as in 2000. This time, additional improvements were considered and implemented in order to conduct an accurate census.

For the 2010 Census, a Census Integrated Communications Program was designed and tailored specifically for Puerto Rico. The Census Bureau recognized the need for such a campaign because of the cultural, linguistic, geographic and social differences between the Commonwealth of Puerto Rico and the United States. This campaign targeted all generations and backgrounds and was designed to educate and motivate the entire population of Puerto Rico to participate in the 2010 Census, to increase mail response, and to reduce undercount (U.S. Census Bureau, 2008).

For decennial census activities, the Census Bureau established a hierarchy of offices to manage and conduct the operations for the 2010 Census of Puerto Rico. This hierarchy encompassed the Field Division at Census Bureau headquarters, the Boston Regional Census Center, the Puerto Rico Area Office, and the Local Census Offices. Each of these offices had specific responsibilities and tasks essential to the success of the 2010 Decennial Census.

The Boston Regional Office managed the 2010 Census field operations conducted in Puerto Rico. The seven Local Census Offices located in Puerto Rico carried out the field operations on the island under the Puerto Rico Area Office's supervision. All field operations in Puerto Rico followed the same schedule as and were conducted concurrently with stateside operations. The first field activity to take place in Puerto Rico for the 2010 Census was the Address Canvassing operation, which began in April 2009 and the last was Census Coverage Measurement, which was completed on June 18, 2011.

Three operations that included updating addresses were carried out in Puerto Rico: Address Canvassing, Group Quarters Validation, and Update/Leave. Each of these operations dealt with the collection and verification of addresses in Puerto Rico and had instruments that were adapted specifically for the types of addresses found on the island. Addresses differed from stateside because they contained four lines of information, longer fields and descriptions, as well as different fields and combinations of fields. During the Update/Leave operation, people living in housing units were enumerated, while those living in Group Quarters situations were enumerated during Group Quarters Enumeration. Materials for these operations were adapted to fit Puerto Rico's unique addressing style and then translated into Spanish.

Results

As of May 10, 2010 the 2010 Census of Puerto Rico mail participation rate was 54 percent, the same as the mail participation rate reported for Census 2000. This was a low return rate when compared to the stateside mail participation rate of 74 percent in 2010. Of the 78 municipios in Puerto Rico, 22 experienced an increase in their mail participation rate when compared to Census 2000 and 48 experienced a decrease. Eight municipios remained unchanged in their mail participation rates from 2000 to 2010.

To counteract the low mail participation rate for low responding areas during the 2010 Census, the Census Bureau implemented the Rapid Response Program. This program involved 2010 Census advertisement spots in local television, radio, and newspapers and emphasized the importance of completing and returning the questionnaire by mail. Puerto Rico Area Office staff hosted conference calls with local media letting the public know which municipios were participating and which were lagging in this effort.

The integration of the Puerto Rico operations into the 2010 Census stateside operations was conducted successfully and in a timely manner. With the aid of adapted and translated materials, there were no major problems during operations. Although there were issues during data capture and data processing, these phases were successfully completed and the Puerto Rico Master Address File was updated.

Some issues identified during the integration of the 2010 Census of Puerto Rico into stateside operations were:

- (1) the adaptation and translation process for Puerto Rico materials was not defined in advance;
- (2) the communication between different areas and divisions when adapting and translating forms was not optimal;
- (3) the communication between staff at Census Bureau headquarters and the Puerto Rico Area Office was inconsistent;
- (4) the Master Activity Schedule did not include enough time for the preparation of Puerto Rico materials; and
- (5) the complexity of addressing conventions for Puerto Rico during the development of forms or materials and the data capture of these addresses.

Overall most field materials used for the display, capture and modification of Puerto Rico addresses were adapted to account for the unique characteristics of Puerto Rico addresses. However, there are examples where adaptation was either not attempted, done in a less than preferable way, or done in a preferred way but, due to other circumstances, not implemented effectively. Some examples include the D-1 enumerator form, the Update/Leave Add Pages, and the address listing page for Nonresponse Followup.

The Address Canvassing universe had 1,534,702 Puerto Rico Master Address File units. These units included updates from the Local Update of Census Addresses program. Of these, about 70 percent of the addresses (1,075,162) were ultimately “good” for the 2010 Census.

The Initial Enumeration universe had 1,584,667 addresses and included Puerto Rico Master Address File units for Update/Leave, Group Quarters Enumeration and the Enumeration at Transitory Locations operations. Of these, about 95 percent or 1,508,177 addresses were ultimately “good” for the 2010 Census.

There was a net increase of 49,964 Master Address File units in the Puerto Rico census universe between the start of the 2010 Address Canvassing operation (1,534,702) and the start of the 2010 enumeration operations (1,584,667). This reflects the combined result of units being both added and deleted in the Address Canvassing and Group Quarters Validation operations.

Of the approximately 1.7 million Puerto Rico Master Address File units eligible for the 2010 Census at the end of the census process, 75 percent had city-style addresses and 25 percent had non city-style addresses. The proportion of Puerto Rico Master Address File units with city-style addresses increased over the 2010 Census process by approximately 11 percent (from 64 percent to 75 percent). On the contrary, the proportion of Puerto Rico Master Address File units with non city-style addresses decreased over the 2010 Census process by approximately the same (from 36 percent to 25 percent).

Recommendations

The 2010 Census of Puerto Rico Assessment incorporates recommendations prepared to improve the planning, development and implementation of the 2020 Census of Puerto Rico, as follows.

- Implement a Puerto Rico working group led by the Puerto Rico, Island Areas, and Overseas Branch to assist in the development and testing of materials for all operations. Materials and the training database should have specific examples for Puerto Rico geography and address structure.
- Ensure that Puerto Rico is included in earlier planning requirements due to its unique address format. Develop an address template for Puerto Rico when planning the 2020 Census and communicate it across all operations.
- Conduct a Dress Rehearsal in Puerto Rico. Test training materials, field procedures and the functionality of software and systems earlier in the decade.
- Even though the Census Bureau is proposing an online option for the 2020 Census, a Mailout/Mailback data collection is recommended for at least the San Juan-Caguas-Guaynabo Metropolitan Area. Results from a recent Internet test for the Puerto Rico Community Survey show a low response rate to the Internet instrument. According to the 2010 Census, the San Juan-Caguas-Guaynabo Metropolitan Area contained approximately 67 percent of the total population of the island. Also, about 77 percent of the addresses in this metropolitan area were identified as city-style by Geography Division.
- Establish procedures for translations ahead of time, keep terminology consistent for all materials, and keep adaptation and translation in mind when designing forms. Hire additional staff to work on the translation of operational materials at the Puerto Rico Area Office and Census Bureau headquarters. Include adaptation and translation of materials into kitting, printing and building schedules.
- Research the coverage of administrative records for the 2020 Census of Puerto Rico.

Conclusions

The integration of Puerto Rico into the 2010 Census was overall successfully implemented. Operations for the 2010 Census of Puerto Rico were conducted in a timely manner following the same schedule as the stateside census. Operational objectives were met on the island, although modifications to some systems and software were necessary. With the aid of adapted and translated materials, enumerators and listers completed the data collection phase with no major problems. Although staff experienced issues during data capture and data processing for Puerto Rico, they were able to successfully complete these phases and update the Puerto Rico Master Address File. However, for the 2020 Census of Puerto Rico, some improvements need to be made, including: the standardization of the unique addressing style in Puerto Rico across all operations, the research and review of the Puerto Rico Master Address File to ensure “good” addresses for the 2020 Census, the implementation of a working group to plan and oversee the

necessary changes and adaptations for Puerto Rico, and the implementation of a test site in Puerto Rico to verify that instruments and materials “translate” well to the field.

(This page intentionally left blank.)

1 INTRODUCTION

1.1 Purpose and Scope

The purpose of the 2010 Census of Puerto Rico Assessment is to evaluate the integration of the Puerto Rico census into stateside operations and to assess how the integration influenced the execution of the census in Puerto Rico. It will document the results of the 2010 Census of Puerto Rico including the workload, production rates, cost, major findings and lessons learned for all decennial census operations that took place. The assessment will also cover the planning, coordination, development, data collection, data capture and data processing phases.

Although the various operational assessments of the 2010 Census may include results for Puerto Rico, these results are discussed in the context of stateside operations. For this reason, they lack the level of analysis necessary to evaluate the 2010 Census of Puerto Rico. For example, the 2010 Census Address Canvassing Assessment focuses on the operation at a national level and does not specifically address the results of this operation in Puerto Rico and what factors influenced the outcome.

The 2010 Census of Puerto Rico Assessment will gather the detailed information necessary to analyze the quality of the integration of Puerto Rico operations into the stateside census. This specific analysis will be beneficial in identifying what aspects of the 2010 Census of Puerto Rico worked well, what needs improvement, and what issues affected the operations. The study documents improvements and recommendations that will aid stakeholders and Census Bureau management with 2020 Census planning.

1.2 Intended Audience

The intended audience for the 2010 Census of Puerto Rico Assessment includes:

- Executive Steering Committee;
- internal stakeholders, including the program managers and subject matter experts responsible for planning and implementing future censuses in Puerto Rico;
- external stakeholders.

1.3 Assumptions

- The various assessments and evaluations of the 2010 Census will contain minimal information and data regarding the 2010 Census of Puerto Rico.
- The Decennial Management Division will have access to data from other divisions in order to collect and analyze results for the 2010 Census of Puerto Rico.

2 BACKGROUND

2.1 Introduction

With the Treaty of Paris in 1898, Spain ceded the island of Puerto Rico to the United States. Between 1765 and 1887, Spain had taken censuses at irregular intervals. In 1899, the U.S. War Department conducted a special census of Puerto Rico but the island was not included in the decennial census until 1910. Since then, as instructed by Title 13 of the U.S. Code, Puerto Rico has been included in every U.S. decennial census. In 1952, Puerto Rico became a commonwealth, which offered autonomy for the island. Beginning in 1960 the Census of Population and Housing was conducted as a joint project between the Census Bureau and the government of the Commonwealth of Puerto Rico.

Puerto Rico is a small but dynamic island with a total population of 3.7 million people and 1.4 million households, according to the 2010 Census. Its people are proud of their Hispanic heritage but are also influenced by American culture and its way of life. The majority of Puerto Ricans recognize the importance of the Federal Government for the island and the benefits of being United States Citizens. Spanish and English are both official languages of the island, although Spanish is the dominant language. For the 2010 Census, these cultural differences represented a challenge for the Census Bureau to reach all segments of the population. Translation to the Spanish language, adaptation for addressing conventions, and adaptation for cultural relevance and sensitivity of all materials was necessary.

2.2 Memorandum of Agreement

In October of 1958, the Puerto Rico government and the Census Bureau signed a Memorandum of Agreement defining how the decennial census should be conducted in Puerto Rico. This agreement set forth the main goals of assuring that the census was conducted efficiently, distributing a large share of the responsibility for planning the census to Puerto Rico and taking into account Puerto Rico's unique statistical needs. The 1958 Memorandum of Agreement has been kept in place for each succeeding decennial census and amendments have been written for each of the censuses. These amendments were in the form of appendices and were signed by the Director of the Census Bureau and the appointee from the Government of Puerto Rico at the time.

The Puerto Rico Planning Board has consistently been designated by the governor of Puerto Rico as the liaison agency between the Puerto Rico government and the Census Bureau. In preparation for the 2010 Census, Governor Aníbal Acevedo Vilá sent a letter to the Census Bureau in 2005 reaffirming the agreement developed in 1958. Acevedo Vilá once more designated the Puerto Rico Planning Board as the agency responsible for coordinating matters pertaining to the decennial census and the Census Redistricting Data Program for the 2010 Census.

The Census Bureau decided that an appendix covering 2010 Census operations was not necessary for the Memorandum of Agreement. Several reasons led to this decision. First, it was

not necessary to discuss content development or data products definitions for Puerto Rico. Since Census 2000, the questionnaire content and questions used for Puerto Rico have been the same as stateside. Also, the Census Bureau has produced the same data products for Puerto Rico as stateside. The second reason is based on the implementation of the Puerto Rico Community Survey in 2005. The survey collects the same data as the census long form and does not differ from stateside. Therefore, there was no need for a long form for the 2010 Census of Puerto Rico. As a result, many of the provisions necessary for the Census 2000 Memorandum of Agreement no longer applied for the 2010 Census, making an appendix for 2010 irrelevant.

2.3 Census 2000 of Puerto Rico

Census 2000 of Puerto Rico was highlighted by several significant events including the use of the same questionnaire as stateside, the requirement that respondents mail back their questionnaires and the change in enumeration methodology from List/Enumerate to Update/Leave. The decision to switch to Update/Leave methodology was made for two primary reasons according to the Buckley-Ess and Hovland (2004) report. The first reason was the increase of limited-access communities on the island. The second reason was that the Puerto Rico population mirrored the stateside population in the prevalence of two-income households, which made it difficult for enumerators to find someone at home. There was also significant cost savings involved in having one methodology for the entire island. In addition, the reporting and monitoring requirements for one methodology were simpler.

In preparation for Census 2000, a Puerto Rico Working Group was created to handle the overall planning of census activities. It had representatives from Decennial Management Division, Population Division, Field Division, Decennial Statistical Studies Division, and Geography Division. This working group used the stateside address listing page as the model to develop a customized address listing page for Puerto Rico. It was agreed that modifications for Puerto Rico would be necessary but they were to be kept to a minimum because of concerns with processing issues. The address listing page was translated to Spanish and a required fourth line was added for the urbanization or condominium name.

It was understood that addresses in Puerto Rico were formatted differently and contained descriptors not used stateside, including (but not limited to):

- Urbanizations - housing subdivisions that are built by a single developer where houses are usually identified by a unique house number and streets are often named. Some urbanizations may have gated entrances.
- Carretera - a type of street often found in rural areas and associated with kilometer/hectometer markers. It spans long distances across the island and resembles “state roads” stateside. A carretera is usually identified by one, two, three, or four digit numbers. Carreteras containing one or two digits represent primary roads (PR 4 or PR 45). Those identified by three digits represent secondary roads (PR 345) and in a few cases, tertiary roads. Carreteras containing four digits most often represent tertiary roads (PR 1456).

- Ramal - a type of street on the island. It can be a main road or a tertiary service road found in rural areas or small communities and represented by a three or four-digit number preceded by an “R”. It usually reflects the carretera it branches off of (R 1456 off of Carretera 456).

The working group was aware of necessary changes to the address fields for Puerto Rico and communicated them via memoranda to all divisions. However, this information was not communicated to everyone who needed to know¹. According to Buckley-Ess (2004), this lack of communication affected all parties and resulted in a faulty initial processing of the address listing pages for Puerto Rico.

The Decennial Systems and Contracts Management Office had problems processing the data keyed from the address listing pages for Puerto Rico. An example is as follows. The 60-character address field contained either a city-style address or location description. To distinguish the type of address information, stateside listers set a flag, “A” or “D”. “A” indicated a city-style address and “D” a location description. However, the listers in Puerto Rico, where the address listing pages were in Spanish, set a flag “D” or “L.” “D” stood for *dirección* which indicated a city-style address, and “L” stood for *localización* which indicated a physical location description. The Decennial Systems and Contracts Management Office read the “D” on the Puerto Rico address files as indicating a location description, as “D” did for stateside addresses. When the Decennial Systems and Contracts Management Office reprocessed the files in an attempt to correct the error, unexpected address configurations arose that rendered the address information useless.

As a result, the Decennial Systems and Contracts Management Office and Geography could not get the information in the appropriate city-style address and location description fields on the Master Address File that was designed specifically for stateside addressing conventions. Geography and the Decennial Systems and Contracts Management Office decided to load all of the address information (city-style address and location description) in the location description field on the Master Address File. This decision allowed field enumeration operations to continue, but compromised Puerto Rico address listing data.

When Census 2000 operations were completed, the Puerto Rico Master Address File was in poor condition. For this reason the Census Bureau allotted around \$3.8 million to contract a private firm named Seek Data to clean up the Puerto Rico Master Address File. Seek Data developed a new data model for Puerto Rico Master Address File addresses in hopes of better enabling the Census Bureau to implement automated address processing activities for the 2010 Census. The revised Master Address File record layout included additional address fields and split the address information collected during census field operations into component parts. Seek Data added approximately 64,000 new housing units to the Master Address File and geocoded each address to a municipio, tract, and block.

Once Census 2000 was completed and data was published, a list of recommendations for the 2010 Census of Puerto Rico were included as part of the Buckley-Ess (2004) report. Major recommendations included the following:

¹ Puerto Rico 2000 Memoranda Series, NO. 97-01; Memorandum to Distribution List from Idabelle B. Hovland, January 28, 1998.

- Include Puerto Rico in any cognitive testing or efforts to field test different versions of the race question.
- Investigate further the use of the some other race category.
- Improve the Census message.
- Conduct a survey on respondents' views on data collection, census materials, and questions.
- Promote the use of the internet form.
- Create a new Puerto Rico address list.
- Consider Mail-Out/Mail-Back for 2010.
- Improve census maps and provide more map training.
- Ensure field materials arrive on time.
- Improve the process for including and informing all parties when customization is required.
- Standardize where appropriate.
- Support early planning.
- Develop Puerto Rico specific evaluations.

Throughout this assessment, we will discuss some of these recommendations and whether they were considered, tested, and implemented in the 2010 Census of Puerto Rico.

2.4 2010 Census of Puerto Rico

2.4.1 Budget

The U.S. Congress appropriated \$14.7 billion to conduct all activities for the 2010 Census. A portion of this money (approximately \$65 million) was specifically allocated to conduct the 2010 Census of Puerto Rico. This portion of the budget was managed by the Decennial Management Division and overseen by the Boston Regional Census Center (RCC). This budget supported census activities in Puerto Rico, the Puerto Rico Area Office, seven Local Census Offices, office staff and the field staff that carried out all the activities that took place on the island. Tables 1, 2 and 3 show these allocations by operation for fiscal years 2009, 2010 and 2011.

For 2009, the largest amount of the Puerto Rico budget was allotted to the identification and improvement of the census address list in order to achieve a more accurate and cost-effective census. For this reason, the Address Canvassing field operation for Puerto Rico had a total allocation of over \$5 million or 72 percent of the Fiscal Year 2009 Total (see Table 1).

Table 1. Fiscal Year 2009 Allocations for Puerto Rico Census Activities

Initial Allocation Description	Allocation Total
Field Operations	\$5,198,943
Address Canvassing	\$ 5,079,901
Census Coverage Measurement Listing	\$ 80,998
Group Quarters Validation	\$ 38,044
Puerto Rico Area Office	\$ 1,847,369
FY 2009 Total	\$ 7,046,312

Source: Census 2010 Decennial Management Division Cost Model Data

Notes: FY 2009 is based on the initial operating plan.

These totals do not include monthly reallocations.

The larger operations in the 2010 Census of Puerto Rico were Update/Leave and Nonresponse Followup. These operations involved the mobilization of thousands of field staff and office staff for the Local Census Offices and the Puerto Rico Area Office. For fiscal year 2010, the Update/Leave operation received 28 percent or \$15,640,112 of the \$54,976,202 budget allocated for census activities in Puerto Rico. Nonresponse Followup was the largest operation for this fiscal year and received a total allocation of \$23,128,635 or 42 percent of the total budget (see Table 2).

Table 2. Fiscal Year 2010 Allocations for Puerto Rico Census Activities

Initial Allocation Description	Allocation Total
Field Operations	\$45,006,301
Census Coverage Measurement	\$ 1,562,310
Enumeration at Transitory Locations	\$ 46,667
Field Verification	\$ 268,436
Group Quarters Advance Visit	\$ 172,937
Group Quarters Enumeration	\$ 491,003
Group Quarters Validation	\$ 250,087
Nonresponse Followup	\$ 23,128,635
Questionnaire Assistance Centers and Be Counted	\$ 393,041
Service Based Enumeration	\$ 30,974
Update/Leave	\$ 15,640,112
Vacant/Delete Check	\$ 2,956,873
Nonresponse Followup Residual	\$ 65,226
Local Census Offices	\$7,903,641
Puerto Rico Area Office	\$2,066,258
FY 2010 Total	\$54,976,202

Source: Census 2010 Decennial Management Division Cost Model Data

Notes: FY 2010 is based on the approved revisions to the operating plan.

These totals do not include monthly reallocations.

Census Coverage Measurement operations during the 2011 fiscal year in Puerto Rico were allotted \$606,671 or 28 percent of the total allocation for 2011 (see Table 3).

Table 3. Fiscal Year 2011 Allocations for Puerto Rico Census Activities

Initial Allocation Description	Allocation Total
Field Operations	\$606,671
Census Coverage Measurement Final Housing Unit Followup	\$98,587
Census Coverage Measurement Person Interview	\$73,854
Census Coverage Measurement Person Followup	\$434,230
Puerto Rico Area Office	\$1,566,600
FY 2011 Total	\$2,173,271

Source: Census 2010 Decennial Management Division Cost Model Data

Notes: FY 2011 is based on the initial operating plan

These totals do not include monthly reallocations.

2.4.2 Enumeration Methodology

After the 1990 Census, the Puerto Rico population and its characteristic trends were analyzed in order to enhance the enumeration process in Puerto Rico. As a result, the Census Bureau decided to use the Update/Leave enumeration methodology in Puerto Rico for Census 2000. This methodology offered some benefits because it had been used stateside for many decennial censuses and it could help with the development of an address list that could be used in future decennial operations.

Previous decennial censuses in Puerto Rico were enumerated using the Update/Enumerate methodology, where enumerators visited housing units to complete the questionnaire, and to update addresses and census maps. During the Census 2000 Update/Leave operation, enumerators canvassed assignment areas. They delivered a census questionnaire to each housing unit and updated the address listing pages and Census Bureau maps. The main difference between both methodologies was that for Update/Leave households completed and returned the questionnaire by mail.

Johanson et al. (2011) mentions that the 2010 Census Puerto Rico Working Group submitted a proposal for the implementation of the Mail-Out/Mail-Back methodology in the San Juan Metropolitan Area while maintaining the rest of the island as Update/Leave methodology. This proposal anticipated a successful Mail-Out/Mail-Back for this area in Puerto Rico but a decision was made by 2010 Census management to implement Update/Leave for the entire island. This decision was based on coverage concerns due to a constant absence of city-style addresses in the considered Mail-Out/Mail-Back area. This decision was consistent with the approach for Census 2000.

2.4.3 Questionnaire Content Development

Before Census 2000, the Census Bureau developed the questionnaire content for Puerto Rico in conjunction with the Puerto Rico Planning Board. This process ensured that Puerto Rico's unique statistical needs were satisfied. The Puerto Rico questionnaire had unique topics such as parents' place of birth, vocational training, and condition of housing unit. However, it did not include topics such as race, Hispanic origin, and home heating fuel, which are included in the stateside questionnaire because these topics did not apply to Puerto Rico.

In 1997, during the questionnaire content development phase for Census 2000, the Government of Puerto Rico requested that the Census Bureau use the same decennial questionnaire content as stateside. Having the same content would allow Puerto Rico census data to be processed and released on the same schedule as stateside census data. This meant that Puerto Rico's data would be released sooner than in past censuses. It also allowed for the inclusion of Puerto Rico in stateside summary statistics and provided comparability with stateside data.

Minor changes to the Puerto Rico questionnaire were necessary for the 2010 Census, such as translation to the Spanish language and adaptation of some terminology (e.g. changing county for municipio). The cover letter for the questionnaire was also slightly altered in order to improve the mail back response. The statement reminding respondents to mail back their questionnaires was emphasized in the 2010 Census. This sentence was moved to the first paragraph of the cover letter and written in bold format. For Census 2000, this information was located by the third paragraph and not bolded. As a result many respondents waited for the followup visit by an enumerator to hand in their questionnaire.

2.4.4 Office Organization

The Census Bureau established a hierarchy of offices to manage and conduct the operations for the 2010 Census of Puerto Rico. This hierarchy encompassed the Field Division at Census Bureau headquarters, the Boston Regional Census Center, the Puerto Rico Area Office, the Early Local Census Offices for the Address Listing Operations, and the Local Census Offices. Each of these offices had specific responsibilities and tasks essential to the success of the 2010 Census.

2.4.4.1 U.S. Census Bureau Field Division

The Field Division was responsible for the data collection for the 2010 Census. The Field Division delegated tasks to the Regional Census Centers, Puerto Rico Area Office and the Local Census Offices in order to ensure the success of all address listing and enumeration activities. Field Division was responsible for the overall planning, preparation, and management of field activities supporting decennial data collection and geographic operations.

The Field Division's specific duties were to:

- Develop, translate and adapt decennial census program requirements for manuals and training, goals, and objectives for implementation in the field.
- Provide procedural, training and detailed data collection schedules which fit into the overall Master Activities Schedule for 2010 Census operations.
- Develop, translate and adapt field and office forms, procedures, and training materials.
- Provide guidance and support to managers within the temporary field infrastructure.
- Support the development of detailed budgets, cost estimates, staffing requirements, and other resource needs.
- Monitor expenses and costs for each field operation.

- Manage the operations and activities that support national recruiting and pay rate planning, as well as space management and logistics planning.
- Provide procedures, training, and schedules for the field partnership program.

2.4.4.2 Boston Regional Census Center

To administer the decennial census, the Census Bureau established 12 temporary Regional Census Centers that were separate from the Census Bureau's 12 permanent Regional Offices. The Regional Census Centers were located in or near the same city as the 12 permanent Regional Offices. The Regional Census Centers housed regional management personnel and acted as a center for all decennial field activities and operations conducted within the region, as well as administrative, geographic, and partnership operations and activities.

For the 2010 Census the Regional Census Centers were located in Atlanta, Boston, Charlotte, Chicago, Dallas, Denver, Detroit, Kansas City, Los Angeles, New York, Philadelphia, and Seattle. These offices were responsible for managing all address listing and field data collection operations through a network of Local Census Offices. Regional Census Centers also printed large scale maps for the Local Census Offices in Puerto Rico and coordinated the Local Update of Census Addresses program.

As in Census 2000, the Boston Regional Census Center was responsible for all data collection and geographic operations for Puerto Rico and oversaw the Puerto Rico Area Office and seven Local Census Offices for the 2010 Census. For previous censuses Puerto Rico fell under the administration of different Regional Census Centers such as New York for the 1990 Census and Philadelphia for the 1980 Census.

The Boston Regional Census Center conducted the following activities for the duration of the 2010 Census:

- Manage the field data collection at the regional level, and on the island of Puerto Rico.
- Recruit management staff for the Regional Census Center, Puerto Rico Area Office and its associated Local Census Offices.
- Print maps.
- Delineate the Type of Enumeration Areas for the 2010 Census of Puerto Rico.
- Monitor and provide direction and support to the Puerto Rico Area Office and the associated Local Census Offices.
- Provide reports and information status to Census Bureau headquarters.

2.4.4.3 Puerto Rico Area Office

The Puerto Rico Area Office was located in San Juan and had 64 employees. It operated as an extension of and reported directly to the Boston Regional Census Center during the 2010 Census. It managed and provided technical assistance to the seven Local Census Offices on the island.

Technicians helped Local Census Offices set up and maintain computer equipment and provided technical support on geography, data collection, and post census activities. This office was the only area office of its kind for the 2010 Census and was established due to Puerto Rico's unique characteristics including: the language difference, the methodology used for enumeration and the fact that Puerto Rico is an island located far from the Boston Regional Office.

Another of the Puerto Rico Area Office's responsibilities was the Spanish translation and review of most adapted field forms, training guides, and materials for Puerto Rico activities. This office also focused on the formation and management of partnerships between the Census Bureau and the Puerto Rico government, civic and religious groups, business communities, and charitable organizations. It also offered support in the geographic, recruiting, automation and administrative areas. Partnership specialists established and maintained partnerships with local governments, media, and community organizations. Such partnerships were developed to promote community awareness and participation in the census throughout each Local Census Office community.

2.4.4.4 Early Local Census Offices

The Census Bureau established three Early Local Census Offices on the island for the 2010 Census of Puerto Rico. These were located in the municipios of San Juan, Ponce, and Arecibo. These offices managed and conducted the address listing operations including the Address Canvassing and Group Quarters Validation operations.

The Early Local Census Office staff canvassed blocks in Puerto Rico and updated the census address list. For Address Canvassing, this staff verified the correctness of addresses on the ground, added addresses that were missing, deleted addresses that did not exist in the block, and corrected addresses that were inaccurate. Staffing working in the field also updated maps during Address Canvassing. They added and deleted streets and collected map spots for structures.

For Group Quarters Validation, this staff verified that group quarters addresses had the correct census geography and validated the addresses of other living quarters. They also determined the type of group quarters and collected information for those group quarters that were validated. Staff added group quarters, housing units, and transitory locations that were not already on the address list.

Once the Address Canvassing and Group Quarters Validation operations were completed, the Early Local Census Offices became Local Census Offices for the rest of the 2010 Census of Puerto Rico operations.

2.4.4.5 Local Census Offices

The organizational structure of the 2010 Census identified six different types of Local Census Offices. Each of the Local Census Office types was designed to address specific characteristics including: the geography type, the mail delivery system, the style of addresses (rural or urban), and the requirements for accurately enumerating the populations in the communities assigned to each Local Census Office. The type of Local Census Office also varied by the number of

housing units for which each was responsible and by the method of enumerating the population. Local Census Offices in Puerto Rico were assigned Type E because enumeration was conducted solely through Update/Leave. Data collected from Type E Local Census Offices were handled by the Boston Regional Census Center.

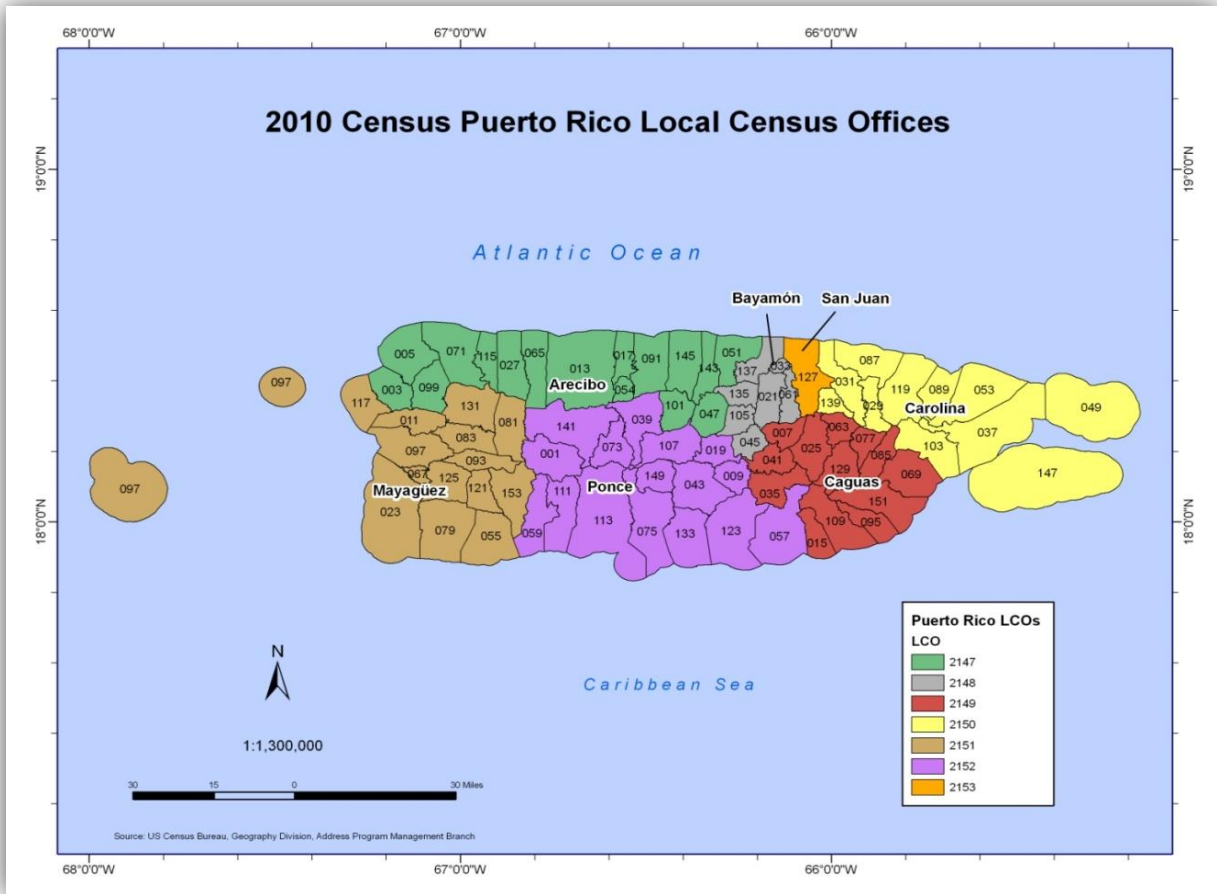
In 2007, the Boston Regional Office submitted a plan to Census Bureau headquarters for the delineation of the Local Census Offices in Puerto Rico based on the 2010 Local Census Office Delineation Guidelines². This information was sent to Geography Division who entered it into the Master Address File/Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) database in preparation for census field activities. The delineation of the seven Local Census Offices in Puerto Rico followed the same criteria as stateside. These criteria were:

- Local Census Office size definition was based on the estimated Nonresponse Followup housing unit workload (not total housing units) when delineating Local Census Offices.
- Local Census Office boundaries could not cross municipio boundaries.
- Local Census Offices had to be geographically compact to the highest extent possible, so that there were neither impassable features nor transportation problems which would obstruct access to any part of the area served by the Local Census Office.
- All parts of a Local Census Office had to be accessible without having to travel through another Local Census Office.
- Office staff had to be able to access any point served by the Local Census Office in a “reasonable” amount of time.
- Local Census Office names were city names.
- Military installations were delineated within one Local Census Office to provide one point of contact for data collection activities.

In contrast to Census 2000, when nine Local Census Offices were established, only seven Local Census Offices were drawn in Puerto Rico for the implementation of the 2010 Census (see Figure 1). These Local Census Offices were responsible for the enumeration of 10,731 assignment areas.

² Brian Monaghan, “Local Census Office (LCO) Delineation,” GSP Memorandum No. 07-12, March 29, 2007.

Figure 1. 2010 Census Puerto Rico Local Census Offices



The distribution of these seven Local Census Offices is illustrated on the map (see Figure 1). Below is the list of municipios, which are county equivalents, by Local Census Office:

- Arcibo Local Census Office (16 municipios)

Aguada	Morovis	Isabela
Arecibo	Vega Alta	Moca
Camuy	Aguadilla	Quebradillas
Dorado	Barceloneta	Vega Baja
Hatillo	Corozal	
Manatí	Florida	

- Bayamón Local Census Office (7 municipios)

Bayamón	Naranjito
Cataño	Toa Alta

Comerío	Toa Baja
Guaynabo	

- Carolina Local Census Office (11 municipios)

Canóvanas	Luquillo
Carolina	Naguabo
Ceiba	Río Grande
Culebra	Trujillo Alto
Fajardo	Vieques
Loíza	

- Caguas Local Census Office (13 municipios)

Aguas Buenas	Gurabo	Patillas
Arroyo	Juncos	San Lorenzo
Caguas	Humacao	Yabucoa
Cayey	Las Piedras	
Cidra	Maunabo	

- Mayagüez Local Census Office (14 municipios)

Añasco	Lares	Sabana Grande
Cabo Rojo	Las Marías	San Germán
Guánica	Maricao	San Sebastián
Hormigueros	Mayagüez	Yauco
Lajas	Rincón	

- Ponce Local Census Office (16 municipios)

Adjuntas	Guayanillas	Salinas
Aibonito	Jayuya	Santa Isabel
Barranquitas	Juana Díaz	Utua
Ciales	Orocovis	Villalba
Coamo	Peñuelas	
Guayama	Ponce	

- San Juan Local Census Office (1 municipio)

The organization of the Local Census Offices was divided into five areas of responsibility: management, field operations, recruitment, administration and selection, and automation. The Local Census Office manager, supported by assistant managers for field operations, of quality assurance, recruiting, administration and technology, had the ultimate responsibility for all operations performed by Local Census Office staff. Those included monitoring the cost and progress for operations, meeting deadlines and data quality standards, and ensuring both the

overall security and efficiency of the Local Census Office. Field activities were coordinated by field and office operations supervisors under the supervision of the assistant manager for field operations. These supervisors were responsible for training and supervising crew leaders who trained, monitored, and coordinated the activities of the enumerators. Enumerators were directly responsible for data collection in the field, visiting housing units and group quarters, and completing census questionnaires.

The efforts of field staff were supported by the clerks responsible for preparing assignments, reviewing and checking in work from the field, and maintaining an inventory of supplies and training materials. Recruitment and testing for Local Census Offices was overseen by the Assistant Manager for Recruiting, with the aid of assistants, clerks, and an Office Operations Supervisor. The Assistant Manager for Administration and his or her office operations supervisors and clerks were responsible for administrative activities such as the payroll, interviewing and selection of staff, processing of applications, maintenance of office and training supplies, and other human resources duties. Table 4 shows the distribution of personnel hired in each Local Census Office for the implementation of the 2010 Census operations.

Table 4. Number of Office Staff That Worked in the Local Census Offices Throughout the 2010 Census of Puerto Rico

Local Census Office	Clerks and Office Operations Supervisors	Recruiting Assistants	Managers and Assistant Managers
Arecibo	235	21	11
Bayamón	134	25	10
Caguas	131	19	7
Carolina	142	22	10
Mayagüez	116	19	8
Ponce	185	22	14
San Juan	183	23	14

Source: Table developed by authors with data provided by the Modeling and Analysis Branch, U.S. Census Bureau.

The Local Census Offices in Puerto Rico were tasked with the following local activities for the duration of the census:

- Print address lists and maps for paper-based operations.
- Recruit, hire, and train qualified employees to work in the Local Census Office and in the field.
- Key administrative and operational data for paper-based operations.
- Track office assets.
- Provide operational and procedural direction and support to all field staff within the Local Census Offices defined geographic area.

When considering field staff that worked on each operation conducted in the 2010 Census of Puerto Rico, there were 26,354 field staff positions across the island for all operations. The

distribution of field staff by operation for all seven Local Census Offices in Puerto Rico is shown in Table 5.

Table 5. Number of Field Staff that Worked on Each Operation by Local Census Office in Puerto Rico

Operation	Number of Field Staff per Local Census Office in Puerto Rico							Total
	Arecibo	Bayamón	Caguas	Carolina	Mayagüez	Ponce	San Juan	
Address Canvassing	657	460	395	552	336	416	471	3,287
Group Quarters Validation	33	16	25	44	36	30	25	209
Group Quarters Operations	99	82	87	52	67	68	57	512
Enumeration at Transitory Locations	5	2	2	1	25	5	5	45
Update/Leave	1,407	1,119	1,241	1,160	1,107	1,374	983	8,391
Nonresponse Operations	2,422	1,746	1,874	2,105	1,783	1,863	1,755	13,548
Field Verification	54	55	49	59	58	58	29	362
Census Coverage Measurement	102	88	76	69	109	98	63	605

Note: Numbers in this table represent how many Puerto Rico field staff worked on each operation. If a person worked on multiple operations, he/she will be counted in each operation that he worked on.

Source: Table developed by authors with data provided by the Modeling and Analysis Branch, Field Division, U.S. Census Bureau.

Arecibo was one of the largest Local Census Offices during the 2010 Census of Puerto Rico. It included municipios with many rural areas and complicated geographies as well as the largest number of group quarters. For that reason the Arecibo Local Census Office had a higher workload and required more field and office staff during the 2010 Census (see Table 4 and Table 5). Also, many urbanizations³ with control access and hard-to-count⁴ areas were part of this Local Census Office. As a result it had the largest number of field staff assigned to it during census activities such as Address Canvassing, Group Quarters Operations, Update/Leave and Nonresponse Followup (see Table 5).

Puerto Rico Local Census Offices and their staff were an integral part of the 2010 Census. They played a key role in most census field operations, ensuring that census activities were conducted accurately and in a timely manner.

2.4.4.6 Puerto Rico, Island Areas, and Overseas Branch

The Census Bureau's Puerto Rico, Island Areas, and Overseas Branch of the Decennial Management Division worked as a subject matter expert with other Census Bureau divisions and contractors to plan and coordinate all 2010 Census of Puerto Rico activities. The Puerto Rico, Island Areas, and Overseas Branch consisted of four sections: Puerto Rico, Island Areas, Overseas, and Translation.

³ An urbanization is a housing subdivision that is built by a single developer where houses are single family structures usually identified by a unique house number and streets are often named. Some urbanizations may have gated entrances and the characteristics of a community.

⁴ Hard-to-Count Areas are defined across the country as areas that were likely to be hard to enumerate. There are twelve variables used to qualify an area as hard-to-count including: whether or not more people are living in the same housing, whether or not housing has a telephone, the poverty rate, high school graduation rate, linguistic isolation, mobility, and unemployment.

The Puerto Rico, Island Areas, and Overseas Branch responsibilities for the 2010 Census of Puerto Rico included:

- Advocate for the interests of Puerto Rico recognizing the geographic, linguistic and cultural concerns.
- Review geographic areas criteria.
- Review the translation and adaptation of field and office procedures, manuals, and training guides for census operations in Puerto Rico.
- Review the translation and adaptation of outreach, promotional, and Census in Schools materials.
- Work with the Geographic Programs Branch, Geography Division, Field Division, Field Data Collection Automation Project Management Office, and contracting staff to design and adapt the hand-held instrument used for the Address Canvassing operation, to satisfy the unique address characteristics of the city-style and non city-style address in Puerto Rico.
- Coordinate and collaborate with the Boston Regional Census Center about unfolding issues and concerns during the 2010 Census.
- Act as the liaison between the Puerto Rico Planning Board, the Puerto Rico Institute of Statistics, local government officials, and the Census Bureau during the planning, execution, processing, and publication stages of the census.

These responsibilities differed from those that the Puerto Rico, Island Areas, and Overseas Branch had for previous censuses. For Census 2000, this branch acted as the main liaison and mediator for the Puerto Rico Planning Board, other Census Bureau divisions, and contractors during the development and planning process for Census 2000 in Puerto Rico⁵. Their responsibilities included:

- Developing budgets and cost models,
- Drafting and negotiating the terms of the Memorandum of Agreement and ensuring all approvals and signatures were in place on time,
- Adapting geographic areas criteria,
- Preparing field and office procedures, manuals, and training guides,
- Preparing and purchasing outreach and promotional materials, and

⁵ U.S. Census Bureau (2009), "History: 2000 Census of Population and Housing," Volume 2, Chapter 12.

- Maintaining communication with local government officials during the planning, implementation, processing, and publication stages of the census.

For the 2010 Census, many divisions and operational programs had their own Puerto Rico subject matter experts which could have resulted in the differences in procedures, standards, and the decisions taken. Some delays with review processes were caused by the lack of an established hierarchy when making decisions regarding review of materials and general issues regarding Puerto Rico.

2.5 Integrated Communications Program

Since the 1990 Census, Puerto Rico has been included in promotional programs with the main objectives of increasing the awareness of the importance of the census and the response rate. The 1990 Census was the last in which the Census Bureau relied only on public service announcements to promote the census. For Census 2000, the Partnership and Marketing Program used an integrated strategy for the first time that included paid advertising. For Puerto Rico, promotional materials originally created for stateside were culturally adapted and translated to Spanish. This effort resulted in an average short form mail return rate of 62 percent in Puerto Rico for 2000.

For the 2010 Census, a Census Integrated Communications Program was designed and tailored specifically for Puerto Rico. The Census Bureau recognized the need for such a program because of the cultural, linguistic, geographic, and social differences between the Commonwealth of Puerto Rico and the United States. This campaign targeted all generations and backgrounds and was designed to educate and motivate the entire population of Puerto Rico to participate in the 2010 Census, to increase mail response, and to reduce undercount (U.S. Census Bureau, 2008).

The Census 2010 Publicity Office implemented a paid advertisement campaign to help achieve the Integrated Communications Program objectives. The Census 2010 Publicity Office worked with DraftFCB, an advertising agency and the primary contractor (who partnered with DraftFCB Puerto Rico), to design a program that identified appropriate communication channels to address the challenges for the 2010 Census of Puerto Rico. These channels involved media, partnership activities, and marketing efforts. The methods used for this campaign worked to create a consistent message and strategy to reach and motivate the residents and community leaders of Puerto Rico.

The Integrated Communications Program was comprised of eleven areas that will be further discussed below.

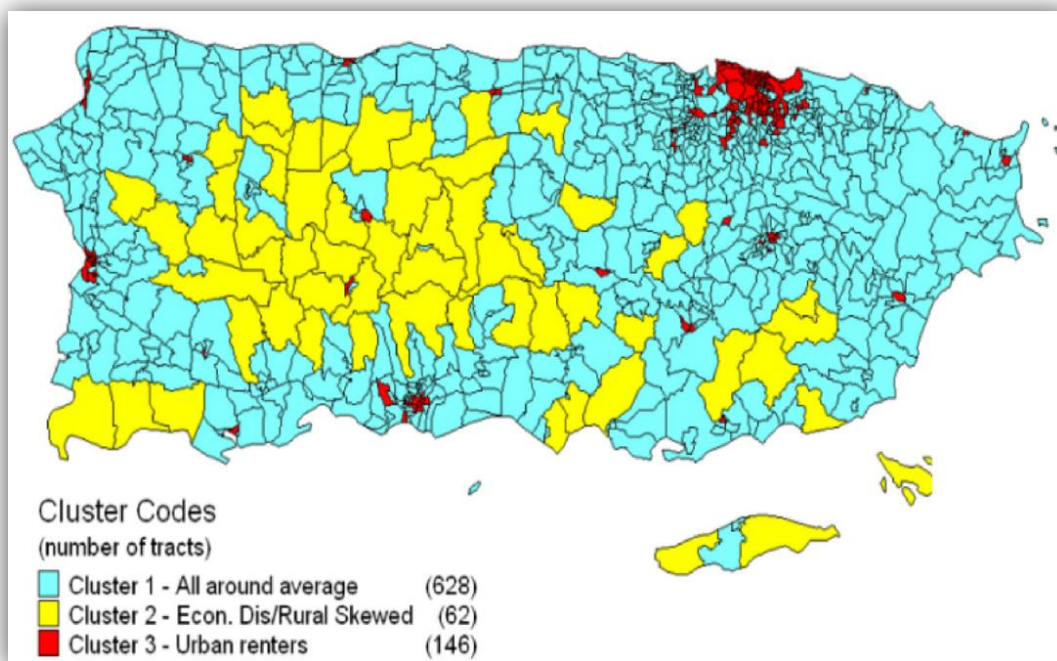
2.5.1 Research

The communications program for the 2010 Census of Puerto Rico was built on a foundation of research to ensure that the message addressed all population segments and challenges identified after Census 2000. These challenges included: a lack of the public's knowledge about the importance and purpose of the census, lack of knowledge about the process in general and the

confidentiality of the information, and ignorance about the critical role the results of the census plays in assisting the development of Puerto Rico (U.S. Census Bureau, 2008). A growing community of undocumented immigrants in Puerto Rico also presented a challenge that needed to be addressed. In order to facilitate the research, the Puerto Rican audiences and hard-to-count segments needed to be identified. Three different and mutually exclusive clusters were identified using data from the Census 2000, the 2006 Puerto Rico Community Survey, and *Target Group Index* Research Data, among several data sources (U.S. Census Bureau, 2008).

The three clusters identified (see Figure 2) were “all around average”, “economically disadvantaged”, and “urban renters”.⁶

Figure 2. Clusters Identified in Puerto Rico Through the Audience Segmentation Model for the 2010 Census



Source: U. S. Census Bureau (2008), “2010 Census Integrated Communications Campaign Plan,” August 2008274-290.

The information from the clusters identified was used in the process of making final media buying decisions, in order to address the specific needs of each cluster. In addition to audience

⁶ The first cluster identified was “all around average”. This cluster was characterized by a short form mail return rate of 63 percent during Census 2000, 78 percent of housing units were occupied (620 tracts), housing units were mostly urban, and 76 percent were owners of mostly single family homes, among other characteristics. The second cluster, called “economically disadvantaged”, was characterized by a short form mail return rate of 67 percent in 2000, only 6 percent of housing units were occupied (58 tracts), more than half of the households were located in rural areas, 62 percent of housing units were husband/wife households, one fourth of households were “crowded”, and housing units were mostly single family homes, among other characteristics. The last cluster identified the “urban renters”. This cluster was characterized by a 57 percent short form mail return rate in 2000, 16 percent of housing units were occupied (145 tracts), households were mostly renters who lived in multi-units located in large urban areas, 65 percent were not husband/wife households, 29 percent were single person householders, and some tracts were near universities, among other characteristics.

segmentation, other research efforts were employed. Two phases of a Creative Copy Testing⁷ took place in Puerto Rico to pre-test campaign communications materials and ensure that the most effective and relevant communications were developed.⁸ A total of 46 residents participated in these sessions in February 2009. Half were from urban areas and the other half were specifically recruited from the rural areas outside of San Juan. Television spots, print executions from all campaign phases (Awareness, Motivation, and Nonresponse Followup) were presented and rotated among sessions. Three additional copy-testing sessions took place in August 2009 with approximately 10 participants each. From these, two sessions were conducted to reach metro and rural audiences. The third session focused specifically on the Dominican audience, which is the largest minority group on the island. The results of identifying clusters and testing were used as a base for the design and media buy decisions made for the Integrated Communications Program for Puerto Rico.

2.5.2 Promotional Materials

Puerto Rico is a small island (100 by 35 miles) with a strong pride for its origins. Its people feel Puerto Rican first, regardless of the fact that all Puerto Ricans are American citizens by law. Puerto Rico pride is born out of the geographical detachment and the differences in language and cultural values. According to research, people in Puerto Rico do not show a lot of interest in “American” initiatives; this may be caused by a lack of understanding, apathy, or a result of fear. Puerto Ricans generally perceived the decennial census as a United States initiative. Thus there was a need to educate about the importance of the census in Puerto Rico for the community to generate interest and a commitment to participate in the 2010 Census.

Fortunately, apathy was a challenge that could be managed efficiently given the unique composition of the island and the diverse media channels available (U.S. Census Bureau, 2008). Puerto Rico has three strong Spanish (Local) television networks, over 100 Spanish radio stations, three daily newspapers in Spanish, one in English, several magazines and out-of-home media options (e.g. billboards, promotional mega meshes stretched on buildings and digital screens placed in strategic high traffic areas, among others). These media efficiently reached the vast majority of the Puerto Rican population, and enjoyed solid audience and readership numbers.

Promotional materials for the 2010 Census of Puerto Rico were designed to keep these facts in mind. The goal was to identify reliable individuals within local governments, community-based organizations, schools, media outlets, and each community who could help increase cooperation from communities to respond to the census. This program emphasized working with partners who were experts on outreach for specific audiences and hard-to-count communities. These partners produced and reviewed materials pertaining to their specific audience and ensured that

⁷ Copy testing is a specialized field of marketing research that determines an ad’s effectiveness based on consumer responses, feedback, and behavior. Also known as pre-testing, it covers all media channels including television, print, radio, internet, and social media.

⁸ MAYA Group (2009), “2010 Census Communications Campaign Creative Copy Testing Final Summary Report,” C2PO 2010 Census Integrated Communications Research Memoranda Series No. 13, July 22, 2009.

materials were culturally relevant and sensitive. All promotional materials created for Puerto Rico were synchronized with a specific phase of the 2010 Census campaign.

In support of this program, more than 300 products were developed to reach everyone living in Puerto Rico as part of the effort to motivate participation, such as trinkets, customizable products, printed promotional materials, and electronic materials. For Puerto Rico, these promotional materials were identified by Field Partnership and Data Services, the Customer Liaison and Marketing Office, and the 2010 Census National Partnership Nerve Center.

The Puerto Rico, Island Areas, and Overseas Branch in the Decennial Management Division helped translate and review Spanish versions of Puerto Rico advertising and promotional materials. The review process for Spanish materials was a challenge due to the limited number of bilingual subject matter experts for Puerto Rico. The limited staff received a high volume of materials with a short turn around period.

Figure 3. Example of Promotional Materials Created Specifically for Puerto Rico



Figure 3 is an example of the creative promotional products that were culturally designed for the Puerto Rico audience. Additional materials were also developed to help Puerto Rico partner organizations reach communities and educate the population about the benefits of participating in the 2010 Census, such as chip clips, fact sheets, brochures, posters (such as the one previously shown in Figure 3), toolkits, and activity guides for community and faith based organizations. All clusters identified through research were targeted and diverse media were developed for this

campaign considering content, exposure, and consumption patterns of each cluster population in Puerto Rico

2.5.3 Paid Advertisement

An intense media campaign took place in Puerto Rico during the period of January through April 2010 in order to effectively cover the different segments of the Puerto Rican population. A total of 2.4 million dollars was spent for advertisement in Puerto Rico⁹. Three phases were designed for this campaign:

- Phase 1 was the Awareness Phase and the main purpose was to boost awareness and familiarity with the 2010 Census.
- Phase 2 was the Motivation Phase and the main purpose was to generate a call to action and motivate individuals to complete the census form and mail it back.
- Phase 3, the Support Phase, was based on mail response. Its main purpose was to support Nonresponse Followup efforts to help people understand that enumerators were coming to their door and they should cooperate.

Media negotiations focused on obtaining the most efficient costs plus added-value elements to further enhance the exposure of the messages through media integration, the sponsorship of major media events, and the participation in special media promotions.

According to research (U.S. Census Bureau, 2008), the majority of the Puerto Rico population is among the middle to lower income segments. Traditional media, such as local TV stations, radio and, to a certain degree, newspapers (because of weekly ads, inserts, and circulars) are the most important media in terms of audience and reach capacity. The younger, more sophisticated, affluent, and educated segments are more elusive and their media consumption is more varied and more dynamic. They have a very selective use of traditional media and are more exposed and open to nontraditional vehicles. In reaching them, content becomes the critical element.

The following is a summary of media availability in Puerto Rico and how it contributed to the 2010 Census campaign.

- *Television:* This is the media with the greatest impact because of its audio-visual attributes. There are six main TV stations and local cable channels on the island. In Puerto Rico it was a very efficient medium and the most cost-effective way to generate reach across all identified clusters by selecting specific local programming such as variety shows, soap operas, movies, and sitcoms.

⁹ Wroblewski, Monica, "2010 Census – Integrated Communications Program: Paid Advertising Assessment Report," U.S. Census Bureau, April 16, 2012, pp. 22.

- *Radio*: Comprised of more than 120 radio stations in Puerto Rico. This abundance allowed efficient targeting for different ages, income, and geographic segments as needed. The plan included public service announcements, news editorials, tailored capsules, ½ hour radio programs, and talk show interviews.
- *Newspapers*: There were three main daily publications that covered the entire island and effectively reached the cluster segments. Additionally, six regional newspapers and college publications expanded the print presence with local and strategic messages directed to persons of influence in communities, hard-to-count areas, and immigrants.
- *Outdoor media*: A variety of methods were used to reach out to the people, for example: billboards, promotional mega meshes stretched on buildings, digital screens placed in strategic high traffic areas, and messages on Out-of-Home-Trucks transiting rural areas, among others.
- *Online*: This resource reached out to the affluent, professional, and younger segments in Puerto Rico and allowed interaction with the audience. Online media was used to reach the “All Around Average” and “Urban Renters” clusters.

2.5.4 2010 Census Website

The general public had constant access to the 2010 Census website *2010census.gov*. This website presented three primary messages: the census is easy, important, and safe. It was an interactive, state of the art site that allowed users to blog, access top questions of the day, view featured videos, and much more. It also had an interactive census questionnaire for responders to see the actual questions that were mailed out and learn the reason why each question was asked.

The *2010census.gov* site served as an anchor for the whole 2010 Census Integrated Communications Program, connecting its audiences with social media tools, a large variety of multimedia content (e.g., the marquee, video, and images), and a Language Assistance Module (e.g., Language Assistance Guides). Through the use of these social media tools, the Census Bureau hoped to offer individuals ownership of their census and a better understanding of how their participation in the 2010 Census would shape the nation’s future. Also, all campaign materials were uploaded on the web and were available for users’ consumption. For example: partners could download logos and printable promotional materials, media outlets could download public service announcements, job seekers could find out how to apply for enumerator positions, teachers could download educational materials from the Census in Schools website, and the general public could find information on the census.

The messaging content on the 2010 Census website changed with the phases of the communications campaign. This occurred for every phase of the Integrated Communications Program, from the paid media, to partnerships, to Census in Schools, to the Road Tour, and the Take 10 Program. The 2010 Census website was fully mirrored by a site in Spanish. For Puerto Rico it provided promotional and earned media materials as well as partnership resources in

Spanish that were created, adapted and translated for its diverse audiences. It also provided links for videos about the census for the Puerto Rico audience.

Even though the 2010 Census website had a link to the Census in Schools site, this site was not translated to the Spanish language. However, the site contained downloadable educational materials in Spanish developed by Scholastic, Inc. and the Census Bureau for schools in Puerto Rico, such as a Principals Kit and lesson plans for grades Kindergarten to 12.

2.5.5 Portrait of America Road Tour

The goals of the Portrait of America Road Tour were to generate local interest, to educate the public about the importance and benefits of census participation, and to grant local press coverage. The Puerto Rico Road Tour van was not provided through the Integrated Communications Program contract. The Boston Regional Census Center leased a Sprinter van for the Tour through the General Services Administration. They also designed a vehicle wrap and bought a sound system, generators, and tables to equip the van with a budget provided by Census Bureau headquarters. The Integrated Communications Program provided promotional giveaways specifically for the Puerto Rico Road Tour. On February 22, 2010 the Puerto Rico Road Tour, “Un Retrato de Puerto Rico,” had its kick-off in Fort “San Felipe del Morro,” an iconic and historical site in San Juan. The Puerto Rico Road Tour van was driven by partnership assistants who were hired by the Puerto Rico Area Office.

The Road Tour visited more than 30 municipios and traveled more than 1,500 miles in 51 days with the support of about 100 partners. The Road Tour vehicle stopped at major media markets in high traffic areas such as special events and shopping malls. The audio and video exhibits focused on the history and importance of the United States census. Also, printed materials, adapted for Puerto Rico and translated to Spanish, were available for distribution to visitors.

2.5.6 Rapid Response

A critical part of the Integrated Communications Program involved an advertising budget reserved to make last minute advertising buys for situations such as low responding areas, negative or inaccurate media, and disruption of census operations due to disasters, boycott issues, and enumeration issues. This program was called the Rapid Response Program. The need to activate this program was identified by means of consulting daily mail participation rates. The Puerto Rico Area Office purchased rapid response spots for local television, radio, newspapers, and digital ads, and hosted conference calls with local media as necessary.

2.5.7 Partnership Program

The Partnership Program was a critical component of the overall communications campaign for the 2010 Census. The Census Bureau looked for partners to announce their 2010 Census Partnership, to educate their employees, to reach their members and affiliates, to communicate with their customers, to provide resources, to engage the media and to reach the community.

This program attempted to reach governments in each municipio, private industries, local communities, and faith based organizations. It generated public awareness in order to increase mail response, spread the knowledge about the census in Hard-to-Count communities, and organized community leaders to engage their groups to be counted. The Census Bureau provided partners with promotional materials, customizable products such as pens, water bottles, and chip clips, along with fact sheets, brochures, toolkits, and activity guides with messages created to reach these types of audiences. All materials were adapted and translated to Spanish for Puerto Rico by Census Bureau headquarters and Puerto Rico Area Office staff.

Puerto Rico had four partnership specialists to assist the Local Census Offices in establishing approximately 100 Complete Count Committees on the island. The Census Bureau established a partnership with more than 1,400 entities in Puerto Rico. Among these were credit unions, religious organizations, small businesses, television stations, radio stations, newspapers, and community organizations. Most of the outreach and advertisement in Puerto Rico happened through the Partnership Program.

2.5.8 Mail Response Rate Program and Take 10 Program

The Census Bureau used the Mail Response Rate Program and Take 10 Program to encourage the cooperation of respondents to return their questionnaires by mail. By increasing the mail return, the Nonresponse Followup universe would be reduced.

The first of these programs, the *Mail Response Rate Program*, provided participation rates, response rates, and other 2010 Census information to Census Bureau employees by tracking initial and replacement questionnaires, Update/Leave questionnaires, Telephone Questionnaire Assistance responses to questionnaires by phone, completed questionnaires, and “Be Counted” forms. With these data employees were able to obtain four rates: Preliminary Response and Participation Rates, and Final Response and Participation Rates. Puerto Rico rates were displayed separately from stateside and were available for municipios and Local Census Offices. Also, Puerto Rico data was excluded from the national rate, which was a sum of data from all collection tracts.

The second program, the *Take 10 Program*, provided participation rates to governmental entities, elected officials, Complete Count Committees, and the general public. This program tracked the same items as the Mail Response Program and worked to support the mailback operation by encouraging the public to cooperate and reduce the burden for the Nonresponse Followup enumeration process. Participation rates were displayed for Puerto Rico and the municipios on a public census website during the delivery and mailback period. This action raised awareness and motivated communities by providing their preliminary and final participation rates and comparing them with that from Census 2000. Again, Puerto Rico rates were displayed separately from stateside. The national rate was a sum of all of the collection tract level data, excluding Puerto Rico.

2.5.9 Census in Schools Program

The 2010 Census in Schools Program for Puerto Rico was a broad educational program called “Censo en las Escuelas 2010: Todos Contamos.” It was designed by Scholastic, Inc. in partnership with the Census Bureau headquarters. Its main purpose was to teach students about the census and why it is important to participate. It was expected that upon learning about the census, the children would share the importance of this event with their families (U.S. Census Bureau, 2008). The parents of these students would then be more likely to participate in the census by completing their questionnaire and returning it by mail.

Scholastic was tasked with preparing materials for stateside and Puerto Rico. These materials were culturally adapted and redesigned to show content and examples that were specific for Puerto Rico. Then the materials were translated to Spanish. All lessons, examples, figures, photos, and strategies needed to be pertinent to Puerto Rican culture and history. The review process for all Census in Schools’ materials created by Scholastic, Inc. took place at Census Bureau headquarters. It was done by staff from the Census 2010 Publicity Office and the Puerto Rico, Island Areas, and Overseas Branch. This program attempted to reach school principals, teachers and students in Puerto Rico through lessons and related materials for Kindergarten through 12th grade (K-12). “Censo en las Escuelas 2010: Todos Contamos” educational materials targeted all elementary school teachers and all middle and high school math and social studies teachers.

In an effort to contact all public and private schools in Puerto Rico, staff from the Puerto Rico, Island Areas, and Overseas Branch met with officials from the Department of Education and the Private Schools Council. In that meeting the Census Bureau obtained their endorsement to participate and help with the Census in Schools program in all their schools. Soon after, the outreach to schools on the island began. First, school superintendents received an informational letter explaining the program and future outreach directly with the schools. Then, school principals received a kit with an introductory letter that explained the purpose of the Census in Schools program. Attached were samples of educational materials to distribute among their teachers, such as:

- a brochure with ideas for activities,
- a quick-start guide for teachers, and a
- 2’ x 3’ wall map of Puerto Rico with general demographic, social and economic data.

These materials helped teachers incorporate activities related to the 2010 Census into their curriculum. In addition to the printed maps and activities in the Principals Kit, the 2010 Census in Schools outreach materials included:

- User-friendly standards-based *grades K-12 lesson plans* that incorporated real-world information tailored for the needs of educators and students and designed to build geographical and statistical literacy.

- *Census in Schools Week* materials included short lessons that incorporated classroom games and school activities such as: assemblies, special speakers, and a mock census to be used in the classroom during a week dedicated to teaching the entire student body and/or individuals about the 2010 Census.
- *Family Take Home* pages for students to take home to their families were designed to encourage parent participation and educate the community about the questionnaire they would receive. These materials included: a brochure with ideas for community and classroom activities, and flyers with important information on what to do when the questionnaire arrived at their homes.
- The *2010 Census in Schools Program website* was developed as an easy-to-use content rich site, but was only available in English. All educational and outreach materials created for teachers and students were available for download on this site. Users could access free tools such as: grades K-8 standards-based lesson plans and teaching kits (in Spanish for Puerto Rico), a monthly newsletter, maps, and historical data. Students were able to enjoy learning as they filled out coloring pages, played memory games, solved quizzes, and completed word puzzles about the Census Bureau. They could also learn about the importance of census data and how it affects their world. Teenagers could take quizzes to test their census knowledge or learn facts about how going to college could affect their future salary.

All materials developed for the Census in Schools program were submitted to three rounds of internal review. This process included a long first-round review in which feedback from various Census Bureau departments¹⁰ was consolidated. The second round of review was two days long. The review process had the following issues: complaints of short review time for long materials, confusion with the purpose and audience of the materials, delays and forced changes to the schedule due to the extensive review process, and disagreements with the Spanish translations of materials for Puerto Rico. The review process was extensive and extremely challenging specifically with the materials developed for Puerto Rico. The Census Bureau's intention was to reach audiences with interesting and accurate information. For this reason Puerto Rico subject matter experts submitted many changes and comments regarding the adaptation of culturally sensitive items and appropriate language used to create the materials.

Puerto Rico, island Areas, and Overseas staff found major errors in the content and adaptation of the Puerto Rico map and several lesson plans. This issue resulted in delays in the production and printing for Census in Schools materials. Another crucial delay occurred when Scholastic, Inc. received the list with the addresses of all private and public schools in Puerto Rico. The plan was to ship the Principal Kits and the grades K-12 Teaching Guides to schools on the island by January 2010, but that was not the case. After Scholastic, Inc. received the address list, they ran it through the stateside standardizer which caused most addresses to become "undeliverable". In order to repair this error, Scholastic, Inc. had to reprint envelopes and labels for a second

¹⁰ The first round of the review process included staff from the following offices and divisions: Census 2010 Publicity Office , Decennial Management Division , Public Information Office (PIO), Customer Liaison and Marketing Services Office , Population Division, Geography Division, Redistricting Data Office (RDO), Field Division, Administrative and Customer Services Division (ACSD), Policy and Legal, and the Puerto Rico, Island Areas, and Overseas Branch

delivery attempt. Materials were finally delivered in March 2010, just a month before school ended in Puerto Rico.

The Census Bureau and Scholastic, Inc. developed the program strategy and materials with a base budget of \$4.3 million that increased and grew to a total of \$14.5 million¹¹. For Puerto Rico, this base funding provided for the creation of program notification letters, promotional brochures, Puerto Rico maps, lessons plans and on-line Census in Schools week materials for students in grades K-8. The plan was to reach 1,000 schools in Puerto Rico.

There were four additional funding increases for the 2010 Census in Schools program. The first allocation of additional funds was \$4 million dollars to increase the number of printed principal letters, maps, and parent take home materials; expand the data dissemination costs for postage and packaging; and create lesson plans for grades 9 to 12. The budget was then increased by \$1.7 million, bringing the total budget to \$10 million. This allowed for printing of Puerto Rico grades K-8 Census in Schools Week mini-lessons, among other projects. The third allocation of additional funds was for \$3.9 million, which brought the total budget to \$13.9 million and came from the American Recovery and Reinvestment Act. This additional funding resulted in the creation and printing of several educational materials for diverse groups, among other significant activities. Finally, an additional \$600,000 in 2010 covered the reprinting of the grades K-8 Puerto Rico Program materials due to errors found on the map, and adaptation and language issues. This final addition brought the total budget for the Census in Schools Program to \$14.5 million

2.5.10 Earned Media/Public Relations

The purpose of the earned media and public relations efforts was to surround every household with 2010 Census messages, and to enhance and support the paid media and partnership channels. The materials developed for this campaign carried a key message that was audience oriented. Among these were: campaign toolkits, online news briefings and electronic press kits intended to offer relevant news, information and photos to help generate earned media coverage throughout the 2010 Census effort in Puerto Rico; and media specialist's kits designed to help media organizations and associations communicate the benefits of census participation. These also helped partners to communicate the importance of the census to key groups. All materials were tailored for each audience, addressing relevant facts and the unique benefits of participation. For a full list and description of materials see Appendix E.

2.6 Puerto Rico Geography and Addresses

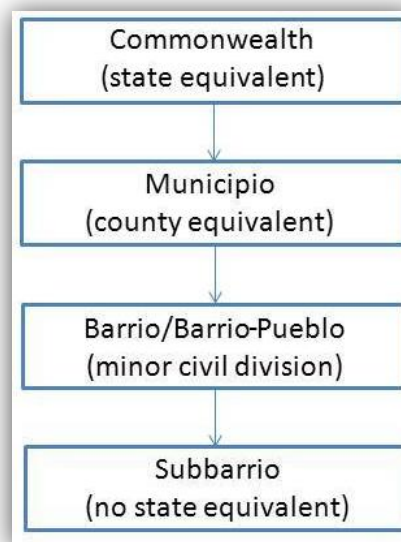
Sperling (1990) emphasized that it is critical to understand Puerto Rico's census geography, its unique addressing system, and its unique terminology for the effective implementation and analysis of a census on the island.

¹¹ Glasier, Victoria, "2010 Census Integrated Communications Program: Census in Schools Assessment Report," Public Information Office, U.S. Census Bureau, April 17, 2012, pp. 5.

2.6.1 Census Geography

For data purposes, the Commonwealth of Puerto Rico is treated as a state equivalent. However, it is divided into geographic entities that are unique to the island as shown in Figures 4 and 5. Municipios, the county equivalent in Puerto Rico, are the first-order subdivisions. Puerto Rico is divided into 78 municipios, the highest-level legal subdivisions on the island. Municipios are divided into barrios and barrios-pueblo, the primary legal division of municipios. There are 902 barrios that include 67 barrios-pueblo on the island. As shown in Figure 5, these entities are treated as minor civil divisions by the Census Bureau. Minor Civil Divisions are legally defined entities that subdivide the first-order subdivisions of municipios.

Figure 4. Hierarchy of Administrative Areas in Puerto Rico

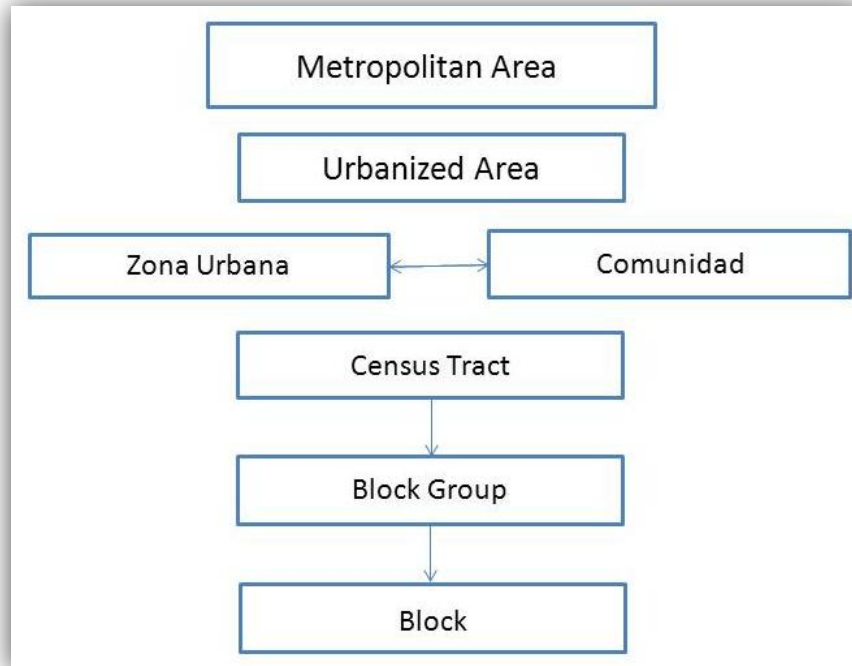


Source: Figure created by the authors with information from Geography Division.

The barrio-pueblo represented the seat of government at the time the commonwealth formalized the municipio and barrio boundaries in the late 1940s. Some barrios and barrios-pueblo are subdivided into sub-Minor Civil Divisions known as subbarrios, as is the case in 23 municipios. There are 145 subbarrios in Puerto Rico.

Barrios and barrios-pueblo can also be further divided into Census Designated Places. Census Designated Places are delineated by local officials in cooperation with the Census Bureau and characterized by having population centers whose limits and powers are not legally defined. Puerto Rico has two types of Census Designated Places: *zonas urbanas*, which represent the governmental center of each municipio, and *comunidades*, which represent other settlements. As seen in Figure 6, there are two other large statistical areas defined in Puerto Rico by the Census Bureau in partnership with the Government of Puerto Rico, specifically the Puerto Rico Planning Board. These are the Metropolitan Area and the Urbanized Area, both with the same definitions as stateside.

Figure 5. Census Statistical Areas in Puerto Rico



Source: Figure created by the authors with information from Geography Division.

Figure 5 also shows that each geographic subdivision is further divided into census tracts, which consist of block groups and blocks. In Puerto Rico, there are 945 census tracts which are small statistical subdivisions of municipios with stable boundaries and relatively homogeneous demographic characteristics. Census tracts are further divided into Block Groups. Block Groups are a collection of census blocks within a census tract sharing the same first digit of their four digit identifying numbers. There are 2,594 Block Groups and 77,189 blocks in Puerto Rico. A block is the smallest geographic unit for which the Census Bureau tabulates data. Streets, legal boundaries, and other features generally bound blocks.

2.6.2 Address Formats

In addition to the differences in geographic descriptions in Puerto Rico, many field staff experienced challenges when trying to complete their daily tasks due to the complexity of the unique addressing style on the island. The addressing conventions that exist in Puerto Rico urban areas are much more complex than those found stateside. The Geography Division recognizes four address types for Puerto Rico as shown in Table 6.

Table 6. Address Types Defined by Geography Division for Puerto Rico

Address Types*	Fields required
No Area Name Needed	HN + Street Name + ZIP Code
Urbanization	URBANIZATION + HN + Street Name + ZIP Code
Condominium/Housing Projects	APTCOMPLEX + Structure ID + ZIP Code
Area Name Needed (other than Urbanization)	AREANM1(2) + HN + Street Name + ZIP Code...+ KMHM

*These are not minimum address requirements but data Geography Division might expect given the type of address.

Source: Address Programs Management Branch, Geography Division.

The United States Postal Service has different standards for city-style addressing in Puerto Rico than for stateside. The United States Postal Service guidelines add up to eight additional fields to capture a location address on the island because it is common to find duplication of address information within a Zone Improvement Plan (ZIP) Code. For example, street names can be repeated within a ZIP Code and the name of the urbanization is used to make the address unique. Therefore, Geography Division recognizes and incorporates the following fields shown in Table 7 in the Puerto Rico MAF/TIGER database.

Table 7. Address Fields in the MAF/TIGER Database Exclusive to Puerto Rico

Field Name	Field Description	Values
AREANM1	Area Name 1	Holds the names of <i>Barrios, Sectores, Parcelas, Comunidades, Barriadas, Callejones, or Caminos</i>
AREANM2	Area Name 2	Holds the names of <i>Sectores, Parcelas, Comunidades, Barriadas, Callejones, or Caminos</i>
URBANIZATION	Same	Name of <i>urbanización</i> – residential development of single family homes that have characteristics of a community
APTCOMPLEX	Apartment Complex	Name of a <i>condominio</i> (condominium) or <i>residencial</i> (Housing Project)
CARRETERA	Same	Name of road – similar to a state highway, usually indicative of rural areas
RAMAL	Same	Name of arterial road – similar to local roadway, usually indicative of rural areas
KMHM	Kilometer/Hectometer	Similar to mile markers and provided with a <i>Carretera</i> and/or <i>Ramal</i>
SECCION	Same	A small geographic area, sometimes resulting from an urbanization growing too large

Source: Address Programs Management Branch, Geography Division.

These address fields shown in Table 7 are necessary in addition to the three fields required stateside and help with the unduplication of structure numbers and street names within a ZIP Code. Not all fields are necessary for an address and fields do not always appear on the same delivery line or in the same position on the delivery line for every address as the example shown in Figure 6.

Figure 6. Example of the Same Puerto Rico Address Presented in Different Ways

12-14 CALLE 34 SE
CASA 14 CALLE 34 SE BLQ 12
C-34SE B 12 N 14
14 C/34 SURESTE BLK12
C.34 BLOQ 12-14 SE
34TH ST SE BLDG 12 HSE 14

Source: Seek Data (2003), "Customized Data Solutions," Presentation to the U.S. Census Bureau, May 20, 2003.

In rural areas the prevailing mailing addresses are rural route addresses. In many cases field staff have serious challenges with these addresses because of the way that houses are built in some specific geographic areas. For example, in rural areas it can be found that several houses are located in a specific lot of land where all houses share the same address. In many cases, family members share the area and build their houses on their parents land. Another challenge is cluster box addresses. These look like house-number-street name addresses but their numbers and street names frequently do not identify the location of their associated housing units. In many cases the box numbers do not equate to house numbers and street names do not identify the streets on which the units are located but rather the street on which the cluster boxes are located. These conditions and other factors such as Spanish language street types and address syntax combine to make address matching and geocoding in Puerto Rico challenging.

2.7 2010 Census Operations

For the 2010 Census, the Boston Regional Office managed the field operations conducted in Puerto Rico. The seven Local Census Offices located in Puerto Rico carried out the field operations on the island under the Puerto Rico Area Office's supervision. All field operations in Puerto Rico followed the same schedule as stateside and were conducted concurrently with stateside operations. The first field activity to take place in Puerto Rico for the 2010 Census was the Address Canvassing operation, which began in April 20, 2009 and the last was Census Coverage Measurement, which was completed on June 18, 2011.

Three operations that included updating addresses were carried out in Puerto Rico: Address Canvassing, Group Quarters Validation, and Update/Leave. Each of these operations dealt with the collection and verification of addresses in Puerto Rico. During the Update/Leave operation, field staff distributed questionnaires to Puerto Ricans living in housing units. These questionnaires were to be filled out by the householder and returned by mail. Those living in Group Quarters situations were enumerated during Group Quarters Enumeration. The Nonresponse Followup operation checked the status of housing units in Puerto Rico that did not return the questionnaire by mail and Field Verification served as a final check for 2010 Census addresses. Materials for these operations were adapted to fit Puerto Rico's unique addressing standards and then translated into Spanish. Puerto Rico addresses can vary significantly from those found stateside both in the number of address elements present and the way they are

structured. For instance, address fields for *carretera* and *ramal* were added on Puerto Rico software (e.g., hand-held computer software for Address Canvassing) and forms to avoid address duplication (see Figure 7).

Figure 7. Example of Adaptation on the Hand-Held Computer for Puerto Rico Address Standards

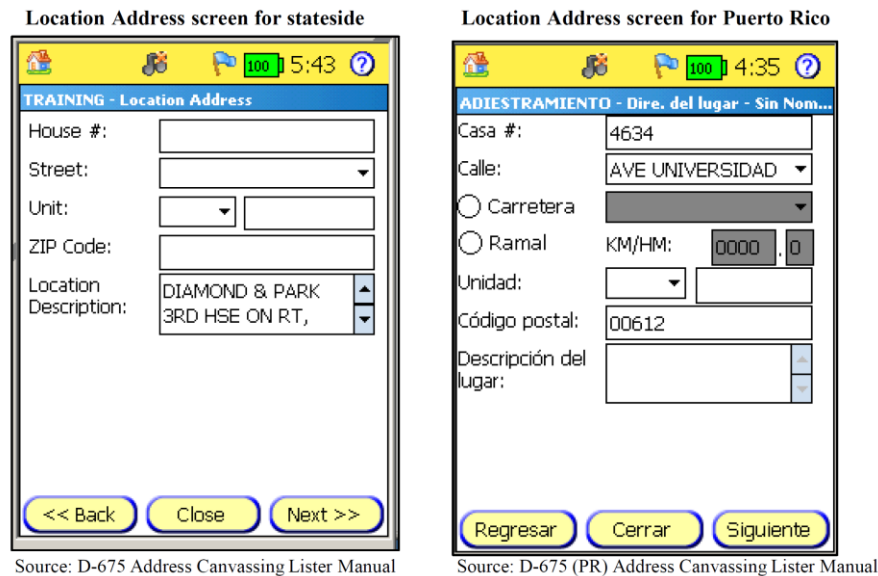


Figure 7 is an example of the adaptation of address collection that was done for Puerto Rico. In this case the “location address” screen on the hand-held computer used for Address Canvassing was changed to accommodate additional features needed for a complete address in the rural areas of Puerto Rico, including *carretera* and *ramal*. Additional examples of materials that were adapted for Puerto Rico are located in Appendix A.

The Census Bureau used three control systems during field operations: the Field Data Collection Automation-Operation Control Environment, the Paper-Based Operations Control System and the Field Verification Operation Control System. The Field Data Collection Automation-Operation Control Environment was utilized to manage the Address Canvassing and Group Quarters Validation operations. The Paper-Based Operations Control System managed the workloads for the Group Quarters operations, Enumeration at Transitory Locations, Update/Leave, and Nonresponse Followup operations while the Field Verification Operation Control System was used for the Field Verification operation. All decennial census operations utilized the Decennial Applicant Personnel and Payroll System. The National Processing Center in Jeffersonville, Indiana was responsible for assembling training and supply kits for decennial operations, and shipping them to the Local Census Offices on the island.

Data and results for Puerto Rico included in the following field activities sections were gathered from the following 2010 Census Operational Assessments:

- 2010 Census Address Canvassing Operational Assessment Report

- 2010 Census Field Verification Assessment Report
- 2010 Census Group Quarters Validation Operation Assessment Report
- 2010 Census Non-ID Processing Assessment Report
- 2010 Census Nonresponse Followup Operations Assessment Report
- 2010 Census Update/Leave Operational Assessment Report

This assessment will only address Puerto Rico data. For additional details and data for the stateside 2010 Census please refer to the Assessment Reports listed above.

2.7.1 Local Update of Census Addresses

The 2010 Local Update of Census Addresses program was available to all legal tribal, state and local governments within the fifty states, the District of Columbia, and Puerto Rico. This program, which occurred prior to the 2008 Address Canvassing operation, provided governments with an opportunity to review the Census Bureau's confidential list of individual addresses within their jurisdictions. Participants could then make additions, corrections, and deletions to addresses as well as provide comments to the address counts for census blocks.

In March 2007, the National Processing Center mailed Advance Notice letters to the governments to provide information on the Local Update of Census Addresses program so that they could plan their resources in anticipation of their participation in the Local Update of Census Addresses program.

The Boston Regional Office conducted promotional workshops for the governments on the island from March 2007 to June 2007. The National Processing Center began mailing invitation packages to the governments in August 2007. This package included a letter, explanatory brochures about the program, an invitation to participate in the training, registration forms, a computer-based training CD-ROM on the Local Update of Census Addresses program, and a computer-based training CD-ROM on the MAF/TIGER Partnership Software. Once the governments received and reviewed the information, they sent the registration forms to the Boston Regional Office.

The Boston Regional Office held technical trainings for the governments in Puerto Rico from August 2007 to February 2008. The workshops provided detailed examples and instructions on the Local Update of Census Addresses program review process, and the requirements for submission of their address list with their comments to the Census Bureau. The Boston Regional Office reported that the training materials for the Local Update of Census Addresses program for Puerto Rico were late due to issues at Census Bureau headquarters and the translation process. The translation process began late due to delays related to late decision-making on the implementation of the Local Update of Census Addresses program. Due to this delay, professionally printed materials were not available in time for trainings in Puerto Rico, and the Boston Regional Office had to print the materials themselves to distribute to the governments on the island.

Participants could attend training provided by the Regional Office or they could use the training materials available online to train themselves. Once training was completed, the participants received their Local Update of Census Addresses program materials. These materials included letters, program registration and contact information forms, training documents in paper and digital formats, a user guide, address lists, and paper or digital maps (shapefiles). All materials for Local Update of Census Addresses program participants in Puerto Rico contained in these packets were in Spanish. Staff from the Decennial Management Division's Puerto Rico, Island Areas, and Overseas Branch was responsible for the translation of these materials.

Stateside participants for the Local Update of Census Addresses program chose from three options depending on the time and resources they had available to review and comment on the Local Update of Census Addresses Address List:

- Option 1, Title 13 Full Address List Review - Participants could choose from a paper or electronic address list for their jurisdiction. Participants could update the list by correcting and deleting addresses, identifying nonresidential and out of jurisdiction addresses, and adding addresses to the list. They could also challenge the number of addresses in a census block. Participants of Option 1 were required to sign a confidentiality form to work with Title 13 data.
- Option 2, Title 13 Local Address List Submission – Participants received an electronic address list for reference purposes only. The Census Bureau required that they submit a local address file of city-style addresses in a predefined format. This option also required that participants sign a confidentiality form to work with Title 13 address lists.
- Option 3, Non-Title 13 Local Address List Submission - Participants did not receive an address list and therefore did not sign a confidentiality form. They received the 2010 Census Local Update of Census Addresses Address Count List for reference only, which contained the total number of housing unit and group quarter addresses on the Census Bureau address list for each jurisdiction. They were required to submit a local address file of city-style addresses in a predefined format and could provide map feature and legal boundary updates.

Puerto Rico participants for the Local Update of Census Addresses program were limited to Option 1 due to address style limitations and address matching complexities to the MAF/TIGER database. Puerto Rico participants had the option to select paper or electronic materials within Option 1. However, none of the participants in Puerto Rico requested paper address lists or paper maps.

Participants for the 2010 Local Update of Census Addresses program could use the MAF/TIGER Partnership Software application provided by the Census Bureau. This newly developed software application combined three files: the 2010 Census Local Update of Census Addresses address list, the address count list, and digital maps into an easy-to-use package. Participants could update lists and review geographic features as well as import their local address list and maps for comparison with Census Bureau data. Translation for the Puerto Rico MAF/TIGER

Partnership Software and its user guide was not necessary since most Geographic Information Systems professionals in Puerto Rico were familiar with technical documentation in English. Therefore, no special modifications were made to the software.

If the participants had any questions or concerns throughout the actual process, the Boston Regional Office and the Local Update of Census Addresses Help Desk at Census Bureau headquarters provided technical program support to Local Update of Census Addresses program participants via telephone or e-mail. The Local Update of Census Addresses Help Desk at Census Bureau headquarters was staffed with two agents who were fluent in Spanish in order to offer support and assistance to the Puerto Rico participants.

After the participants completed their review, they sent their updated materials to the Boston Regional Office, which was responsible for pre-processing all Local Update of Census Addresses submissions from Puerto Rico.

After classifying the Local Update of Census Addresses program submissions, the Boston Regional Office then updated participant information on the Production Control System and flagged any irregularities in the submissions. The Boston Regional Office either fixed irregularities or contacted the participant for clarification. Digital submissions were processed on the Preprocessing Upload and Reporting System and the electronic files were uploaded by the Regional Office staff. The files then went through the Batch Feature Update System Process, which updated the features and addresses in the MAF/TIGER database, at Census Bureau headquarters.

The software and control system for the Local Update of Census Addresses program were delayed because software had to be programmed to accommodate Puerto Rico addresses. As a result, the Regional Office was delayed in providing feedback to participants and verifying that their submissions were acceptable. An issue was also identified with the mapping software. The software would remove letters that had any characters with accent marks. This problem was quickly fixed and the products for the Local Update of Census Addresses were not delayed.

Address matching was not a reliable methodology for updating the MAF/TIGER database for Puerto Rico. The limitation to submit address updates to the Local Update of Census Addresses program only through Option 1 and the verification of updates by Address Canvassing for Puerto Rico addresses eliminated the need for address matching to the MAF/TIGER database, thereby allowing the Geography Division to load Local Update of Census Addresses program updates directly into the MAF/TIGER database.

During the Address Canvassing operation, addresses submitted by the Local Update of Census Addresses program participants were verified. This operation was conducted from April 2009 to June 2009. In August 2009, participants received a Local Update of Census Addresses Feedback Advance Notice Package which provided an overview of the feedback and the address appeals process. Beginning in October 2009, the 2010 Census Local Update of Census Addresses program Feedback materials containing the results of Address Canvassing were mailed to participants. Puerto Rico participants received detailed feedback of their address submissions,

and were eligible to review the materials and file address appeals. Appeals were handled by the 2010 Census Local Update of Census Addresses Appeals Staff, which was set up by the Office of Management and Budget to ensure that participants could dispute decisions regarding their updates to the Census Bureau’s address list.

As shown in Table 8, 78 municipios were invited to participate in the Local Update of Census Addresses Program. Of the 78 municipios, 35 registered as participants, one declined to participate, and 42 did not respond to the Local Update of Census Addresses program invitation. Invited municipios that chose not to participate gave the following reasons for their non-participation: “insufficient staff,” “lack of funds,” and “lack of time/too busy.” Ten of the municipios that registered to participate dropped out of the program after receiving materials to complete the updates, leaving 25 municipios active.

Table 8. 2010 Local Update of Census Addresses Government Participation and Address Records Received, Rejected and Processed

	Total
Municipios invited	78
Municipios registered	35
Municipios that did not respond	42
Municipios that officially declined	1
Number of Municipios active after drop out	25
Number of address file returns	24
Number of spatial returns	1
Number of address records received	65,828
Number of address records processed	63,810
Number of address records rejected	2,018

Source: Table created by the authors with data extracted from Table 29 in the 2010 Census Local Update of Census Addresses Assessment Report and data provided by the Tribal/Local Geographic Partnerships Branch.

For the Local Update of Census Addresses program, the Boston Regional Office received address updates from 24 municipios and spatial updates from one municipio. Of the 24 that sent address updates, 14 submitted address list returns and ten submitted address count list returns. Twenty-one participants submitted usable updates. Updates were considered unusable if the format of the CD sent to the Regional Office was not readable or was blank. Fifteen municipios of the 25 active after drop out sent spatial returns. All spatial returns were feature updates.

Twenty of the 24 municipios who sent address updates received feedback materials. Of the remaining four municipios, three dropped out before receiving feedback and one did not submit usable updates.

The Regional Office received 65,828 address records (sum of A, C, D, J, and N in Table 9) from the municipios and processed 63,810 of them. Table 9 shows the addresses submitted and processed by the Census Bureau by processing code. Participants in the program submitted 21,229 Code “A” addresses identified as existing in their jurisdiction but not on the initial census address list they received. A total of 39,765 addresses were corrected or changed by participants (“C”) and 4,690 were deleted (“D”). Participants submitted 109 addresses identified as out of jurisdiction addresses (“J”). Thirty five addresses were submitted as nonresidential (“N”). One

address was submitted with a blank or erroneous code or a non city-style address (“R”). Finally, 109,152 addresses were on participants’ initial address lists, but were deleted during the Address Canvassing operation (“X1”).

Table 9. 2010 Local Update of Census Addresses Program Addresses Submitted by Participants and Processed by the Census Bureau by Processing Code on the Detailed Feedback Address List for Puerto Rico

Feedback Processing Code	Code Description	Total Submitted
A	Address existing in the jurisdiction but not on the initial census address list	21,229
C	Address corrected or changed	39,765
D	Address deleted	4,690
J	Address identified as out of jurisdiction	109
N	Nonresidential address	35
R	Address submitted with a blank or erroneous code or a non city-style address	1
X1	Address on initial address list, but deleted during Address Canvassing	109,152

Source: Various 2010 Local Update of Census Addresses Program data extracts provided by the Tribal/Local Geographic Partnerships Branch.

The original address total for participating municipios was 679,602 and the feedback address total was 711,176. Participants in the Local Update of Census Addresses Program challenged housing units and group quarters counts in 1,433 blocks. For Puerto Rico, participants identified 681 addresses as Group Quarters.

The total number of appealable addresses for Puerto Rico was 110,676. Five municipios in Puerto Rico submitted appeals to the 2010 Local Update of Census Addresses program. Together the municipios appealed 2,069 addresses and the appeals office accepted them all. These 2,069 addresses were delivered to Geography Division for the Master Address File update process and added back into the enumeration universe.

See the 2010 Census Local Update of Census Addresses Program Assessment for additional information.

2.7.2 Address List Development Operations

2.7.2.1 Address Canvassing

The objective of the Address Canvassing operation was to identify, refine, and improve the Census Bureau address list to create a more cost-effective and accurate census. Address Canvassing helped with the success of 2010 Census operations by improving the address and map database for decennial enumeration and followup operations. Address Canvassing was the only automated field operation during the 2010 Census using a hand-held computer to collect address and map data and to manage assignments. All other operations were paper-based as in previous decennial censuses.

The Address Canvassing operation was conducted in five waves: Pre-Wave 1, Wave 1, Late Wave 1, Early Wave 2, and Wave 2. Puerto Rico was included in Early Wave 2, which began on April 20, 2009 and was completed by July 10, 2009. The operation was managed by 151 Early Opening Local Census Offices throughout the United States and Puerto Rico. The three Early Local Census Offices located in Puerto Rico were in San Juan, Ponce and Arecibo.¹²

The Address Canvassing operation was conducted by field staff that canvassed blocks in the U.S. and Puerto Rico and updated the census address list. Field staff verified the correctness of addresses on the ground, added addresses that were missing, deleted addresses that did not exist in the block, identified duplicate addresses on the census address list, and corrected addresses that were inaccurate. Field staff also updated maps during Address Canvassing. They added and deleted streets and collected map spots for structures. Updates were made on a hand-held computer with software developed by the Field Data Collection Automation contractor. The hand-held computer allowed for the collection of map spots using Global Positioning System coordinates for the first time.

After the initial listers completed each assignment area list of addresses, the Dependent Quality Control Check phase occurred. During this step, Quality Control verified the work Production Listers did to a sample of addresses in all assignment areas also using a hand-held computer.

After the assignment area passed Dependent Quality Control, quality control staff completed the Delete Verification process and, if necessary, Final Delete Verification. During Delete Verification, quality control staff verified the addresses identified as deletes and duplicates by the lister during Address Canvassing. Final Delete Verification only occurred if a Quality Control Lister identified a delete or duplicate address for the first time during Dependent Quality Control. It is a Census Bureau business rule that any deleted address must be verified twice before it can be removed from the address list. As a result, when a Quality Control Lister identified a delete, it went to Final Delete Verification to be verified by a second Quality Control Lister. Once an assignment area completed Delete Verification and/or Final Delete Verification, fieldwork was complete for an assignment area and the address updates files were electronically sent to Geography Division by the Field Data Collection Automation contractor on a flow basis for processing. The Geography Division used the results of Address Canvassing to update the MAF/TIGER database in preparation for Group Quarters Validation and all subsequent enumeration operations.

Prior to field work for the Address Canvassing operation, Geography Division discovered that the contractor did not develop a system that would pull data from the field called *mailing house number* (MAILHNPR) on the Master Address File Extract. This problem occurred because the Puerto Rico *mailing house number* (MAILHNPR) field was listed as optional in the requirements. To resolve this issue, the Field Data Collection Automation contractor advised Geography Division not to change the existing system. Instead, it would be easiest for them to transfer the data located in *mailing house number* (MAILHNPR) to the field that contained the

¹² Information on 2010 Address Canvassing ELCO Start and Projected End Dates provided by the Geographic Programs Branch in the Decennial Management Division.

stateside house numbers. This field was listed as mandatory and the contractor had already accounted for it in their development. Geography Division made the change and redelivered the Puerto Rico Master Address File Extract, which was ingested successfully.

The stateside Address Canvassing operation included a special operation called Large Block Address Canvassing. This operation was necessary because the hand-held computer was not capable of handling blocks with more than 1,000 addresses. The Large Block operation required the use of the Automated Listing and Mapping Instrument, on laptops used by staff from the Demographic Areas Address Listing program. This non-decennial instrument was proven to successfully list blocks containing a large amount of addresses. Thus, Census Bureau survey field representatives, rather than temporary decennial field staff listed addresses in areas identified as containing these “large blocks.”

However, Puerto Rico did not participate in the Large Block Address Canvassing operation, a marked difference between stateside and Puerto Rico. This operation could not be conducted on the island because the Demographic Areas Address Listing/Automated Listing and Mapping Instrument systems necessary for Large Block Address Canvassing were not designed to be deployed in Puerto Rico. However, by the time the large block operation began, changes had been made to the hand-held computer and it could handle blocks with a high volume of addresses. As a result, the 24 blocks containing 1,000 or more addresses for Puerto Rico were not removed from the Address Canvassing universe.

The hand-held computer software, field manuals, and training materials for Address Canvassing were all adapted and translated specifically for Puerto Rico’s unique address structure. The Geographic Programs Branch in the Decennial Management Division managed the requirements for the hand-held computer with the Field Data Collection Automation contractor. This branch, along with a cross divisional team composed of Geography Division, Field Division, and Field Data Collection Automation Program Management Office, managed the adaptation of the applications for the hand-held computer. The software was adapted to handle the unique types of addresses found in Puerto Rico. This group also provided most of the adaptation needed for the hand-held computer dealing with address management; the display, capture, and modification of addresses; How to Guides; Help Files and screenshots.

The adaptation of the hand-held computer was a major effort for the Geographic Programs Branch. This Branch did not have enough staffing for the development effort required to create a whole new system to implement new addressing conventions for screens and the hand-held for Puerto Rico. For the 2020 Census, the effort required to adapt materials to Puerto Rico address standards needs to be defined earlier. The leadership for this project also needs to be identified earlier.

For Address Canvassing, the Address Coverage Operations Branch in Field Division developed the process for and managed the adaptation of procedures in the lister, Quality Control lister, Crew Leader, Quality Control Crew Leader, crew leaders assistant and Quality Control crew leader assistant manuals, as well as the Guides for Training and workbooks, to allow for differences in the hand-held computer functionality for Puerto Rico. Most materials were sent

out to a contractor because the Address Coverage Operations Branch did not have enough staff to complete the adaptation. The adapted materials were then sent to the Puerto Rico Area Office.

The Puerto Rico Area Office handled translation of training materials that were adapted and printed for the Address Canvassing operation. This differed from previous censuses, in which Census Bureau headquarters staff or contractors had handled translations. Materials for the Field Office Supervisor were adapted for Puerto Rico by the Address Coverage Operations Branch, but published in English. These materials were not translated because the hiring of Field Office Supervisors required bilingual employees.

After translation, materials were sent to the Logistics Branch in Field Division. This Branch managed the printing for all training materials for the Address Canvassing operation.

The Operations Control System utilized in Puerto Rico was the same as stateside. The computer-based training for this system was not translated or adapted because the hiring of the office staff required bilingual employees.

The Puerto Rico, Island Areas, and Overseas Branch managed the translation and review of the materials and software for the hand-held computer. Since Address Canvassing was the first operation that required translation for materials, the process for translation was set up as the materials were translated.

Several challenges became clear as adaptation and translation were carried out for Address Canvassing:

- Once text was translated into Spanish, the number of characters on the hand-held computer screens increased by 25 percent. As a result, the toggle switch that allowed users to change font size was removed from the software for the Puerto Rico hand-held computer. This increase in the number of characters also required workarounds such as using symbols and abbreviations for words to allow translated instructions to fit on the screen.
- The Puerto Rico Area Office received adapted materials on a flow basis via e-mail, which resulted in some administrative chapters being delivered before operational chapters. The delivery of chapters one at a time increased translation time since references were made from one chapter to another or from the guide for training to the manual. This required translators to review previously translated work. At times, the technical nature of documents required further action to determine the correct wording needed.
- The Puerto Rico Area Office did not have enough staff to complete the translations needed on schedule. While stateside had a dry run in September 2008, late completion of materials left little time for dry runs with Puerto Rico materials.

Other challenges during the Address Canvassing operation in Puerto Rico included:

- Adaptation of the Puerto Rico Hand-Held Computer software was not planned adequately. There was no clear leadership for this task, rather an ad hoc group was formed last minute to

plan and develop the software to capture the unique addresses in Puerto Rico.

- Since Puerto Rico addresses had not been updated throughout the decade (there are no Delivery Sequence File updates for Puerto Rico), the complexity of addresses in Puerto Rico resulted in the likelihood of a higher amount of inaccurate or incomplete addresses.
- The use of both the Spanish word and abbreviation for street (*Calle* and *Cll*) by listers caused many assignment areas to fail early on in the operation. If the lister did not spell out the word when entering the street name on the address list, then the address failed in the quality check.
- The overflow Help Desk for the hand-held computer in the National Processing Center, which handled the overflow calls from the Early Local Census Offices, Census Bureau headquarters and Field Data Collection Automation staff, was not equipped with Spanish speaking staff, and therefore could not readily help answer questions from listers in Puerto Rico, who only spoke Spanish.
- Puerto Rico data were entered into the wrong fields due to the small screens on the hand held computer.
- The Operations Control System and Mobile Computing Environment systems for Address Canvassing were not field tested in Puerto Rico during the dress rehearsal. To mitigate this risk, staff conducted as much testing as possible on a non-Title 13 database developed specifically for testing. Staff then established a Puerto Rico team to assist in developing, reviewing, and testing materials.

The Address Canvassing Assessment Report looked at three points in the data collection and processing:

1. addresses sent out to the field,
2. addresses returned from the field, and
3. final address actions (what Geography Division did with the data, shown in Table 10).

The Address Canvassing Assessment (Address List Operations Implementation Team, 2012) reported that the initial workload for Puerto Rico was 1,534,702 addresses, 36,449 collection blocks, and 10,849 Assignment Areas. In addition to the initial workload, field staff added 506,526 addresses and performed 7,442 other actions with no final lister action to the initial workload for a total workload of 2,048,670 addresses.

For Puerto Rico, 99 percent of all addresses that matched to an existing record were geocoded. Of the 1,592 addresses matched, 16 matched to an existing record that was ungeocoded and 1,576 matched to an existing record that was geocoded.

Table 10 shows that the final Address Canvassing result for Puerto Rico, which reflects the sum of “Adds” and “Other Actions”, was 1,578,127 addresses. The final address actions applied to the MAF/TIGER database included 476,301 “Adds” from which the vast majority were new

addresses listed (474,709). They also included 973,002 “Change” actions, 4,864 “Move” actions, 13,151 “Uninhabitable” actions, and 110,809 “Verify” actions. Among the negative actions were addresses that were “Deletes,” “Duplicates,” or “Nonresidential” (417,619).

Table 10. Final Address Actions Applied for Address Canvassing in Puerto Rico

Action	Number of Addresses
Adds	476,301
New Add	474,709
Matching Record	1,592
Negative Actions	417,619
Delete*	290,213
Duplicate	117,061
Nonresidential	10,345
Change	973,002
Move**	4,864
Uninhabitable	13,151
Verify	110,809
Final Address Canvassing Result	1,578,127

*"Delete" actions include double and single delete records.

**A "Move" action occurred when an address found in a different block was deleted from the present block and added to the new block.

Source: 2010 Census Address Canvassing Operational Assessment.

From data shown in Table 11, it can be calculated that almost 81 percent (1,610,961/1,995,746) of the addresses listed in Address Canvassing for Puerto Rico with a final action code were single unit structures when compared to the total final address actions applied to the MAF/TIGER database in the first column. Using the same logic, the multi-unit structures accounted for about 19 percent (382,422/1,995,746) of addresses while mobile homes accounted for less than 0.1 percent (2,363/1,995,746). For Puerto Rico, single unit structures had a higher rate of negative actions than multi-unit structures. However, multi-unit structures were verified at a higher rate than single unit structures (6.01 compared to 5.45). We can see that more than 99 percent (474,709/476,301) of “Adds” were new records. The “Add” rate for mobile homes was higher than that of both single unit and multi-unit structures at 74 percent. The “Change” action was the highest final address action, with 48.75 records being changed, most of which were single unit structures (47.54).

Table 11. Final Address Actions Applied to MAF/TIGER database by Housing Type for Puerto Rico

Final Address Actions Applied to MTdb	Count	Percent of total	Single Unit		Multi-unit		Mobile Home/	
			Count	Percent of total	Count	Percent of total	Count	Percent of total
Total	1,995,746	100.00	1,610,961	100.00	382,422	100.00	2,363	100.00
Add	476,301	23.87	393,574	24.43	80,970	21.17	1,757	74.35
New	474,709	23.79	392,331	24.35	80,621	21.08	1,757	74.35
Matches to Existing Record	1,592	0.08	1,243	0.08	349	0.09	0	0.00
Change	973,002	48.75	765,925	47.54	206,489	54.00	588	24.88
Move	4,864	0.24	4,428	0.27	435	0.11	1	0.04
Verify	110,809	5.55	87,810	5.45	22,998	6.01	1	0.04
Does Not Exist (Delete)	290,213	14.54	256,918	15.95	33,295	8.71	0	0.00
Duplicate	117,061	5.87	82,783	5.14	34,278	8.96	0	0.00
Nonresidential	10,345	0.52	8,061	0.50	2,284	0.60	0	0.00
Uninhabitable	13,151	0.66	11,462	0.71	1,673	0.44	16	0.68

Verify in this table means that the address was found in AC and there were no changes to the address component of the record.

Source: QGV Extract Files, as defined by the matched MAFSRC and ACTION operation variables and the COLBLKST, COLBLKCOU, COLBLK, HUTYP, LOCDESC, LOCWDESC1, LOCHNPRE, LOCHN1, LOCHNSEP, LOCHN2, LOCHNPR, LOCNAME, LOCPREDIR, LOCPREQUAL, LOCPRETYP, LOCSUFDIR, LOCSUFQUAL, LOCSUFTYP, LOCCZIP, and MAILWDESC1 extract variables.

Note: A “Move” action occurred when an address found in a different block was deleted from the present block and added to the new block.

Source: Table provided by Census Evaluations Branch, Decennial Statistical Studies Division.

In Table 12, we see that living quarters were further classified into housing units, Group Quarters, and Transitory Locations. Housing units accounted for almost 100 percent (1,988,532/1,995,746) of the final actions applied to the MAF/TIGER database in Puerto Rico. Group Quarters and Transitory Locations accounted for less than 0.3 (5,732/1,995,746) and 0.1 percent (1,482/1,995,746) respectively. The distribution of final actions for housing units mirrored that of overall actions in Puerto Rico since they were the majority of the universe. Group Quarters had the highest “Add” rate at about 69 percent, all of which were new records. Transitory Locations had by far the highest percentage of deletes at about 60 percent. However, housing units had the highest “Verify” rate at around 5.6 percent. The “Change” action was the highest final address action, most of which were housing units (48.89 percent).

Table 12. Final Address Actions Applied to MAF/TIGER database by Type of Living Quarters for Puerto Rico

Final Address Actions Applied to MTdb	Count	Percent of total	Housing Unit		Group Quarters		Transitory Location	
			Count	Percent of total	Count	Percent of total	Count	Percent of total
Total	1,995,746	100.00	1,988,532	100.00	5,732	100.00	1,482	100.00
Add.....	476,301	23.87	472,339	23.75	3,962	69.12	0	0.00
New.....	474,709	23.79	470,747	23.67	3,962	69.12	0	0.00
Matches to Existing Record.....	1,592	0.08	1,592	0.08	0	0.00	0	0.00
Change.....	973,002	48.75	972,240	48.89	419	7.31	343	23.14
Move.....	4,864	0.24	4,859	0.24	3	0.05	2	0.13
Verify.....	110,809	5.55	110,788	5.57	20	0.35	1	0.07
Does Not Exist (Delete).....	290,213	14.54	288,345	14.50	973	16.97	895	60.39
Duplicate.....	117,061	5.87	116,731	5.87	183	3.19	147	9.92
Nonresidential.....	10,345	0.52	10,109	0.51	154	2.69	82	5.53
Uninhabitable.....	13,151	0.66	13,121	0.66	18	0.31	12	0.81

+Percentages may not sum to 100 due to rounding.
 Note that "Verify" in this table means that the address was found in AC and there were no changes to the address component of the record.
 Source: DSSD Assessment File

Note: A "Move" action occurred when an address found in a different block was deleted from the present block and added to the new block.

Source: Table provided by Census Evaluations Branch, Decennial Statistical Studies Division.

The Global Positioning System collection results showed a high success rate of 99 percent for Puerto Rico. A total of 1,195,050 map spots were collected out of 1,208,593 attempts. Listers had the option to opt out of map spot collection if they felt they were in a dangerous situation. Listers were instructed not to collect map spots if they were working on a military installation.

See the 2010 Census Addresses Canvassing Operational Assessment Report for additional information.

2.7.2.2 Group Quarters Validation

The 2010 Census Group Quarters Validation Operation was a new listing operation used to improve coverage of group quarters addresses. Group quarters are places where people live or stay in a group living arrangement and are owned or managed by an entity or organization providing housing or services for its residents.

Prior to the Group Quarters Validation operation, the Address Canvassing operation identified living quarters as either housing units or other living quarters. Other living quarters was a designation for any living quarters that did not appear to be a housing unit. Address Canvassing Listers were not trained in the specialized knowledge of identifying the addresses for group quarters. The purpose of Group Quarters Validation therefore was to validate the group quarters already existing on the census address list and also any addresses that an Address Canvassing Lister identified as an other living quarters or a potential group quarters.

During the operation, listers used paper materials for the operation, including a Confidentiality Notice, a Group Quarters Validation Questionnaire, Continuation Forms, Address Listing Pages, Other Living Quarters Add Pages, Non-survivor labels and census maps.

Census maps and Group Quarters Validation questionnaires were used to complete four main actions. Listers verified that group quarters addresses had the correct census geography; validated addresses of other living quarters (as group quarters, housing units, transitory locations, Non-residential, Vacant or Nonexistent (delete)); determined the type of group quarters and collected information for those group quarters that were validated; and added group quarters, housing units, and transitory locations that were not already on the address list.

The Group Quarters Validation operation was conducted from September 28, 2009 to October 23, 2009, with an initial workload of 11,984 other living quarters. The operation was performed out of one Early Opening Local Census Office in Puerto Rico. The control system used for implementation of Group Quarters Validation was the Field Data Collection Automation Office Computing Environment created by the Field Data Collection Automation contractor.

The universe for this operation included addresses from other living quarters “Adds” from Address Canvassing, Census 2000 group quarters and updates, group quarters from administrative records from the Federal-State Cooperative Program for Population Estimates, group quarters from Local Update of Census Addresses, group quarters identified during the National Processing Center’s Service-Based Enumeration Internet Research and group quarters from the American Community Survey Time of Interview operation.

The Group Quarters Validation questionnaires, forms, and spatial information gathered during Group Quarters Validation were then sent to the National Processing Center and the Decennial Response Integration System Paper Data Capture Center. The National Processing Center received maps for digitizing and the Decennial Response Integration System contractor captured Group Quarters Validation questionnaires and forms. The data were then stored for later use in the 2010 Census Group Quarters Advance Visit and Group Quarters Enumeration operations. The Decennial Response Integration System used the data captured from the Puerto Rico Group Quarters Validation questionnaires and forms to create address update files that were transmitted by assignment area, and used to update the MAF/TIGER database.

The Group Quarters Validation operation included quality assurance processes to ensure listers performed their job correctly. The quality assurance processes included an Initial Observation, Field Review, Initial Office Review, Reinterview, and a Final Office Review.

During Reinterview, the Operations Control System selected about ten percent of group quarters validated in the field and listers contacted them by phone from the Early Local Census Offices or by personal field visit when phone contact failed.

Several forms were used during the Group Quarters Validation operation including the Group Quarters Validation Questionnaire, the Group Quarters Validation Housing Unit Continuation Form, the Non-Survivor Label Page, and the Correctional Facility Continuation Form. Group

Quarters Validation questionnaires, Address Listing Pages, Other Living Quarters Add Pages, Continuation Forms and Non-survivor labels were printed in both English and Spanish for Puerto Rico. Office materials for the operation were not translated because it was planned to hire office staff in Puerto Rico that were bilingual, but this was not always the case.

Forms were adapted and translated by the Puerto Rico, Island Areas, and Overseas Branch. Spanish forms for Puerto Rico and Stateside required separate translation processes. Manuals and training guides were translated by the Puerto Rico Area Office.

The adaptation process for forms and training materials involved modifying materials to reflect procedural changes in Puerto Rico, such as data capture procedures, which differed from stateside. In addition, census history was altered to reflect the history of the census in Puerto Rico and not stateside. Address definitions, examples, and illustrations were also modified to reflect Puerto Rico geography throughout materials. The adaptation and translation process often had an impact on the real estate (space) in forms and materials and often changed the overall look of the documents.

Adequate time was not given for Puerto Rico, island Areas, and Overseas staff to cross reference forms and ensure all translations were consistent or that all necessary forms pertaining to the operation were translated. Some forms for the operation were not developed ahead of time, which delayed the adaptation and translation process as well.

Due to a lack of resources at Census Bureau headquarters, only forms, questionnaires, and letters were translated there by Puerto Rico, island Areas, and Overseas staff. All other Field Division training materials for the 2010 Census of Puerto Rico were translated by the Puerto Rico Area Office. To complete translations on time, Boston Regional Census Center completed materials on a flow basis and assigned different parts to multiple translators. This created a lack of consistency in materials. A thorough review of materials could not be done due to time constraints.

Delays in writing procedures at Census Bureau headquarters posed a challenge for Boston Regional Census Center as well. An inconsistency between materials translated at Census Bureau headquarters and those done in Boston Regional Census Center was also apparent.

The time in the Master Activity Schedule dedicated to adaptations and translations was not adequate. When the schedule was created, the majority of the time was allotted to preparing materials in English. Schedulers did not take into consideration how time consuming translation would be. For this reason, activity 10GQV-51350 "Adapt, translate and deliver Puerto Rico Spanish Group Quarters Validation materials and training guides to logistics" in the Master Activity Schedule was three months late. This delay in translating materials had negative effects since staff at the Puerto Rico offices received translated materials at the last minute. The National Processing Center's printing and kit building activities could not begin until these materials were completed as well. There was no dry run conducted to test materials and procedures in Puerto Rico.

For Puerto Rico, 30,000 Group Quarters Validation Questionnaires were printed and 5,768 were data captured. For Group Quarters Validation Housing Unit Continuation Forms, 8,300 were printed and 12 data captured. The same amount of Non-Survivor Label Pages were printed, while 6,404 were later data captured, an indication that a large number of duplicates were identified during this operation. As for Group Quarters Validation Correction Facility Continuation Forms, 2,200 were printed, but no forms were data captured.

In Table 13 we can see that the universe for the Group Quarters Validation operation in Puerto Rico was 12,040 other living quarters addresses, less than one percent of the entire Group Quarters Validation universe. The initial workload for the operation was 11,984 other living quarters; 56 other living quarters were added during the operation. (See Table 13)

Table 13. Number of Other Living Quarters Addresses From the Group Quarters Validation Operation Universe for Puerto Rico

Other Living Quarters Addresses	Count	Percent of Total
Total Other Living Quarters Universe	12,040	100.00
Initial Workload	11,984	99.53
Workload Sent to Group Quarters Validation	11,984	99.53
Workload not Sent to Group Quarters Validation	0	0.00
Adds	56	0.47
New Adds	56	0.47
Post Processing Adds	0	0.00

Source: 2010 Census Group Quarters Validation Operation Assessment Report

Table 14 shows that for Puerto Rico, 1,561 other living quarters were validated as group quarters during the operation. Of these, 1,332 were known group quarters types and 229 were unknown type (vacant). Of the group quarters with a known group quarters type, the top five categories were Nursing and Skilled Nursing Facilities (14.86 percent), Hospitals and In Patient Hospices (13.32 percent), Religious Group Quarters and Domestic Violence Shelters (11.27 percent), Residential Treatment Centers for Adults (8.26 percent) and Group Homes Intended for Adults (7.69 percent). The category with the lowest count was Residential Schools for People with Disabilities (0.45 percent). Approximately 15 percent of group quarters in Puerto Rico had an unknown group quarters type. Non-validated living quarters were found to be deletes, duplicates, or non-residentials.

Table 14. Summary of Group Quarters by Group Quarters Categories for Puerto Rico

Types of Group Quarters	Count	Percent of Total
Total	1,561	100.00
Known Group Quarters Types	1,332	85.33
Correctional Facilities for Adults	104	6.66
Juvenile Facilities	76	4.87
Nursing and Skilled Nursing Facilities	232	14.86
Hospitals and In Patient Hospices	208	13.32
Residential Schools for People with Disabilities	7	0.45
College/University Student Housing	61	3.91
Military Quarters	33	2.11
Shelters/Service Locations	95	6.09
Group Homes Intended for Adults	120	7.69
Residential Treatment Centers for Adults	129	8.26
Workers' Group Living Quarters and Job Corps Centers	91	5.83
Religious Group Quarters and Domestic Violence Shelters	176	11.27
Unknown Group Quarters Types (Vacant Group Quarters)	229	14.67

Source: 2010 Census Group Quarters Validation Operation Assessment Report

To determine single unit and multi-unit structures and approximate the number of locations visited, a Basic Street Address for other living quarters was identified. For Puerto Rico, the Basic Street Address contained different components unique to island addresses such as apartment complex name, street name, *carretera*, *ramal*, and location address urbanization. An address without a location address or a block number was considered out of scope for this process. The number of other living quarters at each Basic Street Address then represented the “Size of Structure.” For Puerto Rico, 1,970 distinct structures were single unit other living quarters and 1,196 were multi-unit other living quarters Basic Street Addresses.

As shown in Table 15, of the 12,040 other living quarters interviewed, 1,115 were eligible for Reinterview selection and 174 were selected for Reinterview.

Table 15. Number of Group Quarters Selected for Reinterview for Puerto Rico

Category	Count
Number of Other Living Quarters Interviewed	12,040
Number of Group Quarters Eligible for Reinterview	1,115
Number of Group Quarters Selected for Reinterview	174
Percent of Eligible Cases Selected	15.6

Source: 2010 Census Group Quarters Validation Operation Assessment Report

See the 2010 Census Group Quarters Validation Operational Assessment Report for additional information.

2.7.3 Enumeration Operations

2.7.3.1 Update/Leave

Before the 2010 Census, the Census Bureau determined what type of enumeration method would be used in each geographic area by the delineation of Type of Enumeration Areas. For the 2010 Census, all of Puerto Rico was classified as Type of Enumeration Area 2, since many areas consisted of housing units that did not receive mail at city-style addresses. These areas were enumerated using the Update/Leave methodology.

The 2010 Census Update/Leave operation was conducted from March 1, 2010 through March 26, 2010 from seven Local Census Offices in Puerto Rico. The Boston Regional Census Center managed the Update/Leave operation in Puerto Rico. Update/Leave was the only method of questionnaire distribution on the island.

During this operation, enumerators had an address list of all known Living Quarters, which they updated as they canvassed blocks in their assignment areas. Every structure in the area was visited to identify housing units. About nine months earlier, Address Canvassing also canvassed blocks to identify housing units to create the address list using the hand-held computer. Update/Leave was a similar process but enumerators used paper lists and maps during this operation.

At each housing unit, occupants were contacted and enumerators left a preaddressed questionnaire with the occupant. If the enumerator could not contact an occupant, the labeled questionnaire was left in a plastic bag in an easily visible location. The occupants were then asked to fill out the questionnaire and send it back by mail. Enumerators could include the address of a housing unit that was not on the address list by updating the address list on an Add Page, adding a mapspot on a census map and filling out a blank questionnaire with the address and processing ID of the “Add.”

The Update/Leave operation also had a quality control phase. For quality control, enumerators were observed after training. If enumerators passed the initial observation, they continued working. If enumerators failed the initial observation, the crew leaders provided additional training before conducting another observation. Enumerators who did not pass the second observation were then let go.

The Update/Leave quality control phase also included fieldwork, which was conducted from March 8, 2010 to April 2, 2010. During this phase, Quality Control enumerators carried out a Dependent Quality Control, which consisted of checking a sample of addresses to ensure the work was done correctly. Every assignment area was checked as a part of this process after completing the initial production phase. Any assignment area that failed the Dependent Quality Control check was recanvassed by the same quality control enumerator during a phase called “Recanvassing.” After the field work quality control, assignment areas were sent to the Local Census Office for Office Review, a process in which office clerks reviewed assignment area binders for legibility, completeness, and consistency. Any binders that could not be fixed in the

Local Census Office were sent back to the field, where Quality Control enumerators conducted an operational phase called Repair.

Completed Update/Leave binders were then sent from the Local Census Offices to the National Processing Center for keying and map digitizing in TIGER. The National Processing Center created address update files containing keying results, which were sent to Geography Division at Census Bureau headquarters, to update the MAF/TIGER database. The Local Census Offices also sent observation checklists and Office Review checklists to the National Processing Center for data capture. The National Processing Center then sent captured data to the Decennial Statistical Studies Division for analysis of the quality control phase.

During processing, some errors were found with the Processing IDs for Puerto Rico Update/Leave questionnaires. Errors were caused by invalid values and valid but duplicate IDs between Puerto Rico questionnaires and stateside questionnaires. Also, there were invalid and duplicate IDs within the Puerto Rico questionnaires.

The translation process for Update/Leave materials began after stateside materials were completed. Once Field Division received the completed stateside file, Address Coverage Operations Branch staff adapted the materials for Puerto Rico. Materials were then placed on a share drive where translators in the Puerto Rico Area Office could access them. Once files were translated, they were placed on the share drive again for review by the Address Coverage Operations Branch to ensure completeness and verify the formatting of the document. After the review was completed, materials were then printed. In some materials, translators found several errors and contradictions in the instructions for Update/Leave and Field Verification. These errors were reported to Census Bureau headquarters' staff which made the necessary changes to stateside materials and any errata needed at the time.

For Puerto Rico, the estimated workload for Update/Leave was 1,703,036 housing units. The actual workload was 1,709,435 housing units, 0.4 percent more housing units than expected. The difference between the two figures was due primarily to "Add" rates, the percentage of housing units added during fieldwork that was not on the Address Listing Pages. The workload sent to Update/Leave for Puerto Rico was 1,582,747 addresses. These addresses came from 18,098 Assignment Areas, 8.9 percent of the Assignment Area workload. They were concentrated in 39,437 blocks, 7.8 percent of the total block workload for Update/Leave.

The number of "Adds" for Puerto Rico was 127,221 and the actual "Add" rate was 7.4 percent, 0.2 percent less than the estimated "Add" rate (see Table 16). However, the "Add" rate for Puerto Rico was higher than that of stateside (4.3 percent). This may have been due to several problems caused by the unique addressing schema in Puerto Rico. For instance, the 2010 Census Update/Leave operation was paper-based, and did not have data capture validation to ensure that addresses followed census standards. Puerto Rico addresses were more complex and forms contained more fields than stateside. Also, some Update/Leave enumerators used stateside "Add" pages to add new addresses instead of using "Add" pages adapted specifically for Puerto Rico after erroneously receiving a shipment of stateside forms. The National Processing Center then had to interpret the data to capture the "Adds" for the Puerto Rico database. This

unexpected situation may have impacted match rates (i.e. unduplication process) during MAF/TIGER database updates.

The estimated Quality Control Workload was 299,734 housing units for Puerto Rico, while the actual quality control workload was 320,997 housing units. The Dependent Quality Control rate, or the sample rate of housing units within an Assignment Area, was expected to be 7.6 for Puerto Rico. The actual Dependent Quality Control rate for the island was 7.3, less housing units were sampled than expected.

The Recanvass rate, the rate of Dependent Quality Control failure, or the rate of assignment areas that should be recanvassed, was higher than expected for Puerto Rico. The expected Recanvass rate for Puerto Rico was 10 percent, while the actual rate was 12.4 percent. This may have been caused again by the unique addressing schema in Puerto Rico as mentioned above. The actual Recanvass rate for stateside was 5.4 percent, far less than that of Puerto Rico.

For Update/Leave production in Puerto Rico, 6,403 enumerators and crew leader assistants, 432 crew leaders, and 62 field office supervisors were hired. Staffing was 4.2 percent lower than budgeted and all three positions were under-hired by 3.3, 15.3 and 3.1 percent respectively.

For Update/Leave Quality Control in Puerto Rico, 1,339 Quality Control enumerators and crew leader assistants, 89 Quality Control crew leaders, and 16 Quality Control field office supervisors were hired. Update/Leave Quality Control was overstaffed by 13.6 percent. Quality Control crew leaders were under-hired by 1.1 percent, while Quality Control enumerators and crew leader assistants and Quality Control field office supervisors were over-hired by 14.8 and 6.7 percent respectively.

For Update/Leave production in Puerto Rico, enumerators used 343,508 hours for field work, while Quality Control enumerators used 79,118 production hours. The actual enumerator production rate (number of field actions/production hours used by enumerators) for Update/Leave fieldwork in Puerto Rico was 5.0 housing units per hour. This rate was less than stateside (5.3) most likely due to the fact that Puerto Rico enumerators had to check more address fields per record. The actual Quality Control enumerator production rate for Update/Leave Quality Control in Puerto Rico was 4.1 housing units per hour.

Table 16 shows the Field Action Codes for the Update/Leave operation in Puerto Rico. The majority of Actions were “Verifies” at about 55 percent and “Corrections” at about 30 percent.

Table 16. Update/Leave Counts by Field Action Codes for Puerto Rico

Action Codes	Number of Addresses	Percentage (%)
Add	127,221	7.4
Adds from Update/Leave Registers	113,490	6.6
Adds from Update/Leave Questionnaires	13,731	0.8
Correction	519,650	30.4
Uninhabitable	34,787	2.0
Delete	66,643	3.9
Empty Mobile Home Site	130	< 0.1
Duplicate	13,010	0.8
Nonresidential	6,317	0.4
Verify	941,677	55.1
Field Actions	691	< 0.1
Automated	940,986	55.1
Total	1,709,435	100.0

Source: 2010 Census Update/Leave Operational Assessment
Note: Some percentages do not sum to 100.0 due to rounding.

Of the field action codes shown in Table 16, 8,998 “Adds” from Update/Leave Registers, 213 “Corrections”, 42 “Deletes”, 3 “Empty Mobile Home Sites”, 481 “Duplicates”, and 4 “Nonresidential” Actions were rejected.

From the 9,741 cases rejected in the MAF/TIGER database for Puerto Rico, 6,567 were rejected due to duplicate Processing IDs, 1,368 had an illegal block number, 510 had the same MAFUNIT as a Survivor and Retired record, 1,066 had an illegal or missing value, 170 had an illegal surviving MAFID/Unit Status Code Combination, 4 had a target MAFID that could not be found, 7 had an address component changed for actions in which changes were not expected [K (“Vacant mobile home site”), V (“Verify”), D (“Delete”), N (“Nonresidential”), or L (“Duplicate”)], and 49 had multiple transactions targeting the same MAFID.

In Table 17, we can see that 1,699,298 addresses were on the MAF/TIGER database post-processing. Of these, 864,108 (50.9 percent) records were from Census 2000 operations, 689,583 (40.6 percent) from 2010 Census Address Canvassing, 119,005 (7.0 percent) from 2010 Census Update/Leave, and 25,818 from 2010 Local Update of Census Addresses (1.5 percent). Less than 0.1 percent came from 2010 Census Group Quarters Validation and 2010 Census Group Quarters List Updates.

Table 17. Update/Leave MAF/TIGER Database Update by Action Codes for Puerto Rico

Action Codes	Number of Addresses	Percentage (%)
Add	118,223	7.0
Matched	175	<0.1
New MAF/TIGER database Record	118,048	7.0
Correction	519,127	30.6
Uninhabitable	34,752	2.0
Delete	66,557	3.9
Empty Mobile Home Site	127	0.0
Duplicate	12,523	0.7
Nonresidential	6,312	0.4
Verify	941,677	55.4
Total	1,699,298	100.0

Source: 2010 Census Update/Leave Operational Assessment

For Update/Leave, a complete city-style address included a house number and a street name. As shown in Table 18, more than 76 percent of the addresses in Puerto Rico had complete city-style addresses. Only about 24 percent of the addresses in Puerto Rico were not a complete city-style address.

Table 18. Update/Leave MAF/TIGER Database Update by Address Type for Puerto Rico

Type of Address	Number of Addresses	Percentage (%)
Complete City-Style Address	1,293,452	76.1
Complete Rural Route Address	111,294	6.5
Complete P.O. Box Address	35,439	2.1
Incomplete Address	213,946	12.6
No Address Information	45,167	2.7
Total	1,699,298	100.0

Source: 2010 Census Update/Leave Operational Assessment

See the 2010 Census Update/Leave Operational Assessment Report for additional information.

2.7.3.2 Group Quarters Operations

The main objective of the 2010 Census Group Quarters Enumeration operation was to enumerate people who lived or stayed in a group quarters. The 2010 Census Group Quarters operations included Group Quarters Advance Visit, Group Quarters Enumeration that included Military Enumeration and Service-Based Enumeration, and Shipboard Enumeration of military and maritime vessels. The Group Quarters Advance Visit Operation was conducted prior to Group Quarters Enumeration.

Examples of the group quarters enumerated in this operation include college residence halls, residential treatment centers, skilled nursing facilities, group homes, military barracks, domestic military and maritime vessels, correctional facilities and workers' dormitories.

The Group Quarters Advance Visit Operation was conducted to inform the group quarters contact person of the upcoming 2010 Census Group Quarters Enumeration and to obtain the number of people expected to be at the group quarters on Census Day. It also addressed privacy and confidentiality concerns, as well as security concerns at the group quarters. During Group Quarters Advance Visit, enumerators could add the following group quarters types to the pre-identified universe if they did not exist: military barracks, skilled nursing facilities, college residence halls, group homes, residential treatment centers, correctional facilities, workers' dormitories, and service-based enumeration locations.

Group Quarters Advance Visit was carried out from February 1, 2010 to March 19, 2010. The information collected from these interviews was used to prepare materials for Group Quarters Enumeration. Group Quarters Advance Visit was not conducted for Shipboard Enumeration.

Group Quarters Enumeration enumerated individuals who lived or stayed at group quarters. There were three phases to Group Quarters Enumeration: Pre-Enumeration, Enumeration and Post-Enumeration. Pre-Enumeration involved visiting the group quarters to prepare materials for Group Quarters Enumeration. Enumerators conducted the enumeration by distributing the Individual Census Report or Military Census Report to each resident or client at large group quarters or conducting personal interviews to complete Individual Census Reports at small group quarters (usually nine residents or less). They also collected Individual Census Report/Military Census Report packets, and reviewed these packets for completeness. The enumerators also obtained data for incomplete and or missing Individual Census Reports/Military Census Reports.

Group Quarters Enumeration included Service-Based Enumeration, Military Enumeration, and Shipboard Enumeration operations. Group Quarters Enumeration was conducted from April 1, 2010 to May 21, 2010. The Group Quarters Enumeration operation (including Re-Interview) actually ended late on June 4, 2010 due to performance issues with the Paper-Based Operation Control System.

A Quality Control Program was implemented to ensure Individual Census Reports were filled out correctly during Group Quarters Enumeration. The program included an initial review of the Individual Census Report by the crew leader, Reinterview of a sample of group quarters, and Office Review of Enumeration Records. There was no Quality Control Program for Service-Based Enumeration, Military Enumeration, group quarters that had a population count of zero or did not contain at least one Individual Census Report, cases completed by a crew leader or Group Quarters supervisor, cases that were selected for "Management Attention," cases that were previously selected for Reinterview and/or cases that had been checked out for rework.

The Service-Based Enumeration was conducted from March 29 to March 31, 2010. It was carried out at service locations to allow people experiencing homelessness to participate in the census and included shelters for people experiencing homelessness, soup kitchens, regularly scheduled mobile food vans and targeted non-sheltered outdoor locations.

The objective of the 2010 Census Military Group Quarters Enumeration was to enumerate military personnel living in group quarters on military installations. Military group quarters were

self-enumerating, that is, census staff trained the military installation Points of Contact on enumeration procedures after being sworn in. After the enumeration was complete, census staff then picked up the completed Military Census Reports at the installations.

Shipboard Enumeration was designed to enumerate those on U.S. military ships or maritime vessels at the time of the census. Shipboard Census Reports were filled out by personnel and mailed to the National Processing Center.

Advanced Visit Interview Records from the Group Quarters Advance Visit operation were entered into the Paper-Based Operations Control System at the Local Census Offices. The Advanced Visit Interview Records were then retained at the Local Census Offices. Enumeration Records were entered into the Paper-Based Operations Control System. The system collected data from the Enumeration Records including the actual population count and group quarters status, which were used to create the address updates file with group quarters address update for Geography Division. The Individual Census Reports were data captured by the Decennial Response Integration System. The National Processing Center keyed the Reinterview forms for the operation.

For the Group Quarters Enumeration and Service-Based Enumeration operations, promotional materials were translated by the Puerto Rico, Island Areas, and Overseas Branch. These materials included a Group Quarters Enumeration and Service-Based Enumeration poster containing key information, such as the date of the operation, its impact on the community, and the 2010 Census website. Brochures were also translated that detailed the procedures and benefits of the operations.

The draft of the 2010 Census Group Quarters Enumeration Lessons Learned session (2011) captured issues that arose during the operation in Puerto Rico, such as:

- Late revisions to memos that disclosed a need for sub-kits (small kits that formed part of a larger kit) proved challenging for the National Processing Center. These sub-kits had not been discussed or documented in a specification file. The additional sub-kits had to be completed prior to the start of operational kit building. Additional problems occurred when the supplies for the sub-kits were not available. The number of kits for Group Quarters Advance Visit in particular rose to a very high number after the addition of sub-kits. One sub-kit for Group Quarters Advance Visit had incorrect print files and a high number of kits had to be reworked. Group Quarters Enumeration for Puerto Rico also required additional kits.
- Another challenge resulted from the underestimation of the number of Public Use Forms, such as the D-20(PR) Individual Census Report and D-40(PR) Individual Census Report Envelope. Staff ran out of these forms and did not have enough for kits.
- Another issue arose with the design of the Universal Response database schema and the response database that the Decennial Systems and Processing Office maintained. It was not designed to handle the full parsing of Puerto Rico addresses. The address templates were not

adequately designed to capture address data for post-collection processing. This created additional work and systems had to be developed to mitigate the problems during address capture which affected standardizing, parsing, and matching. One example was the D-20(PR). This form had elements that shared a field and no check boxes to indicate which the enumerator was collecting. For instance, Urbanization and Apartment Complex shared a field on the form. Carretera, Street Name, and Ramal also shared a field. Building and Unit Information, Rural Route and Area Name, and City and Area Name also shared fields on the form, but there was no way to clarify which was being collected.

Note: The draft for the assessment of the 2010 Census Group Quarters Enumeration operation was not finalized at the time that this report was written.

2.7.3.3 Enumeration at Transitory Locations

The goal of the Enumeration at Transitory Locations field operation was to enumerate persons at transitory locations who did not have a Usual Home Elsewhere. This was a paper-based operation consisting of the Enumeration at Transitory Locations Production operation and the Enumeration at Transitory Locations Telephone Reinterview operation. During the production phase of the operation, enumerators canvassed their assignment blocks, conducted a personal visit at every unit to determine the occupancy and residential status, interviewed residents using a paper questionnaire at eligible transitory location sites, updated census maps and checked their work for completeness and errors. During Enumeration at Transitory Locations Telephone Reinterview, Quality Assurance clerks confirmed that enumerators visited the correct transitory location, assessed if the residence status was correctly determined for each housing unit, and identified enumerators who falsified their information.

The Enumeration at Transitory Locations and Enumeration at Transitory Locations Telephone Reinterview operations were conducted by the seven Local Census Offices in Puerto Rico and staff from the National Processing Center under the supervision of the Puerto Rico Area Office. Staff utilized the Field Data Collection Automation-Operation Control Environment and the Paper-Based Operations Control System to conduct the operation, and the Decennial Applicant Personnel and Payroll System to manage this operation. In Puerto Rico, the production operation occurred from March 19, 2010 to April 12, 2010. The quality control operation consisting of telephone reinterview was executed from March 23, 2010 to April 16, 2010.

The National Processing Center in Jeffersonville was responsible for assembling training and supply kits for the operation, and shipping them to the Local Census Offices on the island. The National Processing Center also checked-in reinterview forms and binder pages including maps and address listing pages. After check-in, maps were digitized and updates were sent to Geography Division in Census Bureau headquarters.

Enumerators used a variety of paper forms for Enumeration at Transitory Locations that are listed in Appendix B of this document. Public Use Forms, such as Census Bureau headquarters questionnaires and forms, were printed by contractors and translated to Spanish for Puerto Rico. An enumerator questionnaire was used to collect household data, along with the continuation

form for households with more than five people. Administrative Forms were also used in the Enumeration at Transitory Locations operation (see Appendix B). Field Division and Census Bureau headquarters staff developed manuals and training materials for the Enumeration at Transitory Locations operation. These documents were also adapted and translated for Puerto Rico.

Note: The draft of the assessment for the 2010 Census Enumeration at Transitory Locations was not finalized at the time that this report was written.

2.7.3.4 Nonresponse Operations

The purpose of the 2010 Census Nonresponse operation was to verify the status of housing units that received a 2010 Census questionnaire but did not return it by mail or complete an interview by telephone before the Nonresponse Followup universe was determined. Nonresponse operations were conducted from mid-April through August 24, 2010 and consisted of four operations, the Nonresponse Followup operation, Nonresponse Followup Reinterview, Nonresponse Followup Vacant Delete Check, and Nonresponse Followup Residual.

The first Nonresponse operation to take place was the Nonresponse Followup operation. Nonresponse Followup production was a 10-week operation conducted from May 1 to July 9, 2010. During this operation enumerators visited each address to determine the Census Day (April 1, 2010) status of the housing unit and complete an Enumerator Questionnaire. These questionnaires were then checked into the Paper-Based Operations Control System at the Local Census Offices and shipped to the Decennial Response Integration System for data capture.

A separate operation, Nonresponse Followup Reinterview was conducted concurrently with Nonresponse Followup and served as a quality control check for Nonresponse Followup. Nonresponse Followup Reinterview began May 3, 2010 and ended on July 31, 2010. During this operation, a sample of Nonresponse Followup cases was selected and a second interview was conducted by a different enumerator to ensure that production enumerators did not intentionally or unintentionally falsify data. Cases were completed by telephone or with a field interview.

Cases identified during Nonresponse Followup as vacant or nonexistent on Census Day were revisited during Nonresponse Followup Vacant Delete Check. This operation also included cases that were added to the Master Address File Extract too late to be included in Nonresponse Followup production. Sources of late “Adds” included in Nonresponse Followup Vacant Delete Check were New Construction, Local Update of Census Addresses appeals, Update/Leave, cases from the Ungeocoded and INFO-COMM operations, Count Review, and addresses that had mail returns that were determined to be blank after data capture.

The major difference between Nonresponse Followup and Nonresponse Followup Vacant Delete Check was that Nonresponse Followup Vacant Delete Check did not have a Reinterview operation that checked for falsification. Nonresponse Followup Vacant Delete Check was a separate four week operation beginning two weeks after a Local Census Office completed Nonresponse Followup production. Nonresponse Followup Vacant Delete Check used

procedures similar to Nonresponse Followup production and cases were managed by the Paper-Based Operations Control System as well.

The Nonresponse Followup Residual operation was the last operation to be conducted for Nonresponse Operations. This operation served as a close out for Nonresponse Followup and ensured accountability for every Nonresponse Followup housing unit. Nonresponse Followup Residual consisted of cases in which questionnaires were incomplete upon return or cases where the Nonresponse Followup enumerator could not determine the population count of the housing unit.

For these operations, enumerators had questionnaires that were translated specifically for Puerto Rico. Questionnaires for Puerto Rico captured almost identical geographic information to the stateside questionnaire on the front, the only difference being the preprinted state code on the Puerto Rico form. However, the address fields in Section H3 of the questionnaire differed slightly. House number, street name or rural route address, apartment number, and ZIP Code were the same for stateside and Puerto Rico. The Puerto Rico questionnaire collected Urbanization/Condominium/Residential name and municipio specifically for Puerto Rico.

The Puerto Rico Spanish production questionnaire was used for the Nonresponse Followup, Nonresponse Followup Vacant Delete Check and Nonresponse Followup Residual operations. The Puerto Rico Spanish Reinterview questionnaire was used during the Nonresponse Followup Reinterview operation. Other materials used during these operations included Address Listing Pages, Add Pages for Housing Units, Language Identification Flashcards, the Notice of Visit form and the Information Sheet.

Nonresponse Followup materials were translated in the Puerto Rico Area Office. Communication between Census Bureau headquarters and Puerto Rico was not handled well, making it difficult to meet deadlines for the translation of materials. These delays also made it difficult for the National Processing Center to assemble kits. The National Processing Center had to work overtime to meet kitting deliverable dates because of delays in receiving translated files for printing. The National Processing Center was responsible for printing all Puerto Rico files. However, the volume for Puerto Rico materials was low.

The Field Decennial Data Collection Branch located in headquarters had a fluent Spanish speaker on staff. This employee was able to work with the translators in Puerto Rico and review materials after translation. This facilitated the completion of materials and getting them to logistics on time.

For the operation, Nonresponse Followup interviews in Puerto Rico were conducted in Spanish. Spanish was one of the top five languages for interviews in both stateside and Puerto Rico; 1,970,493 Nonresponse Followup interviews were conducted in Spanish, and 747,081 (37.9 percent) of those were conducted in Puerto Rico. For Nonresponse Followup Reinterview, 93,914 interviews were conducted in Spanish, 24,919 (26.5 percent) of these in Puerto Rico. During Nonresponse Followup Vacant Delete Check, 401,964 interviews were conducted in Spanish, 246,078 (61.2 percent) of which were in Puerto Rico. Finally, 13,328 Nonresponse

Followup Residual interviews were conducted in Spanish, 1,654 (12.4 percent) of which were done in Puerto Rico.

Housing Units added during Nonresponse Followup and Nonresponse Followup Vacant Delete Check were sent to Non-ID Processing, where they were classified as one of two types – Type A or Type C. Type A cases were cases in which a respondent moved in after Census Day or cases where a whole household had a usual home elsewhere. While these cases were to be processed only if they contained a person record, some cases without a person record were erroneously included in processing. Therefore, a Computed Person Number (PNC) was used to differentiate the two. Type C cases included housing units that were discovered by an enumerator and were not included in the assignment list.

For Nonresponse Followup in Puerto Rico, enumerators added 1,082 Type A (PNC=1) housing units, 51 Type A (PNC=0), and 19,138 Type C housing units (see Table 19). For Nonresponse Followup Vacant Delete Check, enumerators added 2 Type A (PNC=1) housing units, 2 Type A (PNC=0), and 4,644 Type C housing units. Type C cases were the most common in Puerto Rico.

Table 19. Frequency of Puerto Rico Type A and Type C Cases Found During Nonresponse Followup and Nonresponse Followup Vacant Delete Check

Operation	Number of Cases	Number of Housing Units	Percentage (%)
Nonresponse Followup	Type A (PNC=1)	1,082	5.3
	Type A (PNC=0)	51	0.3
	Type C	19,138	94.4
	Total	20,271	100.0
Nonresponse Followup Vacant Delete Check	Type A (PNC=1)	2	<0.1
	Type A (PNC=0)	2	<0.1
	Type C	4,644	99.9
	Total	4,648	100.0

Note: A Computed Person Number (PNC) was used to differentiate between Type A cases that were processed with a person record (PNC=1) and Type A cases that were erroneously processed without a person record (PNC=0).

Source: 2010 Census Nonresponse Followup Operations Assessment

For Nonresponse Followup and Nonresponse Followup Vacant Delete Check in Puerto Rico, records for Type A cases were considered complete if addresses contained one of the following two combinations: (1) a house number, street name, rural route or Urbanization/Condominium/Residential name, and ZIP Code, or (2) apartment number, Urbanization/Condominium/Residential name, and ZIP Code, or state. Records for Type C cases were considered complete if addresses contained one of the following two combinations: (1) house number, street name, rural route or Urbanization/Condominium/Residential name, block number, municipio, and state, or (2) apartment number, Urbanization/Condominium/Residential name, block number, municipio and state.

The content of address fields on the enumerator questionnaire for Type A and Type C cases for Nonresponse Followup in Puerto Rico are shown in Table 20. For Nonresponse Followup Type A cases in the Puerto Rico Enumerator Questionnaire, Combination 1 had a lower rate of completeness for cases that provided a valid person record (58.2 percent) compared to those with

no valid person record (70.6 percent). Combination 1 Type A cases were all blank for 35 cases with PNC=1 and 4 cases with PNC=0. Combination 2 Type A cases had a higher rate of completeness for cases that provided a person record (7.9 percent) compared to those with no valid person record (2.0 percent). These Type A cases were all blank for 2 cases with PNC=1. For Type A cases with at least 1 field filled, but not all, cases that provided a person record (30.5 percent) had a higher rate of completeness compared to those with no valid person record (19.6 percent).

Table 20. Content of Address Field for Puerto Rico Type A and Type C Cases From Nonresponse Followup

Address Field Groupings	Type					
	Type A PNC=1		Type A PNC=0		Type C	
	Number of Housing Units	%	Number of Housing Units	%	Number of Housing Units	%
Combination 1						
All filled	630	58.2	36	70.6	9,611	50.2
All blank	35	3.2	4	7.8	0	0.0
Combination 2						
All filled	85	7.9	1	2.0	2,515	13.1
All blank	2	0.2	0	0.0	0	0.0
At least 1 address field filled, but not all	330	30.5	10	19.6	7,012	36.6
Total	1,082	100.0	51	100.0	19,138	100.0

Source: 2010 Census Nonresponse Followup Operations Assessment

Note: Some percentages do not sum to 100.0 due to rounding.

For Nonresponse Followup Type C cases from Puerto Rico enumerators, all cases had at least one address field filled and 63.3 percent of cases had all address fields filled for at least one of the two combinations. The high completeness rate can be attributed to the printed state codes on the Puerto Rico questionnaires. For Type C cases, 50.2 percent had all address fields filled for Combination 1, 13.1 percent had all address fields filled for Combination 2, and 36.6 percent had at least one address field filled, but not all.

For Nonresponse Followup Vacant Delete Check Type A cases, there were only 4 cases, 2 of which did not have adequate person information.

For Nonresponse Followup Vacant Delete Check Type C cases from Puerto Rico enumerators, all cases had at least one address field filled. For these cases, 14.4 percent had all address fields filled for Combination 1, 33.1 percent had all address fields filled for Combination 2, and 52.5 percent had at least one address field filled, but not all.

See the 2010 Census Nonresponse Followup Operational Assessment Report for additional information.

2.7.4 Non-ID Processing

For the 2010 Census, the main method of enumeration in Puerto Rico was via questionnaires hand delivered to living quarters by enumerators. However, individuals could also participate in the Be Counted and Telephone Questionnaire Assistance programs as well as respond to field staff conducting interviews at their door. The questionnaires used for these alternate methods of enumeration lacked a census identification number, instead containing a Processing ID. During the Non-ID Processing operation, staff determined if addresses matched existing records in the census universe, identified part of the workload for Field Verification, and attempted to add basic geographic information to Non-ID cases.

The first step in Non-ID Processing was assigning an address to a state and county, known as “header coding.” After header coding, an automated process was used to attempt to match cases to addresses in the MAF/TIGER database. Cases that could not be matched, or matched to an ungeocoded MAF/TIGER database record, were then sent through automated geocoding. Addresses that could not be header coded, matched or geocoded were sent to the National Processing Center for a clerical matching and geocoding operation that included up to two attempts to match the address by different clerks.

From the National Processing Center, the cases went to Census Bureau headquarters for post-clerical processing. During this stage, a final attempt was made to match and/or geocode cases. All cases that were successfully matched and geocoded were updated to the MAF/TIGER database. Non-ID cases that were matched to a record but obtained a geocode from the automated or clerical process were eligible for Field Verification if they were completed before the cutoff date of August 4, 2010. Cases that could not be matched but were block geocoded were also eligible. Once the universe for Field Verification was determined, only cases that matched a record in the MAF/TIGER database with a preexisting geocode could be added to the census universe.

For the Non-ID Processing operation, there were three types of cases – Type A, Type B and Type C. Type A cases were ungeocoded addresses that contained a Processing ID. For Puerto Rico, these addresses originated from Be Counted, Telephone Questionnaire Assistance Fulfillment, and Telephone Questionnaire Assessment Interview, or were Usual Home Elsewhere addresses from the Group Quarters Enumeration and Nonresponse Followup operations. Type A cases went through full automated and clerical processes.

Type B cases were also ungeocoded addresses with a Processing ID. These cases were from Be Counted forms where the respondents had no address on April 1, 2010 and were only header coded to higher level geography based on location information.

Type C cases had a Processing ID and were geocoded by field staff to the 2010 collection block level (a small percentage were ungeocoded). For Puerto Rico, these cases were enumerator generated “Adds” from Enumeration at Transitory Locations, Group Quarters Enumeration, Update/Leave, Nonresponse Followup and Nonresponse Followup Vacant Delete Check. They

went through the automated process in an attempt to match to the MAF/TIGER database. If a match was not found, they were added as new records on the MAF/TIGER database.

For FY 2010, extra funds were added to the Non-ID Processing budget for a contractor to process the Puerto Rico addresses. In February 2010, the contract was awarded and \$1.6 million was added to the Geography Division's budget to cover the cost of a private firm for clerical processing. The estimated workload for the Non-ID Processing Type A and Type B cases for Puerto Rico was 48,847 addresses. There was no estimate for Type C cases. The actual workload for Type A and Type B cases was 13,108 addresses. For Type C cases the actual workload was 136,532 addresses. The actual cost for the contract was \$604,000, due to the smaller than expected workload for Puerto Rico.

The Non-ID subteam chose to use a contractor to match and geocode cases from Puerto Rico because they believed that only a contractor had the requirements to complete the task: knowledge of the complex structure of Puerto Rico addresses and the ability to communicate with respondents during the calling phase of the operation. Contractor staff had an office space near Census Bureau headquarters.

Puerto Rico cases were treated as referral cases during processing due to the smaller workload and amount of staff. They used the Matching and Geocoding Interactive Clerical Software, the Search Utility Mapping Object, information from Fast Data, and information from calls to respondents to resolve cases.

Puerto Rico cases were included in the same clerical deliveries to the National Processing Center as stateside and were accessed by the contractor through the Matching and Geocoding Interactive Clerical Software. For Puerto Rico, a modified version of the Matching and Geocoding Interactive Clerical Software was created by the Geocoding Software Branch in Geography Division. It included additional address elements for Puerto Rico. Both the Puerto Rico and stateside version of the software had mostly the same functionality. Testing for the prototype of the modified clerical coding system was done by Census Bureau headquarters staff during late summer/early autumn 2009.

As updates were made to the stateside version of the Matching and Geocoding Interactive Clerical Software, the Puerto Rico version was simultaneously updated and both versions of the software performed the same. The Search Utility Mapping Object software contained a large number of unnamed roads and had limited search ability. As a result, it was supplemented by a website created by the Puerto Rico government containing boundaries that were not present in the Search Utility Mapping Object software. Google[®] maps were also utilized when the website was experiencing performance issues.

A contingency plan was developed in case the automated matching for Puerto Rico addresses encountered problems handling the unique address structure in Puerto Rico. According to the plan, clerical staff would have to resolve most cases. This manual process would likely extend processing beyond the 2010 Census Field Verification cutoff date and require that more staff be

hired and overtime used to ensure a high production rate. However, this plan was not enacted since the Puerto Rico workload was less than a quarter of the estimated amount.

A critical aspect of processing for Puerto Rico cases was the telephone phase of the operation. Many of the Puerto Rico address cases would not have been geocoded if analysts had not spoken with respondents. Analysts were allowed up to three calls per case. Any respondents who were hesitant to participate could call the Jeffersonville Telephone Center to verify the legitimacy of the operation.

Puerto Rico initially had 12 contractors on staff, but the number was increased to 21 after a request was made for extra staff. The staff consisted of 18 junior analysts, two senior analysts, and one project manager. However, by the end of May 2010, staff was down to seven employees. In early June, the junior analysts were working part time and by the end of June the contractors were no longer needed since the workload was so low for Puerto Rico.

The Address Programs Management Branch and Geography Division held two trainings for the Puerto Rico contractors. The first training was given to the 12 initial staff and the second training was set up for the additional nine contractors that were later hired. The first training began on April 7, 2010 and was carried out over six days, with training for the senior analysts and Project Manager on the fifth day. The second training began on April 19, 2010 and was only five days so trainees could observe the first group in production. Sample cases with Puerto Rico addresses were used for training.

Contractors began production for the Non-ID Processing operation on April 15, 2010 and worked until June 30, 2010. When the contractors left, the Address Programs Management Branch within Geography Division worked the remaining cases. Production was completed on August 12, 2010.

The number of Type A cases sent to Automated Non-ID Processing for Puerto Rico was 12,963 cases, 1.02 percent of the total workload. Of these cases, 10,192 were Be Counted cases, 755 were Telephone Questionnaire Assistance Fulfillment cases, 298 were Telephone Questionnaire Assistance Interview cases, 635 were Group Quarters Enumeration cases, and 1,083 were Nonresponse Followup cases. The majority of cases (78.62 percent) were generated from Be Counted forms for Puerto Rico.

The number of Type A cases header coded through automated processing was 10,627 as seen in Table 21. Three Type A cases were matched and geocoded through automated processing for Puerto Rico. Six Type A cases were not matched but geocoded through automated processing. There were no Type A cases matched but not geocoded through automated processing. For Puerto Rico, 5,409 Type A cases were not matched or geocoded through automated processing and 5,209 Type A cases were rejected during automated processing.

Table 21. Results of Automated Processing for Type A Cases for Puerto Rico

Category	Number of Cases
Matched and geocoded	3
Not matched but geocoded	6
Matched but not geocoded	0
Not matched and not geocoded	5,409
Rejected	5,209
Total	10,627

Source: 2010 Census Non-ID Processing Assessment

The number of Type B cases sent to Automated Non-ID Processing for Puerto Rico was 145 cases, 1.08 percent of the total workload. Of these, 116 cases were header coded through automated processing.

Of the 136,532 Type C cases sent to Automated Non-ID Processing for Puerto Rico, 141 were Enumeration at Transitory Locations cases, 192 were Group Quarters Enumeration cases, 18,402 were Nonresponse Followup cases, 4,307 were Nonresponse Followup Vacant Delete Check cases, and 113,490 were Update/Leave cases. The majority of these cases (83.12 percent) were generated from Update/Leave for Puerto Rico.

As shown in Table 22, Puerto Rico had 126,409 Type C cases added as new MAF/TIGER database records, 271 cases matched and 9,852 cases rejected during automated processing.

Table 22. Results of Automated Processing for Type C Cases for Puerto Rico

Category	Number of Cases
Added	126,409
Matched	271
Rejected	9,852
Total	136,532

Source: 2010 Census Non-ID Processing Assessment

For clerical processing, 12,954 Type A cases and 29 Type B cases were delivered for Puerto Rico. Of these 12,983 clerical cases for Puerto Rico, 4,796 telephone calls were attempted for Type A cases. There were 2,031 Type A cases and 24 Type B cases header coded through clerical processing for Puerto Rico; these cases then proceeded to clerical matching and geocoding.

For Puerto Rico, 4,639 Type A cases were matched to a geocoded MAF/TIGER database record during clerical processing (see Table 23). There were no Type A cases matched during automated processing and clerically geocoded. There were no Type A cases matched during automated processing that were unable to be clerically geocoded. There were 4,438 Type A cases that were clerically unmatched, but a geocode was obtained. There were 3,572 Type A cases that were clerically unmatched and unable to be geocoded.

Table 23. Results of Clerical Processing for Type A Cases for Puerto Rico

Category	Number of Cases
Matched to a geocoded MAF/TIGER database Record	4,639
Matched during automated processing/clerically geocoded	0
Matched during automated processing/unable to clerically geocode	0
Clerically unmatched/geocoded	4,438
Clerically unmatched/unable to geocode	3,572
Not header coded	305
Total	12,954

Source: 2010 Census Non-ID Processing Assessment

During post-clerical processing, 16 Type A Cases were matched to a geocoded MAF/TIGER database record, six Type A cases were matched to an ungeocoded MAF/TIGER database record, 3,030 cases were unmatched to a MAF/TIGER database record, and 5,263 Type A cases were rejected.

See the 2010 Census Non-ID Processing Operational Assessment Report for additional information.

2.7.5 Field Verification

The purpose of the Field Verification operation was to serve as a final check on the existence of addresses from the 2010 Census. In Puerto Rico, this operation began in August 2010 and was managed by seven Local Census Offices. Local Census Offices completed production on August 30, 2010 and rework and quality control on September 7, 2010.

During Field Verification, listers verified the existence of addresses provided by respondents that were absent from the census address files. These addresses were compiled from the Non-ID Processing operation and included the following sources: the Be Counted Program, Telephone Questionnaire Assistance Fulfillment, Telephone Questionnaire Assistance Interview, and “Usual Home Elsewhere” responses collected from Group Quarters Enumeration and Nonresponse Followup for Puerto Rico. Puerto Rico did not participate in the Remote Alaska, Remote Update Enumerate or Update Enumerate operations. During this operation, listers also made a final decision about housing units identified as possible duplicates during the person matching phase of the Coverage Followup operation.

For Field Verification, listers located each address using address listing pages and maps and determined their status. If occupants were available, listers conducted interviews at the designated addresses to confirm address information. Listers verified, deleted, or designated addresses as duplicates. Quality Control listers then verified every address to ensure that addresses were correctly stated.

A complete city-style address for Puerto Rico contained a house number, a street name or urbanization name, or both a building number and apartment complex name. A basic street address could be defined in any of three ways for Puerto Rico. Since most address records that were part of a multi-unit structure contained a value in the apartment complex field in the Master

Address File, addresses were distributed into three databases: those with apartment complex and building ID fields filled, those with apartment complex filled and a blank building ID (an apt. complex within a collection block), and all other remaining addresses.

After production and quality control were completed for Field Verification, Local Census Offices shipped binders to the Regional Census Centers on a flow basis, where they keyed the results into the Field Verification Operation Control System. Record status updates were provided daily to the Decennial Systems and Processing Office by the Technologies Management Office to update the Universe and Control Management database. When the operation was completed, the Decennial Systems & Processing Office passed the record status updates to Geography Division, who used them to update the MAF/TIGER database. When keying was completed, Regional Census Centers shipped binders to the National Processing Center on a flow basis. Maps were removed from the binders and assignment areas were checked into the Automated Tracking and Control System. Maps were scanned and images were stored electronically. Paper maps were stored in the Census Library, along with the assignment area binders.

The translation process for Field Verification materials began after stateside materials were completed. Once Field Division received the completed stateside file, an employee from the Address Coverage Operations Branch adapted the materials for Puerto Rico. Materials were then placed on a share drive where translators in the Puerto Rico Area Office could access them. Once files were translated, they were placed on the share drive again for review by the Address Coverage Operations Branch ensuring completeness and verifying the formatting of the document. The translation, however, was not verified by the Address Coverage Operations Branch. After the review was completed, materials were then printed by each Local Census Office. In some materials, translators found several errors and contradictions in the instructions for Update/Leave and Field Verification. These errors were reported to Census Bureau headquarters' staff which made the necessary changes to stateside materials and any errata needed at the time.

A different control system was used for production during the 2010 Field Verification operation since earlier operations experienced many challenges with the Paper-Based Operations Control System. Instead, the Field Verification operation planning staff and the Technologies Management Office worked together to create a new system, the Field Verification Operation Control System, developed by the Technologies Management Office using an adapted version of the control system for Census Coverage Measurement operations.

The Field Verification workload for Puerto Rico was 1.9 percent of the total workload for the operation in the 2010 Census and contained 4,115 assignment areas with Field Verification cases (1.5 percent of all assignment areas). The final Puerto Rico workload consisted of 8,807 addresses. From these, 3,817 addresses came from Be Counted forms (over 43 percent of Puerto Rico cases), 319 from Telephone Questionnaire Assistance Fulfillment, 118 from Telephone Questionnaire Assistance Interview, 53 from Group Quarters Enumeration Usual Home Elsewhere, and 128 from Nonresponse Followup Usual Home Elsewhere. Puerto Rico did not have inputs from the Remote Alaska, Remote Update Enumerate or Update Enumerate

operations. In addition to the 4,435 addresses from Non-ID sources, 4,372 addresses came from Coverage Followup Unduplication. The workload from Non-ID sources and Coverage Followup Unduplication was evenly balanced for Puerto Rico (50.4 percent and 49.6 respectively).

As seen in Table 24, of the 8,807 addresses in the workload for Puerto Rico, 62.7 percent had a complete city-style address. More than half of the addresses also contained a location description. Almost three quarters of the workload for Field Verification (6,560 units) was basic street addresses with single unit structures. Of the 2,247 multi-unit structures, 2,059 had 2-4 units, 107 had 5-9 units, 65 had 10-19 units, 5 had 20-49 units, and 11 had 50 units or more.

Table 24. Distribution of 2010 Field Verification Addresses by Address Type for Puerto Rico

Type of Address	Number of Addresses	Percentage (%)
Complete City-Style Address	5,526	62.7
with location description	2,706	30.7
without location description	2,820	32.0
Complete Rural Route Address	395	4.5
with location description	379	4.3
without location description	16	0.2
Complete P.O. Box Address	124	1.4
with location description	123	1.4
without location description	1	0.0
Incomplete Address	2,586	29.4
with location description	2,148	24.4
without location description	438	5.0
No Address Information	176	2.0
with location description	142	1.6
without location description	34	0.4
Total	8,807	100.0
with location description	5,498	62.4
without location description	3,309	37.6

Source: 2010 Census Field Verification Operational Assessment

Table 25 shows that for Puerto Rico, lists verified 69 percent of the 2010 Field Verification addresses, a much higher proportion than stateside. This difference was most likely due to the higher number of Coverage Followup Unduplication inputs for Puerto Rico, which were verified at a higher rate.

Table 25. 2010 Field Verification Final Outcome for Puerto Rico

Final Outcome	Non-ID		CFU Unduplication		Total	
	Number	%	Number	%	Number	%
Coded as Verify	2,269	51.2	3,810	87.2	6,079	69.0
Coded as Delete	1,316	29.7	233	5.3	1,549	17.6
Coded as Duplicate	840	18.9	318	7.3	1,158	13.1
Coded as "R"	10	0.2	11	0.3	21	0.2
Total	4,435	100.0	4,372	100.0	8,807	100.0

Source: 2010 Census Field Verification Operational Assessment

Note: Some percentages do not sum to 100.0 due to rounding.

During the update of the MAF/TIGER database, 16 records were rejected by Geography Division. All records were rejected because they had the same unit as survivor and retired. Of the 16, seven of the rejects were coded as "Verify" and nine were coded as "Duplicate". After Field Verification for Puerto Rico, the final outcome of the MAF/TIGER database included 6,072 "Verify", 1,549 "Delete", 1,149 "Duplicate", 16 "Rejects" and 21 coded as "R"¹³.

See the 2010 Census Field Verification Operational Assessment Report for additional information.

2.7.6 Census Coverage Measurement

Census Coverage Measurement operations measured the coverage error in the 2010 Census with the goal of improving future census operations. They calculated estimates of net coverage and coverage error components for living quarters and their occupants. This was done using a nationwide sample from the 50 states, the District of Columbia, and Puerto Rico. The re-enumeration consisted of a sample of approximately 15,000 housing units for Puerto Rico. Census Coverage Measurement operations did not measure the coverage error of group quarters and their residents.

The Census Coverage Measurement was a sample survey conducted independently from census data collection to ensure estimates were unbiased. Due to this independence, certain requirements were necessary in managing the operations and the automated control systems supporting management. For instance, field operations for Census Coverage Measurement were conducted in the Puerto Rico Area Office, which necessitated special arrangements to ensure unbiased coverage measurement interviews. The Census Coverage Measurement consisted of five field operations. The field operations for Census Coverage Measurement were conducted from August 28, 2009 to June 18, 2011.

Estimates were produced of net coverage error and the components of the coverage error for persons living in housing units as well as housing units in the U.S. and Puerto Rico (Estimation Operation). This operation began in May 2011 and was completed in June 2012. The results for

¹³ Addresses coded as R in the Field Verification Operation Control System were defined as addresses with no actions recorded by the Lister on the address listing pages. The Field Verification Operation Control System accepted an address coded as R (i.e. no update to the Master Address File) as the final field action for a record only if both the production Lister and the Quality Control Lister actions on the address listing pages were blank.

Census Coverage Measurement operations in Puerto Rico were released to the public on June 27, 2012.

For the 2010 Census Coverage Measurement operations, a sample of one or more contiguous census blocks were selected at Census Bureau headquarters using methodology balancing operational considerations, budget constraints, and statistical techniques. Sampling techniques were used to identify the workload universes for succeeding data collection, matching, and estimation operations (Sample Design Operation).

Field staff then visited and listed all housing units and potential housing units in these blocks. While canvassing the addresses, staff used the Census Coverage Measurement Independent Listing Book, a paper data collection instrument (Independent Listing Field Operation). This operation was carried out from August 2009 to December 2009. Listing books that were completed received a Dependent Quality Check. If they failed the check, listing books were corrected by verifying the listing of the entire block cluster. Once canvassing and Dependent Quality Control were over, the data was sent to the National Processing Center for data capture and dissemination.

The independent list of housing units was then compared to the addresses in the census address file (by computer matching and clerical review). The discrepancies found during this comparison were then revisited to obtain more information and resolve them. Field staff conducted a followup operation using questionnaires to answer any remaining questions between units on the Independent Listing and housing units on the census address list (Initial Housing Unit Followup Operation). This operation was conducted from January 2010 to March 2010. The forms were then sent to the National Processing Center where clerks coded results.

Field staff then contacted the list of sample coverage measurement addresses to collect person and housing unit information (Person Interview Operation). This operation was conducted from August 2010 to October 2010. A reinterview of almost 10 percent of cases was also done during the operation. Both of these processes were conducted using laptops with Computer Assisted Person Interviewing instruments.

After information was collected, staff determined if there were differences between the persons in the Census Coverage Measurement sample and the persons in the census. The differences were then investigated by a followup field operation (Person Followup Operation). This operation was conducted from December 2010 to April 2011.

After this process, the results of the sample were matched to the final census address list in sample block clusters and surrounding blocks (Final Housing Unit Matching and Followup Operation). Field staff used a tailored questionnaire to conduct a paper-based followup to resolve any remaining questions between the sample and the census address list. Paper forms were shipped to the National Processing Center and coded by clerical matchers. This group of operations took place from March 2011 to July 2011.

The following are key findings for the household and housing unit population in Puerto Rico¹⁴ highlighted in the 2010 Census Coverage Measurement Estimations Report for Puerto Rico.

- Results for Persons:
 - The 2010 Census of Puerto Rico had a significant net overcount of 160,300 persons (4.5 percent, 0.8 percent standard error).
 - The Census Coverage Measurement estimated 290,000 erroneous enumerations (7.9 percent) in the 2010 Census of Puerto Rico. Most of the erroneous enumerations (263,800) were due to duplication, while the remaining 26,200 were erroneous enumerations due to other reasons.
 - All demographic characteristics were imputed for 79,500 census records. Of these, 32,000 were in housing units where a population count was obtained. For the remaining 47,500 person records, their household population counts were imputed through the count imputation process.
 - The Census Coverage Measurement estimated 209,200 persons omissions in the 2010 Census of Puerto Rico. Part of this estimate may be attributed to the 79,500 records with all characteristics imputed.
- Results for Housing Units:
 - The 2010 Census of Puerto Rico did not have a significant percent net overcount. The Census Coverage Measurement estimated a net overcount of 0.4 percent (1.4 percent standard error). When housing units were broken down by occupancy status and tenure, no net overcount or net undercount estimates were statistically different from zero.
 - The Census Coverage Measurement estimated 127,800 erroneous enumerations (7.8 percent) in the 2010 Census of Puerto Rico. Of the 127,800 erroneous enumerations, 40,600 (2.5 percent) were due to duplication to another housing unit, while 87,200 (5.3 percent) were due to other reasons, including nonresidential or nonexistent housing units.
 - The Census Coverage Measurement estimated 120,800 housing unit omissions in the 2010 Census of Puerto Rico, which was 7.4 percent of the estimated housing unit total.

Several issues that occurred during the Census Coverage Measurement operation in Puerto Rico included the following:

- During data capture, the Census Coverage Measurement Independent Listing books failed edit frequently because keyers did not speak Spanish and the words they entered often ran together on a line. As a result, a review process was introduced and carried out by Spanish-speaking staff to reduce these errors.
- The unique address style in Puerto Rico made the address matching process more difficult. These addresses did not standardize or parse like stateside addresses and could not be

¹⁴ Viehdorfer, Colt (2012), “2010 Census Coverage Measurement Estimation Report: Results for Puerto Rico,” DSSD Census Coverage Measurement Memorandum Series #2010-G-13, June 27, 2012.

computer matched. Even for a human eye-match, the address matching process was difficult. For that reason, staff relied more on spatial matching by using maps and map spots. This process was more difficult and time consuming.

- There were a few blocks in Puerto Rico that were very large, both in land and number of addresses. It made both matching and followup in those areas difficult.

2.7.7 Count Question Resolution

The 2010 Count Question Resolution Program offers governmental units in the United States and Puerto Rico the opportunity to challenge the 2010 Census counts of housing units and group quarters. This program began on June 1, 2011 and will end with challenges that are postmarked, faxed, or e-mailed by June 1, 2013. There are three types of challenges accepted by the Count Question Resolution Program: Boundary, Geocoding and Coverage challenges of a specific geographic area. These challenges are expected to be submitted through mail or electronically to the Count Question Resolution Program staff at Census Bureau headquarters who will review them in the order received.

The Census Bureau will make corrections on the basis of appropriate documentation provided by the challenging governmental units and through research of official 2010 Census records at the Census Bureau. If challenges are accepted, the Census Bureau will not incorporate the Count Question Resolution corrections in any apportionment, redistricting counts, or official 2010 Census data products.

For Puerto Rico, all materials for the 2010 Count Question Resolution Program were adapted and translated to Spanish. Frequently Asked Questions and Guidelines for Puerto Rico Count Question Resolution Challenges contained examples and maps specifically designed for Puerto Rico. Also, the official city-style, non city-style and group quarters address list templates for the program were translated and adapted to allow for Puerto Rico address types and formats. However, feedback received from Puerto Rico officials indicated that examples and instructions were not clearly adapted. This caused officials from the governmental units in the municipios to struggle with the requirements to submit challenges. Puerto Rico officials requested training for the program but the Census Bureau could not comply with this request.

At the conclusion of the redaction of this assessment no results had yet been published for the Count Question Resolution Program.

2.8 Data Capture

For the 2010 Census, the data capture was completed by the Decennial Response Integration System Paper Questionnaire Data Capture operation. This operation integrated telephone systems and operations (Telephone Questionnaire Assistance and Coverage Followup) and paper data capture systems and operations.

The Decennial Response Integration System was responsible for the capture and conversion of respondent data from paper questionnaires received from Update/Leave, Mailout/Mailback, Be

Counted, and paper-based field operations. It was also responsible for the questionnaire inputs from telephone-based questionnaire operations (Coon and Osborne, 2012). The U.S. Census Bureau opened three 2010 Census Paper Data Capture Centers in the nation to process 2010 Census questionnaires. These were located in Phoenix, AZ; Baltimore, MD; and Jeffersonville, IN. Questionnaires from Puerto Rico were mailed to and processed in the Census Paper Data Capture Center in Phoenix, AZ.

The 2010 Decennial Response Integration System paper data capture system provided state-of-the-art technology to capture census data. It used an automated data capture and recognition process. With the use of scanning hardware and imaging software, handwriting was digitally “read”. This process created images of the form pages, and then converted the data to a computer readable format.

The data capture process began with mail-receipt, sorting, and document preparation functions. Within 48 hours of receipt the Paper Data Capture Center envelopes were sorted automatically according to priority and form type. Then, each envelope was checked-in by capturing the Census ID on the form as the envelope passed through the automated or manual sorting process. The check-in file was used to identify which addresses on the Decennial Master Address File had returned their forms.

After check-in, forms proceeded to document preparation, where they were removed from their envelopes and prepared for scanning which created a digital image of census forms. Clerks fed trays of census forms into a high-speed scanner. The scanning process produced electronic images of the paper forms that were digitally read by Optical Mark Recognition and Optical Character Recognition. Optical Mark Recognition read responses that involved a checkbox, while Optical Character Recognition read alpha and numeric characters.

In cases where the recognition software could not automatically recognize data from the form image, the image was sent to manual data capture where an operator keyed the form data into the Decennial Response Integration System by visually analyzing the form image displayed on a computer monitor. When a form failed the scanning conversion to electronic image process, the form data was rescanned or transcribed onto a new empty paper form of the same type as the damaged original. The new form was then included in the regular scanning and data capture process.

Every checkbox and handwritten field on each paper form was transformed into a digital format that allowed for quick, accurate, and efficient tabulation. Data was captured in English characters only. Spanish characters were automatically converted and other non-English languages were handled via manual translation.

Once scanned, the physical paper forms were sent to warehousing. The data captured from the questionnaires were transmitted to the Census Bureau headquarters. After they acknowledged receipt of the data, staff from the Paper Data Capture Center performed a checkout function to ensure that the Decennial Systems and Contracts Management Office received acceptable output

for every form sent through data capture. Once successful data capture and transmission was confirmed, the destruction of forms was authorized.

The Decennial Response Integration System Paper Questionnaire Data Capture Assessment Report addresses the fact that “there were a large number of Puerto Rico mail returns requiring manual check-in.” This may be due in part to a graphic recommended by the Statistical Research Division that was added to the envelope. This graphic was not translated into Spanish, and appeared in English on the Puerto Rico envelopes even though the questionnaire itself was written in Spanish (Coon and Osborne, 2012). This discrepancy in languages caused an error in the software. It is recommended for the future that messaging on the envelopes should be in the same language as the questionnaire itself.

Puerto Rico address listing binders were processed following the same procedures as stateside. Binders were scanned and keyed from image. There was a scan verified option for the remarks section where verifiers could see what was keyed and visually agree or edit the information.

2.9 Data Processing

After the Census Bureau completed the data capture of Puerto Rico census forms, responses were unduplicated, edited, summarized, and tabulated at various statistical and political geographic levels. For the 2010 Census, the Government of Puerto Rico requested the same questionnaire content as stateside. Because of this request, respondents’ data processing was handled the same as stateside. Product layouts and schedules were also the same as stateside since Puerto Rico is treated as a state equivalent for most data products. Statistical data were tabulated using the same procedures as stateside and tabulations were the same as well. Census tabulated data were made available in summary form with no individual identifiers.

2.10 Data Products

For the 2010 Census, the Census Bureau published data products on digital media and technological systems. The main technological system used for data dissemination is the American FactFinder, a data retrieval system. This system allows users to access data products, data documentation, and online help. Users can also build customized data products. Data Products released for Puerto Rico include the following:

- Total Population Counts contain population counts for race and Hispanic or Latino categories as well as housing unit counts by occupancy status at the Block level.
- Redistricting Data contains population and housing unit counts at the Block level and were released in February - March 2011.
- Demographic Profiles contain selected population and housing characteristics at the Place and Functioning Minor Civil Division level and were released in May 2011.
- Summary File 1 (SF 1) contains counts and basic cross-tabulations of information collected from all people and housing units (100 percent items) such as age, sex, households, families,

relationship to householder, 63 race categories and Hispanic or Latino origin groups, and group quarters at the block level. It was available in July 2011.

- Summary File 2 (SF 2) contains population and housing characteristics for many detailed race and Hispanic or Latino categories at the census tract level. This file also contains 100 percent population and housing characteristics iterated for a selected list of detailed race and Hispanic or Latino origin groups as well as American Indian and Alaska Native tribes. The lowest level of geography for this file is the census tract, with a population-size threshold required for information to be shown for a particular group. This file also includes quick tables and geographic comparison tables. It was available in April 2012.
- Reports Series:
 - The Summary Population and Housing Characteristics report series contains data tables on age, sex, race, Hispanic origin, households, families, housing tenure and occupancy, population density and area measurements for all geographic areas down to Places. Released from May – December 2012.
 - The Population and Housing Unit Counts report series contains data tables providing selected historical population and housing unit counts as well as tables on population density and area measurements for all geographic areas down to Places. Released from June 2012– September 2013.
- Public Use Microdata Sample (PUMS) files contain the actual responses to census questionnaires on age, sex, race, Hispanic or Latino origin, household type and relationship, and tenure data. Identifying information has been removed from these files and the geography is sufficiently broad enough to protect confidentiality. This information is available for Public Use Microdata Areas (PUMA), statistical geographic areas that contain a population of 1,000,000 or more. The Public Use Microdata Sample files allow users to prepare their own tabulations and cross tabulations for most population and housing subjects. Released from December 2012– April 2013.

Data for 2010 includes population, age, sex, relationship, race, ancestry and limited housing information due to the new shorter questionnaire used for the census. For more specific data and characteristics it is necessary to reference Puerto Rico Community Survey data.

Most data products for Puerto Rico, such as the Redistricting Data, Summary Files 1 and 2, Demographic Profiles, and PUMS files have been translated to the Spanish language and are available through the American FactFinder.

3 METHODOLOGY

3.1 Study Questions

	Question	Data Sources
Question 1	<ul style="list-style-type: none"> • What was the participation rate in the 2010 Census of Puerto Rico? • How does that compare to Census 2000? • What factors were attributed to this change? 	<ul style="list-style-type: none"> • This question was answered using information from the Census Bureau’s Take 10 Website.
Question 2	<ul style="list-style-type: none"> • How successful was the integration of the Puerto Rico operations to the stateside 2010 Census? 	<ul style="list-style-type: none"> • This question was answered using Operational Assessments for the 2010 Census and e-mails from subject matter experts.
Question 3	<ul style="list-style-type: none"> • Which 2010 Census operations were tailored for Puerto Rico? • In what areas? • Did these adaptations accomplish their purpose? 	<ul style="list-style-type: none"> • This question was answered using Operational Assessments for the 2010 Census and e-mails from subject matter experts.
Question 4	<ul style="list-style-type: none"> • Given the differences in addressing conventions, were there any outstanding issues in the execution of field operations in Puerto Rico? 	<ul style="list-style-type: none"> • This question was answered with information provided by the Address Programs Management Branch.
Question 5	<ul style="list-style-type: none"> • What was the final outcome of the 2010 Census address list development operations in relationship to the Puerto Rico Master Address File? • Were there any issues with data capture and MAF/TIGER updates? 	<ul style="list-style-type: none"> • This question was answered using data and information provided by the Address Programs Management Branch.

3.2 Quality Assurance Procedures for the Report

Census Bureau standards and quality process procedures were applied throughout the creation of this report. The Census Bureau standards were used to determine evaluation methods, create specifications for project procedures, analyze data and prepare this report.

4 LIMITATIONS

There were several limitations for the 2010 Census of Puerto Rico Assessment Report. First, there were only two employees in the Puerto Rico Section of the Puerto Rico, Island Areas, and Overseas Branch. These employees wrote the assessment even though their entry on duty was

late in 2009 and they were not involved in the planning phase for Puerto Rico. Also, there was no staff in the Puerto Rico Section to provide continuity since staff that was part of the planning phase moved to different areas in the Census Bureau.

Second, many Census Bureau employees that worked with the 2010 Census of Puerto Rico have moved on to other areas or Divisions in the Census Bureau, or have left the Census Bureau all together. This caused difficulty in identifying contact persons for Puerto Rico operations and programs, obtaining answers to key questions for this assessment, or even with acquiring data.

Third, limitations in data availability, or a lack of needed data, created a problem. Many of the findings for this report were extracted from other various operational assessments of the 2010 Census and their databases. The quality and timing of the completion of the 2010 Census of Puerto Rico Assessment Report was done without input from two critical 2010 Census Assessments: the Enumeration at Transitory Locations and Group Quarters Enumeration Assessment Reports.

Finally, some operational assessments of the 2010 Census did not contain the level of analysis necessary to evaluate the 2010 Census of Puerto Rico. In the Local Update of Census Addresses Assessment Report, data were only available as national totals without providing a Puerto Rico-stateside breakdown. In other cases, the analysis of Puerto Rico data did not have the detail necessary for this assessment.

5 RESULTS

5.1 What was the mail participation rate in the 2010 Census of Puerto Rico? How does that compare to Census 2000? What factors were attributed to this change?

The Mail Participation Rate is defined as the percent of forms mailed back by households that received them. As of May 10, 2010 the 2010 Census of Puerto Rico mail participation rate was 54 percent, the same as the mail participation rate reported for Census 2000. This was a low rate when compared to the stateside mail participation rate of 74 percent in 2010.

Of the 78 municipios in Puerto Rico, 22 experienced an increase in their mail participation rate when compared to Census 2000. Table 26 shows the top five municipios with the largest increase in mail participation rate between Census 2000 and the 2010 Census. Lares and Trujillo Alto were the two municipios that had the largest increase for the 2010 Census. Lares was part of the Mayagüez Local Census Office, while Trujillo Alto was part of the Carolina Local Census Office. It is important to note that Ponce is one of the biggest municipios in land area and home of the largest Local Census Office in the south of the island. It experienced one of the largest increases in mail participation rate for the 2010 Census.

Table 26. Top Five Municipios With Largest Increase in Mail Participation Rate Between 2000 and 2010

Municipio	2000 Mail Participation Rate (%)	2010 Mail Participation Rate (%)	Difference (%)
Lares	50.0	57.0	7
Trujillo Alto	50.0	57.0	7
Coamo	53.0	58.0	5
Florida	52.0	57.0	5
Ponce	53.0	58.0	5

Source: 2010 Census Take 10 Website (<http://2010.census.gov/2010census/take10map/>)

Of the remaining 56 municipios in Puerto Rico the mail participation rate decreased in 48 of these. Table 27 shows the top five municipios with the largest decrease in mail participation rate between Census 2000 and the 2010 Census. Maricao and Rincón were the two municipios that had the largest decrease for the 2010 Census (see Table 27). Both municipios were part of the Mayagüez Local Census Office. Only 8 municipios remained unchanged in their mail participation rates from Census 2000 to the 2010 Census.

Table 27. Top Five Municipios With Largest Decrease in Mail Participation Rate Between 2000 and 2010

Municipio	2000 Mail Participation Rate (%)	2010 Mail Participation Rate (%)	Difference (%)
Maricao	64.0	46.0	-18
Rincón	52.0	36.0	-16
Maunabo	61.0	50.0	-11
Culebra	35.0	26.0	-9
Lajas	61.0	53.0	-8

Source: 2010 Census Take 10 Website (<http://2010.census.gov/2010census/take10map/>)

For low responding areas during the 2010 Census, the Census Bureau implemented the Rapid Response Program. This program was part of the Integrated Communications Program and involved census advertisement spots in local television, radio, and newspapers. Puerto Rico Area Office staff hosted conference calls with local media letting the public know which municipios were participating and which were lagging in this effort. This program also emphasized the importance of completing and returning the questionnaire by mail.

After the 2010 Census enumeration Dr. Robert Groves, Director of the Census Bureau, said “we knew the job would be more difficult in 2010 than in 2000.”¹⁵ He stated that the decline in mail participation rate could be attributed to “trends over the past decade toward declining survey participation, a difficult economic environment, and a growing distrust of government.” News, operational assessments, and debriefings; among other documentation; support the statement made by the Director of the Census Bureau.

¹⁵ Public Information Office (2010), “The numbers are in: 72 percent of nations households mail back 2010 Census forms,” U.S. Census Bureau News, April 28, 2010.

5.2 How successful was the integration of the Puerto Rico operations to the stateside 2010 Census?

The integration of Puerto Rico operations into the 2010 Census stateside operations was successful even though there were some areas that could be improved for the 2020 Census. Operations for the 2010 Census of Puerto Rico were conducted in a timely manner following the same schedule as the stateside census. Operational objectives were met on the island, although modifications to some systems and software were necessary. With the aid of adapted and translated materials, enumerators and listers completed the data collection phase with no major problems. Although staff experienced issues during data capture and data processing for Puerto Rico, they were able to complete these phases and update the Puerto Rico Master Address File.

One area that could be improved is the adaptation and translation process for Puerto Rico materials. Materials within each operation in Puerto Rico (e.g. forms, training materials, and software) were translated by multiple Census Bureau staff resulting in products that were misspelled, inconsistent, and contained different terminology. These inconsistencies could be resolved for the 2020 Census by having one main staff to carry out all adaptation and translation for Puerto Rico.

Also, for many operations the Master Activity Schedule did not include enough time for the adaptation and translation of Puerto Rico materials. Since staff had to wait for stateside materials to be completed before they could begin to adapt and translate documents into Spanish, this process was often delayed. Puerto Rico operations need to ensure that adaptation and translation for Puerto Rico is included in the Master Activity Schedule to allow for the additional time needed to prepare these documents.

Another area that could be improved is the communication between different staff and divisions when adapting and translating materials that include Puerto Rico addresses. The unique addressing style on the island required additional fields that made the development of most materials difficult. At times, Geography Division, who is familiar with Puerto Rico addresses, was not present to verify the fields in operational forms. This created problems in data capture and data processing, as well as problems with the Master Address File.

Resources for Puerto Rico were also a problem since they had to be shared with stateside operations. In many cases, for Census Bureau headquarters activities like the preparation of operational training manuals, Puerto Rico had to wait for stateside activities to conclude before Puerto Rico activities could begin. This issue was also relevant to file processing. Stateside processing seemed to take priority over Puerto Rico file processing which resulted in late delivery of some field work and the late delivery of Local Update of Census Addresses feedback materials.

5.3 Which 2010 Census operations were tailored for Puerto Rico? In what areas? Did these adaptations accomplish their purpose?

For the 2010 Census of Puerto Rico, operations were conducted using the same questionnaires, forms, and training materials as stateside. However, once stateside materials were completed and ready for printing and shipping, Puerto Rico materials were adapted to allow for Puerto Rico's unique addressing style. Materials were then translated into Spanish.

Training materials such as manuals, training guides, and workbooks were generally adapted at Census Bureau headquarters by Field Division and the Puerto Rico, Island Areas, and Overseas Branch. Adapted materials were then electronically delivered to the Puerto Rico Area Office for translation by temporary employees.

Forms for most operations were adapted and translated to accommodate Puerto Rico's unique addressing style. For Group Quarters Enumeration, address fields in the Individual Census Report were customized for Puerto Rico. For Group Quarters Validation, the address capture portion of the questionnaire was customized as well. For the Update/Leave operation, forms including the Add Page, the Address Listing Page, and the questionnaire were all customized to fit Puerto Rico's addressing style. The questionnaire for Nonresponse Operations was also translated.

For the Address Canvassing operation, the hand-held computer software used to capture and modify addresses was adapted and translated. Data capture screens had additional fields for unique address elements like *carretera* and *ramal*. The listers could also choose from more address types during the operation, like *urbanización* or *condominio* which led the user down different paths through the software.

Even though the adaptation and translation processes could be improved for the 2020 Census, adaptations and translations accomplished their purpose for the 2010 Census of Puerto Rico. Customized training materials allowed Census Bureau staff in Puerto Rico to grasp the methods and procedures for enumeration. Customized software also accomplished its purpose by supporting listers in Puerto Rico address list development.

Adapted forms were also effective since data capture and processing were completed for the 2010 Census and the Puerto Rico Master Address File was updated with no major problems in comparison with Census 2000. However, the address adaptation needs to be evaluated before the 2020 Census. In particular research should be conducted to evaluate why so many housing unit addresses were added during the Update/Leave operation, only nine months after the Address Canvassing operation verified the addresses in Puerto Rico.

5.4 Given the differences in addressing conventions, were there any outstanding issues in the execution of field operations in Puerto Rico?

Overall most field materials used for the display, capture, and modification of Puerto Rico addresses were adapted to account for the unique characteristics of Puerto Rico addresses. However, there are examples where adaptation was either:

- 1) not attempted,
- 2) done in a less than preferable way, or
- 3) done in a preferred way but, due to other circumstances, not implemented effectively.

An example of an adaptation “not attempted” is the address listing page for the Nonresponse Followup operation. This form was not adapted for the unique address conventions in Puerto Rico and therefore limited the display of addresses to the stateside format. Subject matter experts in the Address Programs Management Branch of the Geography Division offered to adapt the Nonresponse Followup address listing page because Puerto Rico addresses have considerably more address components than do stateside addresses. They were advised that there was no need given that Nonresponse Followup was not categorized as a “listing” operation, even though they captured addresses on their forms making the cost and resources expended on the development of the hand-held computer for Puerto Rico useless.

Shortly before the Nonresponse Followup address listing pages were scheduled to be populated and printed from the Paper-Based Operations Control System, the Address Programs Management Branch was asked to provide a crosswalk of the Puerto Rico address elements to the existing Nonresponse Followup address listing page design. The address listing page used in Puerto Rico was designed to display stateside addresses. For this reason, populating the address listing page resulted in the inadequate display of Puerto Rico addresses making them unrecognizable in the field.

Nonresponse Followup enumerators were instructed to add addresses if they did not already exist on the census address list. Since Puerto Rico addresses on the Nonresponse Followup address listing page were not displayed adequately, Nonresponse Followup enumerators were unable to recognize addresses on the address listing page. Enumerators would then have added the addresses because they believed they did not already exist on the census address list. Nonresponse Followup “Adds” were then sent to the Geography Division and matched to the MAF/TIGER database to avoid adding duplicate addresses to the census universe. However, this was challenging for Puerto Rico because Geography Division relied on an address matching algorithm that allowed for exact matches only. This caused the burden of identifying the duplication to shift to the limited automated processing in Geography Division. It also raised the possibility that the Nonresponse Followup operation deleted potentially “good” Puerto Rico addresses on the census list from Address Canvassing and Update/Leave.

The enumerator form (D-1) on which the Nonresponse Followup “Adds” were captured during the 2010 Census, also added to the risk in these situations. There was an attempt to adapt the enumerator form to account for the unique elements of Puerto Rico addresses. However the

adaptation was constrained by “real estate” on the form and therefore did not reflect the full set of fields needed to adequately capture all types of Puerto Rico addresses. This adaptation was “done in a less than preferable way” with great impact in limiting the adaptation for the enumerator form (D-1) to the addition of a single field for capturing the complex Puerto Rico addresses without parsing into individual components. This placed a greater burden on the back end processing¹⁶ done by Geography Division in terms of address standardization and address matching.

An adaptation “done in a preferred way but, due to other circumstances, not implemented effectively” were the Add Pages used during the Update/Leave operation for Puerto Rico. These forms used the preferred format, which accommodated the addition of all necessary fields, but due to shipping delays were not available for use by field personnel. This resulted in stateside Add Pages being used during Update/Leave in Puerto Rico for a significant portion of the operation. When the stateside Add Pages were submitted to the National Processing Center for capture, the keying specifications did not account for this situation which impacted the data sent to Geography Division.

5.5 What was the final outcome of the 2010 Census address list development operations in relationship to the Puerto Rico Master Address File? Were there any issues with data capture and Master Address File Tiger updates?

The following results present an overview of the state of the Puerto Rico Master Address File at different points throughout the census process, such as:

- the beginning of Address Canvassing, reflecting the initial census universe after Local Update of Census Addresses Program updates;
- the beginning of Group Quarters Validation, reflecting results from the Address Canvassing operation; and
- the beginning of the Enumeration process (Update/Leave, Group Quarters Enumeration and Enumeration at Transitory Locations), reflecting results from the Group Quarters Validation operation.

Also, the results present the Master Address File universe after all 2010 Census operations have been completed as well as the results from all actions taken during the decennial operations and the status of the Master Address File units after the 2010 Census operations. This information will also be categorized by address type and will include a summary of issues encountered with data capture.

The results and analysis are based on data provided by the Address Programs Management Branch in Geography Division, and are displayed using the categorization of the Puerto Rico addresses stored in the Master Address File. This will help understand the impact of each of the

¹⁶ “Back end processing” refers to the MAF/TIGER database updates performed by Geography Division on data received from census operations.

major census operations on the final outcome of the 2010 Census in relationship with the Puerto Rico Master Address File.

For the purpose of this question:

- The terms “Master Address File unit” and “address records” are used interchangeably.
- The term “starting universe” implies the total number of addresses in the initial workload at the beginning of a specific operation.
- An “eligible” address was part of the initial address records sent to the listing and enumeration operations or an address that was added.
- The term “good for 2010 Census,” means that the unit was included in the final census counts that were published
- Update/Leave is considered an enumeration operation since enumerators drop off a questionnaire at every housing unit that is to be mailed back by the respondent.

A. Overview of the outcome of the 2010 Census address list development operations using snapshots of the Puerto Rico Master Address File at the beginning of major census operations.

The first part of this question intends to assess the final outcome of the 2010 Census address list development operations¹⁷, the units included in the final census counts that were published. In Table 28 a contrast of the total counts of Master Address File units that entered major census operations is presented using a snapshot of the Puerto Rico address universe before the start of the major 2010 Census operations. The table also shows the impact of each of these operations on the final Puerto Rico addresses that were “good for the 2010 Census” after each operation.

Table 28 shows that 1,534,702 Puerto Rico Master Address File units formed the Address Canvassing universe. These included updates from the Local Updates of Census Addresses program. Of these, approximately 70 percent of the addresses (1,075,162) were ultimately “good for the 2010 Census.” Of the 11,984 Puerto Rico Master Address File units that were included in the initial Group Quarters Validation universe, 7,015 were ultimately “good for the 2010 Census,” which accounts for approximately 59 percent.

¹⁷ Address List Development Operations are those operations that contributed to the address list, such as Address Canvassing, Group Quarters Validation and Update/Leave (a major role of this operation is to refine the address list, even though it is also an enumeration operation).

Table 28. Puerto Rico Master Address File Universe Before and After Major 2010 Census Operations

	2010 Census Operation		
	Address Canvassing	Group Quarters Validation	Update/Leave, Group Quarters Enumeration and Enumeration at Transitory Locations (<i>Enumeration Universe</i>)
Initial Universe [±]	1,534,702*	11,984**	1,584,667***
Final Universe ⁺	1,075,162	7,015	1,508,177

[±]Number of addresses in the Master Address File that entered each operation.

⁺ Number of addresses in the Master Address File that entered the respective operation and were “good for the 2010 Census” at the end of all census operations.

* reflects the initial census universe with updates from the Local Update of Census Addresses Program

** reflects results from the Address Canvassing operation and reflects those units marked as other living quarters during Address Canvassing

*** reflects results from the Group Quarters Validation operation and prior operations

Source: Address Programs Management Branch, Geography Division.

The Initial Enumeration universe had 1,584,667 addresses and included Puerto Rico Master Address File units for Update/Leave, Group Quarters Enumeration, and the Enumeration at Transitory Locations operations. Of these, about 95 percent or 1,508,177 addresses were ultimately “good for the 2010 Census” (see Table 28).

There was a net increase of 49,964 Master Address File units in the Puerto Rico census universe between the start of the 2010 Census Address Canvassing operation (1,534,702) and the start of the 2010 Census enumeration operations (1,584,667). This reflects the combined result of units being both added and deleted in the Address Canvassing and Group Quarters Validation operations (see Table 26).

Both the Address Canvassing and Group Quarters Validation operations appear to have removed invalid Puerto Rico Master Address File units as evidenced by the reduced number of units entering these operations being “good for the 2010 Census”. These operations appear to have improved the Puerto Rico census address list and refined the list for its use in census enumeration operations. This is evidenced by the fact that the majority of the units sent out to the enumeration operations were “good for the 2010 Census” (1,508,177 or 95 percent of the initial universe of 1,584,667). A limitation to this conclusion is the absence of consideration for the number of Puerto Rico addresses added during the census process (after the initial enumeration universe was identified). This points to further research of Puerto Rico “Adds” throughout the various 2010 Census operations. For example, how many of those “Adds” could and should have been identified during the Address Canvassing and Group Quarters Validation operations. Additionally, how many “Adds” Nonresponse Followup added erroneously due to limitations of not fully adapting the questionnaire to Puerto Rico’s unique addressing style.

Geography Division has defined two main categories of address types for both stateside and Puerto Rico: City-Style and Non City-Style. For Puerto Rico, city-style addresses are defined as:

- “Street Address” which is comprised of:
 - House Number, and
 - a street name (including *carretera* and *ramal*) or urbanization name, and
 - a 5 digit ZIP code.
- “Apartment Complex Address” which is comprised of:
 - a *Condominio* or *Residencial* Name, and
 - unit information (and building information if applicable), and
 - a 5 digit ZIP code.

Addresses that do not meet one of the above definitions are classified as having a non city-style address. They include units with only rural route addresses, location descriptions, and other non city-style and/or incomplete location addresses.

Table 29 shows a high-level comparison of the number of Puerto Rico Master Address File units by address type (city-style and non city-style addresses) at the same key points reflected in Table 28. The tallies in Table 29 were calculated by Geography Division using what is termed the “preferred location address” which is the most recently updated address record.

Table 29 shows that the number of city-style addresses included in the initial universe for Address Canvassing (986,881) increased by about 20 percent when compared with the starting universe for the enumeration operations (1,230,313). There was a decrease in the number of non city-style addresses between the start of Address Canvassing (547,821) and the beginning of the enumeration operations (354,354).

Table 29. Puerto Rico Master Address File Unit Counts Before Major 2010 Census Operations and Final Tabulation for the 2010 Census Eligible Universe by Address Type

2010 Census Operation	City-Style Address Counts (% of total units)	Non City-Style Address Counts (% of total units)	Puerto Rico Master Address File Total Unit Counts
Address Canvassing	986,881 (64%)	547,821 (36%)	1,534,702
Group Quarters Validation	9,884 (82%)	2,100 (18%)	11,984
Initial Enumeration Universe	1,230,313 (78%)	354,354 (22%)	1,584,667
Final Tabulation 2010 Census Eligible Universe	1,301,613 (75%)	429,061 (25%)	1,730,674
<i>Net Change between start of Address Canvassing and end of 2010 Census operations</i>	<i>Up 11% from start of Address Canvassing</i>	<i>Down 11% from start of Address Canvassing</i>	

Source: Address Programs Management Branch, Geography Division.

Of the approximately 1.7 million Puerto Rico Master Address File units eligible for the 2010 Census at the end of the census process, 75 percent had city-style addresses and 25 percent had non city-style addresses. The proportion of Puerto Rico Master Address File units with city-style addresses increased over the 2010 Census process by approximately 11 percent (from 64 percent

to 75 percent). On the contrary, the proportion of Puerto Rico Master Address File units with non city-style addresses decreased over the 2010 Census by approximately the same (from 36 percent to 25 percent).

Through the Geographic Support Systems Initiative the Geography Division is pursuing the on-going review of the post-2010 Census Puerto Rico Master Address File. It is necessary to further investigate the quality of the addresses obtained during the census operations. Also, it is important to determine if the definitions for the two types of Puerto Rico city-style addresses – “Street address” and “Apartment address” – sufficiently represent the complexity of the unique addressing style in Puerto Rico and if these definitions are supported by the data.

B. Were there any issues with data capture and MAF TIGER updates?

Two major issues were encountered during the MAF/TIGER database update of Puerto Rico addresses from the major 2010 Census operations. First, during the MAF/TIGER database updates from the Update/Leave operation Geography Division encountered issues with the customer identification number (CUSTID). This number linked each questionnaire with an address. During the Update/Leave field work, enumerators had to manually write the assigned customer identification number onto both the address list register and the questionnaire along with the added address information. This manual transcription of a long string of numbers likely introduced error. During processing, Geography Division found invalid and/or duplicate values in the customer identification number field making them unusable.

Without a valid and unique customer identification number, a newly added address could not be linked to the questionnaire left at the respondent address. Therefore, Geography Division worked with the Decennial Systems Processing Office to conduct an Update/Leave reconciliation operation. This operation required that Geography Division process new Puerto Rico addresses (“Adds”) from the labels on the questionnaires as opposed to the Update/Leave Add Page. The questionnaire label format combined all the Puerto Rico address components into either two or three lines. A significant amount of pre-processing and manual review was required in order to update the addresses in the MAF/TIGER database. This increased the risk that duplicate addresses would be introduced into the census universe.

Second, during the MAF/TIGER database updates after the 2010 Census Nonresponse Followup and Vacant Delete Check operations, Geography Division found issues while processing Puerto Rico addresses. The format of these addresses was restricted by the design of the form used to capture new addresses during the Nonresponse Followup and Vacant Delete Check operations (D-1(E)PR(S) - Enumerator Questionnaire). Question four of the results offers additional details on this issue.

Geography Division designed additional pre-processing edits to fully parse the Puerto Rico addresses added during the Nonresponse Followup and Vacant Delete Check field operations. This was done in order to mitigate the risk of not identifying address duplicates during the update process. Analysis has not been completed to determine how successful this effort was. However,

the Address Programs Management Branch in Geography Division is performing similar research as part of the Geographic Support System Initiative.

6 RELATED EVALUATIONS, EXPERIMENTS, AND/OR ASSESSMENTS

- 2010 Census Local Update of Census Addresses Assessment: Provides a general profile of Local Update of Census Addresses participants and their participation rates, documentation for development and implementation of the Local Update of Census Addresses program, and Address contributions (profile) to the Master Address File and Address Canvassing operation (Housing Units and Other Living Quarters).
- 2010 Census Address Canvassing Assessment: Provides address totals and final address outcomes for Address Canvassing. Documents adaptation efforts in the development and implementation of Address Canvassing in Puerto Rico. Provides final outcome of Local Update of Census Addresses for the Local Update of Census Addresses feedback phase of the Local Update of Census Addresses program and the final other living quarters universe and address profile.
- 2010 Census Group Quarters Validation Assessment: Provides a general profile of the Group Quarters Frame in Puerto Rico. Documents adaptation efforts in the development and implementation of Group Quarters Validation in Puerto Rico.
- 2010 Census Enumeration at Transitory Locations Assessment: Provides results and major findings from the Enumeration at Transitory Locations operation, including Enumeration at Transitory Locations Production and Enumeration at Transitory Locations Reinterview.
- 2010 Census Group Quarters Operations Assessment: Provides a general profile of the persons enumerated at Group Quarters. Documents adaptation efforts in the development and implementation of Group Quarters Enumeration in Puerto Rico.
- 2010 Census Update/Leave Assessment: Provides initial workload and general address profile of addresses sent to Update/Leave as well as general characteristics of addresses received to update the Master Address File. Documents adaptation efforts in the development and implementation of Update/Leave in Puerto Rico.
- 2010 Census Nonresponse Operations Assessment: Provides results of Nonresponse Followup, Nonresponse Followup Reinterview, Nonresponse Followup Vacant Delete Check, and Nonresponse Residual. Documents adaptation efforts in the development and implementation of the Nonresponse operations.
- 2010 Census Non-ID Processing Assessment: Provides documentation of workloads for Non-ID Processing. Documents adaptation efforts in the development and implementation of Non-ID processing for Puerto Rico. Provides documentation of address totals and final geocoding outcomes for Non-ID processing. Provides initial workload for Field Verification.

- 2010 Census Field Verification Assessment: Provides documentation of adaptation efforts in the implementation of Field Verification in Puerto Rico. Provides initial workloads and final number of verified, deleted or added addresses.
- 2010 Census Telephone Questionnaire Assistance Assessment: Provides documentation of operation workloads. Documents adaptation efforts in the development and implementation of Telephone Questionnaire Assistance availability for Puerto Rico.
- 2010 Census Be Counted/Questionnaire Assistance Center Assessment: Provides documentation of operation workloads. Documents adaptation efforts in the development and implementation of Be Counted/Questionnaire Assistance Center availability for Puerto Rico.

7 LESSONS LEARNED, RECOMMENDATIONS, AND CONCLUSIONS

7.1 Key Lessons Learned

The following successes and challenges for the 2010 Census of Puerto Rico were gathered from various 2010 Census Operations Lessons Learned documents and debriefings from the Puerto Rico Local Census Office managers.

7.1.1 Successes

- All 2010 Census enumeration activities in Puerto Rico were completed on schedule.
- The Puerto Rico, Island Areas, and Overseas Branch from the Decennial Management Division adapted and translated all documents and forms that they received.
- The Census Bureau headquarters had staff who were fluent Spanish speakers with knowledge about the culture, addresses, and geography of Puerto Rico. This greatly facilitated the speed of completing materials and getting them through logistics on time. It also eased the development, adaptation, translation, and review of materials for every operation.
- Boston Regional Office had staff with previous knowledge and experience working with Puerto Rico geography and address styles. Staff were able to offer Local Update of Census Addresses training to governmental units in Puerto Rico, other essential training to Local Census Office staff, and support during the implementation of all field activities for the 2010 Census.
- Having a Puerto Rico Area Office affirmed that Puerto Rico operations were important to the Census Bureau and allowed questions and issues with operations to be handled locally.
- A separate, original advertising campaign was developed specifically for the 2010 Census of Puerto Rico. Content covered in promotional materials (i.e., posters, brochures) was accurate, culturally adapted, and attractive, and reached all sectors of the population on the island.

- Staff in Geography Division had Puerto Rico expertise and designed specific address collection templates for Puerto Rico for Local Update of Census Addresses and subsequent address list development operations.
- Geography Division completed the migration of the Puerto Rico workfile into the MAF/TIGER database that created the address universe extracts for all 2010 Census operations.
- The Address Canvassing Operation was conducted using the hand-held computer, which contained software in Spanish with unique address fields and business rules applicable only to Puerto Rico. The Global Positioning System collection was also used during the Address Canvassing operation and showed a high success rate of 99 percent for Puerto Rico.
- Customized Group Quarters Validation forms were created to address Puerto Rico's unique addressing standards.
- Questionnaires for the Enumeration at Transitory Locations, Nonresponse Followup, and Vacant Delete Check operations were translated into Spanish for Puerto Rico with customized address fields where addresses were collected.
- Quality Control forms were translated into Spanish and used Puerto Rico address definitions and completeness criteria as quality control parameters for the address listing operations.
- The Non-ID operation took place in Census Bureau headquarters with the assistance of contract analysts with expertise in Puerto Rico addresses and the physical geography of the island.

7.1.2 Challenges

- Limited number of in-house resources made it challenging for staff from the Census Bureau to cope with all the translation and review requests that came in during the decennial census years. The limited number of staff, overload of documents to review, and short turn-around periods for Puerto Rico products caused time constraints. The 2010 Census relied heavily on contracted translators which greatly increased turn-around time of materials. Some subject matter experts were not able to participate in the review of all materials. The printing schedule did not reflect adequate lead time for translations and review.
- Any delays or late decisions that Census Bureau headquarters had in the development and adaptation of manuals, guides, and other materials, had an impact on the scheduled time for translations and kitting deliverable dates for the National Processing Center. The National Processing Center barely had enough time to assemble kits by the time they received all of the translated files for printing.
- Puerto Rico Spanish and stateside Spanish had different translation processes and required separate translations.

- There were not enough translators to meet the demand at the Puerto Rico Area Office. This caused time constraints for translators. Schedule deadlines were not communicated well with the Puerto Rico Area Office making it difficult to move materials in and out of translation in a timely manner. In many cases, documents for translation were received with a short turnaround period after the adaptation in English for Puerto Rico was finished.
- The use of different staff for translations caused a lack of consistency with terminology for materials across all operations. This created the need to thoroughly review completed translations. However, the schedule did not permit enough time to do a thorough review of all translated materials.
- There was a lack of English speaking bilingual staff in the Puerto Rico Local Census Offices. This presented a challenge with communication and troubleshooting processes when Boston Regional Census Center or Census Bureau headquarters help was needed.
- Puerto Rico staff at Census Bureau headquarters was not part of the operational teams during the requirements phase when detailed requirements were defined. For example, in the 2010 Census Address Canvassing operation, the functionality of the hand-held computer was modified for Puerto Rico due to translation adding 25 percent more characters to the screen. Functions for text size were disabled and abbreviations introduced to accommodate this issue.
- Puerto Rico Local Census Offices received stateside Update/Leave Add Pages instead of those adapted for Puerto Rico containing different address fields. This caused confusion for enumerators in the field and delays with the keying process for Puerto Rico data and addresses.
- Feedback from training sessions in Puerto Rico suggested the need for more hands-on exercises, an automated training format, and a better organization of information in training materials. Information was scattered throughout training manuals which caused trainees to flip back and forth from one chapter to another.
- There was a lack of updates in the system, especially with addresses and maps from one operation to another.
- Maps used for field operations in Puerto Rico were inaccurate and lacked details.
- Not all forms for Puerto Rico were developed ahead of time, which caused an impact on the timing for adaptation and translation processes. Most materials for field activities involved procedures for address data capture which were different from stateside. Address definitions were modified to reflect Puerto Rico geography. Also, census history, examples, and illustrations were adapted to reflect the culture and geography of Puerto Rico.

- Census in Schools lesson plans and materials were too late to meet the timeline to become part of the formal curriculum in schools. Therefore, teachers and students were not familiar with the census message, its importance, and how to use Census data in real life scenarios.
- For Address Canvassing, the hand-held computer's small screen size led to some Puerto Rico data being entered into the wrong fields. Once the Puerto Rico hand-held computer software was adapted and translated, there was very limited time in which to conduct a dry run to test its functionality on the ground and send manuals to print.
- A majority of operations did not conduct dry runs in Puerto Rico to test field materials and procedures. A dress rehearsal was not conducted in Puerto Rico to test the reliability of the Operations Control System and Mobile Computing Environment systems. Local Census Offices complained that systems had not been updated in time, causing delays and problems with activities.

7.2 Recommendations for the 2020 Census

The following recommendations have been prepared to improve the planning, development and implementation of the 2020 Census of Puerto Rico:

- Implement a Puerto Rico working group led by the Puerto Rico, Island Areas, and Overseas Branch to assist in the development and testing of materials for all operations. This group should be thoroughly integrated across all decennial census operational planning and implementation groups. The group must include subject matter experts from all relevant operations and divisions in the planning, development, and testing of processes and materials for Puerto Rico.
- Schedule additional meetings between the working group and developers to increase communication and ensure consistency with the design, content, adaptation and translation of materials for all operations. Materials and the training database should have specific examples for Puerto Rico geography and address structure.
- Ensure that Puerto Rico is included in earlier planning requirements due to its unique address format and that there is continuity throughout the decade regardless of staff changes. Standardize the process for adapting Puerto Rico requirements in all processes and systems. Develop an address template for Puerto Rico when planning the 2020 Census and communicate it across all operations.
- Conduct a dress rehearsal in Puerto Rico. Test training materials as well as field procedures to verify whether these procedures appropriately "translate" into the field in Puerto Rico. Schedule a test site in Puerto Rico and test both training materials and field procedures. Test the functionality of software and systems earlier in the decade for Puerto Rico.
- Ensure that Puerto Rico addresses become part of the standard Master Address File updating procedures. Puerto Rico addresses are currently only allowed to have exact matching which limits the ability of Geography Division to conduct a Mailout/Mailback on the island.

- Even though the Census Bureau is proposing an online option for the 2020 Census, a Mail-Out/Mail-Back data collection is recommended for at least the San Juan-Caguas-Guaynabo Metropolitan Area. Results from a recent Internet test for the Puerto Rico Community Survey show a low response rate to the Internet instrument (Zelenak et al., 2012). According to the 2010 Census, the San Juan-Caguas-Guaynabo Metropolitan Area contained approximately 67 percent of the total population of the island. Also, about 77 percent of the addresses in this metropolitan area were identified as city-style by Geography Division.
- Conduct further research to improve census maps for use in Puerto Rico. They lack details and reference points (i.e., parks, schools, etc.) and do not mimic commercial highway and street maps. To make them easier for enumerators to use they should include reference points and the scale of the maps should be changed so that field staff hired locally can better understand them. Look into the feasibility of using Global Positioning System technology to improve the accuracy of map spotting. Enumerators need additional training on how to read and work with census maps, specifically map symbols and directional orientation.
- For the 2010 Census, modifications to census operations were made late in the decade. This caused delays in the preparation of Puerto Rico materials because the stateside version needed to be finalized before it could be adapted and translated to Spanish for Puerto Rico. This additional time was rarely contemplated in operational schedules. For the 2020 Census, new procedures should be explored such as: the possibility of creating stateside and Puerto Rico materials at the same time, or incorporating additional time for adaptation and translation into the Master Activities Schedule and printing and kitting schedules for each operation. These alternatives would ensure that training materials and manuals arrive in the Local Census Offices on time.
- Develop a master list of materials across all census operations that need translation to assess the magnitude of the workload and guarantee that Puerto Rico materials are translated in a timely manner. Begin translating materials earlier so the National Processing Center will have adequate time for kitting and shipping. Have someone with translation knowledge to make final decisions on translations.
- Create automated training for Census Bureau employees that is more specific for Puerto Rico, especially address and geography concepts unique to Puerto Rico. Develop a unique training database for Puerto Rico.
- The 2020 Census should use automated address lists and maps across operations to minimize errors during manual transcriptions and ensure consistency.
- Print forms adapted for Puerto Rico at the Local Census Offices. Localized printing reduces shipment errors.
- Hire bilingual staff in the Puerto Rico Local Census Offices to ensure that communication and troubleshooting processes are not delayed or interrupted.

- Establish procedures for translations ahead of time and allow ample time for adaptation and translation when scheduling development activities. Use the same translators for all materials in an operation to ensure that terminology is kept consistent across different operations. Create an official translation glossary for each census operation and disseminate through all Divisions. Keep adaptation and translation in mind when designing forms. Hire additional staff to work on the translation of operational materials at the Puerto Rico Area Office. Consider the need for hiring more translators at Census Bureau headquarters with Puerto Rico knowledge and expanding the Translation Section as we move into 2020 Census planning.
- The 2020 Census in Schools Program should have its own team that includes educators from each grade level and staff from internal divisions such as Geography Division and Population Division, to review lesson plans, activity sheets, etc. Materials for the program should be created and tested ahead of time in Puerto Rico. Address files for schools on the island should be developed early in order for materials to be printed and mailed to principals and teachers by March 2019.
- Adapt procedures for data capture in Puerto Rico so they accommodate the length and complexity of these addresses across all operations. Include online help and automated training on how to enter data into the customized address fields.
- Research the reasons why so many housing unit addresses were added to the Puerto Rico Master Address File during the Update/Leave operation, only nine months after the Address Canvassing operation verified the addresses in Puerto Rico.
- With the move of Puerto Rico oversight from the Boston Regional Office to the New York Regional Office, the Puerto Rico, Island Areas, and Overseas Branch, Field Division and the New York Regional Office need to meet early to carefully define and delineate roles and responsibilities.
- Research the coverage of administrative records for the 2020 Census of Puerto Rico.

7.3 Conclusions

The integration of Puerto Rico into the 2010 Census was overall successfully implemented. Operations for the 2010 Census of Puerto Rico were conducted in a timely manner following the same schedule as the stateside census. Operational objectives were met on the island, although modifications to some systems and software were necessary. With the aid of adapted and translated materials, enumerators and listers completed the data collection phase with no major problems. Although staff experienced issues during data capture and data processing for Puerto Rico, they were able to successfully complete these phases and update the Puerto Rico Master Address File.

For the 2020 Census of Puerto Rico, the Census Bureau should implement a Puerto Rico working group to assist in the development and testing of materials for all operations. This group

should include subject matter experts from all relevant operations and divisions. The Puerto Rico Section of the Puerto Rico, Island Areas, and Overseas Branch should manage the planning, development, and testing of processes and materials for Puerto Rico. A test site should be scheduled in Puerto Rico to test training materials as well as field procedures.

The Census Bureau should strive for a Mailout/Mailback methodology at least in the San Juan-Caguas-Guaynabo Metropolitan Area now that the Puerto Rico Master Address File has been updated after census operations. According to the 2010 Census, the San Juan-Caguas-Guaynabo Metropolitan Area contained approximately 67 percent of the total population of the island. Also, about 77 percent of the addresses in this metropolitan area were identified as city-style by Geography Division. Even though the Census Bureau is proposing an internet option for the 2020 Census, results from a recent Internet test for the Puerto Rico Community Survey show a low response rate to the Internet instrument (Zelenak et al., 2012).

Staff should review the addresses in the Puerto Rico Master Address File to ensure it is in good shape for the 2020 Census and work towards a Puerto Rico Master Address File that can be updated throughout the decade through programs like the Delivery Sequence File Refresh. More resources and staff should be dedicated to the census effort in Puerto Rico so operations, data capture, and data processing can be completed on time.

The standardization of the unique addressing style in Puerto Rico should also be investigated over the decade. Census Bureau staff should work to ensure that Puerto Rico systems, materials, and forms are adequately adapted and translated for the next census to avoid problems during operations and processing. The translation and review process should be defined well in advance of the census to avoid confusion and delay during translation and staff should have glossaries for operational terms in Puerto Rico to ensure consistency in materials. After the development of procedures, materials, and systems for Puerto Rico, these should be tested on the island to ensure they fit the unique addressing style and to ease implementation of 2020 Census operations.

8 ACKNOWLEDGEMENTS

The Puerto Rico Section of the Puerto Rico, Island Areas, and Overseas Branch, is under the direction Adrienne C. Oneto, Assistant Division Chief for Content and Outreach, and Willard E. Caldwell, Branch Chief.

Individuals who provided data, subject matter, and technical expertise include Alexandra Figueroa, Alexis Novoa, Alfreda Brewer Opatz, Celeste L. Epps, Guinevere Z. Mills, Jean Williams, Jerry Douglas Imel, Jonathan Zapata, Justin M. Ward, Kevin M. Shaw, Marisa Pedro, Peter Virgile, Richard T. Liquorie, Sally J. Snodgrass, Stacey J. Jordan, Tanya Ann Sadrak, and Tracy S. Newman.

Fact checking was completed by Jada Marie Honesty.

Individuals that contributed to the review of this assessment report include Brian Kevin Timko, Carrie Johanson-Butikofer, Daniel A. Reyes, Elda Perez Robinson, Jay M. Occhiogrosso, Jean Williams, Kathryn Wimbish, Marisa Pedro, Mark Scheu, Melissa L. Therrien, Michael J. Horgan, Michael Niosi, Rebecca Díaz Cartagena, and Stuart C. Irby.

9 REFERENCES

- 2010 Nonresponse Operations Subteam (2011), "2010 Nonresponse Operations Lessons Learned Draft," U.S. Census Bureau, May 2, 2011.
- Address List Development Operations Integration Team (2012), "2010 Census Field Verification (FV) Assessment Report," 2010 Census Planning Memoranda Series No. 162 (Reissue), February 23, 2012.
- Address List Operations Implementation Team (2012), "2010 Census Address Canvassing Operational Assessment," 2010 Census Planning Memoranda Series No.168, January 17, 2012.
- Buckley-Ess, Julie and Idabelle Hovland, "Puerto Rico, Census 2000 Testing, Experimentation, and Evaluation Program Topic Report No. 14," TR-14, U.S. Census Bureau, February 2004.
- Coon, David and Neil Osborne (2012), "2010 Census Decennial Response Integration System Paper Questionnaire Data Capture Assessment Report," 2010 Census Planning Memoranda Series No. 195, May 22, 2012.
- Epps, Celeste (2012), "Re: Fw: GQV information for PR Assessment," e-mail message, March 13, 2012.
- Glasier, Victoria (2012), "2010 Census Integrated Communications Program: Census in Schools Assessment Report," Public Information Office, U.S. Census Bureau, April 17, 2012.
- Group Quarters Enumeration Operational Integration Team (2011), "2010 Census Group Quarters Enumeration Operation Lessons Learned Final," U.S. Census Bureau, June 24, 2011.
- Horgan, Mike (2012), "Re: Questions about LUCA for PR," e-mail message, March 6, 2012.
- Hovland, Idabelle (2008), "2010 Puerto Rico MOA," e-mail message, February 11, 2008.
- Irby, Stuart (2011a), "Re: LUCA Details for PR Assessment," e-mail message, December 19, 2011.
- (2011b), "Re: LUCA," e-mail message, August 15, 2011.
- Johanson, Carrie, Mark Scheu, and, Keith Wechter, "2010 Census Operational Assessment for Type of Enumeration Area Delineation," 2010 Census Planning Memoranda Series No.164, December 22, 2011.
- Monaghan, Brian (2007), "Local Census Office (LCO) Delineation," GSP Memorandum No. 07-12, March 29, 2007.
- Newman, Tracy (2012), "Re: Field Verification Information for PR Assessment," e-mail message, April 18, 2012.
- Niosi, Michael (2012), "2010 Census Non-ID Processing Assessment Report," 2010 Census Planning Memoranda Series No. 201, June 19, 2012.

- Program Management Branch (2011), 2010 Census Operational Plan, 2010 Census Information Memoranda Series No. 2 (Reissue 3), June 29, 2011.
- Rose, Jazmin and Heather Fallica (2011), "2010 Census Enumeration at Transitory Locations Assessment Study Plan," 2010 Census Planning Memoranda Series No. 116, January 12, 2011.
- Russell, Deborah and Diane Barrett (2010), "2010 Census Group Quarters Enumeration Assessment Study Plan," 2010 Census Planning Memoranda Series No. 113, December 22, 2010.
- Sadrak, Tanya (2011), "Re: LUCA," e-mail message, August 15, 2011.
- Schneider, Glenn et al. (2009), "Study Plan: 2010 Census Address Canvassing Assessment," 2010 Census Planning Memoranda Series No. 62, September 23, 2009.
- Snodgrass, Sally and Bei Zhang (2012), "2010 Census Update/Leave Operational Assessment Report," 2010 Census Planning Memoranda Series No. 185, April 4, 2012.
- Sperling, Jonathan (1990), "Census Geography in Puerto Rico. A Technical Addendum for the 1990 Census," *Caribbean Studies*, Vol. 24, No. 3-4, 1990, pp. 111-130.
- Swartz, Rebecca and Stuart Irby (2011), "2010 Census Study Plan for the Local Update of Census Addresses (LUCA) Program Assessment," 2010 Census Planning Memoranda Series No. 119, February 9, 2011.
- Swartz, Rebecca et al. (2012), "2010 Census Local Update of Census Addresses (LUCA) Assessment Report," 2010 Census Planning Memoranda Series No.199, June 6, 2012, pp. 169.
- Timko, Brian (2012), "Re: LUCA Questions for PR Assessment," e-mail message, March 1, 2012.
- U.S. Census Bureau (1994), "Geographic Areas Reference Manual," U.S. Department of Commerce, November 1994, pp. 7-1--7-41.
- (1998), "Memorandum of Agreement on the Conduct of Census 2000 in Puerto Rico: Appendix XVI to 1958 Agreement Between the Bureau of the Census, U.S. Department of Commerce, and the Government of Puerto Rico Concerning the Conduct of Censuses in Puerto Rico," February 13, 1998.
- (2007), "2010 LCO Delineation Guidelines," GPS memo 07-13, Appendix 1, March 29, 2007.
- (2008), "2010 Census Integrated Communications Campaign Plan," August 2008, pp.274-290.
- (2009a), "Budget Estimates, Fiscal Year 2010 Congressional Submission," May 2009, pp. 151-159.
- (2009b), "History: 2000 Census of Population and Housing," U.S. Department of Commerce, Economic and Statistics Administration, December 2009.

- (2009c), 2010 Census Detailed Operational Plan for the Group Quarters Validation Operations, 2010 Census Information Memoranda Series No. 19, May 12, 2009.
- (2009d), 2010 Census Detailed Operational Plan for Enumeration at Transitory Locations Field Operations, 2010 Census Information Memoranda Series No. 28, September 23, 2009.
- (2009e), 2010 Census Detailed Operational Plan for Group Quarters Operation (GQO), 2010 Census Information Memoranda Series No. 44, December 10, 2009.
- (2010a), 2010 Census Operational Plan for the Data Capture and Integration Group, 2010 Census Information Memoranda Series No. 60, May 12, 2010.
- (2010b), “2010 Census Puerto Rico Local Census Offices Managers and Assistant Managers Post-Census Debriefing,” May 2010.
- (2011a), 2010 Census Operational Plan, 2010 Census Information Memoranda Series No. 2 (Reissue 3), June 29, 2011.
- (2011b), “2010 Census Data Products: United States at a Glance (Version 1.3),” April 15, 2011.
- (2011c), “2010 Census Integrated Campaign - Lessons Learned Report,” February 2011.
- (2011d), “2010 Nonresponse Operations - Lessons Learned,” May 2, 2011.
- Viehdorfer, Colt (2012), “2010 Census Coverage Measurement Estimation Report: Results for Puerto Rico,” DSSD Census Coverage Measurement Memorandum Series #2010-G-13, June 27, 2012.
- Virgile, Peter (2012), “Puerto Rico Assessment,” e-mail message, April 13, 2012.
- Walker, Shelley et al. (2012), “2010 Census Nonresponse Followup Operations Assessment Report,” 2010 Census Planning Memoranda Series No. 190, April 30, 2012.
- Williams, Jean (2012), “Re: GQV Assessment Table,” e-mail message, May 8, 2012.
- Williams, Jean and Diane Barrett (2011), “2010 Census Group Quarters Validation Assessment Study Plan,” 2010 Census Planning Memoranda Series No. 115, January 12, 2011.
- Williams, Jean et al. (2012), “2010 Census Group Quarters Validation Operation Assessment Report,” 2010 Census Planning Memoranda Series No.193, May 4, 2012.
- Wroblewski, Monica (2012), “2010 Census – Integrated Communications Program: Paid Advertising Assessment Report,” 2010 Census Planning Memoranda Series No. 221, August 6, 2012, pp. 22.
- Zelenak, Mary Frances et al. (2012), “Results from the April 2011 Puerto Rico Community Survey Internet Test Draft Report,” American Community Survey Research and Evaluation Program, July 31, 2012.

APPENDIX A: EXAMPLES OF ADAPTATIONS FOR PUERTO RICO ADDRESS STANDARDS TO MATERIALS FOR THE GROUP QUARTERS VALIDATION AND UPDATE/LEAVE OPERATIONS

I. Adaptation to the Update/Leave Address Listing Page (D-105A(UL) and D-105A(UL)PR) to Account for the Additional Address Elements in Puerto Rico Addresses

This listing contains confidential information, the release of which is prohibited by Title 13 U.S.C., OMB NO. 0607-0919-C. Approval Expires 12/31/2011									
D-105A(UL)		Address Listing Page				U.S. Department of Commerce Economics and Statistics Administration U.S. Census Bureau			
RCC: 3199/Denver		Operation: Update/Leave				2010 Census			
LCO: 3124/Grand Junction						Create Date/Time: 05/07/2010 08:28 AM MT			
AA: 31-001493						Print Date/Time: 05/07/2010 08:28 AM MT			
ST/COU: 08/067 CO, La Plata						Page 1 of 2			
Line No	Census ID	Block Number	Map Spot	Action Code	Dup Line No	Location Address			Non City Style Mailing Address (7a)
						House No.	Street or Road Name	Unit Designation (6c)	
(1)	(2)	(3)	(4)	(5a)	(5b)	(6a)	(6b)	ZIP Code (6d)	ZIP Code (7b)
1	XXXXXXXXXXXX	10000	XXXXX	XXXXX	XXXXXX	XXXXXXXX	NO LQS IN THIS BLOCK	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
						(8) Location/Description: XX			

Esta lista contiene información confidencial. Se prohíbe la divulgación según el Título 13 del Código de los EE.UU., OMB NO. 0607-0919-C Aprobación Expira 12/31/2011										
D-105A(UL) PR		Pagina de Lista de Direcciones				Departamento de Comercio de los Estados Unidos Administración de Economía y Estadísticas Negociado del Censo de los EE.UU.				
RCC: 2102/Puerto Rico		Operación: Actualización/Entrega				Censo del 2010				
LCO: 2147/Arecibo						Fecha en que fue creado/Hora: 05/07/2010 02:19 PM AT				
AA: 31-002202						Fecha en que se imprimió/Hora: 05/07/2010 02:19 PM AT				
ST/COU: 72/099 PR, Moca						Página 1 de 35				
Número de Línea (1)	ID del Censo (2)	Código de Acción (5a)	Dirección del Lugar					(8a) Dirección de Correo Estilo Rural		
			(6a) Número de casa	(6b) Nombre de Urbanización, Condominio o Residencial		(6c) Localización 1-Urb 2-Cond 3-Res Haga un círculo a uno solo				
1	11303 3751 822 36		(6d) Calle		(6e) CD	(6f) CID	(6g) UD UNIT	(6h) UID 8	(8b) Código Postal (ER)	
			BO CAPA				125 INTERIOR			
Número de Bloque (3)	Número del Punto en el Mapa (4)	Número de Línea Duplicada (5b)	(6i) Area 1		(6j) Area 2		(6k) Carr.		(6l) Ramal	
10110			BO CAPA				125 INTERIOR			
(7) Descripción física							(6n)	(6p) Código Postal		
CASA DE MADERA EN LOMITA TECHO EN ZINC ESCALERAS CEMENTO							Km 0012.Hm: 3	00676		

II. Adaptation to the Group Quarters Validation Questionnaire (D-351(GQV) and D-351(GQV)PR(S))to Account for the Additional Address Elements in Puerto Rico Addresses

<p>Page 2 FORM D-351(GQV) (5-21-2008)</p> <p>4b. What is your correct address? (Complete for all added OLQs.)</p> <p>House No. <input type="text"/></p> <p>Street Name <input type="text"/></p> <p>Unit Designation ZIP Code <input type="text"/> <input type="text"/></p> <p>Building Name <input type="text"/></p> <p>Building No. <input type="text"/></p> <p>Rural Route Address Rural Route ZIP Code <input type="text"/> <input type="text"/></p> <p>Physical Description/Location <input type="text"/></p>	<p>Página 2 FORMA D-351(GQV)PR(S) (5-20-2008)</p> <p>4b. ¿Cuál es su dirección correcta? (Complete para todos OLQ añadidos.)</p> <p>Número de Casas <input type="text"/></p> <p>Nombre de Urbanización <input type="text"/></p> <p>Nombre de Condominio <input type="text"/></p> <p>Calle <input type="text"/></p> <p>Área 1 <input type="text"/></p> <p>Área 2 <input type="text"/></p> <p>CD CID <input type="text"/> <input type="text"/></p> <p>UD UID <input type="text"/> <input type="text"/></p> <p>Carr. <input type="text"/></p> <p>Ramal <input type="text"/></p> <p>Km <input type="text"/> Hm <input type="text"/> Código postal <input type="text"/></p> <p>Nombre del Edificio <input type="text"/></p> <p>Número del Edificio <input type="text"/></p> <p>Dirección Estilo Rural Código postal Estilo Rural <input type="text"/> <input type="text"/></p> <p>Descripción del Finca/Lugar <input type="text"/></p>
--	--

APPENDIX B: PUERTO RICO DECENNIAL FORMS, MANUALS, AND TRAINING GUIDES FOR FIELD OPERATIONS

FORM NUMBER	FORM TITLE
D-635(AC QC)(PR)	ADDRESS CANVASSING GUIDE FOR TRAINING QUALITY CONTROL LISTERS(PUERTO RICO)
D-635(AC)(PR)	ADDRESS CANVASSING GUIDE FOR TRAINING LISTERS(PUERTO RICO)
D-635.1(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL LISTER TRAINING WORKBOOK(PUERTO RICO)
D-635.1(AC)(PR)	ADDRESS CANVASSING LISTER TRAINING WORKBOOK(PUERTO RICO)
D-641(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL CREW LEADER MANUAL(PUERTO RICO)
D-641(AC)(PR)	ADDRESS CANVASSING CREW LEADER MANUAL(PUERTO RICO)
D-641.1(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-641.1(AC)(PR)	ADDRESS CANVASSING GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-641.2(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL CREW LEADER TRAINING WORKBOOK(PUERTO RICO)
D-641.2(AC)(PR)	ADDRESS CANVASSING CREW LEADER TRAINING WORKBOOK(PUERTO RICO)
D-641.3(AC QC)(PR)	ADDRESS CANVASSING GUIDE FOR TRAINING QUALITY CONTROL CREW LEADER ASSISTANTS(PUERTO RICO)
D-641.3(AC)(PR)	ADDRESS CANVASSING GUIDE FOR TRAINING CREW LEADER ASSISTANTS(PUERTO RICO)
D-641.4(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL CREW LEADER ASSISTANT TRAINING WORKBOOK(PUERTO RICO)
D-641.4(AC)(PR)	ADDRESS CANVASSING CREW LEADER ASSISTANT TRAINING WORKBOOK(PUERTO RICO)
D-641.5((AC)PR)	ADDRESS CANVASSING CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-641.5(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-675(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL LISTER MANUAL(PUERTO RICO)
D-675(AC)(PR)	ADDRESS CANVASSING LISTER MANUAL(PUERTO RICO)
D-1135(CS)(AC)(PR)	ADDRESS CANVASSING SCREEN(VISUAL AID)(PUERTO RICO)
D-1135(LS)(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL ADDRESS LIST SCREEN(VISUAL AID)(PUERTO RICO)
D-1135(LS)(AC)(PR)	ADDRESS CANVASSING ADDRESS LIST SCREEN(VISUAL AID)(PUERTO RICO)
D-1135(MS)(AC)(PR)	ADDRESS CANVASSING MAIN MAP SCREEN(VISUAL AID)(PUERTO RICO)
D-1136(AC QC)(PR)	ADDRESS CANVASSING QUALITY CONTROL EDIT ADDRESS SCREEN(VISUAL AID)(PUERTO RICO)

D-446(FV)(PR)	OFFICE REVIEW CHECKLIST
D-643 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL LISTER MANUAL(PUERTO RICO)
D-643 (FV)(PR)	FIELD VERIFICATION LISTER MANUAL(PUERTO RICO)
D-643.1 (FV QC)(PR)	FIELD VERIFICATION GUIDE FOR TRAINING QUALITY CONTROL LISTERS(PUERTO RICO)
D-643.1 (FV)(PR)	FIELD VERIFICATION GUIDE FOR TRAINING LISTERS(PUERTO RICO)
D-643.2 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL LISTER TRAINING WORKBOOK(PUERTO RICO)
D-643.2 (FV)(PR)	FIELD VERIFICATION LISTER TRAINING WORKBOOK(PUERTO RICO)
D-643.3 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL TRAINING CENSUS MAP PACKET(PUERTO RICO)
D-643.3 (FV)(PR)	FIELD VERIFICATION TRAINING CENSUS MAP PACKET(PUERTO RICO)
D-643.5 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL TRAINING FA BINDER(PUERTO RICO)
D-643.5 (FV)(PR)	FIELD VERIFICATION TRAINING FA BINDER(PUERTO RICO)
D-643.6 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL NEW ABBOTTSVILLE GROUND VIEW ILLUSTRATION(PUERTO RICO)
D-643.6 (FV)(PR)	FIELD VERIFICATION NEW ABBOTTSVILLE GROUND VIEW ILLUSTRATION (PUERTO RICO)
D-643.7 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL ANSWER KEY(PUERTO RICO)
D-643.7 (FV)(PR)	FIELD VERIFICATION ANSWER KEY(PUERTO RICO)
D-681 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL CREW LEADER MANUAL(PUERTO RICO)
D-681 (FV)(PR)	FIELD VERIFICATION CREW LEADER MANUAL(PUERTO RICO)
D-681.1 (FV QC)(PR)	FIELD VERIFICATION GUIDE FOR TRAINING QUALITY CONTROL CREW LEADERS(PUERTO RICO)
D-681.1 (FV)(PR)	FIELD VERIFICATION GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-681.2 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL CREW LEADER TRAINING WORKBOOK(PUERTO RICO)
D-681.2 (FV)(PR)	FIELD VERIFICATION CREW LEADER TRAINING WORKBOOK(PUERTO RICO)
D-683 (FV QC)(PR)	FIELD VERIFICATION QUALITY CONTROL CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-683 (FV)(PR)	FIELD VERIFICATION CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-683.1 (FV)(PR)	FIELD VERIFICATION GUIDE FOR TRAINING CREW LEADER ASSISTANTS(PUERTO RICO)
D-683.1(FV QC)(PR)	FIELD VERIFICATION GUIDE FOR TRAINING QUALITY CONTROL CREW LEADER ASSISTANTS(PUERTO RICO)
D-1190 (FV QC)(PR)	DEPENDENT QUALITY CONTROL FORM(PUERTO RICO)
D-1222 (FV)(PR)	OBSERVATION CHECKLIST(PUERTO RICO)
D-105A(UL)(PR)	UPDATE/LEAVE ADDRESS LISTING PAGE(PUERTO RICO)
D-105B(UL)(PR)	UPDATE/LEAVE ADD PAGE FOR HOUSING UNITS(PUERTO RICO)

D-105C(UL)(PR)	UPDATE/LEAVE ADD PAGE FOR OLQs(PUERTO RICO)
D-217(PR)	UPDATE/LEAVE 2010 CENSUS QUESTIONNAIRE PLASTIC BAG(PUERTO RICO)
D-446(UL)(PR)	OFFICE REVIEW CHECKLIST(PUERTO RICO)
D-451(UL)(PR)	UPDATE/LEAVE COVER DAILY LOG(PUERTO RICO)
D-488(PR)	UPDATE/LEAVE CREW LEADER ASSISTANT JOB AID
D-488.1(PR)	UPDATE/LEAVE FOS ASSISTANT JOB AID: WORKING ON MILITARY INSTALLATIONS(PUERTO RICO)
D-488.2(PR)	UPDATE/LEAVE ENUMERATOR ASSISTANT JOB AID: WORKING ON MILITARY INSTALLATIONS(PUERTO RICO)
D-488.3(PR)	UPDATE/LEAVE SUPPLEMENTAL GUIDE FOR TRAINING ENUMERATORS WORKING ON MILITARY INSTALLATIONS(PUERTO RICO)
D-488.4(PR)	UPDATE/LEAVE CREW LEADER ASSISTANT JOB AID: WORKING ON MILITARY INSTALLATIONS(PUERTO RICO)
D-488.5(PR)	UPDATE/LEAVE SUPPLEMENTAL GUIDE FOR TRAINING FOS WORKING ON MILITARY INSTALLATIONS(PUERTO RICO)
D-535(UL)(PR)	UPDATE/LEAVE QUICK REFERENCE CARD (PUERTO RICO)
D-535(ULQC)(PR)	UPDATE/LEAVE QUALITY CONTROL QUICK REFERENCE CARD (PUERTO RICO)
D-554(PR)	UPDATE/LEAVE CREW LEADER ASSISTANT JOB AID
D-554(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-554.1(PR)	UPDATE/LEAVE GUIDE FOR TRAINING CREW LEADER ASSISTANTS(PUERTO RICO)
D-554.1(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL GUIDE FOR TRAINING CREW LEADER ASSISTANTS(PUERTO RICO)
D-648(PR)	UPDATE/LEAVE ENUMERATOR MANUAL(PUERTO RICO)
D-648(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL ENUMERATOR MANUAL(PUERTO RICO)
D-648.1(PR)	UPDATE/LEAVE GUIDE FOR TRAINING ENUMERATORS(PUERTO RICO)
D-648.1(QC)(PR)	UPDATE/LEAVE GUIDE FOR TRAINING QUALITY CONTROL ENUMERATORS(PUERTO RICO)
D-648.2(PR)	UPDATE/LEAVE ENUMERATOR TRAINING WORKBOOK(PUERTO RICO)
D-648.2(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL ENUMERATOR TRAINING WORKBOOK(PUERTO RICO)
D-648.3(PR)	UPDATE/LEAVE TRAINING CENSUS MAP PACKET(PUERTO RICO)
D-648.3(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL TRAINING CENSUS MAP PACKET(PUERTO RICO)
D-648.4(PR)	UPDATE/LEAVE TRAINING QUESTIONNAIRE LABEL PACKET(PUERTO RICO)
D-648.4(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL TRAINING QUESTIONNAIRE LABEL PACKET(PUERTO RICO)
D-648.5(PR)	UPDATE/LEAVE TRAINING BINDER FOR AA 31-003456(PUERTO RICO)
D-648.5(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL TRAINING BINDER FOR AA 31-

	003456(PUERTO RICO)
D-648.6(PR)	UPDATE/LEAVE NEW ABBOTSVILLE GROUND VIEW ILLUSTRATION(PUERTO RICO)
D-648.6(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL NEW ABBOTSVILLE GROUND VIEW ILLUSTRATION(PUERTO RICO)
D-648.7(PR)	UPDATE/LEAVE ANSWER KEY TRAINING BINDER FOR AA 31-003456(PUERTO RICO)
D-648.7(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL ANSWER KEY TRAINING BINDER FOR AA 31-003456(PUERTO RICO)
D-654(PR)	UPDATE/LEAVE CREW LEADER MANUAL(PUERTO RICO)
D-654(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL CREW LEADER MANUAL(PUERTO RICO)
D-654.1(PR)	UPDATE/LEAVE GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-654.1(QC)(PR)	UPDATE/LEAVE GUIDE FOR TRAINING QUALITY CONTROL CREW LEADERS(PUERTO RICO)
D-654.2(PR)	UPDATE/LEAVE CREW LEADER TRAINING WORKBOOK(PUERTO RICO)
D-654.2(QC)(PR)	UPDATE/LEAVE QUALITY CONTROL CREW LEADER TRAINING WORKBOOK(PUERTO RICO)
D-1190(ULQC)(PR)	DEPENDENT QUALITY CONTROL FORM(PUERTO RICO)
D-1222(UL)(PR)	OBSERVATION CHECKLIST(PUERTO RICO)
D-449(CCM)(PR)	EMERGENCY CONTACT INFORMATION CARD-2010 CENSUS(PUERTO RICO)
D-1028.4(CCM-FHUFU)(PR)	CCM DEFINITIONS FOR FINAL HOUSING UNIT FOLLOWUP/GROUP QUARTERS FLASHCARD(PUERTO RICO)
D-1222(CCM-FHUFU)(PR)	CCM FHUFU OBSERVATION CHECKLIST(PUERTO RICO)
D-1222(CCM-FHUFU)(PR)(X)	CCM FHUFU OBSERVATION CHECKLIST (BEIGE PAPER)(PUERTO RICO)
D-1312(F)(PR)	CCM FHUFU GUIDE FOR TRAINING CREW LEADERS AND QUALITY CONTROL CREW LEADERS(PUERTO RICO)
D-1312.1(F)(PR)	CCM FHUFU CREW LEADER AND QUALITY CONTROL CREW LEADER WORKBOOK(PUERTO RICO)
D-1312N(F)(PR)	CCM NOTE ASKING TRAINERS TO BRING THIER OWN CREW LEADER TRAINING MATERIALS(PUERTO RICO)
D-1332(F)(PR)	CCM FHUFU QUALITY CONTROL CHECKER MANUAL(PUERTO RICO)
D-1333(F)(PR)	CCM FHUFU GUIDE FOR TRAINING QUALITY CONTROL CHECKERS(PUERTO RICO)
D-1333.1(F)(PR)	CCM FHUFU QUALITY CONTROL CHECKER WORKBOOK(PUERTO RICO)
D-1333.2(F)(PR)	CCM FHUFU QUALITY CONTROL CHECKER MAP PACKET(PUERTO RICO)
D-1333N(F)(PR)	CCM NOTE ASKING TRAINERS TO BRING THIER OWN QUALITY CONTROL CHECKERS TRAINING MATERIALS(PUERTO RICO)
D-1373(F)(PR)	CCM FHUFU CREW LEADER AND QUALITY CONTROL CREW LEADER MANUAL(PUERTO RICO)

D-1373.1(F)(PR)	CCM FHUFU CREW LEADER AND QUALITY CONTROL CREW LEADER JOB SUMMARY(PUERTO RICO)
D-1374(F)(PR)	CCM FHUFU INTERVIEWER MANUAL(PUERTO RICO)
D-1374.1(F)(PR)	CCM FHUFU GUIDE FOR TRAINING INTERVIEWERs (PUERTO RICO)
D-1374.1A(F)(PR)	CCM FHUFU INTERVIEWER WORKBOOK(PUERTO RICO)
D-1374.1B(F)(PR)	CCM FHUFU INTERVIEWER SELF STUDY(PUERTO RICO)
D-1374.1C(F)(PR)	CCM FHUFU REFERENCE LIST(PUERTO RICO)
D-1374.1D(F)(PR)	CCM FHUFU MAP PACKET(PUERTO RICO)
D-1374.1E(F)(PR)	ABBOTSVILLE PICTURE(PUERTO RICO)
D-1374.1N(F)(PR)	CCM NOTE ASKING TRAINERS TO BRING THEIR OWN INTERVIEWER TRAINING MATERIALS(PUERTO RICO)
D-1403(CCM-FHUFU)(PR)	CCM FHUFU TRACKING RECORD(PUERTO RICO)
D-1404(CCM-FHUFU)(PR)	CCM FHUFU QUALITY CONTROL ASSIGNMENT TRACKING RECORD(PUERTO RICO)
D-1028.4(CCM IHUFU)(PR)	CCM DEFINITIONS FOR INITIAL HOUSING UNIT FOLLOWUP/GROUP QUARTERS FLASHCARD(PUERTO RICO)
D-1222(CCM-IHUFU)(PR)	CCM IHUFU OBSERVATION CHECKLIST(PUERTO RICO)
D-1312(PR)	CCM IHUFU GUIDE FOR TRAINING CREW LEADERS AND QUALITY CONTROL CREW LEADERS(PUERTO RICO)
D-1312.1(PR)	CCM IHUFU CREW LEADER AND QUALITY CONTROL CREW LEADER WORKBOOK(PUERTO RICO)
D-1332(PR)	CCM IHUFU QUALITY CONTROL CHECKER MANUAL(PUERTO RICO)
D-1333(PR)	CCM IHUFU GUIDE FOR TRAINING QUALITY CONTROL CHECKERS(PUERTO RICO)
D-1333.1(PR)	CCM IHUFU QUALITY CONTROL CHECKER WORKBOOK(PUERTO RICO)
D-1333.2(PR)	CCM IHUFU QUALITY CONTROL CHECKER MAP PACKET(PUERTO RICO)
D-1333N(PR)	CCM NOTE ASKING TRAINERS TO BRING THEIR OWN QUALITY CONTROL CHECKERS TRAINING MATERIALS(PUERTO RICO)
D-1373(PR)	CCM IHUFU CREW LEADER AND QUALITY CONTROL CREW LEADER MANUAL(PUERTO RICO)
D-1373.1(PR)	CCM IHUFU CREW LEADER AND QUALITY CONTROL CREW LEADER JOB SUMMARY(PUERTO RICO)
D-1374(PR)	CCM IHUFU INTERVIEWER MANUAL(PUERTO RICO)
D-1374.1(PR)	CCM IHUFU GUIDE FOR TRAINING INTERVIEWERs(PUERTO RICO)
D-1374.1A(PR)	CCM IHUFU INTERVIEWER WORKBOOK(PUERTO RICO)
D-1374.1B(PR)	CCM IHUFU INTERVIEWER SELF STUDY(PUERTO RICO)
D-1374.1C(PR)	CCM IHUFU REFERENCE LIST AND MAP PACKET(PUERTO RICO)
D-1374.1D(PR)	CCM IHUFU INTERVIEWER MAP PACKET(PUERTO RICO)

D-1374.1N(PR)	CCM NOTE ASKING TRAINERS TO BRING THEIR OWN INTERVIEWER TRAINING MATERIALS(PUERTO RICO)
D-1403 (CCM-IHUFU)(PR)	CCM IHUFU TRACKING RECORD(PUERTO RICO)
D-1404 (CCM-IHUFU)(PR)	CCM IHUFU QUALITY CONTROL ASSIGNMENT TRACKING RECORD(PUERTO RICO)
D-1222(CCM-IL)(PR)	CCM IL OBSERVATION CHECKLIST(PUERTO RICO)
D-1302(PR)	CCM INDEPENDENT LISTING BOOK – 2010 CENSUS(PUERTO RICO)
D-1305(PR)	CCM IL LISTER MANUAL(PUERTO RICO)
D-1307(PR)	CCM IL LISTER SELF STUDY(PUERTO RICO)
D-1308(PR)	CCM IL GUIDE FOR TRAINING LISTERS(PUERTO RICO)
D-1308.1(PR)	CCM ABBOTSVILLE PICTURE(PUERTO RICO)
D-1308.2(PR)	CCM BLOCK CLUSTER MAP(PUERTO RICO)
D-1308.3(PR)	CCM LISTER WORKBOOK(PUERTO RICO)
D-1308.4(PR)	CCM SKETCH MAP(PUERTO RICO)
D-1308N(PR)	CCM NOTE ASKING TRAINERS TO BRING THEIR OWN LISTER TRAINING MATERIALS(PUERTO RICO)
D-1396(PR)	CCM IL DQC LISTER MANUAL(PUERTO RICO)
D-1320(PR)	CCM IL CREW LEADER AND QUALITY CONTROL CREW LEADER MANUAL(PUERTO RICO)
D-1320.1(PR)	CCM IL CREW LEADER AND QUALITY CONTROL CREW LEADER JOB SUMMARY(PUERTO RICO)
D-1326(PR)	CCM IL DQC GUIDE FOR TRAINING DQC LISTERS(PUERTO RICO)
D-1326.1(PR)	CCM IL DQC LISTER WORKBOOK(PUERTO RICO)
D-1326.2(PR)	DQC LISTER MAPS(PUERTO RICO)
D-1326N(PR)	CCM NOTE ASKING TRAINERS TO BRING THEIR OWN DQC LISTER TRAINING MATERIALS(PUERTO RICO)
D-1370(PR)	CCM IL GUIDE FOR TRAINING CREW LEADERS AND QUALITY CONTROL CREW LEADERS(PUERTO RICO)
D-1370.1(PR)	CCM IL CREW LEADER AND QUALITY CONTROL CREW LEADER WORKBOOK(PUERTO RICO)
D-1222(CCM-PFU)(PR)	CCM PFU OBSERVATION CHECKLIST(PUERTO RICO)
D-1301(PR)	CCM PFU QUESTIONNAIRE(PUERTO RICO)
D-1388(PR)	CCM PFU REINTERVIEWER MANUAL(PUERTO RICO)
D-1389(PR)	CCM PFU GUIDE FOR TRAINING REINTERVIEWERS(PUERTO RICO)
D-1389.1(PR)	CCM PFU REINTERVIEWER WORKBOOK(PUERTO RICO)
D-1389N(PR)	CCM NOTE ASKING TRAINERS TO BRING THEIR OWN REINTERVIEWER TRAINING MATERIALS(PUERTO RICO)
D-1390(PR)	CCM PFU GUIDE FOR TRAINING CREW LEADERS AND REINTERVIEW CREW LEADERS(PUERTO RICO)

D-1390.1(PR)	CCM PFU CREW LEADER/REINTERVIEW CREW LEADER WORKBOOK(PUERTO RICO)
D-1391(PR)	CCM PFU CREW LEADER AND REINTERVIEW CREW LEADER MANUAL(PUERTO RICO)
D-1391.1(PR)	CCM PFU CREW LEADER AND REINTERVIEW CREW LEADER JOB SUMMARY(PUERTO RICO)
D-1393(PR)	CCM PFU INTERVIEWER MANUAL(PUERTO RICO)
D-1394(PR)	CCM PFU GUIDE FOR TRAINING INTERVIEWERs(PUERTO RICO)
D-1394.1(PR)	CCM PFU INTERVIEWER WORKBOOK(PUERTO RICO)
D-1394.2(PR)	CCM PFU INFORMATION BOOKLET(PUERTO RICO)
D-1394.3(PR)	CCM PFU FLOWCHART(PUERTO RICO)
D-1394.4(PR)	CCM PFU POST-CLASSROOM REFRESHER TRAINING TOPICS(PUERTO RICO)
D-1394N(PR)	CCM NOTE ASKING TRAINERS TO BRING THEIR OWN INTERVIEWER TRAINING MATERIALS(PUERTO RICO)
D-1222(CCM-PI)(PR)	OBSERVATION CHECKLIST(PUERTO RICO)
D-1310(PR)	GUIDE FOR TRAINING INTERVIEWERs(PUERTO RICO)
D-1310.1(PR)	INTERVIEWER WORKBOOK(PUERTO RICO)
D-1310.2(PR)	POST-CLASSROOM REFRESHER TRAINING TOICS FOR INTERVIEWERs AND REINTERVIEWERS(PUERTO RICO)
D-1310N(PR)	NOTE ASKING TRAINERS TO BRING THEIR OWN INTERVIEWER TRAINING MATERIALS(PUERTO RICO)
D-1313(PR)	GUIDE FOR TRAINING CREW LEADERS AND RI CREW LEADERS(PUERTO RICO)
D-1313.1(PR)	CREW LEADER AND RI CREW LEADER WORKBOOK(PUERTO RICO)
D-1317(PR)	CCM PI INTERVIEWER MANUAL(PUERTO RICO)
D-1319(PR)	CCM PI INFORMATION BOOKLET(PUERTO RICO)
D-1327(PR)	CREW LEADER AND RI CREW LEADER MANUAL(PUERTO RICO)
D-1327.1(PR)	CREW LEADER AND RI CREW LEADER JOB SUMMARY(PUERTO RICO)
D-1353(PR)(March 2010)	LAP TOP USER GUIDE(PUERTO RICO)
D-1353.1(PR)	RSA TOKEN SETUP AND TRANSMISSION GUIDE(PUERTO RICO)
D-1376(PR)	REINTERVIEWER MANUAL(PUERTO RICO)
D-1381(PR)	REINTERVIEWER JOB AID(PUERTO RICO)
D-1382(PR)	GUIDE FOR TRAINING REINTERVIEWERS(PUERTO RICO)
D-1382N(PR)	NOTE ASKING TRAINERS TO BRING THEIR OWN REINTERVIEWER TRAINING MATERIALS(PUERTO RICO)
D-168(PR)	NEW EMPLOYEE DATA(PUERTO RICO)
D-198(PR)	RESPONSIBILITIES FOR All EMPLOYEES(PUERTO RICO)
D-224(PR)	REPORT ON REEMPLOYMENT OF BUYOUT RECIPIENT-2010 CENSUS(PUERTO RICO)
D-228(PR)	LONG DISTANCE TELEPHONE LOG-2010 CENSUS(PUERTO RICO)

D-237(PR)	CERTIFICATE OF VOLUNTARY SEPARATION INCENTIVE PAYMENT (VSIP) OR "BUYOUT"(PUERTO RICO)
D-244(PR)	DECENNIAL ADMINISTRATIVE GRIEVANCE INTAKE FORM - 2010 CENSUS(PUERTO RICO)
D-269A(CCM)(PR)	ADDENDUM FOR SELECTION GUIDE FOR ENUMERATOR FOR CENSUS COVERAGE MEASUREMENT
D-269A(PR)	SELECTION GUIDE FOR ENUMERATOR(PUERTO RICO)
D-269B(CCM)(PR)	ADDENDUM FOR SELECTION GUIDE FOR CREW LEADER FOR CENSUS COVERAGE MEASUREMENT(PUERTO RICO)
D-269B(PR)	SELECTION GUIDE FOR CREW LEADER(PUERTO RICO)
D-269C(PR)	SELECTION GUIDE FOR CREW LEADER(PUERTO RICO)
D-269D(PR)	SELECTION GUIDE FOR FIELD OPERATIONS SUPERVISORS(PUERTO RICO)
D-269F(CCM)(PR)	SELECTION GUIDE FOR CREW LEADER ASSISTANTS (CCM)(PUERTO RICO)
D-269F(PR)	SELECTION GUIDE FOR CREW LEADER ASSISTANTS(PUERTO RICO)
D-275(PR)	RECORD OF TRAINING(PUERTO RICO)
D-282(PR)	DOCUMENTATION OF CONDUCT AND OR PERFORMANCE PROBLEMS(PUERTO RICO)
D-287(PR)	POST EMPLOYMENT RESTRICTIONS UNDER 18 U.S.C. 207 - 2010 CENSUS(PUERTO RICO)
D-292(PR)	BATCH TRANSMITTAL-2010 CENSUS(PUERTO RICO)
D-301(PR)	BATCH CONTROL LOG-2010 CENSUS(PUERTO RICO)
D-302(PR)	PAYSHEET ADJUSTMENTS CONTROL LOG(PUERTO RICO)
D-308.1(PR)	POSTER: SAMPLE OF DAILY PAY AND WORK RECORD-LAMINATED(PUERTO RICO)
D-308A(PR)	PER DIEM EXPENSE RECORD(PUERTO RICO)
D-308C(PR)	DAILY HOURS TRACKING FORM(PUERTO RICO)
D-308R(PR)	DAILY TIME AND EXPENSE TRACKING LOG(PUERTO RICO)
D-312(PR)	DECENNIAL EAP LIAISON PHONE LOG(PUERTO RICO)
D-501.1(PR)	SELF STUDY FOR MANAGERS AND SUPERVISORS(PUERTO RICO)
D-501.1A(PR)	SELF STUDY FOR FIELD OPERATIONS SUPERVISORS AND CREW LEADERS ANSWER KEY(PUERTO RICO)
D-590(PR)	CENSUS EMPLOYEE HANDBOOK FOR ENUMERATORS, RECRUITING ASSISTANTS AND CREW LEADER ASSISTANTS(PUERTO RICO)
D-591(PR)	CENSUS EMPLOYEE HANDBOOK FOR CREW LEADERS AND FIELD OPERATIONS SUPERVISORS(PUERTO RICO)
D-930(PR)	REQUEST FOR TRAVEL ADVANCE(PUERTO RICO)
D-931(PR)	TRAVELERS CHECK REGISTER/RECEIPT LOG(PUERTO RICO)
D-932(PR)	MONTHLY RECONCILIATION SHEET(PUERTO RICO)
D-954(PR)	TRAVELERS CHECK CONTROL LOG(PUERTO RICO)

D-991(PR)	OVERTIME POLICY FOR RECRUITING ASSISTANTS AND ENUMERATORS(PUERTO RICO)
D-1129(PR)	PERSONAL TELEPHONE REIMBURSEMENT POLICY AGREEMENT FOR 2010 CENSUS STAFF
D-101A(PR)	SPECIAL NOTICE FLYER(PUERTO RICO)
D-644.1(ETL)(PR)	ETL GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-661(ETL)(PR)	ETL ENUMERATOR MANUAL(PUERTO RICO)
D-661.1(ETL)(PR)	ETL GUIDE FOR TRAINING ENUMERATORS(PUERTO RICO)
D-661.2(ETL)(PR)	ETL ENUMERATOR WORKBOOK(PUERTO RICO)
D-682(ETL)(PR)	ETL CREW LEADER MANUAL(PUERTO RICO)
D-682.1(ETL)(PR)	ETL CREW LEADER WORKBOOK(PUERTO RICO)
D-682.2(ETL)(PR)	ETL CREW LEADER CHECKLIST FOR QUESTIONNAIRES(PUERTO RICO)
D-682.3(ETL)(PR)	ETL CREW LEADER CHECKLIST FOR UNIT VERIFICATION PAGE AND LISTING SHEETS(PUERTO RICO)
D-682.4(ETL)(PR)	ETL CREW LEADER CHECKLIST FOR CENSUS BLOCK MAPS(PUERTO RICO)
D-693(ETL)(PR)	ENUMERATION AT TRANSITORY LOCATION COVER PAGE(PUERTO RICO)
D-693.1(ETL)(PR)	TRANSITORY LOCATION UNIT VERIFICATION PAGE(PUERTO RICO)
D-693.2(ETL)(PR)	TRANSITORY LOCATION LISTING SHEET(PUERTO RICO)
D-695A(ETL)(PR)	FORM FOR ADDING A TRANSITORY LOCATION(PUERTO RICO)
D-695C(ETL)(PR)	PRELIMINARY CONTACT FORM(PUERTO RICO)
D-103(NRFU)(PR)	ASSIGNMENT AREA BINDER COVER PAGE/QUALITY ASSURANCE REVIEW PAGE(PUERTO RICO)
D-103.A(NRFU)(PR)	ADD PAGE FOR HOUSING UNITS
D-157(PR)	QUESTIONNAIRE MISDELIVERY RECORD(PUERTO RICO)
D-157A(PR)	APARTMENT MIXUP JOB AID(PUERTO RICO)
D-547(NRFU)(PR)	NRFU ENUMERATOR MANUAL(PUERTO RICO)
D-547(P)(NRFU)(PR)	NRFU ENUMERATOR TASK POSTER(PUERTO RICO)
D-547.1(NRFU)(PR)	NRFU ENUMERATOR QUICK REFERENCE GUIDE(PUERTO RICO)
D-547.2(NRFU)(PR)	NRFU ENUMERATOR WORKBOOK(PUERTO RICO)
D-553(PR)	NRFU CREW LEADER MANUAL(PUERTO RICO)
D-553.1(PR)	NRFU CREW LEADER CHECKLIST(PUERTO RICO)
D-553.2(PR)	NRFU CREW LEADER WORKBOOK(PUERTO RICO)
D-647(PR)	NRFU GUIDE FOR TRAINING ENUMERATORS(PUERTO RICO)
D-653(PR)	NRFU GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-942(NRFU)(PR)	NRFU CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-556(P)(PR)	NRFU REINTERVIEW ENUMERATOR POSTER(PUERTO RICO)
D-556(PR)	NRFU REINTERVIEW ENUMERATOR MANUAL(PUERTO RICO)
D-556.1(PR)	NRFU REINTERVIEW ENUMERATOR WORKBOOK(PUERTO RICO)

D-656(PR)	NRFU REINTERVIEW GUIDE FOR TRAINING ENUMERATORS(PUERTO RICO)
D-942(NRFU RI)(PR)	NRFU REINTERVIEW CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-1126(PR)	NRFU REINTERVIEW CREW LEADER MANUAL(PUERTO RICO)
D-1126.1(PR)	NRFU REINTERVIEW CREW LEADER CHECKLIST(PUERTO RICO)
D-1126.2(PR)	NRFU REINTERVIEW CREW LEADER FINAL REVIEW EXERCISE(PUERTO RICO)
D-1222(NRFU/NRFU RI)(PR)	NRFU OBSERVATION CHECKLIST(PUERTO RICO)
D-1226(PR)	NRFU REINTERVIEW GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-942(NRFU VDC)(PR)	NRFU VDC CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-1061(NRFU VDC)(PR)	GUIDE FOR TRAINING NRFU VDC ENUMERATORS(PUERTO RICO)
D-1062(NRFU VDC)(PR)	NRFU VDC ENUMERATOR JOB AID(PUERTO RICO)
D-1063(NRFU VDC)(PR)	GUIDE FOR TRAINING NRFU VDC FOS/CL(PUERTO RICO)
D-1064(NRFU VDC)(PR)	NRFU VDC FOS/CL JOB AID(PUERTO RICO)
D-113(TNSOL)(PR)	TARGETED NON SHELTERED OUTDOOR LOCATION FORM(PUERTO RICO)
D-140(PR)	ENVELOPE: OUTGOING, WHITE RCC RET ADDRESS(4 1/8 X 9 1/2)
D-141(PR)	ENVELOPE: 8-7/8 X 3-7/8", NO WINDOW
D-142(PR)	ENVELOPE: OUTGOING WHITE RIGHT WINDOW, RCC RET ADD(4 1/8 X 9 1/2)
D-143(PR)	RETURN ADDRESS BOOKLET ENVELOPE
D-144(PR)	ENVELOPE: 9-1/2 X 4-1/8", WINDOW: 5 X 1-1/2"
D-145(PR)	LABEL: BRM, PUERTO RICO PREADD & RETURN, SELF-ADHESIVE, 500/ROLL
D-146(PR)	LABEL: PUERTO RICO AREA OFFICE RETURN(5 X 2-15/16) SELF ADHESIVE 500 LABELS/ROLL
D-147(PR)	LABEL: MAILING 2-15/16 X 5", PUERTO RICO PREADDRESS, SELF-ADHESIVE, 500/ROLL
D-101A.1(PR)	SPECIAL NOTICE PAGE(PUERTO RICO)
D-225(PR)	INFO COMM(PUERTO RICO)
D-116(GQE)(PR)	GROUP QUARTERS LISTING SHEET(PUERTO RICO)
D-201 UPDATE(GQE)(PR)	MASTER ASSIGNMENT REPORT UPDATE BY AA(PUERTO RICO)
D-201 UPDATE(GQV)(PR)	MASTER ASSIGNMENT REPORT UPDATE BY AA(PUERTO RICO)
D-201E UPDATE(GQE)(PR)	MASTER ASSIGNMENT REPORT UPDATE BY CASE(PUERTO RICO)
D-201E UPDATE(GQV)(PR)	MASTER ASSIGNMENT REPORT UPDATE BY CASE(PUERTO RICO)
D-351CF(GQV)PR(S)	CORRECTIONAL FACILITY CONTINUATION FORM(PUERTO RICO)
D-351HU(GQV)PR(S)	HOUSING UNIT CONTINUATION FORM(PUERTO RICO)
D-351NSL(GQV)PR(S)	NON-SURVIVOR LABEL PAGE(PUERTO RICO)
D-352.1GQ(GQE)(PR)	GROUP QUARTERS ENUMERATION RECORD(PUERTO RICO)

D-352.1MFV(SBE)(PR)	REGULARLY SCHEDULED MOBILE FOOD VAN ENUMERATION RECORD(PUERTO RICO)
D-352.1MIL(GQE)PR	MILITARY GROUP QUARTERS ENUMERATION RECORD FOR PUERTO RICO
D-352.1SH(SBE)(PR)	SHELTER ENUMERATION RECORD(PUERTO RICO)
D-352.1SK(SBE)(PR)	SOUP KITCHEN ENUMERATION RECORD(PUERTO RICO)
D-352.1TNSOL(SBE)(PR)	TARGETED NON SHELTERED OUTDOOR LOCATION ENUMERATION RECORD(PUERTO RICO)
D-352GQ(GQAV)(PR)	GROUP QUARTERS ADVANCE VISIT INTERVIEW RECORD(PUERTO RICO)
D-352MFV(GQAV)(PR)	REGULARLY SCHEDULED MOBILE FOOD VAN ADVANCE VISIT INTERVIEW RECORD(PUERTO RICO)
D-352MFV-C(GQAV)(PR)	REGULARLY SCHEDULED MOBILE FOOD VAN CONTINUATION PAGE(PUERTO RICO)
D-352MIL(GQAV)PR	MILITARY GROUP QUARTERS ADVANCE VISIT INTERVIEW RECORD FOR PUERTO RICO
D-352SH(GQAV)(PR)	SHELTER ADVANCE VISIT INTERVIEW RECORD(PUERTO RICO)
D-352SK(GQAV)(PR)	SOUP KITCHEN ADVANCE VISIT INTERVIEW RECORD(PUERTO RICO)
D-352TNSOL(GQAV)(PR)	TARGETED NON SHELTERED OUTDOOR LOCATION ADVANCE VISIT INTERVIEW RECORD(PUERTO RICO)
D-451(GQV)(PR)	GROUP QUARTERS VALIDATION COVER DAILY LOG(PUERTO RICO)
D-451(GQV)T	GROUP QUARTERS VALIDATION COVER/DAILY LOG(TRAINING)
D-451(GQV)T(PR)	GROUP QUARTERS VALIDATION COVER/DAILY LOG(TRAINING)(PUERTO RICO)
D-451.1(GQV)	GQV TRAINING ADDRESS REGISTER
D-451.1(GQV)(PR)	GQV TRAINING ADDRESS REGISTER(PUERTO RICO)
D-451A(GQV)T(PR)	ADDRESS LISTING PAGE(TRAINING)(PUERTO RICO)
D-451B(GQV)(PR)	OLQ ADD PAGE(PUERTO RICO)
D-569.12(PR)	GQE 2010 CENSUS ENUMERATOR MANUAL(PUERTO RICO)
D-572.20(PR)	GQAV AND GQE 2010 CENSUS CREW LEADER MANUAL(PUERTO RICO)
D-578(PR)	SELF ENUMERATING GROUP QUARTERS 2010 CENSUS FACILITY CONTACT MANUAL(PUERTO RICO)
D-669.12(PR)	GQE 2010 CENSUS GUIDE FOR TRAINING ENUMERATORS(PUERTO RICO)
D-669.13(PR)	GQE 2010 CENSUS ENUMERATOR WORKBOOK(PUERTO RICO)
D-672.20(PR)	GQAV AND GQE 2010 CENSUS GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-672.21(PR)	GQAV AND GQE 2010 CENSUS CREW LEADER WORKBOOK(PUERTO RICO)
D-678.10(PR)	SELF ENUMERATING GROUP QUARTERS 2010 CENSUS GUIDE FOR TRAINING FACILITY CONTACT(PUERTO RICO)
D-1024(PR)(En)	GQV FIELD OPERATIONS SUPERVISOR MANUAL (ADAPTATION)(PUERTO RICO)
D-1024.1(PR)(En)	GQV GUIDE FOR TRAINING SUPERVISORS(PUERTO RICO)

D-1026(PR)	GQV CREW LEADER MANUAL(PUERTO RICO)
D-1026.1(PR)	GQV GUIDE FOR TRAINING CREW LEADERS(PUERTO RICO)
D-1026.2(PR)	GQV CREW LEADER WORKBOOK(PUERTO RICO)
D-1028(PR)	GQV LISTER MANUAL (PUERTO RICO)
D-1028.1(PR)	GQV GUIDE FOR TRAINING LISTERS (PUERTO RICO)
D-1028.2(PR)	GQV LISTER WORKBOOK (PUERTO RICO)
D-1028.3(GQV)(PR)	GQV LISTER CHECKLIST(LAMINATE)(PUERTO RICO)
D-1028.4(PR)	OLQ FLASHCARD(LAMINATE)(PUERTO RICO)
D-1029(PR)	CREW LEADER ASSISTANT JOB AID(PUERTO RICO)
D-1041A(GQV)(PR)	FINAL OFFICE REVIEW CHECKLIST FOR AA(PUERTO RICO)
D-1041NSL(GQV)(PR)	OFFICE REVIEW CHECKLIST FOR GQV QUESTIONNAIRE LABELS(PUERTO RICO)
D-1041Q(GQV)(PR)	OFFICE REVIEW CHECKLIST FOR GQV QUESTIONNAIRE(PUERTO RICO)
D-1042(GQV)(PR)	GQV CREW LEADER DAILY REVIEW CHECKLIST(PUERTO RICO)
D-1043(GQV)(PR)	MAP TRAINING KIT(PUERTO RICO)
D-1049(GQAV/GQE)(PR)	ADD VERIFICATIONCHECKLIST(PUERTO RICO)
D-1049(GQV)(PR)	ADD VERIFICATIONCHECKLIST(PUERTO RICO)
D-1098(GQAV)(PR)	GROUP QUARTERS ADVANCE VISIT PRESENTATIONS 2010 CENSUS CREW LEADER PRESENTATIONS(PUERTO RICO)
D-1105(PR)	REGISTER/MAP POUCH TRAINING(PUERTO RICO)
D-1155(S)(PR)	GROUP QUARTERS POSTER-SPANISH(PUERTO RICO)
D-1168(PR)	GROUP QUARTERS MAP POUCH
D-1183(GQE)(PR)	GQE BROCHURE(PUERTO RICO)
D-1184(SBE)(PR)	SBE BROCHURE(PUERTO RICO)
D-114(GQV)T(PR)	BLOCK LISTING PAGE(TRAINING)(PUERTO RICO)
D-322(GQV)T(PR)	MULTIPLE QUESTIONNAIRE LIST(TRAINING)(PUERTO RICO)
D-351(GQV)PR(S)	GQV QUESTIONNAIRE(PUERTO RICO)
D-449(GQ)(PR)	EMERGENCY CONTACT CARD(PUERTO RICO)
D-1048(GQV)(PR)	INSTRUCTOR TRAINING MAP KIT(PUERTO RICO)
D-1054(GQE)(PR)	GQE ENUMERATOR CHECKLIST(PUERTO RICO)
D-1054(SBE)(PR)	SBE ENUMERATOR CHECKLIST(PUERTO RICO)
D-1055(GQE)(PR)	GQE CREW LEADER CHECKLIST(PUERTO RICO)
D-1059(SE)(PR)	SELF ENUMERATING GQ FACILITY CONTACT CHECKLIST(PUERTO RICO)
D-1222(GQV)(PR)	OBSERVATION CHECKLIST(PUERTO RICO)
D-222.1(PR)	PRACTICE TEST FOR FIELD EMPLOYEE POSITIONS-SPANISH(PUERTO RICO)
D-222A(PR)	THE FIELD EMPLOYEE SELECTION-AID TEST, GENERAL(FESAT_G)(PUERTO RICO)
D-267 (PR)	INSTRUCTIONS FOR EMPLOYEE SELECTION AID(PUERTO RICO)

D-267A (PR)	FIELD EMPLOYEE SELECTION AID TEST A-SPANISH(PUERTO RICO)
D-267A1(PR)	FIELD EMPLOYEE SELECTION AID ANSWER SHEET TEST A-SPANISH(PUERTO RICO)
D-267B(PR)	FIELD EMPLOYEE SELECTION AID TEST B-SPANISH(PUERTO RICO)
D-267B1(PR)	FIELD EMPLOYEE SELECTION AID ANSWER SHEET TEST B-SPANISH(PUERTO RICO)
D-280(PR)	INSTRUCTIONS FOR MEASURE OF ADULT ENGLISH PROFICIENCY(PUERTO RICO)
D-437(PR)	DOCUMENT REGISTER(PUERTO RICO)
D-1258(PR)	OWA QUICK REFERENCE GUIDE(PUERTO RICO)
D-1259(PR)	VOIP QUICK REFERENCE GUIDE(PUERTO RICO)
D-1260(PR)	ACKNOWLEDGEMENT RECEIPT FOR HARRIS PROPERTY(PUERTO RICO)
D-1260R(PR)	ACKNOWLEDGEMENT RECEIPT FOR RETURNED HARRIS PROPERTY(PUERTO RICO)
D-1335(PR)	INVENTORY MANAGEMENT FORM(PUERTO RICO)
D-1350(PR)	INVENTORY TRANSFER FORM(PUERTO RICO)
D-941(GQE)(PR)	GQE REINTERVIEW FORM(PUERTO RICO)
D-687(PR)	BE COUNTED CLERKS JOB AID(PUERTO RICO)
D-688.1(PR)	BE COUNTED GUIDE FOR TRAINING CLERKS(PUERTO RICO)
D-1237(PR)	POSTER: BE COUNTED(PUERTO RICO)
D-1046(GQV)(PR)	GQV REINTERVIEW FORM(PUERTO RICO)
D-399(PR)	QUESTIONNAIRE ASSISTANCE RECORD OF CONTACT(PUERTO RICO)
D-698(PR)	QAC JOB AID(PUERTO RICO)
D-1210(PR)	QUESTIONNAIRE REFERENCE BOOK(PUERTO RICO)
D-1251(PR)	BANNER: QUESTIONNAIRE ASSISTANCE(PUERTO RICO)
D-1257(PR)	POSTER: QUESTIONNAIRE ASSISTANCE(PUERTO RICO)
D-466(PR)	QUESTIONNAIRE ASSISTANCE CENTER SELF STUDY(PUERTO RICO)
D-308(PR)	DAILY PAY AND WORK RECORD(PUERTO RICO)
D-315(PR)	TESTING SUMMARY(PUERTO RICO)
D-517(PR)	THE 2010 CENSUS RECRUITING TRAINING RECRUITING STAFF PARTICIPANT MODULES(PUERTO RICO)
D-617(PR)	RECRUITING TRAINING INSTRUCTOR'S GUIDE
D-617.3(PR)	RECRUITING ASSISTANT WEEKLY REPORT(PUERTO RICO)
D-623(PR)	BASICS OF RECRUITING JOB AID(PUERTO RICO)
D-960(PR)	RECRUITING ASSISTANT APPLICANT FOLDER REVIEW(PUERTO RICO)
D-961(PR)	TEMPLE-IMPROMPTU PRESENTATIONS BY RECRUITING ASSISTANT(PUERTO RICO)
D-962(PR)	TESTING SESSION FORM(PUERTO RICO)
D-965(PR)	TEST SCHEDULING FORM(PUERTO RICO)
D-966(PR)	TESTING SESSION ROSTER(PUERTO RICO)

D-969(PR)	TEST SIGN IN SHEET(PUERTO RICO)
D-276(L)(PR)	LETTER: THANK YOU FOR DONATING SPACE(PUERTO RICO)

Source: List of materials provided by the Space Leasing and Logistics Branch in Field Division.

APPENDIX C: PUERTO RICO PUBLIC USE FORMS

FORM NUMBER	FORM TITLE
D-1(E)(RI)PR(S)	REINTERVIEW ENUMERATOR QUESTIONNAIRE (PUERTO RICO)
D-1(E)(SUPP)PR(S)	CONTINUATION FORM FOR ENUMERATOR QUESTIONNAIRE (PUERTO RICO)
D-1(E)PR(S)	ENUMERATOR QUESTIONNAIRE-(PUERTO RICO)
D-1(F)PR	INFORMATION SHEET-ENGLISH(PUERTO RICO)
D-1(F)PR(S)	INFORMATION SHEET-SPANISH(PUERTO RICO)
D-10A PR(S)	BE COUNTED CONTAINER
D-15PR(S)	TRANSITORY LOCATION QUESTIONNAIRE, SPANISH
D-20PR	INDIVIDUAL CENSUS REPORT FOR PUERTO RICO
D-20PR(S)	INDIVIDUAL CENSUS REPORT FOR PUERTO RICO-SPANISH
D-30(L)FM(PR)	ACCESS LETTER-FACILITY MANAGER(PUERTO RICO)
D-30(L)HC(PR)	ACCESS LETTER-HEALTH CARE FACILITY(PUERTO RICO)
D-30(L)ST(PR)	ACCESS LETTER-STUDENT HOUSING(PUERTO RICO)
D-31(CCM-FHUFU)(PR)	CONFIDENTIALITY NOTICE -FHUFU(PUERTO RICO)
D-31(CCM-IHUFU)(PR)	PRIVACY ACT NOTICE-CCM IHUFU(PUERTO RICO)
D-31(CCM-IL)(PR)	PRIVACY ACT NOTICE-CCM IL(PUERTO RICO)
D-31(PR)	CONFIDENTIALITY NOTICE
D-40PR	CENSUS REPORT-ENVELOPE (PUERTO RICO)
D-40PR(S)	INDIVIDUAL CENSUS REPORT ENVELOPE FOR PUERTO RICO – SPANISH
D-23 (PR)	SHIPBOARD CENSUS REPORT
D-21 (PR)	MILITARY CENSUS REPORT

Source: List of materials provided by the Space Leasing and Logistics Branch in Field Division.

**APPENDIX D: PUERTO RICO LOCAL UPDATE OF CENSUS ADDRESSES
(LUCA) FORMS**

FORM NUMBER	FORM TITLE
D-1675(PR)	2010 LUCA CONFIDENTIALITY AND SECURITY GUIDELINES (PUERTO RICO)
D-1667(PR)	LUCA CONTACT INFORMATION UPDATE FORM (PUERTO RICO)
D-1668(PR)	LUCA REGISTRATION FORM (PUERTO RICO)
D-1669(PR)	LUCA CONFIDENTIALITY AGREEMENT FORM (PUERTO RICO)
D-1670(LG/PR)	LUCA PARTICIPATION OPTION FORM FOR LOCAL GOVERNMENTS (PUERTO RICO)
D-1670(SG/PR)	LUCA PARTICIPATION OPTION FORM FOR STATE GOVERNMENT (PUERTO RICO)
D-1671(PR)	LUCA INVENTORY FORM (PUERTO RICO)
D-1674(PR)	LUCA RETURN OR DESTRUCTION OF TITLE 13 MATERIALS FORM (PUERTO RICO)
D-1676(PR)	LUCA SELF ASSESSMENT CHECKLIST (PUERTO RICO)
D-1690(PR)	LUCA PAPER ADDRESS LIST (PUERTO RICO)
D-1691(PR)	LUCA ADDRESS LIST ADD PAGE (PUERTO RICO)
D-1692(PR)	LUCA ADDRESS COUNT LIST (PUERTO RICO)

Source: List of materials provided by the Tribal/Local Geography Partnerships Branch in Geography Division.

**APPENDIX E: MATERIALS DEVELOPED FOR THE EARN MEDIA PROGRAM
OF THE 2010 INTEGRATED COMMUNICATIONS CAMPAIGN**

WAVE 1 - AWARENESS MATERIALS				
<i>Distribution Timeframe - February 2009 - April 2009</i>				
Item	DESCRIPTION	LANG.	TOTAL QUANTITY	Description
1	Census Operational Time Line	Spanish (PR)	25,000	Create Awareness of the 2010 Census. Identify the important dates or highlight activities and decennial operations of the 2010 Census.
2	Combined Fact/Sell Sheet - General Partner	Spanish (PR)	25,000	Create Awareness of the 2010 Census. This product provide important facts about the 2010 Census. If emphasize is on the key messages - It's Easy, It's Safe, It's Important. This product is targeted to partners.
3	Combined Fact/Sell Sheet - Elected Officials	Spanish (PR)	25,000	Create Awareness of the 2010 Census. This product provide important facts about the 2010 Census. If emphasize is on the key messages - It's Easy, It's Safe, It's Important. This product is targeted to elected officials.
4	Combined Fact/Sell Sheet - Community-Based Organizations	Spanish (PR)	25,000	Create Awareness of the 2010 Census. This product provide important facts about the 2010 Census. If emphasize is on the key messages - It's Easy, It's Safe, It's Important. This product is targeted to Community-Based Organizations.
5	Combined Fact/Sell Sheet - Faith-Based Organizations	Spanish (PR)	25,000	Create Awareness of the 2010 Census. This product provide important facts about the 2010 Census. If emphasize is on the key messages - It's Easy, It's Safe, It's Important. This product is targeted to Faith-Based Organizations.

6	Combined Fact/Sell Sheet - Educators	Spanish (PR)	25,000	Create Awareness of the 2010 Census. This product provide important facts about the 2010 Census. If emphasize is on the key messages - It's Easy, It's Safe, It's Important. This product is targeted to Educators.
7	Combined Fact/Sell Sheet - Businesses	Spanish (PR)	25,000	Create Awareness of the 2010 Census. This product provide important facts about the 2010 Census. If emphasize is on the key messages - It's Easy, It's Safe, It's Important. This product is targeted to local and national businesses.
8	Combined Fact/Sell Sheet - Media	Spanish (PR)	25,000	Create Awareness of the 2010 Census. This product provide important facts about the 2010 Census. If emphasize is on the key messages - It's Easy, It's Safe, It's Important. This product is targeted to Media.
9	2010 Census Folder	Spanish (PR)	35,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
10	2010 Census Stickers	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
11	Note Pads	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
12	Pencils for General Public	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
13	Pens for Partner Organization Leaders	Spanish (PR)	730	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.

14	Pens for General Public	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
15	Special Event 2010 Census Multi-Color Balloons	Spanish (PR)	5,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
16	2010 Census "Hands" Magnets	English	400,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
17	2010 Census "Hands" Magnets	Spanish	200,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
18	2010 Census "Hands" Magnets	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
19	Chip Clips	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
20	Eco-Friendly Census Bags (Large Size)	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
21	Post-It Pads	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
22	Water Bottles	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.
23	Coffee Mugs	Spanish (PR)	25,000	Supporting products/giveaways for regional staff and partners as part of the 2010 Census awareness phase.

Motivation WAVE & ARRA - AWARENESS IN-LANGUAGE MATERIALS

*Distribution Timeframe - November 2009 - March 2010***

Item	DESCRIPTION	LANG.	TOTAL QUANTITY	HQ FLD PDS
1	Census in Schools Revised Fact Sheet	Spanish (PR)	46,750	Promotional Materials in support of the 2010 Census in Schools program.
2	18-month Census Calendar	Spanish (PR)	34,000	Create Awareness of the 2010 Census. Calendar of 18-months prior to the Census. It displayed information on key Decennial Census dates.
3	Awareness Poster	Spanish (PR)	42,500	Promotional Materials in support of the 2010 Census to create awareness on the importance of filling out the form.
4	Brochure - How People Are Counted	Spanish (PR)	43,350	Promotional Materials in support of the 2010 Census to educate the public of how the U.S. Census Bureau conducts the Census. It includes information of the data gathering process.
5	Action Poster	Spanish (PR)	21,250	Promotional Materials in support of the 2010 Census to motivate the general public to fill our the 2010 Census form when it arrives to their mail. It emphasizes the confidentiality in the answers they provide.
6	Religious Fans	Spanish (PR)	55,000.00	Promotional give-away to raise awareness of the 2010 Census. This product was developed for the faith-based communities.
7	Political Representation Poster	Spanish (PR)	500	This product was developed for the elected officials to raise awareness of the 2010 Census and encourage participation.
8	Confidentiality Fact Sheet	Spanish (PR)	86,275	Promotional Materials in support of the 2010 Census to create awareness and ensure respondents that answers were kept confidential filling out the form.

WAVE 1 PROMOTIONAL ITEMS			
2010 Census Stickers	Spanish (PR)	25,000	Promotional items in support of 2010 Census Communications Campaign, Awareness Phase
Note Pads	Spanish (PR)	25,000	
Pencils for General Public	Spanish (PR)	25,000	
Pens for Partner Organization Leaders	Spanish (PR)	730	
Pens for General Public	Spanish (PR)	25,000	
Special Event 2010 Census Multi-Color Balloons	Spanish (PR)	5,000	
2010 Census "Hands" Magnets	Spanish (PR)	25,000	
Business Placards "Proud Partner for 2010 Census"	Spanish (PR)	25,000	
Chip Clips	Spanish (PR)	25,000	
Eco-Friendly Census Bags (Large Size)	Spanish (PR)	25,000	
Post-It Pads	Spanish (PR)	25,000	
Water Bottles	Spanish (PR)	25,000	
Coffee Mugs	Spanish (PR)	25,000	

WAVE 3 PROMOTIONAL ITEMS			
DESCRIPTION	LANG.	QUANTITY	
Book Marks	Spanish (PR)	25,000	Promotional items in support of 2010 Census Communications Campaign, Motivation Phase
Eco Friendly Census Bag	Spanish (PR)	25,000	
Pens for Public	Spanish (PR)	25,000	
Pencils for Public	Spanish (PR)	25,000	
Travel Mugs	Spanish (PR)	25,000	
Chip Clip	Spanish (PR)	25,000	
PROMOTIONAL ITEMS WAVE 3 TOTAL		2,415,002	

WAVE ARRA - PROMOTIONAL ITEMS (TRINKETS)			
DESCRIPTION	LANG.	QUANTITY	
Religious Fans	Spanish (PR)	55,000.00	Promotional items in support of 2010 Census Communications Campaign, ARRA Funded

Talking Points - Talking points were developed to address 2010 Census “hot-button issues” as well as operational issues. These talking points were tailored to the 2010 Census approved messaging from DraftFCB.

Media Lists - This is a list of targeted national, regional, and local print, radio, and television outlets. It included general market and ethnic market media.

Fact Sheets - These fact sheets provided the media, stakeholders, and other partners with information on the 2010 Census.

Drop-in Articles - These articles were used by partners, stakeholders, and media (including Members of Congress, corporate partners) to provide information on the 2010 Census.

Internet Pages/Blogs - Located on the Census Bureau's home page, the 2010 Census website provided information about the 2010 Census and housed the electronic media kit, news releases, podcasts, products, etc.

News Releases - A sample of the news releases developed in English and Spanish included:

- Early Opening Local Census Office Openings
- Local Census Office Openings
- Address Canvassing
- Short-form only
- Confidentiality
- Mailout/mailback
- Replacement Questionnaire
- Nonresponse Followup
- Data release
- Special Enumeration Operations
- Transient Enumeration
- Military Enumeration
- Thank You Campaign

Opinions-Editorials, Letters to the Editor - Topic and milestone-oriented by-lined editorials under the signature of senior leadership, Commerce officials, or third-party spokespeople.

Special Events - Strategic special events surrounding milestones with the purpose of generating positive media coverage.

Radio Scripts - On-air copy (10, 20, 30 seconds) for stations/DJs that highlight the importance of participating in the 2010 Census, in English and Spanish.

Public Service Announcements (PSAs) - A low cost way to provide local broadcasters with 2010 Census messages via off-the-shelf "fillers."

Podcasts - Podcasts on the website provided briefing and interview materials for on demand newsroom uses. A maintained information series provided general public lively updates on current Census Bureau activities.

Media Kits (hard copy, on DVD and online) - A package of materials that included primary facts and background material necessary for media to write accurate stories about the 2010 Census.

Photos - Images of people/places/operations were used in promotional materials. Handouts and webpage offerings included captions with messages.

B-roll- Stock footage for newsrooms and broadcast producers, used to illustrate important Census Bureau operations via local and municipal broadcasts.

“Doughnuts” - A video footage with holes for partners to place sound bites from local spokespeople and/or local celebrities.

Video Loop - A short video providing information about the 2010 Census and motivation for participating. It alternated presentations in narrative and Power Point/flash animation formats.

Targeted outreach videos - Briefing videos designed for targeted distribution and to support partnership, stakeholder, and media efforts.

Support statements - Pre-drafted support statements that let partners, stakeholders, and other employees know exactly where the Census Bureau stood on issues.

Bill Inserts - 2010 messages included in utility bill slips, etc., with the cooperation of corporate and government partners.

Phone Bank Scripts – A traditional and inexpensive way to remind people that the 2010 Census will be taking place.

E-mails - E-mail campaigns, with Census Bureau messaging, were another channel for communication. Internal Communications may especially have benefited from an e-mail campaign.

Cable Loops - Filler material provided with local follow-up references, in various lengths for municipal and public access channels.

Telephone Hold Message - Recorded factoids and calls to action that may be used on the hold messages for partner organizations and governmental agencies.

Professional Announcements - News about new hires at the Census Bureau reminded audiences about the 2010 Census.

Partner Announcements - News about significant partner agreements and events served as a reminder to audiences.

Frequently Asked Questions