UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001

April 26, 2016

2016 AMERICAN COMMUNITY SURVEY RESEARCH AND EVALUATION REPORT MEMORANDUM SERIES #ACS16-RER-5-R1

DSSD 2016 AMERICAN COMMUNITY SURVEY MEMORANDUM SERIES #ACS16-MP-06-R1

MEMORANDUM FOR ACS Research and Evaluation Advisory Group

From: Patrick J. Cantwell *signed*
Division Chief, Decennial Statistical Studies Division

Prepared by: Broderick E. Oliver
Michael Risley
American Community Survey Experiments Branch
Decennial Statistical Studies Division

Andrew Roberts
Methods Panel Coordination Branch
American Community Survey Office

Subject: 2015 Summer Mandatory Messaging Test
Final Report

Attached is the American Community Survey (ACS) Research and Evaluation report entitled, "2015 Summer Mandatory Messaging Test." This report provides results of an experiment that the U.S. Census Bureau conducted to assess the impact on response, cost, and the reliability of survey estimates of four sets of proposed design changes to the ACS mail materials, using the September 2015 ACS panel.

We are issuing a revision to this report to amend how we classified some of the responses for "race" and "educational attainment" in Tables 12-17. For the "race" question, four of the check box options on the questionnaire asked for additional write-in information. In the previous version of this report, if a response consisted of write-in and check box responses, we classified the response using the check box responses only. If a response consisted of write-in responses only, we classified the response as "write-in race." In this revision, we now treat any write-in

response that is without a corresponding check box as if the check box had been selected. We then classified the response using the check box responses only. This change has eliminated the "write-in race" category, but provides a more accurate representation of the race distribution.

For the "educational attainment," we corrected an error in coding that erroneously included some nonresponses in the "Nursery to 11th grade" response category. We have updated Tables 12-17 to reflect these changes. None of these updates has changed any of the statistical results in the previous version, or resulted in additional significant findings.

Please contact Elizabeth Poehler at 301-763-9305 or Broderick Oliver at 301-763-9350 if you have questions about this report.

Attachment

cc:

ACS R&E Work Group		Edward Porter	CSRM
Ashley Barnes	ACSO	Dorothy Barth	DSSD
Kathryn Cheza	ACSO	Michael Bentley	DSSD
Sandra Clark	ACSO	Sarah Heimel	DSSD
Lauren Difiglia	ACSO	Padraic Murphy	DSSD
Gregory Mills	ACSO	Mary Frances Zelenak	DSSD
Dameka Reese	ACSO	Rita Schuler	NPC
Andrew Roberts	ACSO	Colleen Hughes Keating	POP
Isaac Dompreh	CSRM	Jason Lee	SEHSD

American Community Survey Research and Evaluation Program

April 11, 2016

2015 Summer Mandatory Messaging Test

FINAL REPORT

Broderick E. Oliver
Michael Risley
Decennial Statistical Studies Division
Andrew Roberts
American Community Survey Office

Table of Contents

Executive Summary

The American Community Survey (ACS) is a continuous monthly survey conducted by the U.S. Census Bureau to collect demographic, housing, social, and economic data from the American public through an annual nationwide sample of approximately 3.5 million housing addresses. The ACS, which is a mandatory survey, employs a multi-mode sequential data collection operation for each monthly panel:

- Self-Response (Internet and mail)
- Telephone interviews with non-respondents via a Computer-Assisted Telephone Interview
- In-person interviews with a sample of the remaining non-respondents via a Computer-Assisted Personal Interview

The Census Bureau is currently researching proposed changes to the ACS mail materials that address both response and the concerns expressed by some Americans that the nature and breadth of the ACS questions are intrusive, unnecessary, and burdensome, and that the prominent references to the mandatory language found throughout the mail materials are overbearing. As of August 2015, a sampled address could receive up to five ACS mailings (see below), each of which, including the outgoing envelopes, contain one or more items with a mandatory message such as, "Your response is required by law." Items below that are boldfaced contain a mandatory message.

1. Initial Mail Package: includes an **Introduction Letter**, a **Multilingual Brochure**, a **Frequently Asked Questions Brochure**, and an Instruction Card (explains how to complete the questionnaire via the Internet).

2. **Reminder Letter**: sent to addresses that were sent the Initial Mail Package.

3. Paper Questionnaire Package: sent to addresses that did not respond to the survey by a cut-off date. This package includes an **Introduction Letter**, a Paper Questionnaire, a Return Envelope, an Instruction Card (specifies two mode choices, paper and Internet, for completing questionnaire), an **Instruction Guide** (explains how to answer survey questions), and a **Frequently Asked Questions Brochure**.

4. **First Reminder Postcard:** sent to addresses that were sent the Paper Questionnaire Package.

5. **Second Reminder Postcard**: sent to addresses that did not respond by Internet or mail by a cut-off date, and were not eligible for follow-up in the Computer-Assisted Telephone Interview operation.

In 2014, the Census Bureau collaborated with Reingold, Inc. (see Reingold, 2014) to conduct a comprehensive assessment and refinement of the ACS messages and mail materials aimed at

improving the way we communicate the importance and benefits of the ACS while updating the look and feel of the materials. These updates included logos, the use of bold lettering and boxes to highlight elements of the materials, and the addition of a box that says "Open Immediately" on the envelopes. This research included several iterative rounds of qualitative and quantitative testing. We classified these new design changes, comprised of elements intended to enhance survey participation, as a *revised design*. On April 20, 2015, the Census Bureau consulted with Don Dillman, Nancy Mathiowetz, and Jolene Smyth, leading experts in the field of survey methodology, to develop ways to soften or remove the mandatory messaging from the ACS mail materials (Dillman et al., 2015).

To address stakeholder concerns and survey response, we used the results of all of this research, and past research by Dillman et al. (1996) (that suggests relatively simple changes to the ACS mail materials can have a significant impact on response), to develop four sets of proposed changes to the ACS mail materials (i.e., experimental treatments), and a slight modification of the production materials (i.e., control treatment) (see below).

The control treatment, which we called the *Modified Control* treatment employed the same mail materials as the ACS production mail materials, but excluded the Multilingual Brochure for consistency with the four experimental treatments. Of the four experimental treatments, the *Revised Design*, the *Softened Revised Design*, and the *Minimal Revised Design* were variations of the *revised design*.

Of the three *revised design* treatments, the *Revised Design* treatment maintained the mandatory messaging and even enhanced it. The *Softened Revised Design* and the *Minimal Revised Design* treatments removed or softened these messages throughout the mail materials to varying degrees. The *Softened Mandatory Messaging* treatment maintained the same look and feel of the mail materials as the *Modified Control* treatment, but removed or softened the mandatory messaging extensively, but not to the extent of the *Minimal Revised Design* treatment. A description of each treatment is provided below:

Modified Control – this control treatment employed the same mail materials as the ACS production mail materials, but excluded the Multilingual Brochure to be consistent with the four experimental treatments below.

Softened Mandatory Messaging – this experimental treatment employed essentially the same mail materials as the *Modified Control* treatment in regards to design aesthetics. However, mandatory messages were removed from the Initial Mail Package letter, the Paper Questionnaire Package letter, both postcards, and the envelopes, but softened, using plain text instead of bold, and kept in the Frequently Asked Questions Brochure, Reminder Letter, and Instruction Guide.

Revised Design – this experimental treatment used mail materials designed to better emphasize the benefits of survey participation. Included in the changes were the use of different logos on

the envelopes and letters, the use of bold lettering and boxes to highlight elements of the materials, and the addition of a box that says "Open Immediately" on the envelopes. However, the mandatory messaging is just as strong, if not stronger, as in the production materials, which does not address respondent concerns over the perceived intrusiveness of the ACS.

Softened Revised Design – this experimental treatment employed the same design changes as the *Revised Design* treatment. However, references to the mandatory nature of the survey were removed from the reminder postcards and were changed to "your response is important to your community" on the envelopes that contained the Initial and Paper Questionnaire Package mailings. The references to the mandatory nature of the survey were kept, but softened in the Initial Mail Package letter, the Reminder Letter, and the Paper Questionnaire Package letter. These references were softened using plain text instead of bold text and were included in sentences with statements about the benefits of the survey.

Minimal Revised Design – this experimental treatment employed the same design changes as the *Revised Design Treatment*. However, mandatory messaging on envelopes, postcards, and letters was minimized by removing *all* references to the mandatory requirement *except* for one in the Initial Mail Package, where the enclosed letter had one reference explaining the mandatory nature of the survey on the back in small print.

This experiment, which examined the potential impact of using these materials for the ACS, was conducted using the September 2015 ACS panel; each treatment included approximately 24,000 addresses, for a total sample size of approximately 120,000 addresses.

Question 1: What is the impact on response of removing or softening mandatory messages and making other design feature changes in the mail materials?

To answer this question, we evaluated the difference in the *self-response return rates* and the *final response rates* between each experimental treatment and the *Modified Control* treatment (i.e., control) (see results in Tables E1 and E2, respectively). As part of our evaluation, we also assessed the impact of the experimental treatments on response in populations that historically have a low self-response.

Table E1 below provides a comparison of the overall *self-response return rates* (Internet and mail combined) of the four experimental treatments versus the control at the following points in the data collection life cycle, for the September 2015 panel:

- *before the reminder letter*
- *before the paper questionnaire package*
- *before the Computer-Assisted Telephone Interview operation*

For our first snapshot of the self-response return rates, we computed the rates before the Census Bureau sent out a reminder letter to encourage recipients of the *Initial Mail Package* to complete the ACS online. At that point, the *Revised Design* treatment yielded a self-response return rate of 11.3 percent, which was significantly higher than that of the *Modified Control* (8.8 percent). Of the three experimental treatments that softened the mandatory messaging in the mail materials to varying degrees, two of them, the *Softened Mandatory Messaging* and the *Minimal Revised Design* yielded significantly lower self-response return rates than the control (4.9 and 6.6 percent versus 8.8 percent, respectively). The self-response return rate of the *Softened Revised Design* treatment (8.5 percent) was not significantly different from that of the control (8.8 percent).

For our second snapshot of the self-response return rates over time, we computed the rates before the Census Bureau mailed a *Paper Questionnaire Package* to addresses that did not complete the ACS online after receipt of the reminder letter. Once again, the *Revised Design* treatment yielded a significantly higher self-response return rate than that of the *Modified Control* (29.2 percent versus 25.0 percent). All three of the experimental treatments that reduced the mandatory messaging in the mail materials yielded significantly lower self-response return rates.

As the data collection operation progressed, the self-response rates continued to climb for all treatments. We computed the self-response rates for our third set of comparisons just prior to the start of the Computer-Assisted Telephone Interview operation. The *Revised Design* treatment yielded a significantly higher self-response return rate than the control treatment (50.8 versus 47.2 percent). The self-response return rates of the three experimental treatments with reductions in the prominence of messages about the mandatory nature of the ACS were significantly lower than that of the control. Of these three treatments though, the *Softened Revised Design's* rates were nominally higher than the other two at all three points in time examined.

Table E1: Self-Response Return Rates (in percent) at Selected Points in the Data Collection Cycle: Comparisons to Modified Control Treatment ($\alpha = 0.1$)

Total Self-Response Return Rates (Internet & Mail Combined)					
Mandatory Message	**Strong**	**Strong**	**Softened**	**Softened**	**Softened**
Point in Data Collection Cycle	**Modified Control (%)**	**Revised Design (%)**	**Softened Mandatory Messaging (%)**	**Softened Revised Design (%)**	**Minimal Revised Design (%)**
Before the Reminder Letter	8.8 (0.2)	**11.3 (0.3)**	**4.9 (0.2)**	8.5 (0.3)	**6.6 (0.2)**
Before Paper Questionnaire Package	25.0 (0.3)	**29.2 (0.3)**	**16.6 (0.2)**	**21.1 (0.3)**	**17.5 (0.3)**
Before CATI†	47.2 (0.4)	**50.8 (0.4)**	**33.7 (0.3)**	**39.4 (0.4)**	**34.6 (0.4)**

†Computer-Assisted Telephone Interview

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Note: Standard errors are shown in parentheses. The raw p-values were adjusted to control for multiple comparisons using the Hochberg procedure (see Hochberg, 1988). Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate. Minor additive discrepancies are due to rounding.

Table E2 provides a comparison of the *final response rates* of the experimental treatments and the *Modified Control* treatment after data collection in all modes had been completed. At this point, the significant differences in the rates observed in Table E1 ceased to exist for all experimental treatments except the *Softened Mandatory Messaging* treatment (93.8 percent versus 95.4 percent (control)). Interestingly, although the *Minimal Revised Design* treatment removed more of the mandatory messaging than the *Softened Mandatory Messaging* treatment, its enhanced *revised design* features resulted in a nominally higher final response rate.

For the experimental treatments whose final response rates are not significantly different from that of the *Modified Control* treatment, it would be misleading to conclude that the experimental treatment had no effect on final response. An inspection of the last column, which provides the expected number of completed interviews per treatment if we were to conduct the operation for a full year, reveals that except for the *Revised Design* treatment, all three of the remaining experimental treatments would have fewer completed interviews. Lower self-response and lower response in the Computer-Assisted Telephone Interview operation lead to more Computer-Assisted Personal Interview subsampling; therefore, fewer completed interviews.

Table E2: Final Response Rates (in percent): Comparisons to Modified Control Treatment ($\alpha = 0.1$)

Treatment	Final Response Rate	Experimental minus Modified Control	Expected Completed Interviews (millions)
Strong Mandatory Message			
▪ Modified Control	95.4 (0.3)	—	2.315
▪ Revised Design	96.0 (0.3)	0.6 (0.4)	2.370
Softened Mandatory Message			
▪ Softened Mandatory Messaging	**93.8 (0.3)**	**- 1.7 (0.4)**	2.088
▪ Softened Revised Design	95.1 (0.3)	- 0.3 (0.4)	2.173
▪ Minimal Revised Design	94.7 (0.3)	- 0.8 (0.4)	2.094

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. The raw p-values were adjusted to control for multiple comparisons using the Hochberg procedure (see Hochberg, 1988). Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate. Minor additive discrepancies are due to rounding.

As part of our evaluation, we examined the affect of the experimental treatments on response in populations whose response propensity has been historically low – i.e., "hard-to-count" populations. We defined these populations by the following socio-economic variables that are correlated with these populations: geography, age, ethnicity, race, education, building type, tenure, household size, and proficiency of English spoken in the household. At the conclusion of all data collection operations, we found:

- No significant differences in the differential response rate between the high and low response areas between any of the experimental treatments compared to the control.

- Significant differences between the response distributions for the following treatments and variables as compared to the control:
    - Softened Revised Design: *age*
    - Minimal Revised Design: *educational attainment*, *age*
    - Softened Mandatory Messaging: *building type*

- Significantly higher average household size for respondents for all treatments as compared to the control:
    - Revised Design (2.50 versus 2.44)
    - Softened Mandatory Messaging (2.49 versus 2.44)
    - Softened Revised Design (2.50 versus 2.44)
    - Minimal Revised Design (2.51 versus 2.44)

- Significantly lower percent of response from the limited English-speaking households in the *Softened Mandatory Messaging* compared to the control.

Question 2: What is the relative cost impact of removing or softening mandatory messages and making other design feature changes in the mail materials?

Methodological changes to the ACS mail materials that reduce self-response and increase workloads in follow-up operations would have significant cost impacts. Using the 2015 fiscal year budget information, the cost per case in the workload for the personal visit operation is roughly 15 times as expensive per case compared to mail and Internet. If the current sample were maintained, we project that the overall cost of data collection for the ACS would increase by about $22.4 million for the *Softened Mandatory Messaging* treatment, $11.2 million for the *Softened Revised Design* treatment, and $19.8 million for the *Minimal Revised Design* treatment. The margins of error for survey estimates for these treatments would increase by approximately 5.3 percent, 3.6 percent, and 5.4 percent, respectively (see Table E3 below).

The *Revised Design* treatment, which increased the self-response rates significantly and thus lowered the telephone and personal interview workloads, would reduce the data collection cost by approximately $7.3 million and would reduce the margins of error for survey estimates by 1.1 percent.

Table E3: Change in Cost, Sample, and Margin of Error (MOE)

	Maintain Current Sample		Maintain Current Cost		Maintain Current Reliability	
	Change in Cost†	% Change in MOE	% Change in Sample	% Change in MOE	% Change in Sample	Change in Cost†
Softened Mandatory Messaging	+$22.4	+5.3	-12.3	+12.4	+10.9	+$42.3
Softened Revised Design	+$11.2	+3.6	-6.6	+7.2	+7.4	+$24.0
Minimal Revised Design	+$19.8	+5.4	-11.0	+11.7	+11.1	+$39.8
Revised Design	-$7.3	-1.1	+4.7	-3.4	-2.2	-$10.6

† in millions of dollars

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

To maintain current data collection costs for the three treatments that soften the mandatory messaging, we would have to decrease the initial sample size 12.3 percent for the *Softened Mandatory Messaging* treatment, 6.6 percent for the *Softened Revised Design* treatment, and 11.0 percent for the *Minimal Revised Design* treatment (see Table E3 above). The margins of error for survey estimates for these three treatments would increase by approximately 12.4 percent, 7.2 percent, and 11.7 percent, respectively. The *Revised Design* treatment, which maintains the mandatory message and yields significantly higher self-response rates, would allow us to increase the initial sample size 4.7 percent (due to cost savings from a decreased workload in the follow-up operations) and maintain the current costs. This treatment would decrease the margins of error for survey estimates by 3.4 percent.

To maintain current levels of reliability for the three treatments that reduce the mandatory messaging, we would have to increase the initial sample size 10.9 percent for the *Softened Mandatory Messaging* treatment, 7.4 percent for the *Softened Revised Design* treatment, and 11.1 percent for the *Minimal Revised Design* treatment. This would result in increased data collection costs of $42.3 million, $24.0 million, and $39.8 million respectively. For the *Revised Design* treatment, we could reduce the initial sample size 2.2 percent and still maintain the current reliability, resulting in data collection cost savings of $10.6 million.

1. Introduction

The American Community Survey (ACS) is a continuous, nationwide survey conducted by the U.S. Census Bureau to collect demographic, housing, social, and economic data from the American public through an annual nationwide sample of approximately 3.5 million addresses. The data collected are essentially the same data that the Census Bureau used to collect on the "long form" during the Decennial Census; therefore, the ACS is also a mandatory survey. The ACS employs a multi-mode sequential data collection operation for each monthly panel:

- Self-Response (Internet and mail)
- Telephone interviews with non-respondents via a Computer-Assisted Telephone Interview (CATI)
- In-person interviews with a sample of the remaining non-respondents via Computer-Assisted Personal Interview (CAPI).

The ACS data are vitally important to American communities. Government officials use ACS data to make policies and decisions in a variety of areas, including education, housing, employment, transportation, and healthcare. Businesses in the private sector use ACS data to assess business opportunities and risk. Academics use these data to conduct scholarly research.

Although the ACS data are important to communities throughout the nation, some Americans view the nature and breadth of the questions as intrusive, unnecessary, and burdensome, and the messages pertaining to the mandatory nature of the survey found in many of the mail materials (e.g., "your response is required by law") as overbearing. As of August 2015, a sampled address could receive up to five ACS mailings (see below), each of which, including the outgoing envelopes contains one or more items with a mandatory message such as, "Your response is required by law." Items that are boldfaced contain a mandatory message.

1. Initial Mail Package: includes an **Introduction Letter**, a **Multilingual Brochure**, a **Frequently Asked Questions (FAQ) Brochure**, and an Instruction Card.

2. **Reminder Letter**: sent to addresses that were sent the Initial Mail Package.

3. Paper Questionnaire Package: sent to addresses that did not respond to the survey by a cut-off date. This package includes an **Introduction Letter**, a Paper Questionnaire, a Return Envelope, an Instruction Card (specifies the two mode choices for completing the questionnaire: paper and Internet), an **Instruction Guide** (explains how to answer survey questions), and a **FAQ Brochure**.

4. **First Reminder Postcard:** sent to addresses that were sent the Paper Questionnaire Package.

5. **Second Reminder Postcard**: sent to addresses that did not respond by Internet or mail by a cut-off date, and were not eligible for follow-up in the CATI operation.

In 2014, the Census Bureau collaborated with Reingold, Inc. (see Reingold, 2014) to conduct a comprehensive assessment and refinement of the ACS messages and mail materials aimed at improving the way we communicate the importance and benefits of the ACS while updating the look and feel of the materials. These updates included logos, the use of bold lettering and boxes to highlight elements of the materials, and the addition of a box that says, "Open Immediately" on the envelopes. We classified these new design changes as a *revised design*. This research included several iterative rounds of qualitative and quantitative testing. On April 20, 2015, the Census Bureau consulted with Don Dillman, Nancy Mathiowetz, and Jolene Smyth, leading experts in the field of survey methodology, to develop ways to soften or remove the mandatory messaging from the ACS mail materials (Dillman et al., 2015).

We used the results of all of this research, and past research by Dillman et al. (1996) that suggests relatively simple changes to the ACS mail materials can have a significant impact on response, to develop four sets of proposed changes to the ACS mail materials (i.e., experimental treatments), and a slight modification of the production materials (i.e., control treatment), to address both response and stakeholder concerns. The "2015 Summer Mandatory Messaging Test" (SMMT) expands on the "2015 Envelope Mandatory Messaging Test" (see Barth, 2015), which assessed the impact of removing the phrase, "your response is required by law" from the envelopes that contain the Initial Mail Package and Paper Questionnaire Package. This test found that eliminating this phrase from these envelopes lowers the self-response return rate by 5.4 percentage points.

The purpose of the SMMT was to assess the impact on ACS response, cost, and reliability of the survey estimates of removing or softening the mandatory messaging in the ACS mail materials in conjunction with the proposed redesigns.

2. Methodology

We conducted this research to answer the following two main questions:

- What is the impact on response[1] of removing or softening mandatory messages and making other design feature changes in the mail materials?
- What is the relative impact on cost and reliability of survey estimates of removing or softening mandatory messages and making other design feature changes in the mail materials?

2.1 Experimental Design

The four sets of proposed changes to the ACS mail materials (i.e., experimental treatments) and the control treatment, which we called the *Modified Control* treatment, are presented below. The *Modified Control* treatment employed the same mail materials as the ACS production mail

[1] The general category of **response** includes *self-response return rates* and *final response rates*.

materials, but excluded the Multilingual Brochure for consistency with the four experimental treatments. Of the four experimental treatments, the *Revised Design*, the *Softened Revised Design*, and the *Minimal Revised Design* all employed the same designs features that we classified as a *revised design* treatment. For the *revised design* treatments, we made changes to the mail materials to give them a more modern look and appeal, and included elements intended to enhance survey participation.

Of the three *revised design* treatments, the *Revised Design* maintained the mandatory messaging and even enhanced it. The *Softened Revised Design* and the *Minimal Revised Design* treatments removed or softened these messages throughout the mail materials to varying degrees. The *Softened Mandatory Messaging* maintained the same mail materials as the *Modified Control* treatment, but removed or softened the mandatory messaging extensively, but not to the extent of the *Minimal Revised Design* treatment.

In summary, the *Modified Control* and *Revised Design* treatments kept the mandatory messaging. The *Softened Mandatory Messaging*, *Softened Revised Design*, and *Minimal Revised Design* treatments removed or softened the mandatory messaging to varying degrees throughout the mail materials.

Modified Control: The mail materials in this control treatment had no revisions to the mandatory messages except for the exclusion of the Multilingual Brochure from the Initial Mail Package to be consistent with the other four treatments below.

Softened Mandatory Messaging: This experimental treatment was a modification of the *Modified Control* treatment. References to the mandatory nature of the survey were removed from the Initial Mail Package letter, the Paper Questionnaire Package letter, both postcards, and the envelopes that contain the Initial and Paper Questionnaire Package mailings. References to the mandatory nature of the survey were kept, but softened, in the FAQ Brochure, the reminder letter, and the instruction guide, using plain rather than bold text, and were included in sentences with statements about the benefits of the survey. The Multilingual Brochure was not sent in the Initial Mail Package. See Appendix A for materials used in this treatment and Appendix E for an item-by-item comparison of these materials versus the materials used in the *Modified Control* treatment.

Revised Design: This experimental treatment primarily used materials designed as part of the *Messaging and Mail Package Assessment* research conducted by the Census Bureau and Reingold (see Reingold, 2014) to better emphasize the benefits of participation in the survey. The changes made to the materials included, but were not limited to, the use of different logos on the envelopes and letters, the use of bold lettering and boxes to highlight elements of the materials, and the addition of a box that says, "Open Immediately" on the envelopes. However, the mandatory messaging is just as strong, if not stronger, as in the production materials due to

the use of bold lettering and boxes. The Multilingual and FAQ Brochures were removed from this treatment for the following reasons:

- To test recommendations from external experts to streamline the set of materials included in each package.
- To avoid delay in fielding the test due to the time needed to develop, design, and print revised versions of these materials consistent with the new design aesthetic.
- To avoid delay in fielding the test due to the time needed to translate and cognitively pretest revised versions of these materials in multiple languages consistent with the new design aesthetic.

See Appendix B for materials used in this treatment and Appendix F for an item-by-item comparison of these materials versus the materials used in the *Modified Control* treatment.

Note: Mandatory legal messages (confidentiality, authority to collect, how data are used) in the FAQ Brochure were printed on the back of the letter in the Initial Mail Package for all three *revised design* treatments.

Softened Revised Design: This experimental treatment was a variation of the *Revised Design* treatment. It used the same logos on the envelopes and letters, bold lettering and boxes to highlight elements of the materials, a box that read, "Open Immediately" on the envelopes, as well as elements intended to better emphasize the benefits of participation in the survey. However, references to the mandatory nature of the survey were removed from the reminder postcards and were changed to "your response is important to your community" on the envelopes that contain the Initial and Paper Questionnaire Package mailings. The references to the mandatory nature of the survey were kept, but softened in the Initial Mail Package letter, the Reminder Letter, and the Paper Questionnaire Package letter. These references were softened using plain text instead of bold text and were included in sentences with statements about the benefits of the survey. Similarly, the Multilingual and FAQ Brochures were not included in this treatment. See Appendix C for materials used in this treatment and Appendix F for an item-by-item comparison of these materials versus the materials used in the *Modified Control* treatment.

Minimal Revised Design: This experimental treatment was another variation of the *Revised Design Treatment*. Like the *Revised Design* and the *Softened Revised Design* treatments, it used the same logos on the envelopes and letters, bold lettering and boxes to highlight elements of the materials, and a box that read, "Open Immediately" on the envelopes, and elements intended to better emphasize the benefits of participation in the survey. However, mandatory messaging on envelopes, postcards, and letters was minimized by removing all references to the mandatory requirement except for one in the Initial Mail Package, where the enclosed letter had one reference explaining the mandatory nature of the survey on the back in small print. Similarly, the Multilingual and FAQ Brochures were not sent in the mail materials for this treatment. See

Appendix D for materials used in this treatment and Appendix F for an item-by-item comparison of these materials versus the materials used in the *Modified Control* treatment.

2.2 Sample Design

The monthly ACS production sample of approximately 295,000 addresses is divided into 24 groups of approximately 12,000 addresses. Each group is a representative subsample of the entire monthly sample and each monthly sample is representative of the entire yearly sample and the country. The SMMT, conducted in September 2015 with an August 2015 mailout, used two randomly selected groups for each treatment, for a total sample size of approximately 120,000 addresses. The remaining addresses received production materials.

2.3 ACS Operational Schedule for the September 2015 Panel

Each monthly ACS sample panel consists of three main data collection operations: a six-week mailout period, a one-month CATI period, and a one-month CAPI period. The September 2015 panel mailout period ran from August 20, 2015 to October 1, 2015. See Table 1 below for the September 2015 panel mailout dates. The CATI follow-up operation ran from October 1, 2015 to October 27, 2015. The CAPI follow-up operation ran from November 2, 2015 to December 1, 2015. Internet and mail responses (which included Telephone Questionnaire Assistance (TQA)) were accepted throughout all three periods.

Table 1: ACS Mailout Dates for the September 2015 Panel

Mailout	Contents in either the Control or Experimental Panels	Mailout Date
Initial Mail Package	Introduction Letter, FAQ Brochure*, Internet Instruction Card (encouraging response via the Internet)	08-20-15
Reminder Letter	A reminder letter sent to all addresses that received the Initial Mail Package	08-27-15
Paper Questionnaire Package	Introduction Letter, Paper Questionnaire, Return Envelope, Internet Instruction Card, Instruction Guide, FAQ Brochure*	09-11-15
First Reminder Postcard	A reminder postcard sent to all addresses that were sent the Paper Questionnaire Package	09-15-15
Second Reminder Postcard	An additional reminder postcard sent to addresses that had not yet responded and were not eligible for CATI follow-up	09-30-15**

* Not sent in the three *revised design* treatments. Some of the FAQ information was printed on the back of the Introduction Letter.

** The second reminder postcard was originally scheduled to be mailed on 10-1-15, but was mailed a day earlier due to the possibility of a government shutdown.

2.4 Research Questions and Analysis Methodology

2.4.1 What is the impact on response of removing or softening mandatory messages and making other design feature changes in the mail materials?

To answer this question, we first conducted an exploratory analysis by comparing the differences in the self-response return rates for the seven treatment comparisons shown in Figures 1 and 2 below. The rationale for these comparisons follows Figures 1 and 2. After this exploratory analysis, we narrowed our focus to the first set of comparisons (i.e., the experimental treatments versus the control treatment) shown in Figure 1.

For the comparisons shown in Figure 1, we also evaluated the effect of the experimental treatments on the final response rates and on populations whose self-response rates are historically low – i.e., the "hard-to-count" populations. Lastly, we assessed the impact of the experimental treatments on the number of contacts required to complete an interview in CATI and CAPI. This is important because these two data collection operations are the most costly of the four. See Sections 2.4.1.1 through 2.4.1.8 for details.

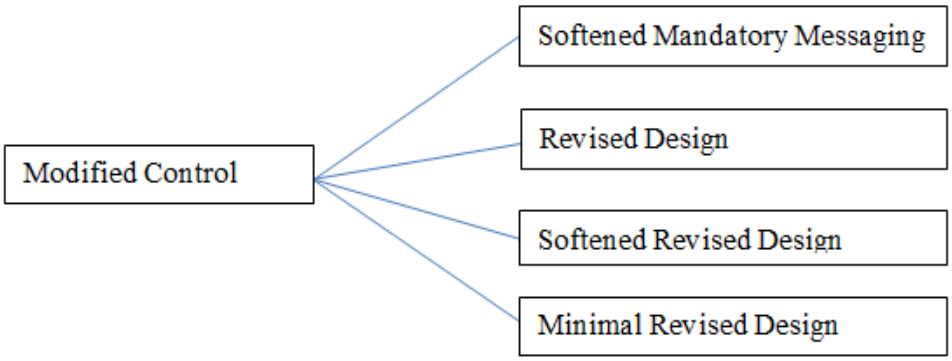


Figure 1: Illustration of the Modified Control Treatment and the Comparisons of Interest

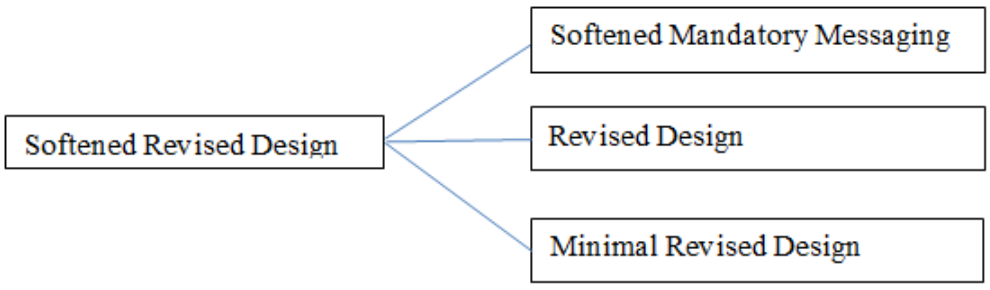


Figure 2: Illustration of the Softened Revised Design Treatment and the Comparisons of Interest

Rationale for Comparisons of Treatments

Modified Control versus Softened Mandatory Messaging: The difference between these treatments is primarily in the mandatory messaging. The *Modified Control* treatment used the standard mandatory messaging used in production, while the *Softened Mandatory Messaging* treatment removed or softened the mandatory messaging, but maintained the overall design aesthetic of the production materials. The initial mail package and paper questionnaire package added an "Open Immediately" graphic to the envelopes. When comparing these treatments we are looking at the impact of changing to the softened mandatory messaging and changing the envelope while maintaining use of the production materials.

Modified Control versus Revised Design: The difference between these treatments is in the design of the materials as well as the mandatory messaging. The *Revised Design* treatment emphasized the benefits of participation more prominently while keeping the mandatory messaging as strong as in the *Modified Control*. Additional design elements were changed, including the use of different logos on the envelopes and letters, the use of bold lettering and boxes to highlight elements of the materials, elements intended to better emphasize the benefits of participation in the survey, the removal of the FAQ brochure, and the addition of a box that says, "Open Immediately" on the envelopes. When comparing these two treatments we are looking at the impact of changing to the *revised design* materials.

Modified Control versus Softened Revised Design: The difference between these treatments is in both the design of the materials and the mandatory messaging. The *Softened Revised Design* makes the same changes as the *Revised Design* treatment, but removes some of the mandatory messages and softens others. When comparing these treatments we are looking at the impact of changing to the *revised design* materials and softening the mandatory messaging.

Modified Control versus Minimal Revised Design: The difference between these treatments is also in both the design of the materials and the mandatory messaging. The *Minimal Revised Design* treatment makes the same design changes as the *Revised Design* treatment, but eliminates all of the mandatory messaging except on the back of the letter in the initial mail package. When comparing these treatments we are looking at the impact of changing to the *revised design* materials and eliminating as much of the mandatory messaging as possible.

Softened Revised Design versus Softened Mandatory Messaging: The difference between these treatments is in the design of the materials and mandatory messages. The *Softened Revised Design* uses the *Revised Design* treatment materials and contains an added emphasis on the benefits of participation, while the *Softened Mandatory Messaging* uses the traditional production materials. Additionally, the *Softened Revised Design* does not have a FAQ brochure. In each case however, there is a softening of the mandatory messaging, though not necessarily identical. When comparing these treatments, we are looking at the impact of using the *revised*

design with softened mandatory messaging as opposed to the production materials with softened mandatory messaging.

Softened Revised Design versus Revised Design: The difference between these treatments is in the mandatory messaging. The *Revised Design* maintains the strong mandatory messaging, while the *Softened Revised Design* uses the softened messaging. In each treatment, the *revised design* materials are used, which contain an added emphasis on the benefits of participation. When comparing these treatments we are looking at the impact of softening the mandatory messaging, while using the *revised design* materials.

Softened Revised Design versus Minimal Revised Design: The difference between these treatments is in the mandatory messaging. The *Softened Revised Design* softens the mandatory messaging, whereas the *Minimal Revised Design* eliminates all mandatory messaging except for one mention on the back of the letter in the initial mail package. When comparing these treatments we are looking at the impact of changing from the softened mandatory messaging to the minimal mandatory messaging while using the *revised design* materials.

2.4.1.1 Formulae for Self-Response Return Rates

For the exploratory analysis, we compared the *self-response return rates* for each treatment comparison above. We computed these rates by mode (Internet and mail) and overall (Internet and mail combined). The formulae for these *self-response return rates* are provided in (1) through (3) below. Both the numerator and denominator of these self-response return rates are weighted. The numerator is the sum of the base weights (i.e., inverse of the probability of selection for a sample unit) of the cases that responded to the survey (see Table 2 below for the response criteria) via the Internet or mail. The denominator is the sum of the base weights of the units in the self-response universe. We excluded addresses that the U.S. Postal Service classified as undeliverable-as-addressed (UAA), and addresses in remote Alaska and Puerto Rico.

$$\textit{Overall Self-Response Return Rate} = \frac{\begin{array}{c}\text{\# of mailable and deliverable sample addresses that provided a non-blank[2] return by mail, TQA[3], or a complete or sufficient partial response[4] by Internet}\end{array}}{\text{Total \# of mailable and deliverable sample addresses}^{5}} * 100 \quad (1)$$

$$\textit{Internet Return Rate} = \frac{\begin{array}{c}\text{\# of mailable and deliverable sample addresses that provided a complete or sufficient partial Internet response}^{4}\end{array}}{\text{Total \# of mailable and deliverable sample addresses}^{5}} * 100 \quad (2)$$

$$\textit{Mail Return Rate} = \frac{\begin{array}{c}\text{\# of mailable and deliverable sample addresses that provided a non-blank}^{2}\text{ return by mail or TQA}\end{array}}{\text{Total \# of mailable and deliverable sample addresses}^{5}} * 100 \quad (3)$$

Table 2: Response Criteria for Self-Response Return Rates

Mode	Response Criteria†
Internet	▪ Complete Internet response ▪ Sufficient partial Internet response – respondent viewed all basic demographic questions for all persons in the household, all questions about the housing unit, and at least the first detailed question for one person and provided some data ▪ A response where the unit is suspected to be vacant, but has not been confirmed ▪ A response where the unit is suspected to be a business, but has not been confirmed
Mail	▪ Non-blank mail response or a complete response via TQA

† If we received more than one self-response from a single address, we classified the response mode based on the first response received.

[2] A blank form is a form that contains no person information and no telephone number.
[3] Telephone Questionnaire Assistance to assist respondents in filling out the questionnaire was available throughout the data collection period. Responses via TQA are included in the mail response rates.
[4] A response is classified as a "sufficient partial" if the respondent reaches the first question in the detailed person questions section for the first person in the household.
[5] We removed addresses where the initial mail package or paper questionnaire package was returned by the Postal Service as undeliverable-as-addressed, unless we received a response from that address.

2.4.1.2 Formulae for Final Response Rates

At the end of all data collections operations, we calculated a *final response rate* by combining the self-responses, CATI responses, and CAPI responses (see (4) through (8) below). The CATI universe was comprised of addresses that did not respond in the self-response phase of data collection (i.e., Internet and mail data collection) and a very small subset of unmailable addresses (i.e., with an undeliverable zip code) for which we had telephone numbers. We counted a case as a CATI response if the address was in the CATI universe and we obtained sufficient information via a CATI interview for the response to be classified as a complete or sufficient partial response. If we received a self-response for an address after a CATI response, the self-response mode was classified as the mode of response for this test.

The CAPI universe was comprised of a subsample (due to cost) of all remaining non-responding addresses after the CATI operation, and all unmailable and undeliverable addresses. We applied a subsampling factor to the base weights of the CAPI cases subsampled to account for the CAPI cases not sampled. We counted a case as a CAPI response if the address was in the CAPI universe and we obtained sufficient information via a personal interview for the response to be classified as a complete or sufficient partial response. If we received responses from multiple modes, we assigned the mode of response in the following order of preference: self-response, CATI, CAPI. For our study, if we received more than one self-response from an address (via Internet or mail), we selected the first response received.

The universe for final response, calculated after the CAPI operation, is the same as the self-response universe for the initial mailing with the following exceptions:

- Unmailable addresses were included, except addresses that were not selected for the CAPI subsample.

- Out-of-scope addresses (e.g., demolished homes, homes under construction, relocated houses or trailers, address is a permanent business or storage facility) whose classification was determined during the CAPI operation were excluded from the universe.

- Addresses confirmed to be businesses during telephone follow-up, telephone interviews, personal interviews, or TQA were excluded from the universe.

The formulae for the final response rate as well as the Internet, mail, CATI, and CAPI portion of this rate are provided in (4) through (8) below:

$$\textit{Final Response Rate} = \frac{\text{\# of addresses that provided a non-blank[6], complete or sufficient partial response[7] in any mode}}{\text{Total \# of addresses in the original sample, excluding those units not subsampled for CAPI[8] and those units determined to be out-of-scope[9]}} * 100 \quad (4)$$

$$\textit{Internet Portion of Final Response Rate} = \frac{\text{\# of addresses that provided a complete or sufficient partial response[7] by Internet}}{\text{Total \# of addresses in the original sample, excluding those units not subsampled for CAPI[8] and those units determined to be out-of-scope[9]}} * 100 \quad (5)$$

$$\textit{Mail Portion of Final Response Rate} = \frac{\text{\# of addresses that provided a non-blank[6] return by mail or TQA}}{\text{Total \# of addresses in the original sample, excluding those units not subsampled for CAPI[8] and those units determined to be out-of-scope[9]}} * 100 \quad (6)$$

$$\textit{CATI Portion of Final Response Rate} = \frac{\text{\# of addresses that provided a complete or sufficient partial response[7] in CATI}}{\text{Total \# of addresses in the original sample, excluding those units not subsampled for CAPI[8] and those units determined to be out-of-scope[9]}} * 100 \quad (7)$$

$$\textit{CAPI Portion of Final Response Rate} = \frac{\text{\# of addresses that provided a complete or sufficient partial response[7] in CAPI}}{\text{Total \# of addresses in the original sample, excluding those units not subsampled for CAPI[8] and those units determined to be out-of-scope[9]}} * 100 \quad (8)$$

[6] A blank form is a form that contains no person information and no telephone number.
[7] A response is classified as a "sufficient partial" if the respondent reaches the first question in the detailed person questions section for the first person in the household.
[8] A nonresponding unit that was not subsampled for CAPI.
[9] Out-of-scope addresses are situations such as a home that is now demolished or an address that is a permanent business.

2.4.1.3 Formula for Standard Error of the Estimate

We estimated the variances of the estimates using the Successive Differences Replication (SDR) method with replicate weights, the standard method used in the ACS (see U.S. Census Bureau, 2014, Chapter 12). In calculating the self-response and final response rates, we used the replicate base weights, which only account for sampling probabilities. We calculated the variance for each rate and difference using formula (9) below. The standard error of an estimate is the square root of the variance:

$$Var(RR_0) = \frac{4}{80}\sum_{r=1}^{80}(RR_r - RR_0)^2 \qquad (9)$$

Where:

RR_0 = the return rate, response rate, or difference estimate calculated using the full sample base weights,

RR_r = the return rate, response rate, or difference estimate calculated for replicate r

2.4.1.4 Measuring the Impact of Treatment on Response in High versus Low Response Areas

In evaluating competing sets of changes to the ACS mail materials, particularly the removal or softening of the mandatory language, it is important to evaluate the impact on response in geographic areas that have a historically low response. Ideally, our choice of the treatment would not increase the differential response rate between the high and low response areas. The U.S. Census Bureau's Planning Database (see U.S. Census Bureau, 2015) identifies these response areas on a tract level. Tracts with the highest *low response scores* were designated low response areas and were configured in a manner such that 25-percent of the addresses in the population were in low response areas. The remaining tracts were designated as high response areas. Hence, each address in the population is in either a low or a high response area. For our analysis, we compared the differential response rates in the experimental treatments (i.e., *Softened Mandatory Messaging*, *Revised Design*, *Softened Revised Design*, and *Minimal Revised Design*) to the differential response rate in the *Modified Control* treatment.

2.4.1.5 Measuring the Impact of Treatment on Response in Hard-to-Count Populations

In evaluating competing sets of changes to the ACS mail materials that remove or soften the mandatory language, it is important to evaluate the impact of the proposed treatments on the populations whose self-response has been historically low – i.e., the "hard-to-count populations." Erdman & Bates (2014) identify a list of housing, demographic, and socio-economic variables that are good predictors of low response areas at both the tract and block level.

We used six of these variables, *race*, *Hispanic origin*, *age*, *tenure*, *educational attainment*, and *building type* to characterize the "hard-to-count populations." We used these variables because their values were easily obtained from the respondents' answers. For this analysis, we compared the *response distribution* of each of these six variables in the experimental treatments to the

corresponding variables in the *Modified Control* treatment. A brief description of each of these variables is provided below.

- The *age* question asks for the person's age. We consolidated the responses into six age categories to ensure large enough cell sizes for analysis purposes.

- The *Hispanic origin* question asks if the person is of Hispanic, Latino, or Spanish origin. Although this question has multiple "yes" options to indicate the respondent's specific origin (e.g., Mexican, Puerto Rican, and Cuban), for our analysis, we consolidated the answers in to two categories: "Hispanic or Latino" and "Not Hispanic or Latino."

- The *race* question asks for the person's race, to which the respondent selects one or more races from a list of check box options. Four of the check box options ask for additional write-in information. For our analysis, we categorized the responses into four categories to ensure large enough cell sizes for analysis purposes. If the only box checked was "White", we coded the response as "White alone". If the only box checked was "Black or African American", we coded the response as "Black or African American alone". For any other single response by check box or write-in field, we coded the response as "Other race alone". If the respondent selected two or more answers by any combination of check boxes or write-ins, we classified the response as "Two or more races".

- The *educational attainment* question asks for the highest level of schooling completed (fourteen choice categories). We consolidated these fourteen choices into nine response categories to ensure large enough cell sizes for analysis purposes.

- The *tenure* question asks if the respondent's house, apartment, or mobile home is owned with a mortgage, owned without a mortgage, rented, or occupied without payment of rent (four choice categories).

- The *building type* question asks about the type of building the respondent lives in: a mobile home, one-family home, apartment building, or anything that does not fit those categories (ten choice categories due to multiple apartment building sizes).

2.4.1.6 Measuring the Impact of Treatment on Response by Size of Household

Erdman & Bates (2014) identify "household size" as a good predictor of low response at a block and tract level. By removing mandatory messages such as, "your response is required by law" from the mail materials, the larger households that need more of an incentive to respond, might be less inclined to. For this analysis, we compared the average household size of respondents in the experimental treatments to the average household size of respondents in the *Modified Control* treatment.

2.4.1.7 Measuring the Impact of Treatment on Response in Limited English-Speaking Households

A *limited English-speaking household* is defined as a household in which all residents, of age 14 years and over, speak a language other than English at home and report that they speak English less than "very well" (i.e., "well," "not well," or "not at all"). The removal of the mandatory messaging in the mail materials might have an adverse affect on response in these households. For this analysis, we compared the weighted percentage of the response that came from limited English-speaking households in the experimental treatments to this same measure in the *Modified Control* treatment.

2.4.1.8 Measuring the Impact of Treatment on Number of Attempts to Complete an Interview

In evaluating competing sets of changes to the ACS mail materials where the mandatory language is removed or softened, it is important to evaluate the impact of the proposed treatments on the number of attempts needed to complete an interview in the CATI and CAPI operations. Ideally, our choice of treatment would not increase the average number of contact attempts. For this analysis, we compared the average number of attempts to complete an interview in each of the experimental treatment groups to the average number of attempts in the *Modified Control* treatment. We also compared the attempt distributions of each of these in the experimental treatments to the corresponding attempt distribution in the *Modified Control* treatment.

2.4.2 What is the relative impact on cost and reliability of survey estimates of removing or softening mandatory messages and making other design feature changes in the mail materials?

A change in self-response rates has the potential to impact costs for ACS data collection. The cost analysis conducted in this report looks broadly at past cost trends by mode and assumes similar costs per case. The only inputs used are costs and workloads. The methodology used to estimate workloads, costs, completed interviews, and sample size follows.

Estimating Workloads

For our analysis, we assumed a current annual sample of approximately 3.541 million cases. We used the workloads for the 2014 data collection year to determine the current production baseline workloads.

Due to the effects of differential postal sorting of treatments with different sample sizes on the mail delivery duration (see Clark et al., 2015 for a more detailed explanation of this effect), we could not compare the test results for the experimental treatments directly with the full production workloads from the 2014 data collection year. Instead, we compared the test treatments to the control treatment to evaluate the difference in workloads as a percentage of the sample size for each treatment. We applied that percentage difference to the estimated total

annual ACS sample[10] (3.541 million housing unit addresses), and then added the resulting projected differences (which we contend can be attributed solely to the test methodologies) to the workloads from the 2014 ACS data collection year.

Estimating Costs

The data collection cost per case for each mode was determined by dividing the workload for each mode by the Fiscal Year (FY) 2015 budget allocation for each mode. We assumed that data collection costs per case for the test methodology would remain static (relative to current production costs) for each mode.

Estimating Completed Interviews

To estimate completed interviews, we used 2014 actual completes as the baseline. Similar to the calculations for estimating workloads, we then used return rates from the SMMT to determine the projected annual differences in completions by mode between the test and control treatments. We then applied these differences to the 2014 baseline completed interviews to determine projected numbers reflecting the test methodology.

Calculating Adjusted Sample Sizes

To maintain costs, we had to determine what the reduction in the initial sample would need to be to stay within the FY 2015 data collection budget for treatments with lower self-response. To do this, we used data collection costs per case by mode together with projected changes to the percent of the sample assigned to each mode to solve for an initial sample size. The formula for calculating this sample size is:

$$\text{Adjusted Initial Sample Size} = \frac{\text{Total Data Collection Budget}}{M_{pct}{}^{*}M_C + T_{pct}{}^{*}T_C + P_{pct}{}^{*}P_C} \qquad (10)$$

Where,

M_{pct} = percent of total sample that is eligible for self-response
M_C = cost per case for self-response operation
T_{pct} = percent of sample in the telephone workload
T_C = cost per case for telephone operation
P_{pct} = percent of sample in the personal visit workload
P_C = cost per case for personal visit operation.

[10] Excluding Group Quarters and Puerto Rico

3. Assumptions and Limitations

Our use of sample groups within a single month of ACS production assumes that a single ACS monthly sample panel is representative of an entire year. The cost analysis assumes that costs per case remain static for each test methodology. We also assume that total cost is correlated completely with the size of workloads for each mode—that is, it assumes that all costs are variable, with no fixed costs. This is a reasonable assumption given the size of the ACS data collection budget—the costs that make up the largest portions of the data collection budget are variable.

Because the *Modified Control* treatment does not directly match ACS production methodology (due to the differential sorting of packages for postal delivery), we can only use the results from the test to make relative conclusions between the *Modified Control* and test treatments. We assume that these differences will hold proportionately in a production environment, but without a full-scale production test, we cannot know for sure.

The estimates in this report apply only to data collection in U.S. housing units. They do not apply to group quarters or Puerto Rico data collection. This test did not include group quarters, addresses in Puerto Rico, or addresses in remote Alaska.

4. Results

4.1 What is the impact on response of removing or softening mandatory messages and making other design feature changes in the mail materials?

In this section, we present the results of the treatment comparisons of interest (discussed in Section 2.4.1) conducted to evaluate the impact of the design changes and modifications of the mandatory messages in the mail materials on ACS response.

4.1.1 Self-Response Return Rates

Tables 3 through 9 present the results of 49 two-tailed hypotheses tests comparing the self-response return rates of the treatments of interest at key points in the data collection period (i.e., *before reminder letter*; *before paper questionnaire package*; *before* CATI) by mode. The self-response return rates are presented overall (*Total Self-Response*) and by mode (Internet and Mail). TQA responses, which began before the paper questionnaire package was mailed, were counted as mail responses. Hence, the small discrepancy in the *Total Self-Response* and *Internet* rates at the *before paper questionnaire package* point in time. Minor additive discrepancies found elsewhere are due to rounding.

Table 3 below shows the results of two-tailed t-tests to evaluate the impact of changing from the *Modified Control* treatment to the *Softened Mandatory Messaging* treatment, where the mandatory messaging is removed or softened in many of the mail materials, including the outgoing envelopes. For all self-response return rates examined, the *Softened Mandatory*

Messaging self-response return rates were significantly lower than the *Modified Control* rates. The *Total Self-Response Return Rate* for the *Modified Control* group was 47.2 percent before CATI operations began compared to 33.7 percent for the *Softened Mandatory Messaging* treatment – a statistically significant difference of 13.6 percentage points.

Table 3: Self-Response Return Rate (in percent) Results by Mode at Selected Points in the Data Collection Cycle for all Mailable and Deliverable Sample Addresses: Softened Mandatory Messaging vs. Modified Control

Total Self-Response (Internet & Mail combined)

Point in Data Collection Cycle	Modified Control	Softened Mandatory Messaging	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.8 (0.2)	4.9 (0.2)	-3.9 (0.3)	Yes
Before Paper Questionnaire Package	25.0 (0.3)	16.6 (0.2)	-8.4 (0.4)	Yes
Before CATI	47.2 (0.4)	33.7 (0.3)	-13.6 (0.5)	Yes

Internet

Point in Data Collection Cycle	Modified Control	Softened Mandatory Messaging	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.7 (0.2)	4.8 (0.2)	-3.8 (0.3)	Yes
Before Paper Questionnaire Package	24.4 (0.3)	16.3 (0.3)	-8.1 (0.4)	Yes
Before CATI	31.0 (0.3)	21.5 (0.3)	-9.5 (0.5)	Yes

Mail

Point in Data Collection Cycle	Modified Control	Softened Mandatory Messaging	Difference	($\alpha = 0.1$) Significant?
Before CATI	16.2 (0.3)	12.2 (0.3)	-4.0 (0.4)	Yes

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error across the 49 comparisons in Tables 3-9, we adjusted the raw p-values using the Hochberg procedure. Minor additive discrepancies in the rates are due to rounding.

Table 4 below shows the results of two-tailed t-tests to evaluate the impact of changing from the *Modified Control* treatment to the *Revised Design* treatment, where the mandatory messaging was strengthened, elements intended to better emphasize the benefits of participation in the survey were enhanced, and design elements were changed. For all but one of the self-response return rates examined, the *Revised Design* treatment self-response return rates were significantly higher than the *Modified Control* treatment rates. The mail self-response return rates for the control and experimental treatment (prior to CATI) were not significantly different.

Table 4: Self-Response Return Rate (in percent) Results by Mode at Selected Points in the Data Collection Cycle for all Mailable and Deliverable Sample Addresses: Revised Design vs. Modified Control

Total Self-Response (Internet & Mail combined)

Point in Data Collection Cycle	Modified Control	Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.8 (0.2)	11.3 (0.3)	2.5 (0.3)	Yes
Before Paper Questionnaire Package	25.0 (0.3)	29.2 (0.3)	4.2 (0.5)	Yes
Before CATI	47.2 (0.4)	50.8 (0.4)	3.5 (0.6)	Yes

Internet

Point in Data Collection Cycle	Modified Control	Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.7 (0.2)	11.1 (0.3)	2.4 (0.3)	Yes
Before Paper Questionnaire Package	24.4 (0.3)	28.4 (0.3)	3.9 (0.5)	Yes
Before CATI	31.0 (0.3)	34.9 (0.4)	3.9 (0.5)	Yes

Mail

Point in Data Collection Cycle	Modified Control	Revised Design	Difference	($\alpha = 0.1$) Significant?
Before CATI	16.2 (0.3)	15.9 (0.3)	-0.3 (0.4)	No

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error across the 49 comparisons in Tables 3-9, we adjusted the raw p-values using the Hochberg procedure. Minor additive discrepancies in the rates are due to rounding.

Table 5 shows the results of two-tailed t-tests to evaluate the impact of changing from the *Modified Control* treatment to the *Softened Revised Design* treatment that makes the same changes as the *Revised Design* but also removes mandatory messages from the postcards and envelopes and softens it in the letters. For most of the self-response return rates examined, the *Softened Revised Design* treatment return rates were significantly lower than the *Modified Control* treatment return rates. The differences in the return rates *before the reminder letter* in the Internet mode and the Total Self-Response were not statistically significant.

Table 5: Self-Response Return Rate (in percent) Results by Mode at Selected Points in the Data Collection Cycle for all Mailable and Deliverable Sample Addresses: Softened Revised Design vs. Modified Control

Total Self-Response (Internet & Mail combined)

Point in Data Collection Cycle	Modified Control	Softened Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.8 (0.2)	8.5 (0.3)	-0.3 (0.3)	No
Before Paper Questionnaire Package	25.0 (0.3)	21.1 (0.3)	-3.8 (0.4)	Yes
Before CATI	47.2 (0.4)	39.4 (0.4)	-7.8 (0.5)	Yes

Internet

Point in Data Collection Cycle	Modified Control	Softened Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.7 (0.2)	8.3 (0.3)	-0.4 (0.3)	No
Before Paper Questionnaire Package	24.4 (0.3)	20.6 (0.3)	-3.9 (0.4)	Yes
Before CATI	31.0 (0.3)	26.4 (0.4)	-4.6 (0.5)	Yes

Mail

Point in Data Collection Cycle	Modified Control	Softened Revised Design	Difference	($\alpha = 0.1$) Significant?
Before CATI	16.2 (0.3)	13.1 (0.3)	-3.2 (0.4)	Yes

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error across the 49 comparisons in Tables 3-9, we adjusted the raw p-values using the Hochberg procedure (see Hochberg, 1988). Minor additive discrepancies in the rates are due to rounding.

Table 6 shows the results of two-tailed t-tests to evaluate the impact of changing from the *Modified Control* treatment to the *Minimal Revised Design*, which makes the same changes as the *Revised Design*, but also eliminates all of the mandatory messaging with the exception of a brief mention on the back of the letter in the Initial Mail Package. For all of the self-response return rates examined, the *Minimal Revised Design* treatment yielded significantly lower rates than the *Modified Control* treatment.

Table 6: Self-Response Return Rate (in percent) Results by Mode at Selected Points in the Data Collection Cycle for all Mailable and Deliverable Sample Addresses: Minimal Revised Design vs. Modified Control

Total Self-Response (Internet & Mail combined)

Point in Data Collection Cycle	Modified Control	Minimal Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.8 (0.2)	6.6 (0.2)	-2.2 (0.3)	Yes
Before Paper Questionnaire Package	25.0 (0.3)	17.5 (0.3)	-7.5 (0.4)	Yes
Before CATI	47.2 (0.4)	34.6 (0.4)	-12.7 (0.5)	Yes

Internet

Point in Data Collection Cycle	Modified Control	Minimal Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.7 (0.2)	6.6 (0.2)	-2.1 (0.3)	Yes
Before Paper Questionnaire Package	24.4 (0.3)	17.2 (0.3)	-7.3 (0.4)	Yes
Before CATI	31.0 (0.3)	22.8 (0.3)	-8.2 (0.5)	Yes

Mail

Point in Data Collection Cycle	Modified Control	Minimal Revised Design	Difference	($\alpha = 0.1$) Significant?
Before CATI	16.2 (0.3)	11.8 (0.2)	-4.4 (0.4)	Yes

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error across the 49 comparisons in Tables 3-9, we adjusted the raw p-values using the Hochberg procedure (see Hochberg, 1988). Minor additive discrepancies in the rates are due to rounding.

Table 7 shows the results of two-tailed t-tests to evaluate the difference in the self-response return rates between the *Softened Revised Design* treatment (with its softening of the mandatory messaging and use of new design features) and the *Softened Mandatory Messaging* treatment (that uses the traditional production materials, but also softens the mandatory messaging). For all except one of the self-response rates examined (i.e., mail, *before* CATI), the *Softened Revised Design* treatment rates were significantly higher than the *Softened Mandatory Messaging* treatment rates. The difference of 0.8 percentage points between rates in the Mail data collection prior to the CATI operation was not statistically significant.

Table 7: Self-Response Return Rate (in percent) Results by Mode at Selected Points in the Data Collection Cycle for all Mailable and Deliverable Sample Addresses: Softened Revised Design vs. Softened Mandatory Messaging

Total Self-Response (Internet & Mail combined)

Point in Data Collection Cycle	Softened Revised Design	Softened Mandatory Messaging	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.5 (0.3)	4.9 (0.2)	-3.6 (0.3)	Yes
Before Paper Questionnaire Package	21.1 (0.3)	16.6 (0.2)	-4.5 (0.4)	Yes
Before CATI	39.4 (0.4)	33.7 (0.3)	-5.7 (0.5)	Yes

Internet

Point in Data Collection Cycle	Softened Revised Design	Softened Mandatory Messaging	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.3 (0.3)	4.8 (0.2)	-3.5 (0.3)	Yes
Before Paper Questionnaire Package	20.6 (0.3)	16.3 (0.3)	-4.2 (0.4)	Yes
Before CATI	26.4 (0.4)	21.5 (0.3)	-4.9 (0.5)	Yes

Mail

Point in Data Collection Cycle	Softened Revised Design	Softened Mandatory Messaging	Difference	($\alpha = 0.1$) Significant?
Before CATI	13.1 (0.3)	12.2 (0.3)	-0.8 (0.4)	No

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error across the 49 comparisons in Tables 3-9, we adjusted the raw p-values using the Hochberg procedure (see Hochberg, 1988). Minor additive discrepancies in the rates are due to rounding.

Table 8 shows the results of two-tailed t-tests to evaluate the difference in the self-response return rates between the *Softened Revised Design* treatment and the *Revised Design* treatment, which maintains the strong mandatory messaging. For all of the self-response rates examined, the *Softened Revised Design* treatment rates were significantly lower than the *Revised Design* treatment rates.

Table 8: Self-Response Return Rate (in percent) Results by Mode at Selected Points in the Data Collection Cycle for all Mailable and Deliverable Sample Addresses: Softened Revised Design vs. Revised Design

Total Self-Response (Internet & Mail combined)

Point in Data Collection Cycle	Softened Revised Design	Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.5 (0.3)	11.3 (0.3)	2.8 (0.4)	Yes
Before Paper Questionnaire Package	21.1 (0.3)	29.2 (0.3)	8.0 (0.5)	Yes
Before CATI	39.4 (0.4)	50.8 (0.4)	11.3 (0.6)	Yes

Internet

Point in Data Collection Cycle	Softened Revised Design	Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.3 (0.3)	11.1 (0.3)	2.8 (0.4)	Yes
Before Paper Questionnaire Package	20.6 (0.3)	28.4 (0.3)	7.8 (0.5)	Yes
Before CATI	26.4 (0.4)	34.9 (0.4)	8.5 (0.6)	Yes

Mail

Point in Data Collection Cycle	Softened Revised Design	Revised Design	Difference	($\alpha = 0.1$) Significant?
Before CATI	13.1 (0.3)	15.9 (0.3)	2.8 (0.3)	Yes

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error across the 49 comparisons in Tables 3-9, we adjusted the raw p-values using the Hochberg procedure (see Hochberg, 1988). Minor additive discrepancies in the rates are due to rounding.

Table 9 shows the results of two-tailed t-tests to evaluate the difference in the self-response return rates between the *Softened Revised Design* treatment and the *Minimal Revised Design* treatment, which eliminated all mandatory messaging with the exception of one mention on the back of the letter in the *Initial Mail Package*. For all of the self-response rates examined, the *Softened Revised Design* treatment rates were significantly higher than the *Minimal Revised Design* treatment rates.

Table 9: Self-Response Return Rate (in percent) Results by Mode at Selected Points in the Data Collection Cycle for all Mailable and Deliverable Sample Addresses: Softened Revised Design vs. Minimal Revised Design

Total Self-Response (Internet & Mail combined)

Point in Data Collection Cycle	Softened Revised Design	Minimal Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.5 (0.3)	6.6 (0.2)	-1.8 (0.3)	Yes
Before Paper Questionnaire Package	21.1 (0.3)	17.5 (0.3)	-3.6 (0.4)	Yes
Before CATI	39.4 (0.4)	34.6 (0.4)	-4.8 (0.5)	Yes

Internet

Point in Data Collection Cycle	Softened Revised Design	Minimal Revised Design	Difference	($\alpha = 0.1$) Significant?
Before Reminder Letter	8.3 (0.3)	6.6 (0.2)	-1.8 (0.3)	Yes
Before Paper Questionnaire Package	20.6 (0.3)	17.2 (0.3)	-3.4 (0.4)	Yes
Before CATI	26.4 (0.4)	22.8 (0.3)	-3.6 (0.5)	Yes

Mail

Point in Data Collection Cycle	Softened Revised Design	Minimal Revised Design	Difference	($\alpha = 0.1$) Significant?
Before CATI	13.1 (0.3)	11.8 (0.2)	-1.3 (0.4)	Yes

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error across the 49 comparisons in Tables 3-9, we adjusted the raw p-values using the Hochberg procedure (see Hochberg, 1988). Minor additive discrepancies in the rates are due to rounding.

4.1.2 Final Response Rates

Table 10 provides the results of four two-tailed hypothesis tests of differences between the *final response rates* of the four experimental treatments (i.e., *Revised Design*, *Softened Mandatory Messaging*, *Softened Revised Design*, and *Minimal Revised Design*) and the *Modified Control* treatment per response mode: overall, Internet, mail, CATI, and CAPI.

With respect to *overall* final response rates (i.e., across all modes), the *Softened Mandatory Messaging* treatment was the only experimental treatment whose final response rate differed significantly from that of the *Modified Control* treatment (1.7 percent lower).

With respect to the proportion of the final response rate attributed to *Internet* response, the rates of all four experimental treatments differed significantly from that of the *Modified Control* treatment. However, the three experimental treatments that softened the mandatory messaging had significantly lower rates. This same result was true with respect to the proportion of the final response rate attributed to *mail* response. However, there was no significant difference between the rates for the *Revised Design* and *Modified Control* treatments.

Because the proportion of the final response rate attributed to self-response for the *Revised Design* treatment was higher than that of the other three experimental treatments, its proportion of the final response attributed to CATI and CAPI were significantly lower compared to the *Modified Control* treatment.

Table 10: Comparison of the Final Response Rates (in percent): Experimental Treatments vs. Modified Control Treatment: Overall Response and Portion of Overall Response from given Mode ($\alpha = 0.1$)

Treatment	Response Mode	Final Response Rate	Experimental minus Modified Control
Strong Mandatory Message			
▪ Modified Control		95.4 (0.3)	----
▪ Revised Design		96.0 (0.3)	0.6 (0.4)
Softened Mandatory Message	**Overall**		
▪ Softened Mandatory Messaging		**93.8 (0.3)**	**- 1.7 (0.4)**
▪ Softened Revised Design		95.1 (0.3)	- 0.3 (0.4)
▪ Minimal Revised Design		94.7 (0.3)	- 0.8 (0.4)
Strong Mandatory Message			
▪ Modified Control		31.2 (0.4)	----
▪ Revised Design		**35.0 (0.4)**	**3.8 (0.5)**
Softened Mandatory Message	**Internet**		
▪ Softened Mandatory Messaging		**23.3 (0.4)**	**- 7.9 (0.6)**
▪ Softened Revised Design		**28.0 (0.5)**	**- 3.2 (0.6)**
▪ Minimal Revised Design		**25.1 (0.4)**	**- 6.1 (0.6)**
Strong Mandatory Message			
▪ Modified Control		20.2 (0.3)	----
▪ Revised Design		19.7 (0.3)	- 0.4 (0.5)
Softened Mandatory Message	**Mail**		
▪ Softened Mandatory Messaging		**16.2 (0.3)**	**- 4.0 (0.4)**
▪ Softened Revised Design		**16.7 (0.3)**	**- 3.5 (0.4)**
▪ Minimal Revised Design		**15.0 (0.3)**	**- 4.7 (0.5)**
Strong Mandatory Message			
▪ Modified Control		2.7 (0.1)	----
▪ Revised Design		**2.4 (0.1)**	**- 0.3 (0.2)**
Softened Mandatory Message	**CATI**		
▪ Softened Mandatory Messaging		**4.0 (0.2)**	**1.6 (0.4)**
▪ Softened Revised Design		**3.2 (0.2)**	**0.4 (0.2)**
▪ Minimal Revised Design		**3.6 (0.1)**	**0.9 (0.2)**
Strong Mandatory Message			
▪ Modified Control		41.3 (0.5)	----
▪ Revised Design		**38.9 (0.5)**	**- 2.4 (0.8)**
Softened Mandatory Message	**CAPI**		
▪ Softened Mandatory Messaging		**50.3 (0.5)**	**9.0 (0.8)**
▪ Softened Revised Design		**47.2 (0.6)**	**5.9 (0.8)**
▪ Minimal Revised Design		**50.5 (0.6)**	**9.2 (0.8)**

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate. To control the Type I error for the four comparisons within each mode, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). Minor additive discrepancies in the rates are due to rounding.

4.1.3 Impact of Treatment on Response in High versus Low Response Areas

Table 11 provides the self-response portion (Internet and mail combined) of the final response as well as the final response rate (across all modes) by area type – low response areas versus high response areas, for each treatment. Does treatment affect the differential response rate (DRR) between the high and low response areas?

To answer this questions, we first obtained a DRR for each experimental by subtracting the rate for the low response areas from the rate for the high response areas. We then compared the resulting DRR for each experimental treatment to the DRR for the *Modified Control* treatment, via a two-tailed t-test at the 0.1 level of significance. We controlled the Type I error for these multiple comparisons using the Hochberg procedure. The results are shown in the column labeled, "difference." A discussion of the results follows Table 10.

For the "self-response portion" of Table 11 below, the differential response rates for the *Revised Design* and the *Softened Mandatory Messaging* treatments are significantly different from that of the *Modified Control* treatment. For the *Revised Design* treatment, the positive difference was mainly due to the increased response in the high response areas. For the *Softened Mandatory Messaging* treatment, the difference was negative because the high response areas decreased more than the low response areas. At the conclusion of all data collection operations, we see from the "overall final response" section of Table 11, the subsequent follow-up operations, CATI and CAPI were able to close these differences.

Table 11: Differential Response (in percent) Between the High and Low Response Areas: Comparison to Modified Control ($\alpha = 0.1$)

Self-Response Portion of Final Response	**Modified Control**	**Revised Design**	**Softened Mandatory Messaging**	**Softened Revised Design**	**Minimal Revised Design**
High Response Areas	56.7 (0.5)	60.8 (0.6)	44.0 (0.6)	50.0 (0.6)	45.2 (0.5)
Low Response Areas	36.1 (0.9)	37.3 (0.8)	26.0 (0.7)	29.6 (0.8)	26.8 (0.8)
Differential Response Rate (DRR)	20.7 (1.0)	23.6 (1.0)	18.1 (0.9)	20.4 (0.8)	18.4 (0.9)
DRR Difference	-	**2.9 (1.3)**	**-2.6 (1.1)**	-0.3 (1.4)	-2.2 (1.4)
Overall Final Response	**Modified Control**	**Revised Design**	**Softened Mandatory Messaging**	**Softened Revised Design**	**Minimal Revised Design**
High Response Areas	95.9 (0.3)	96.6 (0.3)	94.4 (0.3)	95.7 (0.3)	95.2 (0.4)
Low Response Areas	94.2 (0.5)	94.4 (0.5)	92.0 (0.6)	93.4 (0.6)	93.0 (0.6)
Differential Response Rate (DRR)	1.7 (0.6)	2.2 (0.6)	2.3 (0.7)	2.3 (0.6)	2.2 (0.7)
DRR Difference	-	0.5 (0.8)	0.7 (0.9)	0.6 (0.9)	0.6 (1.0)

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Note: Standard errors are shown in parentheses. Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate. To control the Type I error for the four DRR comparisons within each section of the table, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). Minor additive discrepancies in the rates are due to rounding.

4.1.4 Impact of Treatment on Response in Hard-to-Count Populations

Tables 12 through 14 present a comparison of the self-response distribution for each of the six demographic variables shown in each of the four experimental treatments to the corresponding distribution in the *Modified Control* treatment. By comparing these response distributions, we obtain insight into how a given experimental treatment affects the distribution of the responses for each of these demographic variables that are correlated with the "hard-to-count" populations (see Section 2.4.1.5). We compared the response distributions using a Rao-Scott adjusted chi-squared test at the 0.1 level of significance. To control the overall Type I error for the four multiple comparison per demographic variable, we adjusted the raw p-values using the Hochberg procedure.

Of the six response distributions examined in Table 12 (the Internet portion of final response,) *building type* and *tenure* have experimental treatments whose response distribution differs from that of the *Modified Control* treatment. For *building type,* the response distribution of all four experimental treatments differs significantly from the *Modified Control*. For *tenure,* the response distributions of the three experimental treatments that softened the mandatory language to varying degrees, differ significantly.

Of the six response distributions examined in Table 13 (the mail portion of final response), three different variables, *age*, *race*, and *educational attainment* have experimental treatments whose response distribution differs from that of the *Modified Control* treatment. For *age,* both the *Softened Mandatory Messaging* and the *Minimal Revised Design* treatments have response distributions that differ significantly. For *race* and *educational attainment*, the only experimental treatment whose response distribution differs from that of the *Modified Control* treatment is the *Revised Design*.

In examining the six response distributions for the total self-response portion of final response (Internet and mail combined) in Table 14, only two demographic variables show significant results. The *age* variable for the same experimental treatments observed in Table 13 and the *tenure* variable for the same treatments (except one) observed in Table 12. To determine the source of the differences observed in Tables 12-14, we compared the family of subcategory responses for the demographic variables with significant results in the experimental treatment to the corresponding family of subcategory responses in the control treatment, via a two-tailed t-test at the 0.1 level of significance. To control the Type I error for the four sets of simultaneous comparisons per demographic variable, we adjusted the resulting p-values using the Hochberg procedure.

For the *age* variable in Table 14, differences between the rates for the subcategory response variable, "65 years old or older" appears to be the source of difference for both treatments with significant results. These results are reflective of the results in Table 13 where we performed the same type of analysis. For the *tenure* variable in Table 14, the subcategory response variable, "Owned with a mortgage" and "Rented" appear to be the source of the difference for the

Softened Mandatory Messaging treatment. For the *Softened Revised Design* treatment, one subcategory appears to be the source of the difference, "Rented without payment of rent."

We use the term "appear(s) to be," in analyzing these subcategory responses because significant differences in the rates are not necessarily due to a significant increase or decrease in response. Because the rates for the subcategories for a given demographic variable derive from the same base, a shift in the number of responses in one subcategory may significantly change response in another. For this reason, in Table 15, we also examine the percent change in the weighted count for each subcategory response in the experimental treatment from the corresponding weighted count in the *Modified Control* treatment.

For the *age* variable in Table 15, an examination of the percent difference in the "65 years old or older" subcategory response for the *Softened Mandatory Messaging* and the *Minimal Revised Design* treatments provides insight into the reasons for the differences observed in Table 14. The weighted counts for respondents 65 years of age or older did not change as much as the weighted counts for the other age groups. For the *tenure* variable, the subcategory response, "Owned with a mortgage" in the *Softened Mandatory Messaging* treatment experienced the smallest change in response of the four subcategories. This small change accounts for some of the results observed in Table 14.

For each of the six demographic variables in Table 15, we also calculated an overall percent change across all subcategories per variable. For the *age* variable, the largest percent change observed in terms of magnitude is 23.2 percent for the *Softened Mandatory Messaging* treatment. This result indicates that of the four response distributions examined for *age*, the response distribution in the *Softened Mandatory Messaging* treatment experienced the largest shift in response over all subcategories of *age*. A similar result is observed for the *tenure* variable.

Table 12: Comparison of Response Distributions (in percent) for the Internet Portion of Final Response: Experimental Treatments versus Modified Control Treatment ($\alpha = 0.1$)

Item	Modified Control	Revised Design	Softened Mandatory Messaging	Softened Revised Design	Minimal Revised Design
AGE (*p*-value)	-	0.32	0.32	0.13	0.15
Under 5 years old	5.3 (0.2)	6.0 (0.2)	6.1 (0.3)	5.8 (0.2)	5.6 (0.3)
5 to 17 years old	17.2 (0.4)	17.2 (0.3)	17.6 (0.4)	17.2 (0.4)	17.3 (0.4)
18 to 24 years old	7.6 (0.2)	7.1 (0.2)	6.8 (0.2)	6.7 (0.2)	6.6 (0.3)
25 to 44 years old	26.7 (0.5)	27.1 (0.5)	26.3 (0.4)	25.5 (0.4)	25.8 (0.4)
45 to 64 years old	29.6 (0.6)	29.4 (0.6)	29.6 (0.5)	30.5 (0.5)	29.9 (0.5)
65 years old or older	13.6 (0.4)	13.2 (0.4)	13.5 (0.4)	14.3 (0.4)	14.8 (0.4)
HISPANIC ORIGIN (*p*-value)	-	0.92	0.92	0.92	0.92
Hispanic or Latino	10.8 (0.4)	10.6 (0.4)	11.1 (0.6)	10.9 (0.5)	11.3 (0.6)
Not Hispanic or Latino	89.2 (0.4)	89.4 (0.4)	88.9 (0.6)	89.1 (0.5)	88.7 (0.6)
RACE (*p*-value)	-	0.58	0.58	0.58	0.58
White alone	79.4 (0.6)	79.7 (0.5)	80.7 (0.7)	81.1 (0.6)	79.9 (0.6)
Black or African American alone	6.1 (0.4)	6.3 (0.3)	5.5 (0.3)	5.5 (0.3)	5.6 (0.3)
Other race alone	11.7 (0.4)	10.9 (0.4)	10.8 (0.6)	10.7 (0.5)	11.3 (0.6)
Two or more races	2.8 (0.2)	3.1 (0.2)	3.0 (0.3)	2.7 (0.2)	3.1 (0.3)
EDUC. ATTAINMENT (*p*-value)	-	0.34	0.56	0.34	0.34
No schooling completed	2.8 (0.2)	3.0 (0.1)	2.8 (0.2)	3.2 (0.2)	3.0 (0.2)
Nursery to 11th grade	18.9 (0.4)	18.9 (0.3)	18.9 (0.5)	18.4 (0.5)	17.8 (0.5)
12th grade, no diploma	1.1 (0.1)	1.5 (0.1)	1.3 (0.1)	1.4 (0.1)	1.4 (0.1)
High school diploma	13.2 (0.3)	13.7 (0.3)	12.8 (0.4)	14.0 (0.4)	13.0 (0.4)
GED† or alternative credential	2.1 (0.1)	2.3 (0.1)	2.1 (0.1)	2.4 (0.2)	2.3 (0.2)
Some college, no degree	17.7 (0.4)	17.2 (0.4)	17.2 (0.4)	17.3 (0.4)	17.2 (0.4)
Associate's degree	7.4 (0.2)	7.6 (0.3)	7.4 (0.3)	7.2 (0.3)	7.6 (0.3)
Bachelor's degree	22.3 (0.5)	21.1 (0.4)	21.9 (0.6)	21.4 (0.5)	22.0 (0.6)
Advanced degree	14.4 (0.3)	14.7 (0.4)	15.7 (0.4)	14.6 (0.4)	15.7 (0.4)
BUILDING TYPE (*p*-value)	-	**0.06**	**0.06**	**0.03**	**0.06**
One-family, detached	68.5 (0.6)	69.7 (0.6)	**71.1 (0.8)**	**71.8 (0.7)**	70.9 (0.8)
One-family, attached	7.0 (0.3)	6.9 (0.3)	7.0 (0.4)	6.7 (0.4)	7.3 (0.4)
2 apartments	2.3 (0.2)	2.3 (0.2)	2.2 (0.2)	2.1 (0.2)	2.5 (0.2)
3 or 4 apartments	3.9 (0.3)	3.0 (0.3)	**2.9 (0.3)**	**2.8 (0.2)**	3.4 (0.3)
5 to 9 apartments	3.8 (0.2)	3.9 (0.2)	3.0 (0.3)	3.6 (0.3)	**2.9 (0.3)**
10 to 19 apartments	3.3 (0.2)	3.3 (0.2)	3.6 (0.3)	3.4 (0.3)	3.0 (0.3)
20 to 49 apartments	3.1 (0.3)	2.5 (0.2)	2.8 (0.2)	**2.2 (0.2)**	2.6 (0.2)
50 or more apartments	5.0 (0.4)	4.7 (0.3)	4.3 (0.4)	4.5 (0.3)	4.3 (0.3)
Other (boat, van, etc.)	3.1 (0.3)	3.8 (0.3)	3.2 (0.3)	3.0 (0.2)	3.1 (0.3)
TENURE (*p*-value)	-	0.25	**<0.01**	**<0.01**	**0.02**
Owned with a mortgage	53.5 (0.8)	54.8 (0.6)	**57.1 (0.7)**	54.9 (0.7)	**56.3 (0.7)**
Owned free and clear	19.6 (0.5)	19.8 (0.5)	20.2 (0.6)	**21.4 (0.5)**	19.9 (0.6)
Rented	25.5 (0.7)	23.9 (0.6)	**21.5 (0.7)**	**22.7 (0.6)**	**22.4 (0.7)**
Occupied without payment of rent	1.4 (0.2)	1.5 (0.1)	1.2 (0.2)	1.0 (0.1)	1.4 (0.2)

†General Educational Development

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Note: Standard errors are shown in parentheses. To control the Type I error for the four comparisons within each characteristic, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate. Minor additive discrepancies in the rates are due to rounding.

Table 13: Comparison of Response Distributions (in percent) for the Mail Portion of Final Response: Experimental Treatments versus Modified Control Treatment (α = 0.1)

Item	Modified Control	Revised Design	Softened Mandatory Messaging	Softened Revised Design	Minimal Revised Design
AGE (*p*-value)	-	0.38	**<0.01**	0.38	**<0.01**
Under 5 years old	3.7 (0.3)	3.5 (0.2)	3.0 (0.2)	3.5 (0.3)	3.1 (0.2)
5 to 17 years old	11.7 (0.5)	12.0 (0.5)	10.4 (0.5)	11.3 (0.5)	11.2 (0.6)
18 to 24 years old	5.4 (0.3)	6.3 (0.3)	5.3 (0.4)	5.4 (0.4)	5.2 (0.3)
25 to 44 years old	16.3 (0.5)	16.8 (0.4)	**14.2 (0.5)**	15.1 (0.6)	15.0 (0.5)
45 to 64 years old	32.4 (0.7)	31.2 (0.6)	30.9 (0.7)	31.8 (0.6)	30.3 (0.7)
65 years old or older	30.5 (0.8)	30.3 (0.7)	**36.2 (1.0)**	32.8 (0.8)	**35.3 (0.9)**
HISPANIC ORIGIN (*p*-value)	-	0.71	0.71	0.71	0.71
Hispanic or Latino	10.2 (0.5)	11.3 (0.7)	9.3 (0.8)	9.9 (0.7)	9.5 (0.7)
Not Hispanic or Latino	89.8 (0.5)	88.7 (0.7)	90.7 (0.8)	90.1 (0.7)	90.5 (0.7)
RACE (*p*-value)	-	**0.06**	0.86	0.86	0.86
White alone	82.6 (0.7)	**79.1 (0.8)**	82.4 (0.8)	81.4 (0.8)	81.8 (0.8)
Black or African American alone	8.2 (0.6)	9.9 (0.6)	7.8 (0.5)	8.2 (0.6)	8.3 (0.6)
Other race alone	6.0 (0.5)	6.9 (0.5)	6.3 (0.6)	6.9 (0.5)	5.9 (0.5)
Two or more races	3.2 (0.3)	4.1 (0.4)	3.4 (0.4)	3.4 (0.3)	4.0 (0.4)
EDUC. ATTAINMENT (*p*-value)	-	**0.07**	0.39	0.39	0.39
No schooling completed	4.1 (0.3)	3.5 (0.3)	3.3 (0.3)	3.5 (0.3)	3.3 (0.2)
Nursery to 11th grade	13.8 (0.5)	14.5 (0.6)	12.5 (0.6)	13.4 (0.5)	13.0 (0.7)
12th grade, no diploma	2.5 (0.2)	2.6 (0.2)	2.5 (0.3)	3.1 (0.3)	2.3 (0.2)
High school diploma	24.1 (0.6)	**26.5 (0.6)**	24.5 (0.7)	24.3 (0.6)	24.9 (0.6)
GED† or alternative credential	4.2 (0.3)	4.9 (0.3)	4.1 (0.3)	4.8 (0.3)	3.9 (0.3)
Some college, no degree	20.1 (0.5)	19.9 (0.5)	20.4 (0.6)	20.5 (0.6)	19.4 (0.6)
Associate's degree	7.5 (0.3)	6.9 (0.4)	7.3 (0.3)	6.9 (0.4)	7.5 (0.4)
Bachelor's degree	14.9 (0.5)	13.3 (0.4)	15.6 (0.6)	14.4 (0.7)	16.1 (0.6)
Advanced degree	8.8 (0.4)	7.9 (0.5)	9.9 (0.5)	9.1 (0.5)	9.5 (0.5)
BUILDING TYPE (*p*-value)	-	0.44	0.50	0.50	0.13
One-family, detached	69.8 (0.7)	67.0 (0.7)	68.9 (0.9)	68.4 (1.0)	68.7 (0.8)
One-family, attached	5.7 (0.5)	6.5 (0.4)	5.6 (0.5)	5.7 (0.4)	6.6 (0.5)
2 apartments	2.4 (0.3)	2.7 (0.3)	2.2 (0.3)	2.7 (0.3)	2.4 (0.3)
3 or 4 apartments	2.8 (0.3)	2.6 (0.2)	3.7 (0.4)	2.7 (0.3)	3.8 (0.4)
5 to 9 apartments	2.4 (0.3)	3.4 (0.4)	2.9 (0.3)	2.6 (0.3)	2.5 (0.3)
10 to 19 apartments	2.1 (0.3)	2.4 (0.3)	2.0 (0.2)	2.3 (0.3)	2.0 (0.3)
20 to 49 apartments	2.3 (0.3)	2.9 (0.3)	2.8 (0.3)	3.2 (0.3)	2.7 (0.3)
50 or more apartments	4.9 (0.4)	5.0 (0.4)	4.6 (0.4)	5.7 (0.5)	5.6 (0.5)
Other (boat, van, etc.)	7.5 (0.4)	7.4 (0.4)	7.2 (0.5)	6.7 (0.5)	5.7 (0.4)
TENURE (*p*-value)	-	0.30	0.36	0.36	0.41
Owned with a mortgage	41.8 (0.9)	39.1 (1.0)	43.4 (1.0)	40.6 (0.9)	40.0 (0.9)
Owned free and clear	34.2 (0.8)	34.4 (0.8)	34.1 (0.9)	35.1 (0.8)	36.3 (1.1)
Rented	21.8 (0.7)	24.1 (0.8)	20.8 (0.8)	22.7 (0.8)	21.5 (0.8)
Occupied without payment of rent	2.3 (0.3)	2.3 (0.3)	1.7 (0.2)	1.6 (0.2)	2.2 (0.3)

†General Educational Development

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Note: Standard errors are shown in parentheses. To control the Type I error for the four comparisons within each characteristic, we adjusted the resulting p-values using the Hochberg procedure. Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate. Minor additive discrepancies in the rates are due to rounding.

Table 14: Comparison of Response Distributions (in percent) for the Self-Response Portion of Final Response: Experimental Treatments versus Modified Control Treatment ($\alpha = 0.1$)

Item	Modified Control	Revised Design	Softened Mandatory Messaging	Softened Revised Design	Minimal Revised Design
AGE (*p*-value)	-	0.11	**0.01**	0.11	**<0.01**
Under 5 years old	4.8 (0.2)	5.2 (0.2)	5.1 (0.2)	5.1 (0.2)	4.8 (0.2)
5 to 17 years old	15.3 (0.3)	15.6 (0.2)	15.1 (0.3)	15.3 (0.3)	15.4 (0.3)
18 to 24 years old	6.8 (0.2)	6.9 (0.2)	6.3 (0.2)	6.2 (0.2)	6.2 (0.2)
25 to 44 years old	23.2 (0.4)	23.9 (0.4)	22.2 (0.3)	22.3 (0.4)	22.3 (0.3)
45 to 64 years old	30.5 (0.4)	20.0 (0.5)	30.0 (0.4)	30.9 (0.4)	30.0 (0.4)
65 years old or older	19.4 (0.4)	18.4 (0.4)	**21.3 (0.4)**	20.1 (0.4)	**21.4 (0.4)**
HISPANIC ORIGIN (*p*-value)	-	0.96	0.96	0.96	0.96
Hispanic or Latino	10.6 (0.3)	10.8 (0.4)	10.5 (0.4)	10.6 (0.5)	10.7 (0.4)
Not Hispanic or Latino	89.4 (0.3)	89.2 (0.3)	89.5 (0.4)	89.4 (0.3)	89.3 (0.4)
RACE (*p*-value)	-	0.58	0.58	0.58	0.58
White alone	80.5 (0.5)	79.5 (0.4)	81.3 (0.5)	81.2 (0.5)	80.5 (0.5)
Black or African American alone	6.8 (0.3)	7.4 (0.3)	6.3 (0.3)	6.3 (0.3)	6.5 (0.3)
Other race alone	9.7 (0.3)	9.7 (0.3)	9.3 (0.4)	9.6 (0.4)	9.6 (0.4)
Two or more races	2.9 (0.2)	3.4 (0.2)	3.2 (0.2)	2.9 (0.2)	3.4 (0.2)
EDUC. ATTAINMENT (*p*-value)	-	0.31	0.31	0.31	0.31
No schooling completed	3.2 (0.2)	3.2 (0.1)	3.0 (0.2)	3.3 (0.2)	3.1 (0.2)
Nursery to 11th grade	17.2 (0.3)	17.6 (0.3)	16.7 (0.4)	18.8 (0.4)	16.2 (0.4)
12th grade, no diploma	1.6 (0.1)	1.8 (0.1)	1.7 (0.1)	2.0 (0.1)	1.7 (0.1)
High school diploma	16.9 (0.3)	17.6 (0.3)	16.9 (0.3)	17.2 (0.3)	17.0 (0.3)
GED† or alternative credential	2.8 (0.1)	3.1 (0.1)	2.8 (0.1)	3.2 (0.2)	2.8 (0.2)
Some college, no degree	18.5 (0.3)	18.0 (0.3)	18.3 (0.3)	18.3 (0.3)	18.0 (0.3)
Associate's degree	7.4 (0.2)	7.4 (0.2)	7.3 (0.2)	7.1 (0.2)	7.6 (0.2)
Bachelor's degree	19.8 (0.3)	18.8 (0.3)	19.7 (0.4)	19.2 (0.4)	20.0 (0.4)
Advanced degree	12.5 (0.3)	12.7 (0.3)	13.7 (0.3)	12.9 (0.3)	13.6 (0.3)
BUILDING TYPE (*p*-value)	-	0.47	0.68	0.36	0.36
One-family, detached	69.0 (0.5)	68.8 (0.5)	70.2 (0.6)	70.6 (0.5)	70.1 (0.5)
One-family, attached	6.5 (0.3)	6.8 (0.2)	6.4 (0.3)	6.3 (0.3)	7.0 (0.3)
2 apartments	2.3 (0.2)	2.4 (0.1)	2.2 (0.1)	2.3 (0.2)	2.5 (0.2)
3 or 4 apartments	3.5 (0.2)	2.8 (0.2)	3.2 (0.2)	2.8 (0.2)	3.5 (0.2)
5 to 9 apartments	3.3 (0.2)	3.8 (0.2)	3.0 (0.2)	3.3 (0.2)	2.8 (0.2)
10 to 19 apartments	2.9 (0.2)	3.0 (0.2)	3.0 (0.2)	3.0 (0.2)	2.6 (0.2)
20 to 49 apartments	2.8 (0.2)	2.6 (0.2)	2.8 (0.2)	2.6 (0.2)	2.6 (0.2)
50 or more apartments	4.9 (0.3)	4.8 (0.2)	4.4 (0.3)	4.9 (0.3)	4.8 (0.2)
Other (boat, van, etc.)	4.8 (0.2)	5.0 (0.2)	4.8 (0.3)	4.3 (0.2)	4.0 (0.2)
TENURE (*p*-value)	-	0.92	**<0.01**	**0.01**	0.12
Owned with a mortgage	49.2 (0.6)	49.5 (0.6)	**51.8 (0.6)**	49.9 (0.6)	50.4 (0.5)
Owned free and clear	25.0 (0.5)	24.7 (0.5)	25.6 (0.5)	26.1 (0.4)	25.9 (0.5)
Rented	24.1 (0.5)	24.0 (0.4)	**21.3 (0.6)**	22.7 (0.5)	22.1 (0.5)
Occupied without payment of rent	1.7 (0.2)	1.8 (0.1)	1.4 (0.1)	**1.2 (0.1)**	1.7 (0.2)

†General Educational Development

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Note: Standard errors are shown in parentheses. To control the Type I error for the four comparisons within each characteristic, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate. Minor additive discrepancies in the rates are due to rounding.

Table 15: Percent Change in the Weighted Counts for the Subcategory Response Variables for the Self-Response Portion of Final Response: Experimental Treatments versus Modified Control

Item (weighted count for *Modified Control*)	**Revised Design**	**Softened Mandatory Messaging**	**Softened Revised Design**	**Minimal Revised Design**
AGE (1,086,867)	6.2 (1.6)	-23.2 (1.3)	-14.8 (1.6)	-21.8 (1.5)
Under 5 years old (52,062)	16.0 (6.6)	-19.0 (4.8)	-9.5 (4.9)	-22.0 (4.5)
5 to 17 years old (166,376)	8.5 (3.1)	-24.0 (3.1)	-14.5 (3.0)	-21.6 (3.0)
18 to 24 years old (74,281)	6.5 (4.8)	-29.2 (3.4)	-21.3 (3.6)	-29.6 (3.6)
25 to 44 years old (251,990)	9.6 (2.9)	-26.6 (2.3)	-18.1 (2.5)	-24.9 (2.0)
45 to 64 years old (331,772)	4.3 (2.5)	-24.5 (2.0)	-13.8 (2.3)	-23.1 (2.2)
65 years old or older (210,386)	0.9 (3.2)	-15.4 (2.4)	-11.5 (2.5)	-13.5 (2.4)
HISPANIC ORIGIN (1,067,653)	6.0 (1.6)	-23.2 (1.3)	-14.9 (1.6)	-21.9 (1.4)
Hispanic or Latino (113,400)	7.2 (5.4)	-24.2 (4.2)	-15.1 (4.5)	-21.0 (4.3)
Not Hispanic or Latino (954,253)	5.6 (1.7)	-23.3 (1.5)	-14.8 (1.8)	-21.9 (1.5)
RACE (1,081,335)	6.0 (1.6)	-23.2 (1.3)	-14.9 (1.6)	-21.9 (1.4)
White alone (870,528)	4.7 (1.8)	-22.4 (1.4)	-14.2 (1.8)	-21.9 (1.5)
Black or African American alone (73,876)	14.4 (6.6)	-29.6 (4.8)	-21.5 (5.6)	-25.9 (5.2)
Other race alone (105,265)	5.8 (5.6)	-26.7 (4.6)	-16.5 (4.2)	-23.0 (4.2)
Two or more races (31,667)	23.3 (10.0)	-17.3 (7.9)	-14.6 (7.2)	-9.0 (6.5)
EDUC. ATTAINMENT (958,237)	5.2 (1.7)	-25.3 (1.4)	-17.2 (1.6)	-24.6 (1.5)
No schooling completed (30,837)	3.9 (6.7)	-30.8 (6.4)	-14.6 (6.2)	-27.4 (5.3)
Nursery to 11th grade (165,007)	7.3 (3.2)	-27.7 (2.8)	-19.1 (3.0)	-29.0 (2.9)
12th grade, no diploma (15,391)	18.4 (9.5)	-21.2 (6.9)	1.2 (8.8)	-19.3 (6.5)
High school diploma (162,019)	9.2 (3.2)	-25.5 (2.3)	-15.7 (2.7)	-24.1 (2.4)
GED† or alternative credential (26,967)	14.5 (7.2)	-26.7 (5.0)	-6.6 (7.3)	-24.4 (5.3)
Some college, no degree (177, 348)	2.3 (3.1)	-26.0 (2.1)	-18.0 (3.0)	-26.9 (2.3)
Associate's degree (71,259)	5.0 (4.5)	-26.4 (3.2)	-21.0 (4.2)	-23.3 (3.3)
Bachelor's degree (189,487)	-0.2 (3.0)	-25.6 (2.4)	-19.4 (2.5)	-23.7 (2.4)
Advanced degree (119,922)	6.3 (4.4)	-18.5 (2.8)	-14.8 (3.2)	-18.1 (2.7)
BUILDING TYPE (459,873)	4.2 (1.4)	-23.9 (1.2)	-16.1 (1.5)	-22.6 (1.2)
One-family, detached (317,311)	3.9 (1.7)	-22.5 (1.6)	-14.1 (1.7)	-21.4 (1.4)
One-family, attached (30,025)	8.1 (6.1)	-25.1 (4.5)	-18.4 (5.2)	-16.5 (5.4)
2 apartments (10,588)	9.9 (10.6)	-26.4 (7.9)	-16.3 (8.3)	-17.1 (8.1)
3 or 4 apartments (15,980)	-14.8 (7.9)	-30.3 (6.0)	-33.6 (4.9)	-21.4 (6.1)
5 to 9 apartments (15,127)	19.2 (8.6)	-31.2 (6.2)	-16.6 (7.2)	-34.8 (6.0)
10 to 19 apartments (13,176)	7.9 (9.4)	-20.9 (7.1)	-12.6 (7.8)	-29.1 (6.1)
20 to 49 apartments (12,858)	-2.0 (9.9)	-24.3 (7.3)	-22.7 (6.8)	-27.2 (6.0)
50 or more apartments (22,746)	0.8 (6.0)	-31.8 (4.9)	-16.9 (6.5)	-24.8 (5.8)
Other (boat, van, etc.) (22,062)	9.3 (7.9)	-24.5 (5.6)	-24.5 (4.8)	-34.7 (4.9)
TENURE (450,118)	4.4 (1.5)	-23.9 (1.2)	-16.1 (1.6)	-22.8 (1.2)
Owned with a mortgage (221,254)	5.2 (2.3)	-19.9 (2.0)	-14.7 (2.0)	-20.9 (2.0)
Owned free and clear (112,739)	3.0 (3.1)	-22.1 (2.4)	-12.4 (2.8)	-20.3 (2.7)
Rented (108,428)	4.0 (3.2)	-32.8 (2.4)	-20.9 (2.8)	-29.2 (2.4)
Occupied without payment of rent (7,697)	9.1 (13.1)	-39.8 (8.1)	-39.7 (6.7)	-24.4 (10.1)

†General Educational Development

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Note: Standard errors are shown in parentheses. The percent change = (e-c)*100 / c derives from weighted counts for the demographic variable and its subcategories for the experimental (e) and *Modified Control* (c) treatments.

Table 16 presents the same information as Table 14, but for the final responses, which encompass all four modes of data collection. In examining Table 16, we learn if differences observed in the response distributions of the self-response portion of final response (in Table 14) change as a result of the CATI and CAPI follow-up operations.

For *age*, two of the treatments still have significant results, but differ on one of the treatments. Now, the *Softened Revised Design* treatment has a significant result. For *tenure*, the differences observed in Table 14 are no longer significant. For the self-response portion of final response, we did not find any differences in the response distributions for *building type* and *educational attainment*. After the follow-up operations, there are now differences. For *building type*, the *Softened Mandatory Messaging* treatment now has a significant result. For *educational attainment*, there is one significant result for the *Minimal Revised Design* treatment.

A comparison of the subcategories (experimental versus control) for the variables whose response distribution has a significant result provides some insight into the reason for the differences. For example, for *building type* in the *Softened Mandatory Messaging* treatment, the subcategory "50 or more apartments" appears to be the source. An inspection of this same subcategory in Table 17, where we find the percent difference between the weighted counts of the experimental and control for this same subcategory reveals a 23.6 percent decrease for the experimental treatment.

For *educational attainment*, the source appears to be the "Associate's degree" subcategory. For *age*, we look to the "5 to 17 years old" subcategory for the *Softened Revised Design* treatment and the "5 to 17 years old" and "45 to 64 years old" subcategories for the *Minimal Revised Design* treatment. The percent differences in Table 17 reinforce these results.

Table 16: Comparison of Response Distributions (in percent) for Final Response: Experimental Treatments versus Modified Control Treatment (α = 0.1)

Item	Modified Control	Revised Design	Softened Mandatory Messaging	Softened Revised Design	Minimal Revised Design
AGE (*p*-value)	-	0.16	0.16	**0.04**	**<0.01**
Under 5 years old	5.8 (0.2)	6.0 (0.2)	5.8 (0.2)	6.0 (0.2)	5.7 (0.2)
5 to 17 years old	16.6 (0.3)	17.5 (0.3)	17.6 (0.3)	**18.1 (0.3)**	**18.2 (0.4)**
18 to 24 years old	8.0 (0.2)	8.3 (0.3)	8.1 (0.2)	8.0 (0.2)	8.3 (0.2)
25 to 44 years old	25.6 (0.4)	25.7 (0.3)	25.2 (0.3)	25.3 (0.3)	25.2 (0.4)
45 to 64 years old	28.2 (0.3)	27.1 (0.4)	27.1 (0.4)	27.2 (0.4)	**26.3 (0.4)**
65 years old or older	15.9 (0.3)	15.5 (0.3)	16.2(0.3)	15.4 (0.3)	16.3 (0.3)
HISPANIC ORIGIN (*p*-value)	-	0.63	0.63	0.63	0.70
Hispanic or Latino (yes)	16.8 (0.5)	17.5 (0.6)	16.0 (0.5)	17.5 (0.6)	17.0 (0.5)
Not Hispanic or Latino (no)	83.2 (0.5)	82.5 (0.6)	84.0 (0.5)	82.5 (0.6)	83.0 (0.5)
RACE (*p*-value)	-	0.95	0.95	0.95	0.95
White alone	74.2 (0.6)	73.4 (0.5)	74.8 (0.6)	74.2 (0.5)	72.9 (0.7)
Black or African American alone	11.1 (0.4)	11.2 (0.4)	10.9 (0.4)	11.0 (0.4)	11.5 (0.5)
Other race alone	11.8 (0.3)	12.3 (0.4)	11.5 (0.4)	12.0 (0.5)	12.4 (0.5)
Two or more races	2.9 (0.2)	3.2 (0.2)	2.8 (0.2)	2.8 (0.2)	3.2 (0.2)
EDUC. ATTAINMENT (*p*-value)	-	0.28	0.28	0.13	**0.02**
No schooling completed	3.5 (0.1)	3.6 (0.1)	3.5 (0.1)	3.6 (0.1)	3.8 (0.2)
Nursery to 11th grade	23.3 (0.4)	23.7 (0.4)	23.9 (0.4)	24.5 (0.4)	24.5 (0.4)
12th grade, no diploma	1.4 (0.1)	1.5 (0.1)	1.2 (0.1)	1.5 (0.1)	1.1 (0.1)
High school diploma	18.8 (0.4)	18.9 (0.3)	19.1 (0.3)	18.7 (0.3)	18.9 (0.3)
GED† or alternative credential	2.7 (0.1)	3.0 (0.1)	2.6 (0.1)	2.8 (0.1)	2.5 (0.1)
Some college, no degree	18.2 (0.3)	18.2 (0.3)	18.4(0.3)	18.3 (0.3)	18.7 (0.3)
Associate's degree	7.3 (0.2)	6.6 (0.2)	6.5 (0.2)	6.6 (0.2)	**6.6 (0.2)**
Bachelor's degree	15.7 (0.3)	15.3 (0.3)	15.6 (0.4)	15.1 (0.3)	15.0 (0.3)
Advanced degree	9.2 (0.2)	9.3 (0.3)	9.2 (0.2)	8.9 (0.2)	8.8 (0.2)
BUILDING TYPE (*p*-value)	-	0.60	**0.09**	0.81	0.81
One-family, detached	62.0 (0.5)	62.7 (0.5)	63.0 (0.5)	62.0 (0.5)	62.9 (0.5)
One-family, attached	5.6 (0.2)	6.0 (0.2)	5.6 (0.2)	5.6 (0.3)	5.7 (0.2)
2 apartments	3.5 (0.2)	3.8 (0.2)	3.4 (0.2)	3.6 (0.2)	3.7 (0.2)
3 or 4 apartments	4.7 (0.2)	4.1 (0.2)	4.5 (0.2)	4.4 (0.2)	4.3 (0.2)
5 to 9 apartments	4.8 (0.3)	4.5 (0.2)	4.7 (0.2)	4.6 (0.3)	4.7 (0.3)
10 to 19 apartments	4.2 (0.2)	4.4 (0.2)	4.5 (0.2)	4.5 (0.2)	4.4 (0.2)
20 to 49 apartments	3.3 (0.2)	3.2 (0.2)	3.1 (0.2)	3.3 (0.2)	3.2 (0.2)
50 or more apartments	5.3 (0.2)	4.7 (0.2)	**4.2 (0.2)**	5.0 (0.2)	4.7 (0.2)
Other (boat, van, etc.)	6.5 (0.3)	6.6 (0.3)	7.0 (0.3)	7.0 (0.3)	6.5 (0.3)
TENURE (*p*-value)	-	0.77	0.77	0.77	0.77
Owned with a mortgage	41.5 (0.6)	42.6 (0.6)	42.7 (0.6)	41.9 (0.6)	41.5 (0.5)
Owned free and clear	22.6 (0.4)	22.0 (0.4)	22.2 (0.4)	22.3 (0.4)	21.9 (0.4)
Rented	33.9 (0.6)	33.3 (0.5)	33.1 (0.5)	34.1 (0.6)	34.6 (0.6)
Occupied without payment of rent	2.0 (0.2)	2.1 (0.2)	2.1 (0.2)	1.7 (0.1)	2.0 (0.2)

†General Educational Development

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Note: Standard errors are shown in parentheses. To control the Type I error for the four comparisons within each characteristic, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate. Minor additive discrepancies are due to rounding. Standard errors with a displayed value of zero (rounded) have values that are greater than zero.

Table 17: Percent Change in the Weighted Counts for the Subcategory Response Variables of Final Response: Experimental Treatments versus Modified Control

Item (weighted count for *Modified Control*)	**Revised Design**	**Softened Mandatory Messaging**	**Softened Revised Design**	**Minimal Revised Design**
AGE (1,834,241)	2.9 (1.7)	-1.0 (1.8)	0.3 (1.8)	-0.1 (1.9)
Under 5 years old (105,567)	6.6 (4.9)	0.6 (4.6)	5.1 (5.2)	-0.7 (5.3)
5 to 17 years old (303,899)	8.4 (4.2)	5.4 (4.1)	9.4 (3.9)	9.5 (3.8)
18 to 24 years old (147,102)	6.2 (5.2)	0.2 (4.7)	0.1 (4.9)	2.9 (5.2)
25 to 44 years old (468,685)	3.5 (2.8)	-2.5 (2.7)	-0.7 (2.5)	-1.4 (2.4)
45 to 64 years old (516,633)	-1.2 (2.0)	-4.7 (2.1)	-3.3 (2.3)	-6.6 (2.6)
65 years old or older (292,355)	0.2 (2.9)	0.4 (2.9)	-2.9 (2.8)	2.0 (3.0)
HISPANIC ORIGIN (1,821,274)	2.9 (1.7)	-1.0 (1.8)	0.3 (1.8)	-0.1 (1.9)
Hispanic or Latino (305,397)	6.7 (5.0)	-5.5 (4.5)	4.3 (4.6)	1.3 (4.3)
Not Hispanic or Latino (1,515,877)	1.6 (1.7)	0.2 (2.0)	-0.8 (1.9)	-0.4 (2.0)
RACE (1,833,684)	2.6 (1.7)	-1.0 (1.8)	-0.1 (1.8)	-0.3 (1.9)
White alone (1,361,113)	1.4 (1.8)	-0.3 (2.1)	-0.1(1.9)	-2.1(2.1)
Black or African American alone (203,881)	3.0 (5.2)	-2.8 (5.7)	-1.6(5.2)	2.9 (5.8)
Other race (216,412)	6.6 (4.8)	-3.2 (4.6)	2.0(5.3)	4.8 (5.2)
Two or more races (52,278)	14.8 (10.3)	-3.5 (8.7)	-2.7(9.0)	11.4 (9.5)
EDUC. ATTAINMENT (1,635,925)	2.0 (1.7)	-1.6 (1.9)	-1.5 (1.7)	-1.6 (1.8)
No schooling completed (56,918)	5.1 (5.7)	-0.4 (5.9)	2.2 (5.4)	6.8 (7.6)
Nursery to 11th grade (381,222)	3.9 (3.9)	1.1 (4.0)	3.8 (3.3)	3.6 (3.1)
12th grade, no diploma (22,163)	10.4 (8.8)	-13.2 (7.0)	7.5 (9.0)	-17.3 (6.1)
High school diploma (306,802)	2.6 (2.9)	0.2 (3.0)	-1.9 (2.5)	-0.6 (3.0)
GED† or alternative credential (43,728)	14.2 (7.2)	-4.9 (6.0)	4.0 (7.5)	-7.7 (6.7)
Some college, no degree (297,686)	1.9 (3.1)	-0.7 (3.0)	-0.7 (3.0)	1.1 (3.4)
Associate's degree (118,855)	-7.7 (3.8)	-11.7 (3.9)	-10.6 (4.0)	-10.9 (3.8)
Bachelor's degree (257,356)	-0.7 (3.0)	-2.5 (3.0)	-5.5 (3.1)	-6.3 (3.0)
Advanced degree (151,195)	3.1 (4.2)	-1.8 (3.6)	-5.6 (3.8)	-5.9 (3.1)
BUILDING TYPE (866,013)	-0.7 (1.3)	-2.5 (1.4)	-2.8 (1.4)	-2.2 (1.5)
One-family, detached (537,078)	0.4 (1.6)	-1.0 (1.8)	-2.8 (1.7)	-0.9 (1.8)
One-family, attached (48,140)	6.3 (5.8)	-2.3 (5.5)	-1.9 (6.6)	0.3 (6.2)
2 apartments (30,528)	6.2 (7.9)	-6.7 (6.3)	-0.4 (8.0)	1.3 (8.6)
3 or 4 apartments (40,830)	-13.8 (6.0)	-6.5 (6.6)	-10.0 (5.6)	-10.6 (6.0)
5 to 9 apartments (41,982)	-7.0 (6.8)	-5.6 (7.0)	-7.8 (7.2)	-4.2 (7.6)
10 to 19 apartments (36,417)	3.2 (8.7)	4.4 (7.3)	4.1 (8.3)	1.2 (8.2)
20 to 49 apartments (28,448)	-2.3 (8.8)	-6.7 (7.6)	-1.1 (8.3)	-4.1 (8.0)
50 or more apartments (46,063)	-12.4 (4.8)	-23.6 (4.9)	-8.0 (6.2)	-13.8 (5.8)
Other (boat, van, etc.) (56,527)	0.9 (6.1)	4.6 (6.7)	3.8 (6.2)	-3.4 (5.3)
TENURE (749,371)	0.1 (1.3)	-3.2 (1.5)	-3.0 (1.5)	-3.3 (1.6)
Owned with a mortgage (310,918)	2.8 (2.2)	-0.5 (2.5)	-1.9 (2.2)	-3.4 (2.3)
Owned free and clear (169,204)	-2.5 (2.5)	-5.0 (2.6)	-4.4 (2.7)	-6.1 (3.0)
Rented (254,341)	-1.7 (3.0)	-5.6 (3.0)	-2.5 (2.8)	-1.4 (3.0)
Occupied without payment of rent (14,908)	6.0 (13.0)	1.9 (12.1)	-18.3 (9.2)	-2.2 (12.5)

†General Educational Development

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Note: Standard errors are shown in parentheses. The percent change = (e-c)*100 / c derives from weighted counts for the demographic variable and its subcategories for the experimental (e) and *Modified Control* (c) treatments.

4.1.5 Impact of Treatment on Response by Size of Household

Table 18 presents a comparison of the weighted average household size for respondents in occupied addresses in the experimental treatments to those in the control treatment. For the "self-response" portion of final response, the only significant result observed is for the *Revised Design* whose weighted average household size is significantly larger than that of the *Modified Control* treatment.

At the conclusion of the CAPI operation, we see in the "final response" portion of the table that all treatments had higher weighted averages compared to the control. It appears as though the CATI and CAPI operations were able to obtain responses from larger households that did not respond during self-response phase of data collection due to the softened mandatory messages.

Table 18: Comparison of Average Household Size: Experimental Treatments vs. Modified Control Treatment (α = 0.1)

Self-Response Portion of Final Response		
Treatment	**Average Household Size**	**Experimental minus Modified Control**
Strong Mandatory Message		
▪ Modified Control	2.39 (0.01)	—
▪ Revised Design	**2.43 (0.02)**	**0.04 (0.02)**
Softened Mandatory Message		
▪ Softened Mandatory Messaging	2.40 (0.02)	0.01 (0.02)
▪ Softened Revised Design	2.40 (0.01)	0.02 (0.02)
▪ Minimal Revised Design	2.40 (0.02)	0.01 (0.02)
Final Response		
Treatment	**Average Household Size**	**Experimental minus Modified Control**
Strong Mandatory Message		
▪ Modified Control	2.44 (0.02)	—
▪ Revised Design	**2.50 (0.02)**	**0.07 (0.02)**
Softened Mandatory Message		
▪ Softened Mandatory Messaging	**2.49 (0.02)**	**0.05 (0.02)**
▪ Softened Revised Design	**2.50 (0.02)**	**0.07 (0.02)**
▪ Minimal Revised Design	**2.51 (0.02)**	**0.07 (0.02)**

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error for the four comparisons within each section of this table, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate.

4.1.6 Impact of Treatment on Self-Response in Limited English-Speaking Households

Table 19 presents a comparison (to the control) of the percentage of the response that came from *limited English-speaking households*. These are households in which all residents of age 14 years and over, speak a language other than English at home and report they speak English less than "very well." For the "self-response" portion of Table 19, no significant differences were found. For the final response portion, the rates increased for all treatments, including the control, as expected due to the CATI and CAPI operations. Only one treatment, the *Softened Mandatory Messaging* had significant results – in this case, significantly lower than the *Modified Control* (3.7 versus 4.4 percent).

Table 19: Comparison of Percentage of Limited English-Speaking Households: Experimental versus Modified Control Treatment (α = 0.1)

Self-Response Portion of Final Response		
Treatment	**Percent of Limited English-Speaking Households**	**Experimental minus Modified Control**
Strong Mandatory Message		
▪ Modified Control	2.2 (0.2)	—
▪ Revised Design	2.1 (0.1)	- 0.1 (0.2)
Softened Mandatory Message		
▪ Softened Mandatory Messaging	2.2 (0.2)	- 0.0 (0.2)
▪ Softened Revised Design	2.2 (0.2)	0.0 (0.2)
▪ Minimal Revised Design	2.1 (0.2)	- 0.1 (0.2)
Final Response		
Treatment	**Percent of Limited English-Speaking Households**	**Experimental minus Modified Control**
Strong Mandatory Message		
▪ Modified Control	4.4 (0.2)	—
▪ Revised Design	4.1 (0.2)	-0.3 (0.3)
Softened Mandatory Message		
▪ Softened Mandatory Messaging	**3.7 (0.2)**	**-0.6 (0.3)**
▪ Softened Revised Design	4.5 (0.3)	0.1 (0.3)
▪ Minimal Revised Design	4.4 (0.2)	0.1 (0.3)

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error for the four comparisons within each section of this table, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). Rates in boldface indicate a significant between that rate and the *Modified Control* rate.

4.1.7 Impact of Treatment on Number of Attempts to Complete an Interview

Table 20 presents a comparison of the average number of contact attempts needed to complete an interview in CATI and CAPI, respectively for each experimental treatment compared to the average in the *Modified Control* treatment. We calculated these averages using paradata from the CATI transaction files and CAPI Contact History Instrument. For both modes of data collection, none of the results was significant. Hence, none of the experimental treatments resulted in a change in the average number of attempts needed to complete an interview.

Table 20: Average Number of Attempts to Complete an Interview: Experimental Treatments versus Modified Control Treatment ($\alpha = 0.1$)

Treatment	Response Mode	Average Number of Attempts	Experimental minus Modified Control
Strong Mandatory Message			
▪ Modified Control		1.87 (0.04)	—
▪ Revised Design		1.93 (0.06)	0.06 (0.07)
Softened Mandatory Message	**CATI**		
▪ Softened Mandatory Messaging		1.90 (0.04)	0.03 (0.05)
▪ Softened Revised Design		1.90 (0.05)	0.03 (0.06)
▪ Minimal Revised Design		1.91 (0.04)	0.04 (0.06)
Strong Mandatory Message			
▪ Modified Control		2.62 (0.03)	—
▪ Revised Design		2.63 (0.03)	0.01 (0.04)
Softened Mandatory Message	**CAPI**		
▪ Softened Mandatory Messaging		2.65 (0.03)	0.03 (0.04)
▪ Softened Revised Design		2.56 (0.03)	- 0.05 (0.05)
▪ Minimal Revised Design		2.61 (0.03)	- 0.01 (0.05)

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: Standard errors are shown in parentheses. To control the Type I error for the four comparisons within each response mode, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). Rates in boldface indicate a significant difference between that rate and the *Modified Control* rate.

Table 21 expands upon Table 20 and compares the distribution of the contact attempts for each experimental treatment (by mode) to the distribution in the *Modified Control* treatment. For CATI, none of the results was significant. Coupled with the results in Table 20, we can conclude that none of the experimental changes in the mail materials would have an affect on CATI contact attempts. For the CAPI attempts, three of the experimental treatments (i.e., the three revised design treatments) have attempt distributions that differ significantly from the *Modified Control*. Hence, the revised design treatments do have an affect on the attempt response distribution as compared to that of the control in the CATI operation.

Table 21: Distribution (in percent) of Number of Attempts to Obtain an Interview in CATI and CAPI ($\alpha = 0.1$)

	Number of CATI Attempts						
Treatment	**1**	**2**	**3**	**4**	**5**	**6+**	**Total**
Strong Mandatory Message							
Modified Control	53.7	25.3	11.4	5.3	1.8	2.6	**100.0**
Revised Design ($p = 0.78$)	50.7	27.4	12.2	4.4	2.1	3.1	**100.0**
Softened Mandatory Message							
Softened Mandatory Messaging ($p = 0.78$)	51.3	26.9	11.8	5.5	2.4	2.1	**100.0**
Softened Revised Design ($p = 0.78$)	51.6	25.6	13.6	4.1	2.9	2.2	**100.0**
Minimal Revised Design ($p = 0.78$)	51.8	25.8	11.9	4.7	3.0	2.7	**100.0**

	Number of CAPI Attempts								
Treatment	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8+**	**Total**
Strong Mandatory Message									
Modified Control	38.9	24.0	13.4	9.1	5.9	3.2	1.9	3.7	**100.0**
Revised Design ($p =$ **0.01**)	37.1	27.2	13.8	7.3	5.4	2.9	2.0	4.2	**100.0**
Softened Mandatory Message									
Softened Mandatory Messaging ($p = 0.21$)	37.1	27.2	13.8	7.3	5.4	2.9	2.0	4.2	**100.0**
Softened Revised Design ($p =$ **0.01**)	37.3	28.0	13.1	7.8	5.3	3.3	1.7	3.4	**100.0**
Minimal Revised Design ($p =$ **0.08**)	36.4	27.1	13.8	8.7	5.3	3.1	2.0	3.5	**100.0**

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
Note: To control the Type I error for the four comparisons within each response mode, we adjusted the resulting p-values using the Hochberg procedure (see Hochberg, 1988). P-values in boldface indicate a significant difference between the distribution of the experimental treatment and the *Modified Control* treatment.

4.2 What is the relative cost impact of removing or softening mandatory messages and making other design feature changes in the mail materials?

A reduction in self-response typically implies an increase in costs due to a variety of factors, including increased CATI and CAPI workloads. Additionally, there may be an impact on the reliability of the ACS estimates due to lower response. In this section, we explore the impact of a reduction in response rates on expected workloads, costs, completed interviews, and changes in reliability of survey estimates for three different scenarios. Specifically, we evaluate the impact of each treatment under the following three scenarios.

Maintain current sample size: This scenario applies the results from this test to a full year of ACS sample to evaluate the effect on the cost of using each test treatment methodology for an entire ACS data collection year.

Maintain current reliability: This scenario uses the results from this test to determine the initial sample size necessary to maintain the reliability achieved using current ACS methodology. Data collection costs would correlate positively with the workloads for self-response.

Maintain costs: This scenario applies the results from this test to determine how much the sample size would need to decrease (or how much it could increase) to collect ACS data using the test strategies within the FY 2015 budget. Stratification and current CAPI subsampling rates

would be maintained. While costs would remain static, this scenario has the largest effect (positive or negative) on the reliability of the survey estimates.

4.2.1 Costs per Case

Table 22 outlines the cost per case for each mode. The Personal Visit mode (CAPI) has by far the highest cost per case at $141.83. Telephone cases cost almost twice as much as mail/Internet cases, but still substantially less than Personal Visit cases.

Table 22: Estimated Data Collection Cost per Case by Mode (FY15 Dollars)

	ACS Workload (millions)	FY15 Budget (millions)	Approximate Cost per Case
Mail/Internet	3.448	$35.628	$10.33
Telephone	1.158	$21.919	$18.93
Personal Visit	0.726	$103.033	$141.83

Source: American Community Survey Office Internal Spreadsheet

4.2.2 Adjusted Sample Sizes to Maintain Costs

Table 23 presents the sample size per treatment that would be needed to maintain data collection costs at the fiscal year 2015 budget level. The *Revised Design* treatment would allow ACS to *raise* the sample size to 3.71 million without incurring additional data collection costs. The remaining three treatments would necessitate a decrease in sample size to maintain the current data collection costs. The *Softened Mandatory Messaging* and *Minimal Revised Design* treatments would require more than a ten percent reduction in sample.

Table 23: Sample Sizes Necessary to Maintain Current Costs

	Sample size to maintain costs (millions)	Difference from current sample size (millions)	% difference from current sample size
Current Methodology	3.541	-	-
Softened Mandatory Messaging	3.107	-0.434	-12.3%
Revised Design	3.709	0.168	4.7%
Softened Revised Design	3.309	-0.232	-6.6%
Minimal Revised Design	3.152	-0.389	-11.0%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

4.2.3 Projected Workloads and Costs

Table 24 summarizes the projected workloads for a full year of data collection if each test treatment methodology were to be implemented with the same sample size currently used for ACS data collection. Tables 25 through 28 outline the projected workloads and cost information for each of the three scenarios outlined above (maintain current sample, maintain current reliability, and maintain current costs). Each table summarizes projections for a different treatment. These projections are discussed in detail in sections 4.2.4 through 4.2.6.

Table 24: Workload Estimates

	Current ACS Methodology - 2014		Softened Mandatory Messaging		Revised Design		Softened Revised Design		Minimal Revised Design	
	Workloads (millions)	% of Initial Sample	Workloads (millions)	% of Initial Sample	Workloads (millions)	% of Initial Sample	Workloads (millions)	% of Initial Sample	Workloads (millions)	% of Initial Sample
Internet	3.448	97.4	3.448	97.4	3.448	97.4	3.448	97.4	3.448	97.4
2nd Mail Package	2.820	79.6	3.022	85.3	2.745	77.5	2.926	82.6	3.025	85.4
Telephone	1.158	32.7	1.345	38.0	1.063	30.0	1.241	35.1	1.315	37.1
Personal Visit	0.726	20.5	0.859	24.3	0.687	19.4	0.794	22.4	0.845	23.9
Initial Sample	3.541	100.0	3.541	100.0	3.541	100.0	3.541	100.0	3.541	100.0

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Table 25: Summary of Data Collection Workloads and Associated Costs for Softened Mandatory Messaging Strategy (in millions)

	Production ACS		Test Strategy Maintain Current Sample		Test Strategy Maintain Current Reliability		Test Strategy Maintain Current Costs	
	Workload	Cost	Workload	Cost	Workload	Cost	Workload	Cost
Initial Sample	3.541	--	3.541	--	3.926	--	3.107	--
Mail/Internet	3.448	$35.628	3.448	$35.616	3.823	$39.492	3.025	$31.253
Telephone	1.158	$21.919	1.345	$25.468	1.492	$28.239	1.181	$22.348
Personal Visit	0.726	$102.989	0.859	$121.864	0.953	$135.125	0.754	$106.935
Subtotal	--	$160.536	--	$182.949	--	$202.856	--	$160.536
Difference from 2015	--	$0	--	$22.413	--	$42.320	--	$0
Percent change from 2015*	--	--	--	9.7%	--	18.3%	--	0.0%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
*The total FY2015 budget for ACS was $231,100,808.

Table 26: Summary of Data Collection Workloads and Associated Costs for Revised Design Strategy (in millions)

	Production ACS		Test Strategy Maintain Current Sample		Test Strategy Maintain Current Reliability		Test Strategy Maintain Current Costs	
	Workload	Cost	Workload	Cost	Workload	Cost	Workload	Cost
Initial Sample	3.541	--	3.541	--	3.465	--	3.709	--
Mail/Internet	3.448	$35.628	3.448	$35.619	3.374	$34.852	3.612	$37.313
Telephone	1.158	$21.919	1.063	$20.125	1.040	$19.692	1.114	$21.082
Personal Visit	0.726	$102.989	0.687	$97.503	0.673	$95.404	0.720	$102.140
Subtotal	--	$160.536	--	$153.248	--	$149.948	--	$160.536
Difference from 2015	--	$0	--	$(7.288)	--	$(10.588)	--	$0
Percent change from 2015*	--	--	--	-3.2%	--	-4.6%	--	0.0%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
*The total FY2015 budget for ACS was $231,100,808.

Table 27: Summary of Data Collection Workloads and Associated Costs for Softened Revised Design Strategy (in millions)

	Production ACS		Test Strategy Maintain Current Sample		Test Strategy Maintain Current Reliability		Test Strategy Maintain Current Costs	
	Workload	Cost	Workload	Cost	Workload	Cost	Workload	Cost
Initial Sample	3.541	--	3.541	--	3.805	--	3.309	--
Mail/Internet	3.448	$35.628	3.448	$35.627	3.704	$38.278	3.222	$33.295
Telephone	1.158	$21.919	1.241	$23.493	1.334	$25.241	1.160	$21.955
Personal Visit	0.726	$102.989	0.794	$112.657	0.853	$121.041	0.742	$105.285
Subtotal	--	$160.536	--	$171.776	--	$184.560	--	$160.536
Difference from 2015	--	$0	--	$11.240	--	$24.025	--	$0
Percent change from 2015*	--	--	--	4.9%	--	10.4%	--	0.0%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
*The total FY2015 budget for ACS was $231,100,808.

Table 28: Summary of Data Collection Workloads and Associated Costs for Minimal Revised Design Strategy (in millions)

	Production ACS		Test Strategy Maintain Current Sample		Test Strategy Maintain Current Reliability		Test Strategy Maintain Current Costs	
	Workload	Cost	Workload	Cost	Workload	Cost	Workload	Cost
Initial Sample	3,541	--	3.541	--	3.933	--	3.152	--
Mail/Internet	3.448	$35.628	3.448	$35.627	3.830	$39.574	3.069	$31.713
Telephone	1.158	$21.919	1.315	$24.888	1.461	$27.646	1.170	$22.154
Personal Visit	0.726	$102.989	0.845	$119.832	0.939	$133.110	0.752	$106.668
Subtotal	--	$160.536	--	$180.347	--	$200.331	--	$160.536
Difference from 2015	--	$0	--	$19.812	--	$39.795	--	$0
Percent change from 2015*	--	--	--	8.6%	--	17.2%	--	0.0%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"
*The total FY2015 budget for ACS was $231,100,808.

4.2.4 Projected Costs to Maintain Current Sample

The *Revised Design* treatment would increase self-response rates, resulting in lower workloads for the telephone and personal visit modes. This would lead to overall data collection cost savings of approximately $7.3 million or 3.2 percent of the FY2015 ACS budget of $231 million (Table 26).

The other three test treatments, which contain softened mandatory messaging, would lead to lower rates of response for both Internet and mail, increasing the workloads of both the telephone and personal visit modes. Because these modes are more expensive than the self-response modes, we project that the overall cost of data collection for the ACS will increase. This increase will be by about $22.4 million (9.7 percent of FY2015 ACS budget) for the *Softened*

Mandatory Messaging treatment (Table 25), $11.2 million (4.9 percent) for the *Softened Revised Design* treatment (Table 27), and $19.8 million (8.6 percent) for the *Minimal Revised Design* treatment (Table 28). These estimates reflect a full year of data collection at the projected workload levels and do not take into account initial costs (e.g., training) resulting from increased staffing to handle the larger telephone and personal visit workloads.

4.2.5 Projected Costs and Workloads to Maintain Reliability

Tables 25 through 28 show that three of the test strategies would require an increase in the initial sample to maintain the current reliability of survey estimates. Lower response in the self-administered and telephone modes leads to fewer total interviews due to sub-sampling prior to the personal visit mode. To maintain the current reliability, we estimate that we would need to increase the sample by approximately 385,000 (10.9 percent) for the *Softened Mandatory Messaging Treatment*; 264,000 (7.4 percent) for the *Softened Revised Design* treatment; and 392,000 (11.1 percent) for the *Minimal Revised Design* treatment. These sample increases would result in data collection cost increases of $42.3 million (an 18.3 percent increase relative to the FY2015 budget), $24.0 million (10.4 percent), and $39.8 million (17.2 percent) respectively.

Conversely, we project that for the *Revised Design* treatment, our current reliability could be maintained if we decreased the sample by approximately 76,000 (2.2 percent), resulting in cost savings of approximately $10.6 million (4.6 percent of the FY2015 budget).

4.2.6 Projected Workloads to Maintain Current Costs

To calculate the workloads for each test treatment for the *Maintain Current Costs* scenario, we used the same methodology that we used to calculate workloads for maintaining the current sample, but used the reduced initial sample size instead of the current sample size. The total cost for data collection will stay the same (although cost for each mode will shift), but there will be a change in the total number of interviews completed (more interviews completed for the *Revised Design* treatment, but a large decrease for the other treatments), resulting in an impact on survey reliability that is outlined in section 4.2.7.

4.2.7 Projected Completed Interviews and Impacts on Reliability of Survey Estimates

Tables 29 through 32 outline the projected total completed interviews and the impacts on the reliability of survey estimates. We calculated the change in the number of completed interviews relative to the current ACS data collection strategy. *Changes in margin of error are relative, not absolute*. For example, a 10 percent increase in a margin of error of ±3 percent would increase the margin of error to ±3.3 percent, not ±13 percent.

Table 29: Completed Interviews and Reliability Measures Associated with the Softened Mandatory Messaging Treatment

	2014 Production ACS	Test Strategy Maintain Current Sample	Test Strategy Maintain Current Reliability	Test Strategy Maintain Current Costs
Initial Sample (millions)	3.541	3.541	3.926	3.107
Expected completed interviews (millions)	2.315	2.088	2.315	1.832
Change in completed interviews (millions)	--	-0.227	0.000	-0.483
Estimated relative change in variance	--	10.9%	--	26.4%
Estimated relative change in margin of error	--	5.3%	--	12.4%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Table 30: Completed Interviews and Reliability Measures Associated with the Revised Design Treatment

	2014 Production ACS	Test Strategy Maintain Current Sample	Test Strategy Maintain Current Reliability	Test Strategy Maintain Current Costs
Initial Sample (millions)	3.541	3.541	3.465	3.709
Expected completed interviews (millions)	2.315	2.370	2.319	2.483
Change in completed interviews (millions)	--	0.055	0.004	0.168
Estimated relative change in variance	--	-2.2%	--	-6.6%
Estimated relative change in margin of error	--	-1.1%	--	-3.4%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Table 31: Completed Interviews and Reliability Measures Associated with the Softened Revised Design Treatment

	2014 Production ACS	Test Strategy Maintain Current Sample	Test Strategy Maintain Current Reliability	Test Strategy Maintain Current Costs
Initial Sample (millions)	3.541	3.541	3.805	3.309
Expected completed interviews (millions)	2.315	2.173	2.335	2.031
Change in completed interviews (millions)	--	-0.142	0.020	-0.284
Estimated relative change in variance	--	7.4%	--	15.0%
Estimated relative change in margin of error	--	3.6%	--	7.2%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

Table 32: Completed Interviews and Reliability Measures Associated with the Minimal Revised Design Treatment

	2014 Production ACS	Test Strategy Maintain Current Sample	Test Strategy Maintain Current Reliability	Test Strategy Maintain Current Costs
Initial Sample (millions)	3.541	3.541	3.933	3.152
Expected completed interviews (millions)	2.315	2.094	2.326	1.864
Change in completed interviews (millions)	--	-0.221	0.011	-0.451
Estimated relative change in variance	--	11.1%	--	24.8%
Estimated relative change in margin of error	--	5.4%	--	11.7%

Source: U.S. Census Bureau, American Community Survey, "2015 Summer Mandatory Messaging Test"

In general, the *Maintain Current Costs* scenario results in a higher magnitude effect on reliability than the *Maintain Current Sample* scenario. Three of the test treatments would result in higher variances and margins of error if implemented. The *Softened Mandatory Messaging* treatment would result in a 5.3 percent increase in margins of error if we maintained the current sample and a 12.4 percent increase if we maintained current costs (see Table 29). The *Softened Revised Design* treatment would result 3.6 percent and 7.2 percent increases (see Table 31), and the *Minimal Revised Design* treatment would result in 5.4 percent and 11.7 percent increases (see Table 32). The *Revised Design* treatment would result in lower margins of error if implemented for both the *Maintain Current Sample* (-1.1 percent) and *Maintain Current Costs* (-3.4 percent) scenarios (see Table 30).

5. Conclusion

Although the ACS data are vitally important to American communities throughout the nation, some Americans view the nature and breadth of the ACS questions as intrusive and overbearing. In response to these concerns, in 2014, the U.S. Census Bureau collaborated with Reingold Inc. and conducted a comprehensive assessment and refinement of the ACS messages and mail materials, aimed at improving the way we communicate the importance and benefits of the ACS (see Reingold, 2014). We classified the new aesthetic design changes as a *revised design*. The purpose of the new design was to give mail materials a modern look and appeal, and to enhance survey participation. To address stakeholder concerns pertaining to mandatory language found throughout the ACS mail materials, the Census Bureau, in consultation with Dillman et al. (2015), developed methods to remove or soften these mandatory messages. We used the results of all of this research to develop four sets of proposed changes to the ACS mail materials (i.e., experimental treatments), and a slight modification of the production mail materials (i.e., control treatment).

For our research, we evaluated the impact of the four experimental treatments on response, cost, and the reliability of the survey estimates. We also evaluated the impact of these treatments on response in the "hard-to-count" populations (i.e., populations whose self-response has been

historically low) via a variety of socio-economic demographic and geographic variables that are correlated with these populations.

The results of our research found that the *Revised Design* treatment, where the mandatory messaging is strengthened and elements intended to better emphasize the benefits of participation in the survey were enhanced, increases the self-response return rates by 3.5 percentage points over the *Modified Control* treatment (50.8 percent versus 47.2 percent). The three experimental treatments that reduced the prominence of the mandatory nature of the ACS yielded significantly lower self-response return rates: *Softened Mandatory Message* (33.7 percent versus 47.2 percent); *Softened Revised Design* (39.4 versus 47.2 percent); *Minimal Revised Design* (34.6 versus 47.2 percent). However, at the conclusion of the CAPI operation, the only treatment whose final response rate was significantly different from that of the control was the *Softened Mandatory Messaging* (93.8 versus 95.4 percent) – approximately 1.7 percentage points lower.

In our evaluation of the impact of the experimental treatments on response in the "hard-to-count" populations, we compared a host of socio-economic and geographic measures for these populations in the experimental treatments to the corresponding measures in the control treatment. At the conclusion of all data collection operations, we found:

- No significant differences in the differential response rate between the high and low response areas between any of the experimental treatments compared to the control.

- Significant differences between the response distributions for the following treatments and variables as compared to the control:
    - Softened Revised Design: *age*
    - Minimal Revised Design: *educational attainment, age*
    - Softened Mandatory Messaging: *building type*

- Significantly higher average household size for respondents for all treatments as compared to the control:
    - Revised Design (2.50 versus 2.44)
    - Softened Mandatory Messaging (2.49 versus 2.44)
    - Softened Revised Design (2.50 versus 2.44)
    - Minimal Revised Design (2.51 versus 2.44)

- Significantly lower percent of response from the limited English-speaking households in the *Softened Mandatory Messaging* compared to the control.

Methodological changes that reduce self-response and increase workloads in follow-up operations have significant cost impacts, as CATI and CAPI operations cost more per case than self-response. Our estimate of the impact of the different treatments on cost and reliability

reveals a trade-off between cost and reliability. If we choose to limit the impact of these treatments on the reliability of the survey estimates, it results in higher costs. If we choose to limit the impact of these treatments on costs, it results in larger margins of errors.

Our results indicate that the *Revised Design* treatment could (1) result in substantial cost savings of up to $10.6 million (4.6 percent of the 2015 ACS budget) and maintain the current reliability; (2) reduce the margins of error for survey estimates by 3.4 percent and maintain the current costs; or (3) some combination in between. The other three treatments would result in either substantial cost increases (to maintain current reliability), increases in the margins of error for survey estimates (to maintain current costs), or some combination in between.

To maintain current reliability, cost increases would be $42.3 million (18.3 percent of the 2015 ACS budget) for the *Softened Mandatory Messaging* treatment, $24.0 million (10.4 percent) for the *Softened Revised* treatment, and $39.8 million (17.2 percent) for the *Minimal Revised Design* treatment. To maintain current costs, increases in the margins of error for survey estimates would be 12.4 percent for the *Softened Mandatory Messaging* treatment, 7.2 percent for the Softened Revised treatment, and 11.7 percent for the Minimal Revised Design treatment.

6. References

Work Request RS15-1-0146. Field Testing Revisions to the Mail Materials Based on the Results of 2013-2014 Qualitative Testing.

Barth, D. (2015). 2015 Envelope Mandatory Messaging Test Preliminary Report. Washington DC, U.S. Census Bureau. Retrieved from http://www.census.gov/library/working-papers/2015/acs/2015_Barth_01.html

Bates, N. & Erdman, C. (2014). The U.S. Census Bureau Mail Return Rate Challenge: Crowdsourcing to Develop a Hard-to-Count Score. Research Report Series. Washington, DC: U.S. Census Bureau. Retrieved from http://www.census.gov/srd/papers/pdf/rrs2014-08.pdf

Clark, S., Roberts, A., Tancreto, J., & Raglin, D. (2015). 2015 Replacement Mail Questionnaire Package Test. Washington, DC, U.S. Census Bureau. Retrieved from

Dillman, D., Singer, E., Clark, J., & Treat, J. (1996). Effects of Benefits Appeals, Mandatory Appeals, and Variations in Statements of Confidentiality on Completion Rates for Census Questionnaires. *Public Opinion Quarterly*, *60*, 376-389.

D. Dillman, N. Mathiowetz, and J. Smyth, (2015). Consultation at Census Bureau Headquarters on April 20, 2015.

Erdman, C. & Bates, N. (2014). The U.S. Census Bureau Mail Return Rate Challenge: Crowdsourcing to Develop a Hard-to-Count Score. Research Report Series. Washington, DC: U.S. Census Bureau. Retrieved from http://www.census.gov/srd/papers/pdf/rrs2014-08.pdf

Hochberg, Y. (1988). A Sharper Bonferroni Procedure for Multiple Tests of Significance. *Biometrika*, **75** (4), 800-803. Retrieved from http://www.jstor.org/stable/2336325?seq=1#page_scan_tab_contents

Reingold, Penn Schoen Berland, Decision Partners, (2014). American Community Survey Messaging and Mail Package Assessment Research: Cumulative Findings. Washington DC: U.S. Census Bureau. Retrieved from http://www.census.gov/library/working-papers/2014/acs/2014_Walker_02.html

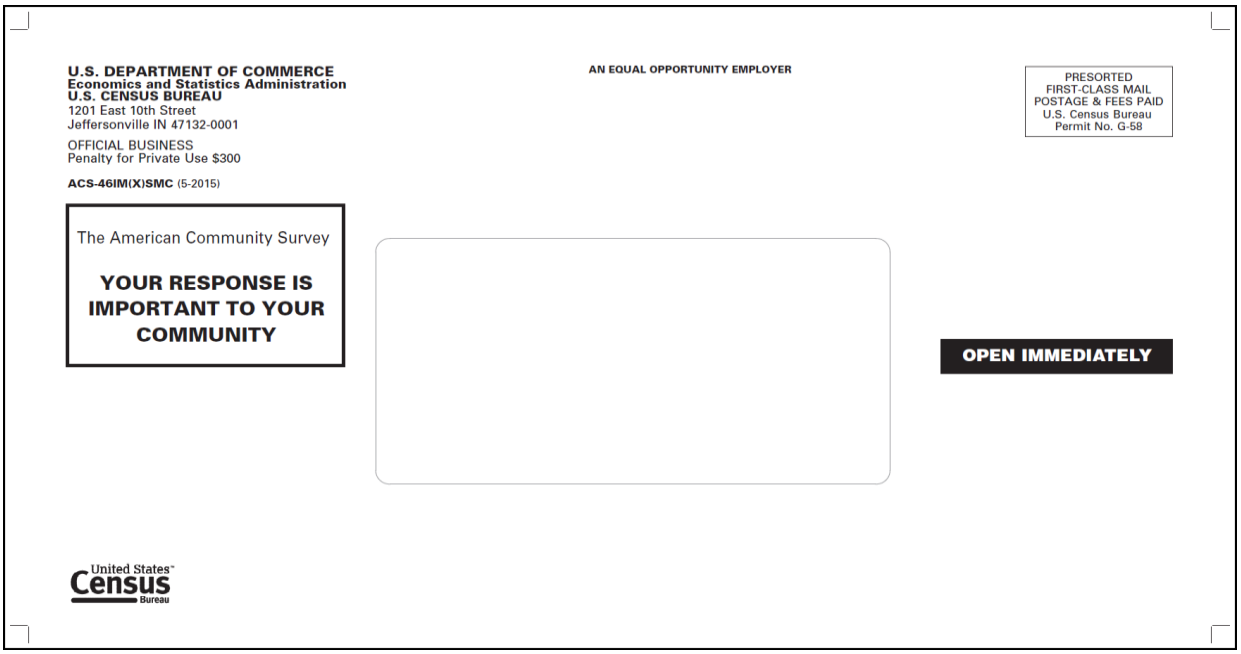
U.S. Census Bureau (2014). American Community Survey Design and Methodology. Retrieved http://www2.census.gov/programs-surveys/acs/methodology/design_and_methodology/acs_design_methodology_ch12_2014.pdf

U.S. Census Bureau (2015). 2015 Planning Database Tract Data [Data file]. Retrieved from http://www.census.gov/research/data/planning_database/2014/

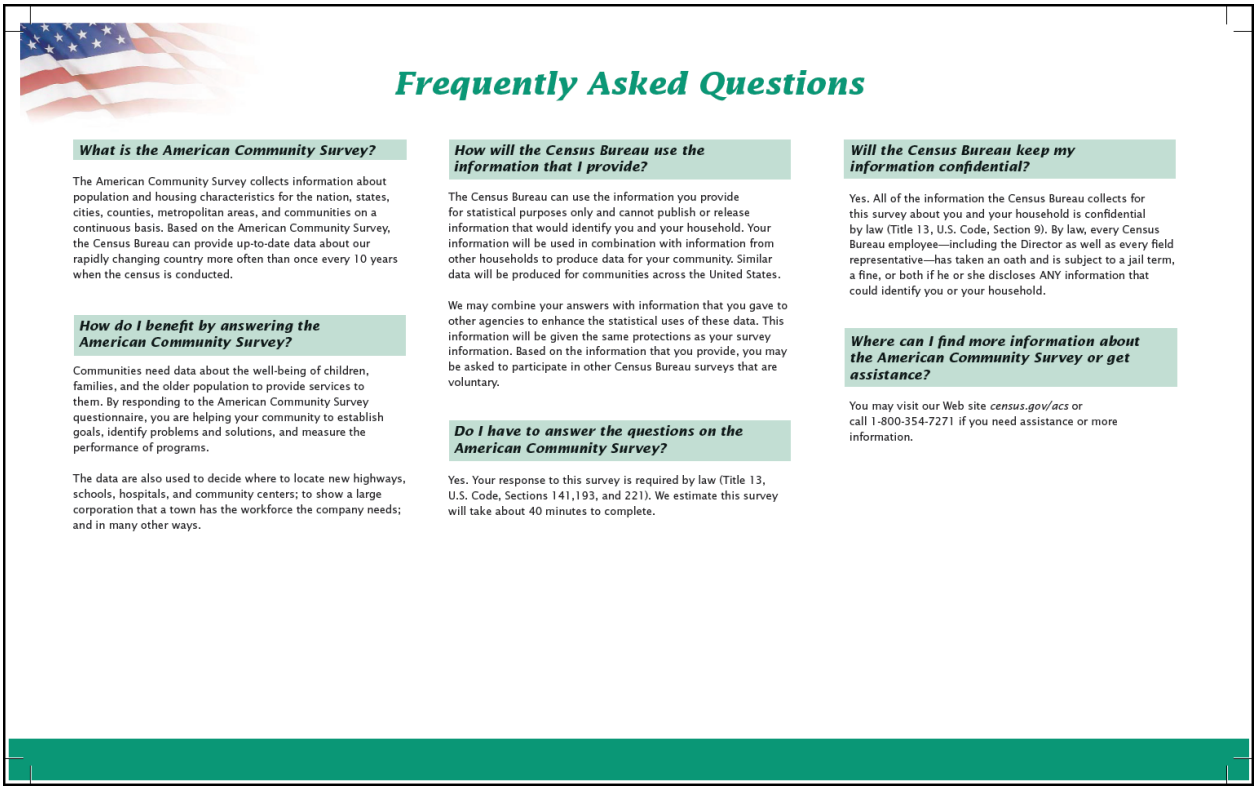
7. Appendices

Appendix A: Softened Mandatory Messaging Treatment Materials

Outgoing Envelope for Initial Mailing:



FAQ Brochure:



Frequently Asked Questions

What is the American Community Survey?

The American Community Survey collects information about population and housing characteristics for the nation, states, cities, counties, metropolitan areas, and communities on a continuous basis. Based on the American Community Survey, the Census Bureau can provide up-to-date data about our rapidly changing country more often than once every 10 years when the census is conducted.

How do I benefit by answering the American Community Survey?

Communities need data about the well-being of children, families, and the older population to provide services to them. By responding to the American Community Survey questionnaire, you are helping your community to establish goals, identify problems and solutions, and measure the performance of programs.

The data are also used to decide where to locate new highways, schools, hospitals, and community centers; to show a large corporation that a town has the workforce the company needs; and in many other ways.

How will the Census Bureau use the information that I provide?

The Census Bureau can use the information you provide for statistical purposes only and cannot publish or release information that would identify you and your household. Your information will be used in combination with information from other households to produce data for your community. Similar data will be produced for communities across the United States.

We may combine your answers with information that you gave to other agencies to enhance the statistical uses of these data. This information will be given the same protections as your survey information. Based on the information that you provide, you may be asked to participate in other Census Bureau surveys that are voluntary.

Do I have to answer the questions on the American Community Survey?

Yes. Your response to this survey is required by law (Title 13, U.S. Code, Sections 141,193, and 221). We estimate this survey will take about 40 minutes to complete.

Will the Census Bureau keep my information confidential?

Yes. All of the information the Census Bureau collects for this survey about you and your household is confidential by law (Title 13, U.S. Code, Section 9). By law, every Census Bureau employee—including the Director as well as every field representative—has taken an oath and is subject to a jail term, a fine, or both if he or she discloses ANY information that could identify you or your household.

Where can I find more information about the American Community Survey or get assistance?

You may visit our Web site *census.gov/acs* or call 1-800-354-7271 if you need assistance or more information.

Appendix A: Softened Mandatory Messaging Treatment Materials

Initial Mailing Letter:

ACS-13(LX)SMC (2015)
(5-2015)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

A message from the Director, U.S. Census Bureau ...

The U.S. Census Bureau recently sent a letter to your household about the American Community Survey. Using the enclosed instructions, please complete the survey online as soon as possible at:

https://respond.census.gov/acs

The Census Bureau is using the Internet to collect this information in an effort to conserve natural resources, save taxpayers' money, and process your data more efficiently. If you are unable to complete the survey online, there is no need to contact us. We will send you a paper questionnaire in a few weeks.

This survey collects critical up-to-date information used to meet the needs of communities across the United States. For example, results from this survey are used to decide where new schools, hospitals, and fire stations are needed. This information also helps communities plan for the kinds of emergency situations that might affect you and your neighbors, such as floods and other natural disasters.

The Census Bureau chose your address as part of a randomly selected sample. The Census Bureau is required by U.S. law to keep your answers confidential. The enclosed brochure answers frequently asked questions about the survey.

If you need help completing the survey, please call our toll-free number (1–800–354–7271).

Thank you.

Enclosures

census.gov

Appendix A: Softened Mandatory Messaging Treatment Materials

Reminder Letter:

ACS-20(LX)SMC (2015)
(5-2015)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

A message from the Director, U.S. Census Bureau ...

A few days ago, you should have received instructions for completing the **American Community Survey** online. Local communities depend on information from this survey to decide where schools, highways, hospitals, and other important services are needed. If you have not already responded, please do so now.

Respond now at **https://respond.census.gov/acs**
Log in using this user ID:

If we do not receive your response online, we will mail a paper questionnaire to your address.

Your response is critically important to your local community and your country and is required by law. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.

If you need help completing the survey or have questions, please call 1–800–354–7271.

Thank you in advance for your prompt response.

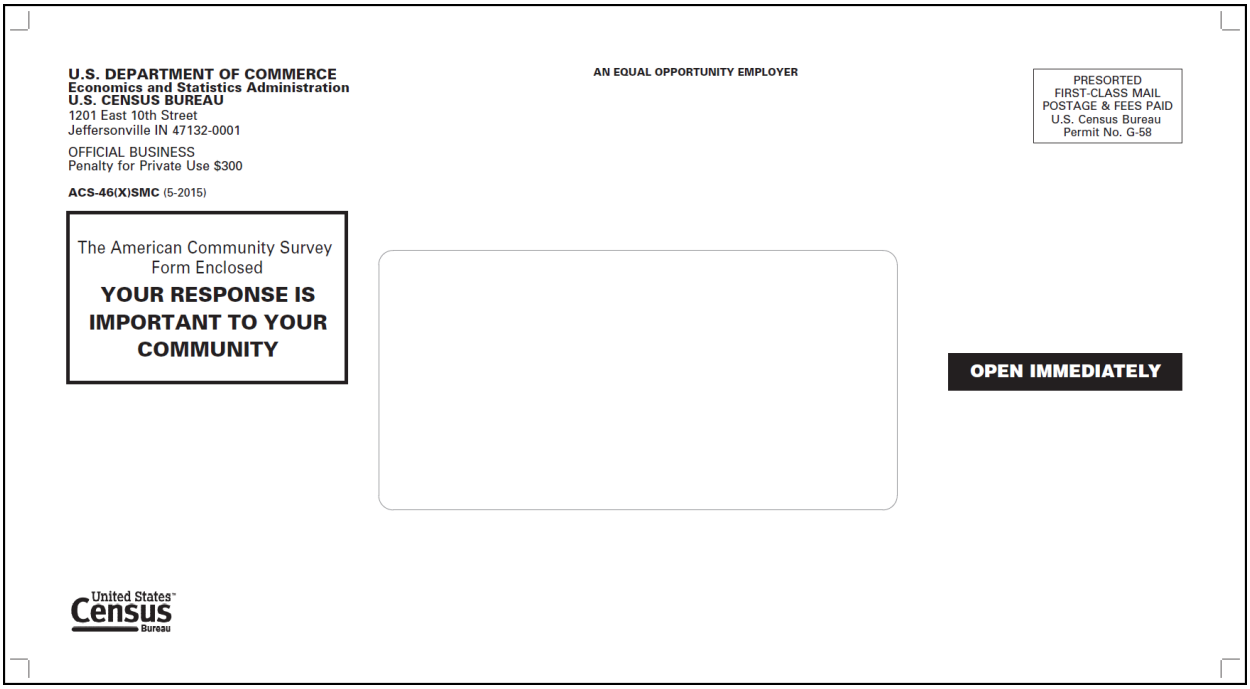
Sincerely,

John H. Thompson
Director, U.S. Census Bureau

census.gov

Appendix A: Softened Mandatory Messaging Treatment Materials

Outgoing Envelope for Paper Questionnaire Package Mailing:



Appendix A: Softened Mandatory Messaging Treatment Materials

Paper Questionnaire Package Mailing Letter:

ACS-14(LX)SMC (2015)
(5-2015)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

A message from the Director, U.S. Census Bureau...

About two weeks ago, the U.S. Census Bureau sent instructions for completing the American Community Survey to your address. We asked you to help us with this very important survey by completing it online. But we have not received your response yet.

If you have already completed the survey, thank you very much. If you have not, please complete the survey soon using ONE of the following two options.

Option 1: Go to **https://respond.census.gov/acs** to complete the survey online.
Option 2: Fill out and mail back the enclosed questionnaire.

This survey is so important that a Census Bureau representative may attempt to contact you by telephone or personal visit if we do not receive your response.

The information collected in this survey will help decide where new schools, hospitals, and fire stations are needed. The information also is used to develop programs to reduce traffic congestion, provide job training, and plan for the health care needs of the elderly.

The Census Bureau chose your address as part of a randomly selected sample. The Census Bureau is required by U.S. law to keep your answers confidential. The enclosed brochure answers frequently asked questions about the survey.

If you need help completing the survey, please use the enclosed guide or call our toll–free number (1–800–354–7271).

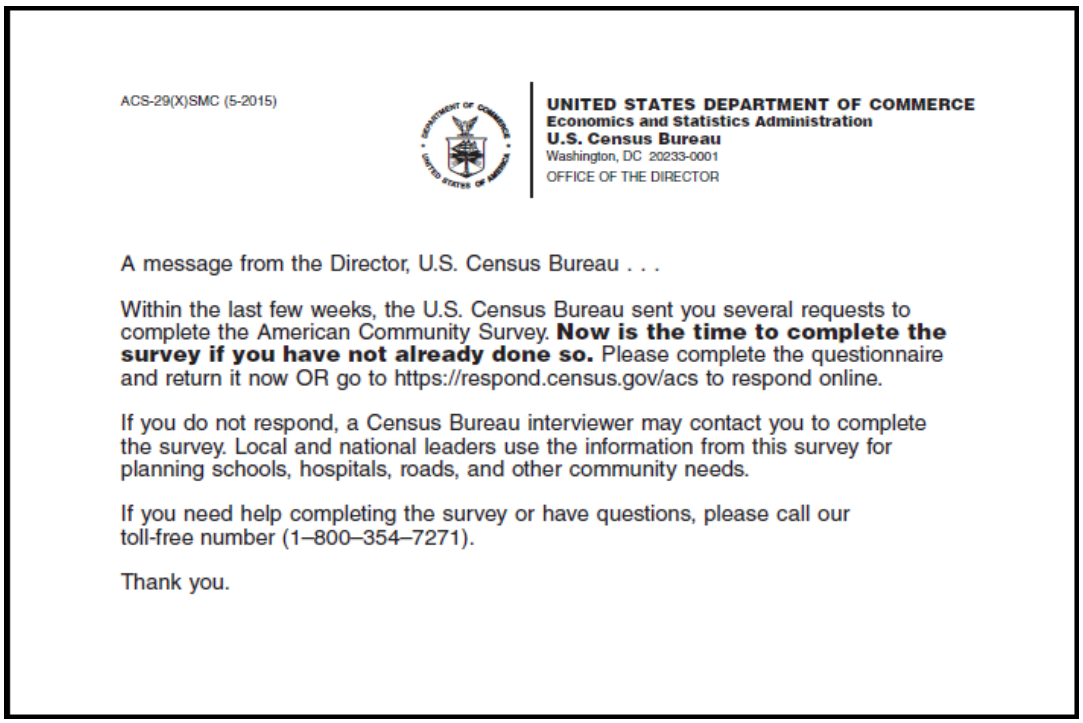
Thank you.

Enclosures

census.gov

Appendix A: Softened Mandatory Messaging Treatment Materials

First Reminder Postcard:



ACS-29(X)SMC (5-2015)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

A message from the Director, U.S. Census Bureau . . .

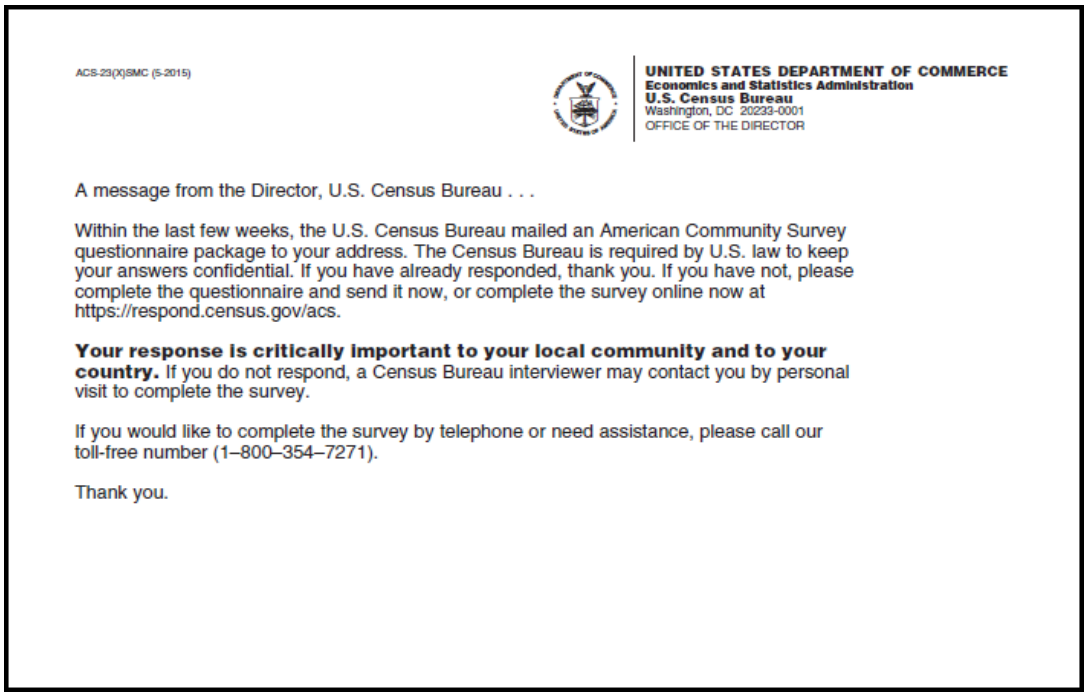
Within the last few weeks, the U.S. Census Bureau sent you several requests to complete the American Community Survey. **Now is the time to complete the survey if you have not already done so.** Please complete the questionnaire and return it now OR go to https://respond.census.gov/acs to respond online.

If you do not respond, a Census Bureau interviewer may contact you to complete the survey. Local and national leaders use the information from this survey for planning schools, hospitals, roads, and other community needs.

If you need help completing the survey or have questions, please call our toll-free number (1–800–354–7271).

Thank you.

Second Reminder Postcard:



ACS-23(X)SMC (5-2015)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

A message from the Director, U.S. Census Bureau . . .

Within the last few weeks, the U.S. Census Bureau mailed an American Community Survey questionnaire package to your address. The Census Bureau is required by U.S. law to keep your answers confidential. If you have already responded, thank you. If you have not, please complete the questionnaire and send it now, or complete the survey online now at https://respond.census.gov/acs.

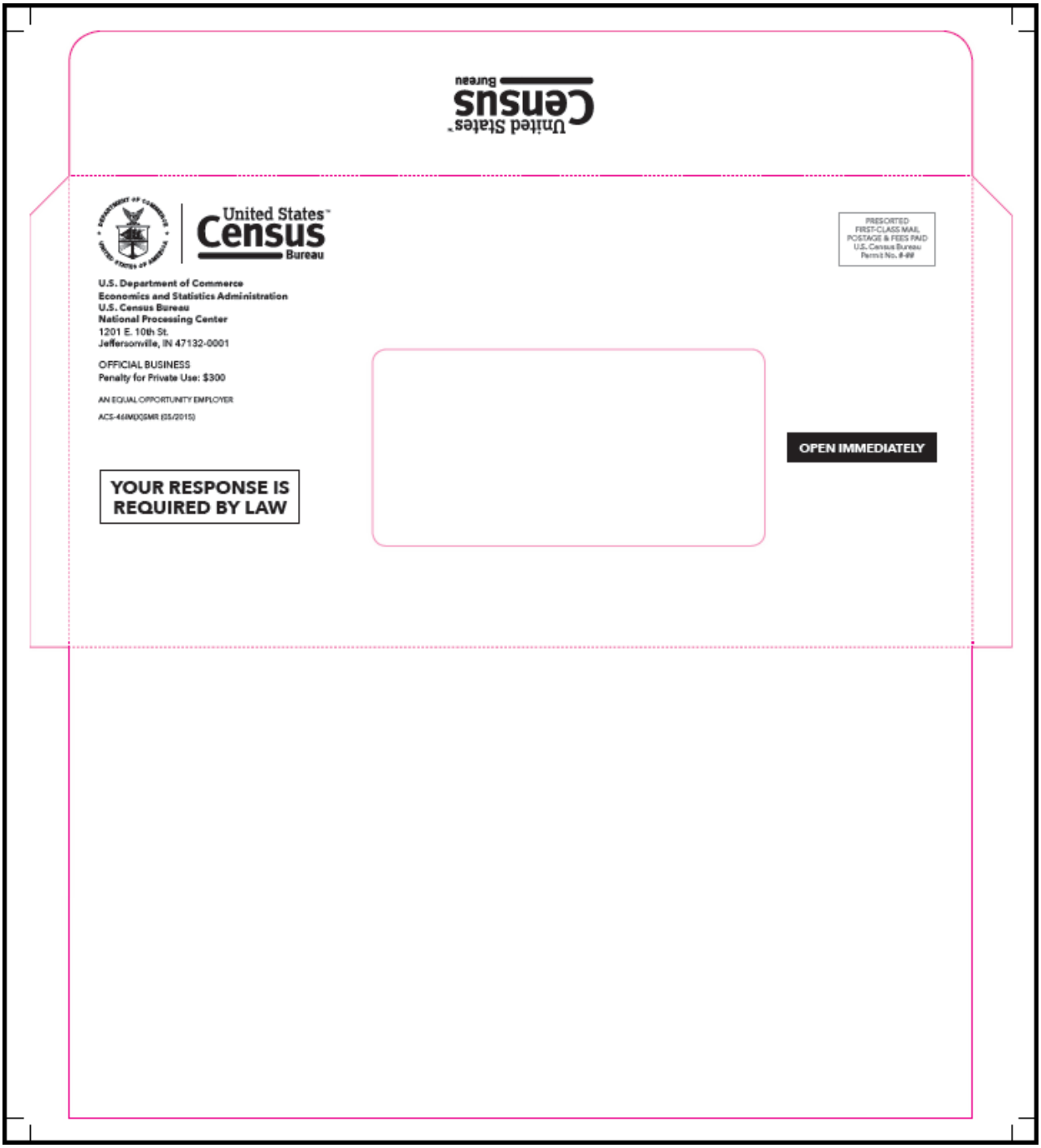
Your response is critically important to your local community and to your country. If you do not respond, a Census Bureau interviewer may contact you by personal visit to complete the survey.

If you would like to complete the survey by telephone or need assistance, please call our toll-free number (1–800–354–7271).

Thank you.

Appendix B: Revised Design Treatment Materials

Outgoing Envelope for Initial Mailing:



Appendix B: Revised Design Treatment Materials

Initial Mailing Letter (Front):

United States Census Bureau

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

Your address has been randomly selected by the U.S. Census Bureau to participate in the **American Community Survey**. The Census Bureau conducts this survey each year to give our country an up-to-date picture of how we live – including our education, housing, and jobs.

Communities across the country rely on information from this survey to decide where important services are needed, including:

- Improving roads and reducing traffic
- Building schools
- Planning for the health care needs of the elderly

Respond now at **https://respond.census.gov/acs**

Your response is required by U.S. law.
Because your household has been asked to participate on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area.

If you are unable to complete the survey online, we will send you a paper questionnaire in a few weeks. The Census Bureau is using the Internet to collect this information to conserve natural resources, save taxpayers money, and process data more efficiently.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you in advance for your prompt response.

Sincerely,

John H. Thompson
Director, U.S. Census Bureau

Enclosures

American Community Survey data help determine the annual distribution of more than **$400 billion** in federal funds **to communities nationwide**.

ACS-13(LX)SMR (5-2015)

census.gov

Appendix B: Revised Design Treatment Materials

Initial Mailing Letter (Back):

Will my response be confidential?
Yes. The information you provide will help create a picture of your community, but it cannot be used to identify you. By law (Title 13, U.S. Code, Section 9), all of the information the Census Bureau collects for this survey is completely confidential, and millions of people securely participate in the survey each year. Census Bureau employees are subject to a $250,000 fine and/or up to five years in prison if they disclose any information that could identify you.

Am I required to fill out the survey?
Yes. Your response to this survey is required by law (Title 13, U.S. Code, Sections 141, 193, and 221). As a randomly selected representative of your community, you are the voice of your neighbors and peers. To create an accurate picture of your community, it is critical that you respond.

How will the Census Bureau use the information I provide?
Your confidential response will be aggregated with information from other nearby households to produce a portrait of your community. This information is made freely accessible to government leaders, businesses, nonprofit organizations, and the public at large.

Based on the information you provide, you may be asked to participate in other Census Bureau surveys that are voluntary. We may combine your answers with information that you gave to other agencies to enhance the statistical uses of these data. This information will be given the same protection as your survey response.

Appendix B: Revised Design Treatment Materials

Reminder Letter:

United States Census Bureau

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

A few days ago, you should have received instructions for completing the **American Community Survey** online. Local communities depend on information from this survey to decide where schools, highways, hospitals, and other important services are needed. If you have not already responded, please do so now.

Respond now at **https://respond.census.gov/acs**
Log in using this user ID:

If we do not receive your response online, we will mail a paper questionnaire to your address.

Your response to this survey is required by law.
Your response is critically important to your local community and your country. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you in advance for your prompt response.

Sincerely,

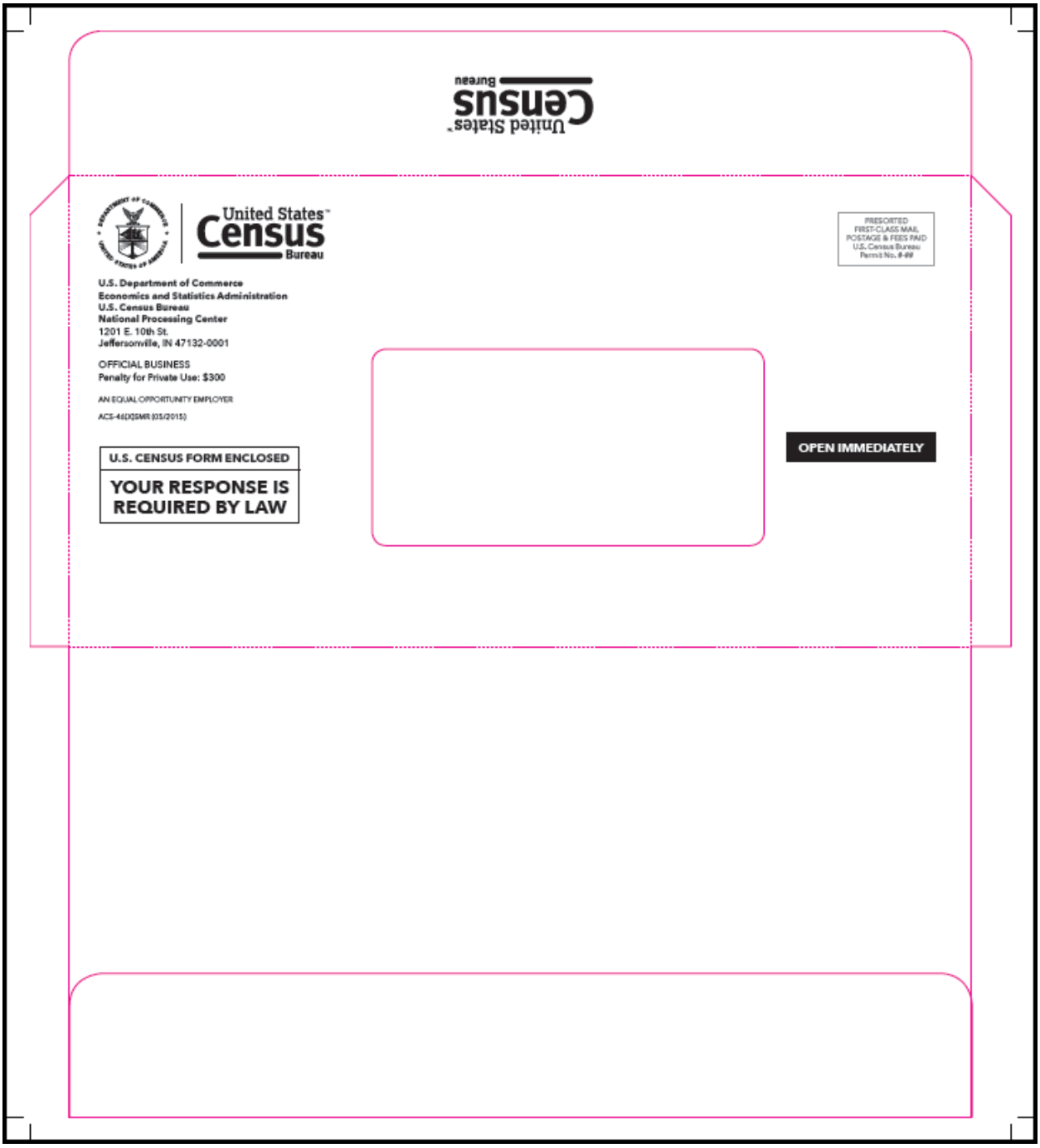
John H. Thompson
Director, U.S. Census Bureau

ACS-20(LX)SMR (5/2015)

census.gov

Appendix B: Revised Design Treatment Materials

Outgoing Envelope for Paper Questionnaire Package Mailing:



Appendix B: Revised Design Treatment Materials

Paper Questionnaire Package Mailing Letter:

United States Census Bureau

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

The U.S. Census Bureau recently sent you a request to complete the **American Community Survey** online. If you have not already responded to this important survey, please do so now.

Complete the survey using ONLY ONE of the following options:

- Respond online at **https://respond.census.gov/acs**
- If you are unable to respond online, please fill out and mail back the enclosed questionnaire.

You are required by U.S. law to respond to this survey.
The Census Bureau has randomly selected your address to receive this survey as part of a nationally representative sample. Because you will be providing important information on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area — including determining where to locate new schools, hospitals, and fire stations.

If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.

Your answers are completely confidential.
By law, the Census Bureau cannot publish or release information that would identify you or your household.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you for your prompt response.

Sincerely,

John H. Thompson
Director, U.S. Census Bureau

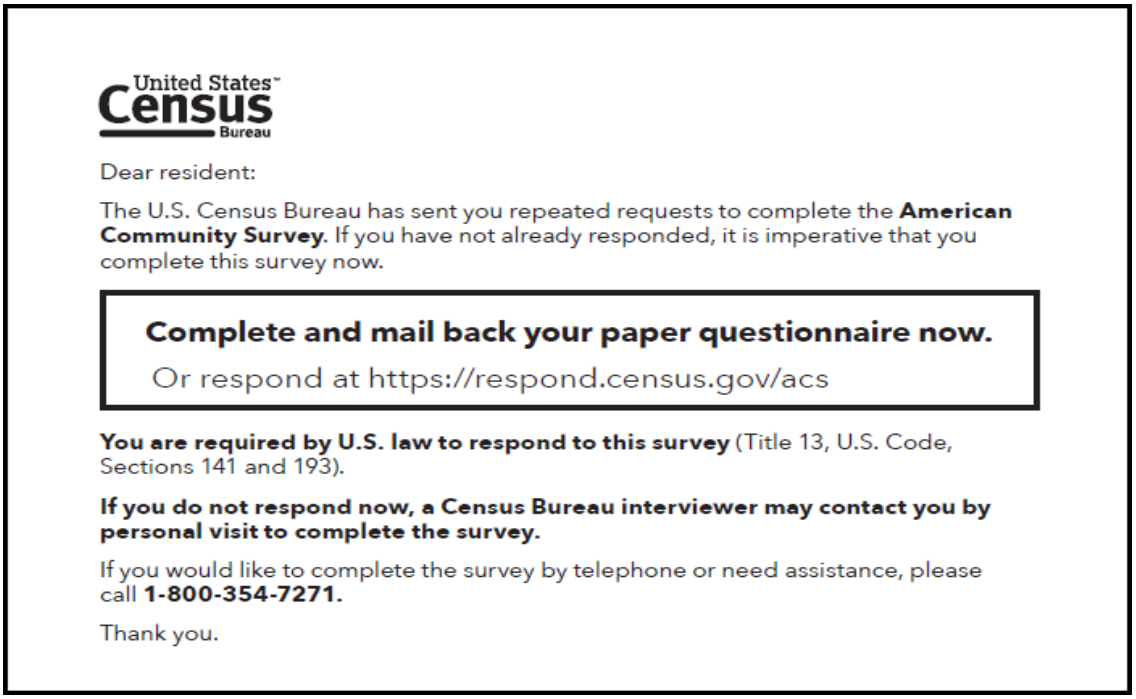
Enclosures

ACS-14(LX)SMR(5-2015)

census.gov

Appendix B: Revised Design Treatment Materials

First Reminder Postcard:



United States Census Bureau

Dear resident:

The U.S. Census Bureau has sent you repeated requests to complete the **American Community Survey**. If you have not already responded, it is imperative that you complete this survey now.

Complete and mail back your paper questionnaire now.

Or respond at https://respond.census.gov/acs

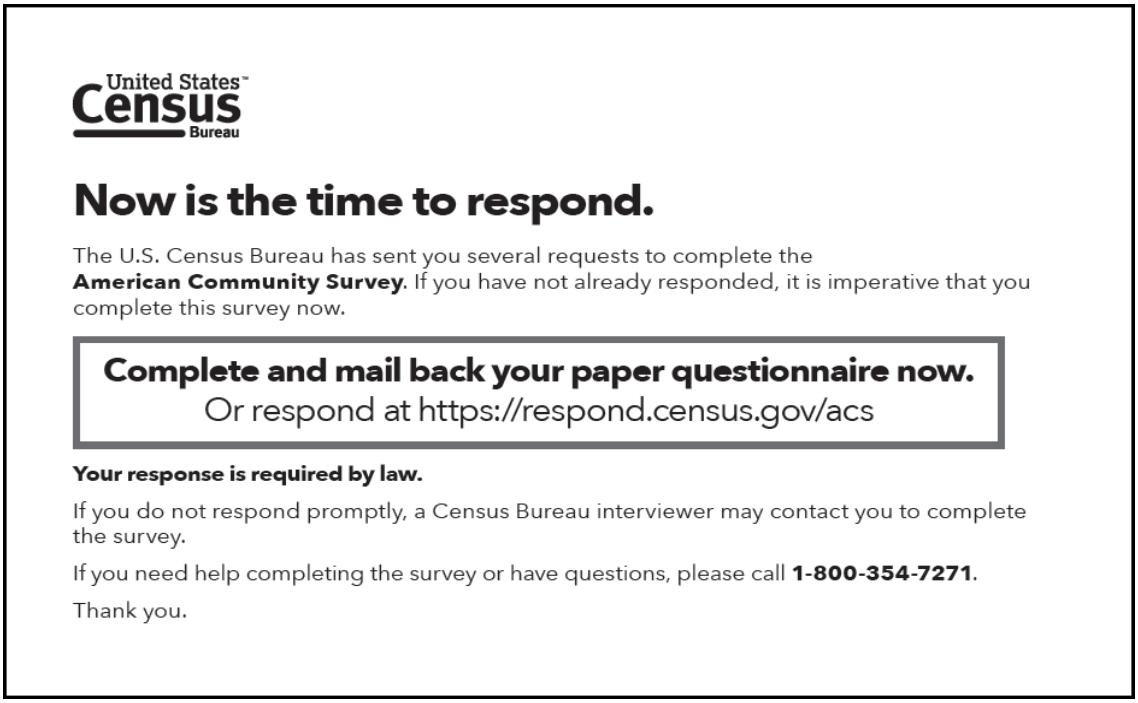
You are required by U.S. law to respond to this survey (Title 13, U.S. Code, Sections 141 and 193).

If you do not respond now, a Census Bureau interviewer may contact you by personal visit to complete the survey.

If you would like to complete the survey by telephone or need assistance, please call **1-800-354-7271.**

Thank you.

Second Reminder Postcard:



United States Census Bureau

Now is the time to respond.

The U.S. Census Bureau has sent you several requests to complete the **American Community Survey**. If you have not already responded, it is imperative that you complete this survey now.

Complete and mail back your paper questionnaire now.

Or respond at https://respond.census.gov/acs

Your response is required by law.

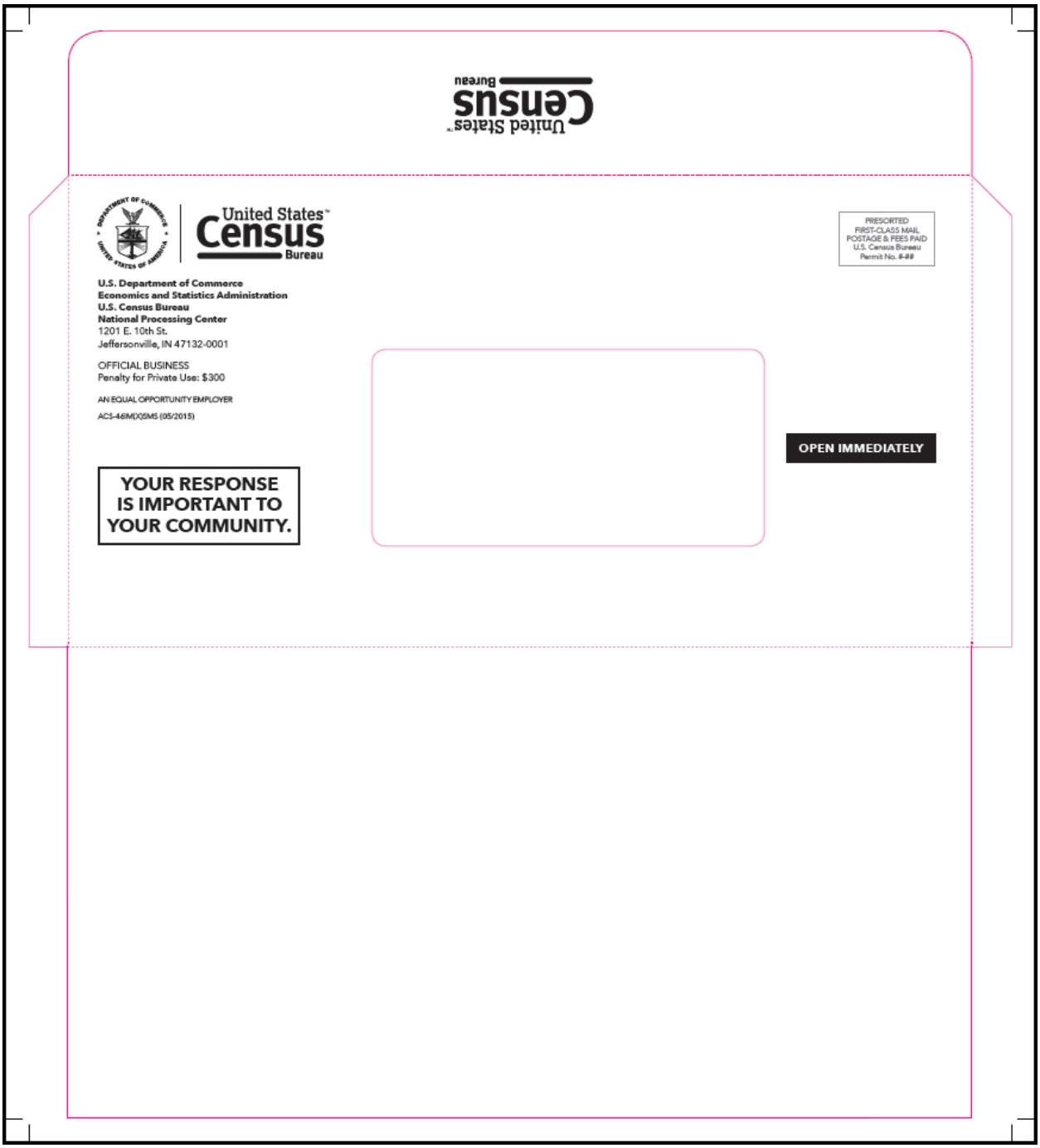
If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.

If you need help completing the survey or have questions, please call **1-800-354-7271**.

Thank you.

Appendix C: Softened Revised Design Treatment Materials

Outgoing Envelope for Initial Mailing:



Appendix C: Softened Revised Design Treatment Materials

Initial Mailing Letter (Front):

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

Your address has been randomly selected by the U.S. Census Bureau to participate in the **American Community Survey**. The Census Bureau conducts this survey each year to give our country an up-to-date picture of how we live – including our education, housing, and jobs.

Communities across the country rely on information from this survey to decide where important services are needed, including:

- Improving roads and reducing traffic
- Building schools
- Planning for the health care needs of the elderly

Respond now at **https://respond.census.gov/acs**

Because your household has been asked to participate on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area. Your response is required by U.S. law.

If you are unable to complete the survey online, we will send you a paper questionnaire in a few weeks. The Census Bureau is using the Internet to collect this information to conserve natural resources, save taxpayers money, and process data more efficiently.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you in advance for your prompt response.

Sincerely,

John H. Thompson
Director, U.S. Census Bureau

Enclosures

American Community Survey data help determine the annual distribution of more than **$400 billion** in federal funds **to communities nationwide**.

ACS-13(LX)SMS (5-2015)

census.gov

Appendix C: Softened Revised Design Treatment Materials

Initial Mailing Letter (Back):

Will my response be confidential?
Yes. The information you provide will help create a picture of your community, but it cannot be used to identify you. By law (Title 13, U.S. Code, Section 9), all of the information the Census Bureau collects for this survey is completely confidential, and millions of people securely participate in the survey each year. Census Bureau employees are subject to a $250,000 fine and/or up to five years in prison if they disclose any information that could identify you.

Am I required to fill out the survey?
Yes. Your response to this survey is required by law (Title 13, U.S. Code, Sections 141, 193, and 221). As a randomly selected representative of your community, you are the voice of your neighbors and peers. To create an accurate picture of your community, it is critical that you respond.

How will the Census Bureau use the information I provide?
Your confidential response will be aggregated with information from other nearby households to produce a portrait of your community. This information is made freely accessible to government leaders, businesses, nonprofit organizations, and the public at large.

Based on the information you provide, you may be asked to participate in other Census Bureau surveys that are voluntary. We may combine your answers with information that you gave to other agencies to enhance the statistical uses of these data. This information will be given the same protection as your survey response.

Appendix C: Softened Revised Design Treatment Materials

Reminder Letter:

United States Census Bureau

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

A few days ago, you should have received instructions for completing the **American Community Survey** online. Local communities depend on information from this survey to decide where schools, highways, hospitals, and other important services are needed. If you have not already responded, please do so now.

Respond now at **https://respond.census.gov/acs**
Log in using this user ID:

If we do not receive your response online, we will mail a paper questionnaire to your address.

Your response is critically important to your local community and your country and is required by law. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you in advance for your prompt response.

Sincerely,

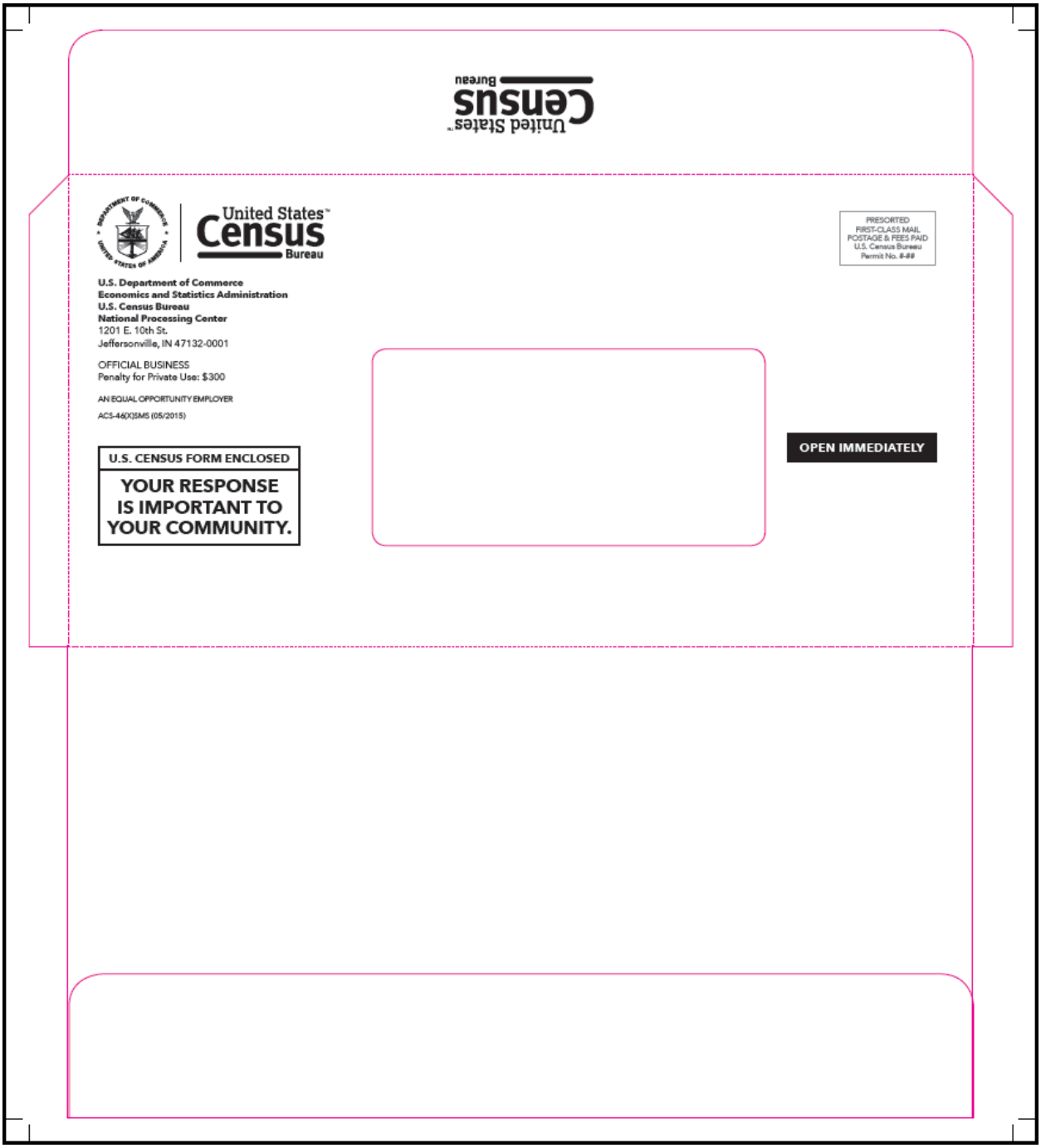
John H. Thompson
Director, U.S. Census Bureau

ACS-20(LX)SMS (5/2015)

census.gov

Appendix C: Softened Revised Design Treatment Materials

Outgoing Envelope for Paper Questionnaire Package Mailing:



Appendix C: Softened Revised Design Treatment Materials

Paper Questionnaire Package Mailing Letter:

United States Census Bureau

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

The U.S. Census Bureau recently sent you a request to complete the **American Community Survey** online. If you have not already responded to this important survey, please do so now.

Complete the survey using ONLY ONE of the following options:

- Respond online at **https://respond.census.gov/acs**
- If you are unable to respond online, please fill out and mail back the enclosed questionnaire.

Your response is important to your community.
The Census Bureau has randomly selected your address to receive this survey as part of a nationally representative sample. You are required by U.S. law to respond to this survey. Because you will be providing important information on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area – including determining where to locate new schools, hospitals, and fire stations.

If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.

Your answers are completely confidential.
By law, the Census Bureau cannot publish or release information that would identify you or your household.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you for your prompt response.

Sincerely,

John H. Thompson
Director, U.S. Census Bureau

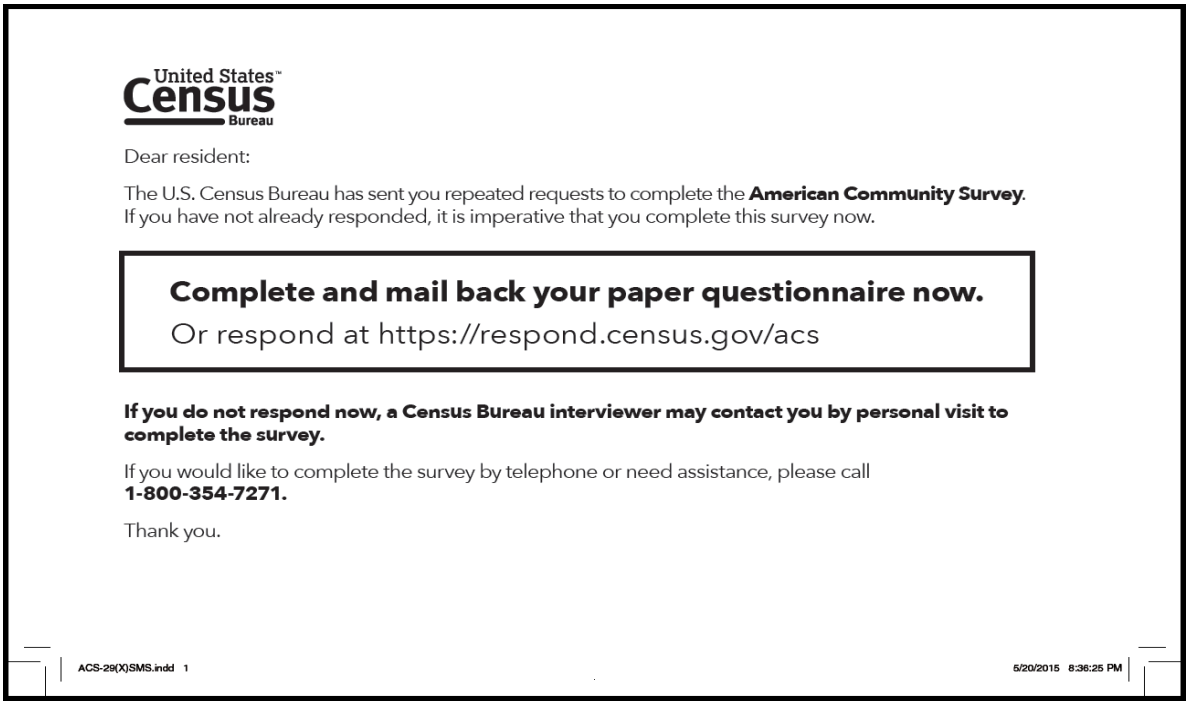
Enclosures

ACS-14(LX)SMS (5-2015)

census.gov

Appendix C: Softened Revised Design Treatment Materials

First Reminder Postcard:



United States Census Bureau

Dear resident:

The U.S. Census Bureau has sent you repeated requests to complete the **American Community Survey**. If you have not already responded, it is imperative that you complete this survey now.

Complete and mail back your paper questionnaire now.
Or respond at https://respond.census.gov/acs

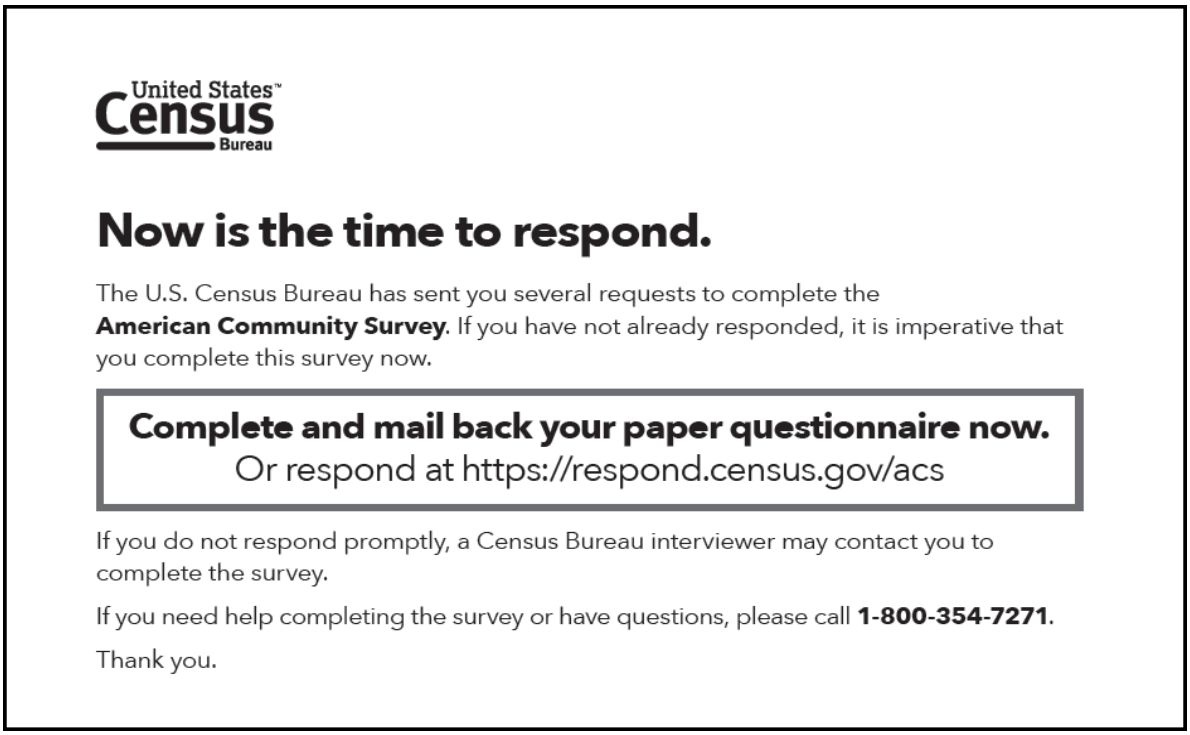
If you do not respond now, a Census Bureau interviewer may contact you by personal visit to complete the survey.

If you would like to complete the survey by telephone or need assistance, please call **1-800-354-7271.**

Thank you.

ACS-29(X)SMS.indd 1 5/20/2015 8:36:25 PM

Second Reminder Postcard:



United States Census Bureau

Now is the time to respond.

The U.S. Census Bureau has sent you several requests to complete the **American Community Survey**. If you have not already responded, it is imperative that you complete this survey now.

Complete and mail back your paper questionnaire now.
Or respond at https://respond.census.gov/acs

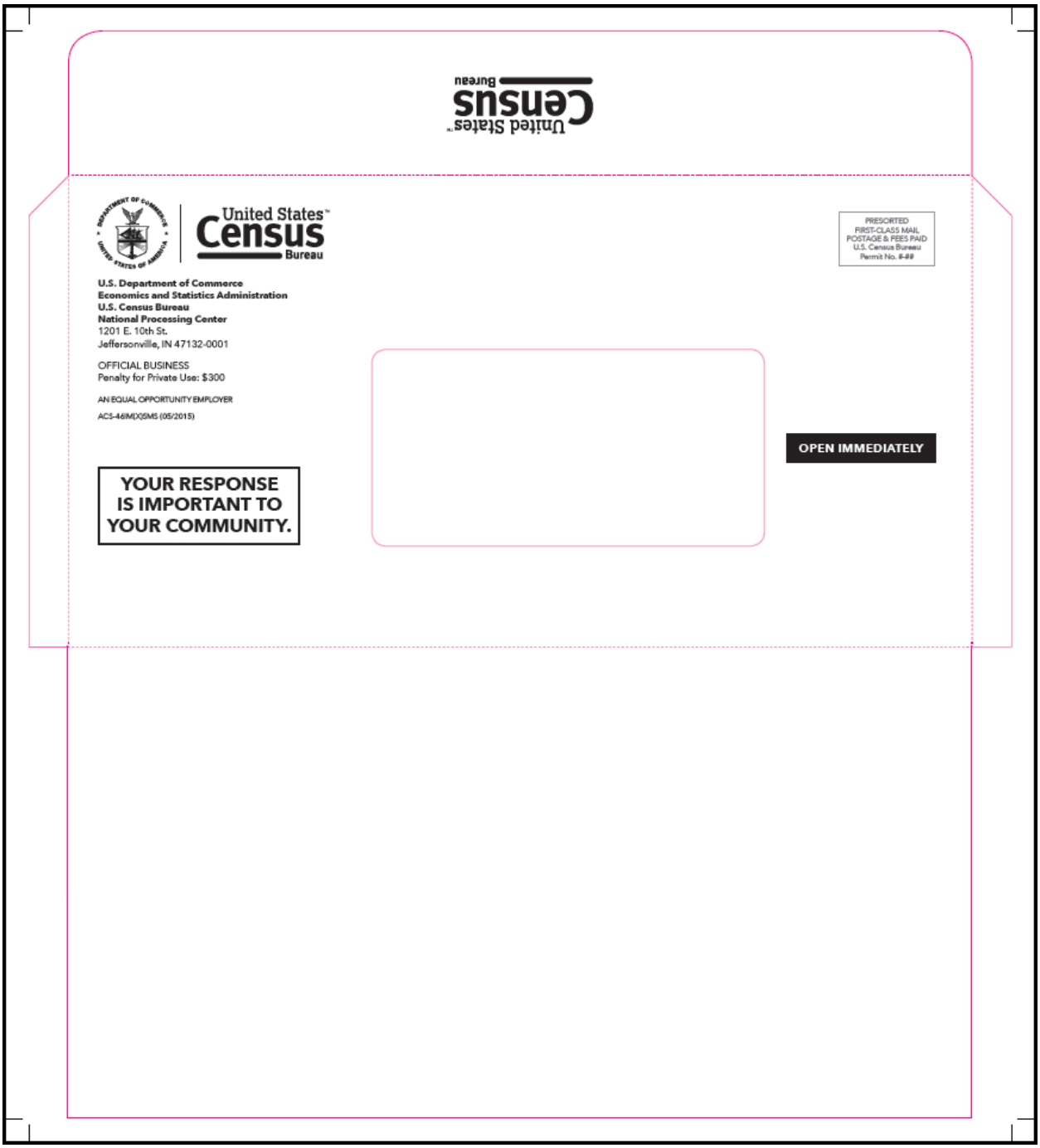
If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.

If you need help completing the survey or have questions, please call **1-800-354-7271**.

Thank you.

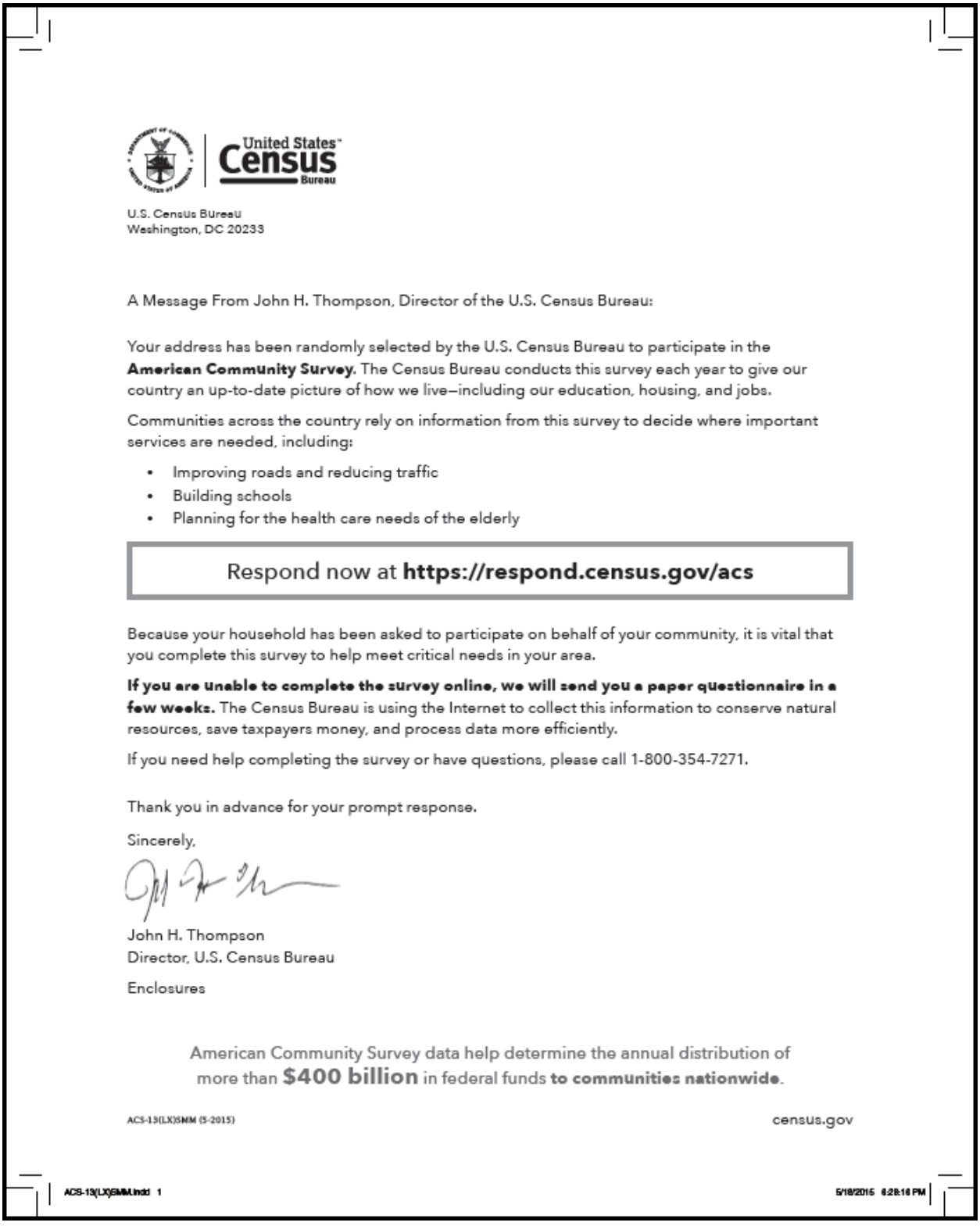
Appendix D: Minimal Revised Design Treatment Materials

Outgoing Envelope for Initial Mailing:



Appendix D: Minimal Revised Design Treatment Materials

Initial Mailing Letter (Front):



United States Census Bureau

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

Your address has been randomly selected by the U.S. Census Bureau to participate in the **American Community Survey.** The Census Bureau conducts this survey each year to give our country an up-to-date picture of how we live—including our education, housing, and jobs.

Communities across the country rely on information from this survey to decide where important services are needed, including:

- Improving roads and reducing traffic
- Building schools
- Planning for the health care needs of the elderly

Respond now at **https://respond.census.gov/acs**

Because your household has been asked to participate on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area.

If you are unable to complete the survey online, we will send you a paper questionnaire in a few weeks. The Census Bureau is using the Internet to collect this information to conserve natural resources, save taxpayers money, and process data more efficiently.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you in advance for your prompt response.

Sincerely,

John H. Thompson
Director, U.S. Census Bureau

Enclosures

American Community Survey data help determine the annual distribution of more than **$400 billion** in federal funds **to communities nationwide.**

ACS-13(LX)SMM (5-2015)

census.gov

ACS-13(LX)SMM.indd 1

5/18/2015 6:28:16 PM

Appendix D: Minimal Revised Design Treatment Materials

Initial Mailing Letter (Back):

Information about Your Responses

The information you provide will help create a picture of your community, but it cannot be used to identify you. By law (Title 13, U.S. Code, Section 9), all of the information the Census Bureau collects for this survey is completely confidential, and millions of people securely participate in the survey each year. Census Bureau employees are subject to a $250,000 fine and/or up to five years in prison if they disclose any information that could identify you.

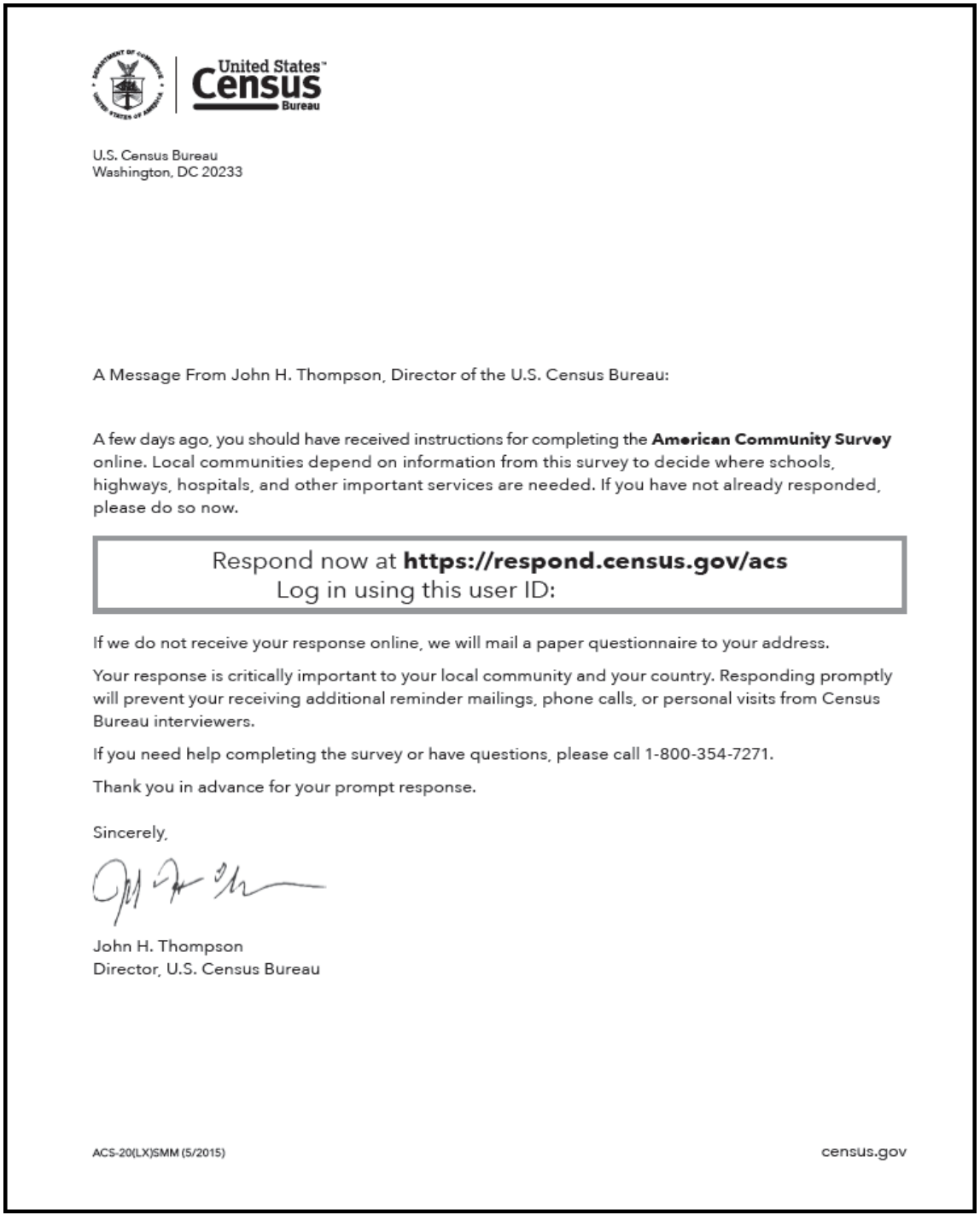
As a randomly selected representative of your community, you are the voice of your neighbors and peers. To create an accurate picture of your community, it is critical that you respond. Your response to this survey is required by Title 13, U.S. Code, Sections 141, 193, and 221.

Your confidential response will be aggregated with information from other nearby households to produce a portrait of your community. This information is made freely accessible to government leaders, businesses, nonprofit organizations, and the public at large. Based on the information you provide, you may be asked to participate in other Census Bureau surveys that are voluntary. We may combine your answers with information that you gave to other agencies to enhance the statistical uses of these data. This information will be given the same protection as your survey response.

ACS-13(LX)SMM.indd 2 5/18/2015 6:28:16 PM

Appendix D: Minimal Revised Design Treatment Materials

Reminder Letter:



United States Census Bureau

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

A few days ago, you should have received instructions for completing the **American Community Survey** online. Local communities depend on information from this survey to decide where schools, highways, hospitals, and other important services are needed. If you have not already responded, please do so now.

Respond now at **https://respond.census.gov/acs**
Log in using this user ID:

If we do not receive your response online, we will mail a paper questionnaire to your address.

Your response is critically important to your local community and your country. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you in advance for your prompt response.

Sincerely,

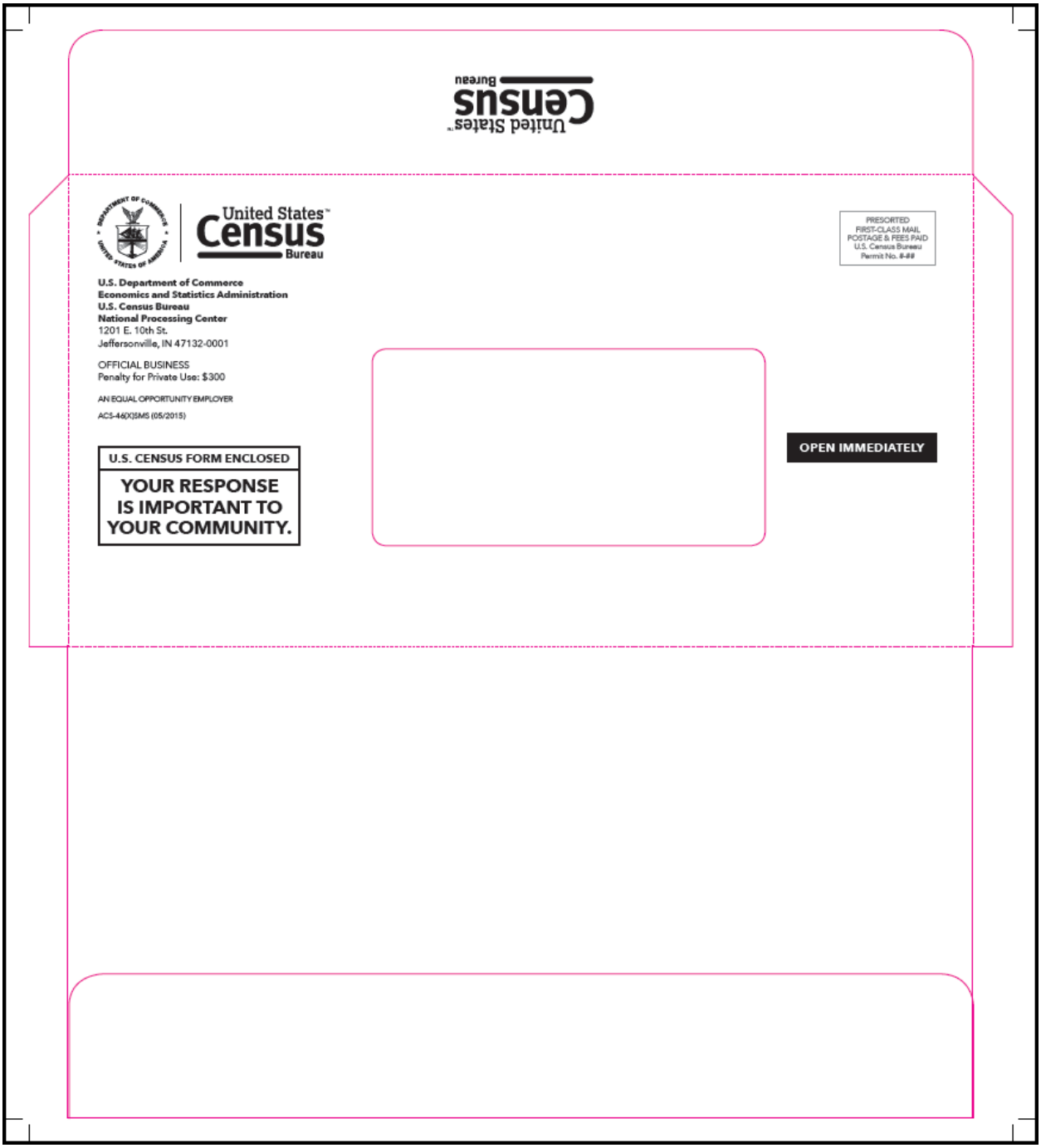
John H. Thompson
Director, U.S. Census Bureau

ACS-20(LX)SMM (5/2015)

census.gov

Appendix D: Minimal Revised Design Treatment Materials

Outgoing Envelope for Paper Questionnaire Package Mailing:



Appendix D: Minimal Revised Design Treatment Materials

Paper Questionnaire Package Mailing Letter:

United States Census Bureau

U.S. Census Bureau
Washington, DC 20233

A Message From John H. Thompson, Director of the U.S. Census Bureau:

The U.S. Census Bureau recently sent you a request to complete the **American Community Survey** online. If you have not already responded to this important survey, please do so now.

Complete the survey using ONLY ONE of the following options:

- Respond online at **https://respond.census.gov/acs**
- If you are unable to respond online, please fill out and mail back the enclosed questionnaire.

Your response is important to your community.
The Census Bureau has randomly selected your address to receive this survey as part of a nationally representative sample. Because you will be providing important information on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area — including determining where to locate new schools, hospitals, and fire stations.

If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.

Your answers are completely confidential.
By law, the Census Bureau cannot publish or release information that would identify you or your household.

If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you for your prompt response.

Sincerely,

John H. Thompson
Director, U.S. Census Bureau

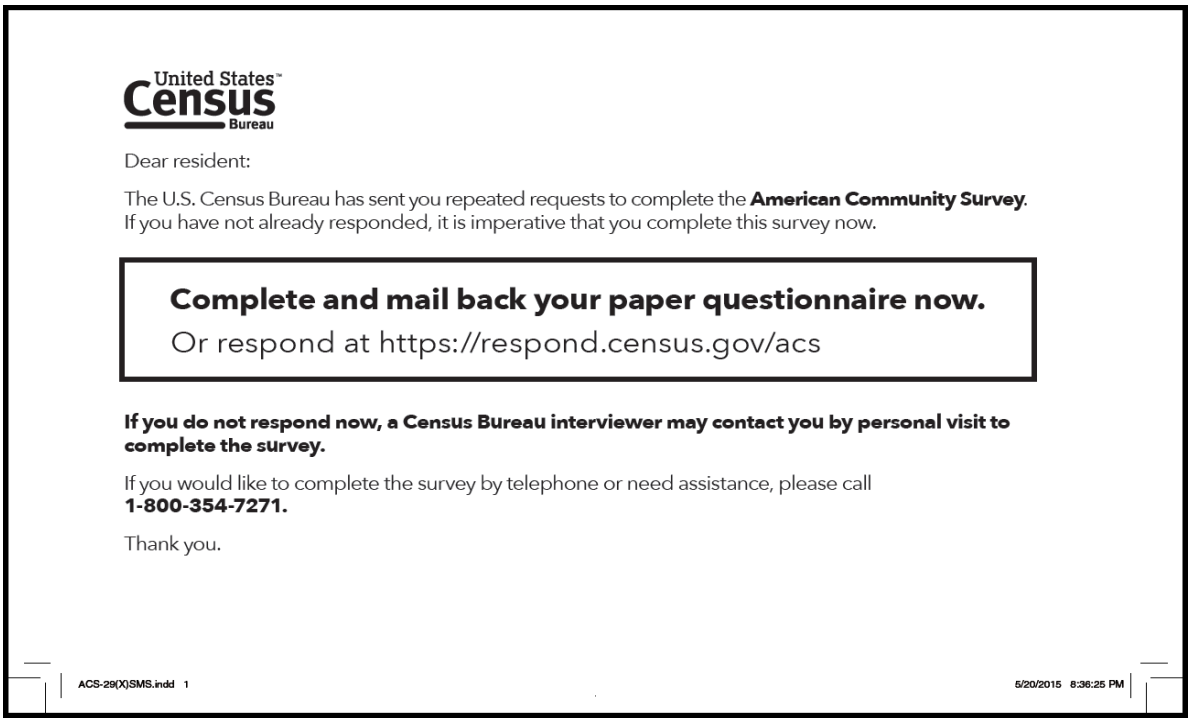
Enclosures

ACS-14(LX)SMM (5-2015)

census.gov

Appendix D: Minimal Revised Design Treatment Materials

First Reminder Postcard:



United States Census Bureau

Dear resident:

The U.S. Census Bureau has sent you repeated requests to complete the **American Community Survey**. If you have not already responded, it is imperative that you complete this survey now.

Complete and mail back your paper questionnaire now.
Or respond at https://respond.census.gov/acs

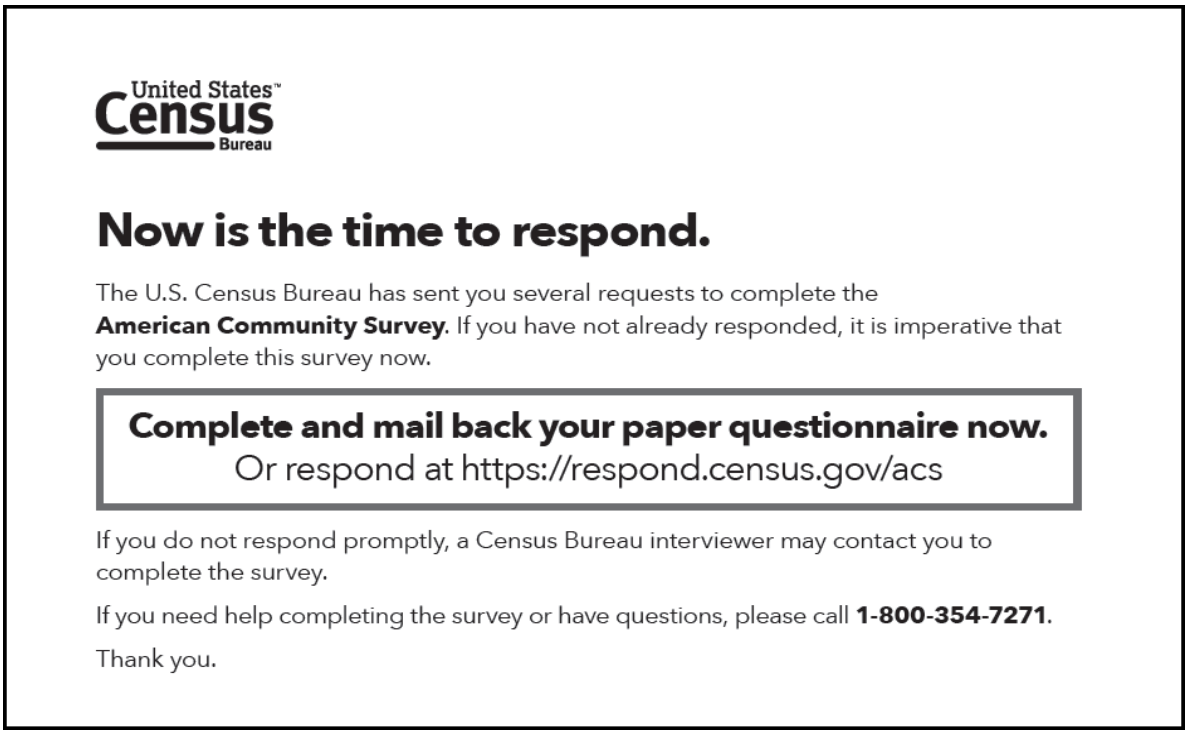
If you do not respond now, a Census Bureau interviewer may contact you by personal visit to complete the survey.

If you would like to complete the survey by telephone or need assistance, please call **1-800-354-7271.**

Thank you.

ACS-29(X)SMS.indd 1 5/20/2015 8:36:25 PM

Second Reminder Postcard:



United States Census Bureau

Now is the time to respond.

The U.S. Census Bureau has sent you several requests to complete the **American Community Survey**. If you have not already responded, it is imperative that you complete this survey now.

Complete and mail back your paper questionnaire now.
Or respond at https://respond.census.gov/acs

If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.

If you need help completing the survey or have questions, please call **1-800-354-7271**.

Thank you.

Appendix E: Softened Mandatory Messaging
vs.
Modified Control Treatment

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment.

Form	Title	Location	Modified Control Treatment	Softened Mandatory Messaging Treatment
ACS-10SM	FAQ Brochure	Middle Panel – answer to "Do I have to answer the questions on the American Community Survey?"	Your response to this survey is required by law (Title 13, U.S. Code, Sections 141, 193, and 221). Title 13, as changed by Title 18, imposes a penalty for not responding. We estimate this survey will take about 40 minutes to complete.	Your response to this survey is required by law (Title 13, U.S. Code, Sections 141, 193, and 221). ~~Title 13, as changed by Title 18, imposes a penalty for not responding.~~ We estimate this survey will take about 40 minutes to complete.
ACS-13(L)SM; ACS-14(L)SM	Intro Letter; Mail Follow-up Letter	Second to the last paragraph	The Census Bureau chose your address, not you personally, as part of a randomly selected sample. You are required by U.S. law to respond to this survey. The Census Bureau is required by U.S. law to keep your answers confidential. The enclosed brochure answers frequently asked questions about the survey.	The Census Bureau chose your address~~, not you personally~~, as part of a randomly selected sample. ~~You are required by U.S. law to respond to this survey.~~ The Census Bureau is required by U.S. law to keep your answers confidential. The enclosed brochure answers frequently asked questions about the survey.

Appendix E: Softened Mandatory Messaging vs. Modified Control Treatment

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment.

Form	Title	Location	Modified Control Treatment	Softened Mandatory Messaging Treatment
ACS-20(LX)CST	Reminder Letter	Heading of third paragraph	**Your response to this survey is required by law.** Your response is critically important to your local community and your country. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.	~~**Your response to this survey is required by law.**~~ Your response is critically important to your local community and your country and is required by law. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.
ACS-29	Reminder Postcard	Second to last paragraph	**Your response to this survey is required by U.S. law.** If you do not respond, a Census Bureau interviewer may contact you to complete the survey. Local and national leaders use the information from this survey for planning schools, hospitals, roads, and other community needs.	~~**Your response to this survey is required by U.S. law**~~ If you do not respond, a Census Bureau interviewer may contact you to complete the survey. Local and national leaders use the information from this survey for planning schools, hospitals, roads, and other community needs.

Appendix E: Softened Mandatory Messaging vs. Modified Control Treatment

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment.

Form	Title	Location	Modified Control Treatment	Softened Mandatory Messaging Treatment
ACS-23	First Reminder Postcard	First paragraph	Within the last few weeks, the U.S. Census Bureau mailed an American Community Survey questionnaire package to your address. **You are required by U.S. law to respond to this survey.** The Census Bureau is required by U.S. law to keep your answers confidential. If you have already responded, thank you. If you have not, please complete the questionnaire and send it now, or complete the survey online now at https://respond.census.gov/acs.	Within the last few weeks, the U.S. Census Bureau mailed an American Community Survey questionnaire package to your address. ~~**You are required by U.S. law to respond to this survey.**~~ The Census Bureau is required by U.S. law to keep your answers confidential. If you have already responded, thank you. If you have not, please complete the questionnaire and send it now, or complete the survey online now at https://respond.census.gov/acs
ACS-30	HU Instruction Guide Booklet	Page 2, last paragraph	**Your Answers are Confidential and Required by Law** The law, Title 13, Sections 9, 141, 193, and 221 of the U.S. Code, authorizing the American Community Survey, also provides that your answers are confidential. No one except Census Bureau employees may see your completed form and they can be fined and/or imprisoned for any disclosure of your answers. The same law that protects the confidentiality of your answers requires that you provide the information asked in this survey to the best of your knowledge.	No changes

Appendix E: Softened Mandatory Messaging
vs.
Modified Control Treatment

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment.

Form	Title	Location	Modified Control Treatment	Softened Mandatory Messaging Treatment
ACS-46IM	Outgoing Envelope for Initial Mailing	Front of envelope	The American Community Survey YOUR RESPONSE IS REQUIRED BY LAW	The American Community Survey YOUR RESPONSE IS IMPORTANT TO YOUR COMMUNITY **OPEN IMMEDIATELY**
ACS-46	Outgoing Envelope for Paper Questionnaire Package Mailing	Front of envelope	The American Community Survey Form Enclosed YOUR RESPONSE IS REQUIRED BY LAW	The American Community Survey Form Enclosed YOUR RESPONSE IS IMPORTANT TO YOUR COMMUNITY **OPEN IMMEDIATELY**

Appendix F: Modified Control Treatment

vs.

Revised Treatments

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment.

Form Name	Replacing	Location	Wording in Modified Control	Wording in Revised Design Treatment	Wording in Softened Revised Design Treatment	Wording in Minimal Revised Design Treatment
C4_OfficialFAQ	ACS-10SM	Middle Panel – answer to "Am I required to fill out the survey?"	Yes. Your response to this survey is required by law (Title 13, U.S. Code, Sections 141 and 193). As a randomly selected representative of your community, you are the voice of your neighbors and peers. To create an accurate picture of your community, it is critical that you respond.	This FAQ brochure will not be included in this test. However, information from the third paragraph on page 1 and the first 2 paragraphs on page 2 must be included in A3 letter.	This FAQ brochure will not be included in this test. However, information from the third paragraph on page 1 and the first 2 paragraphs on page 2 must be included in A3 letter.	This FAQ brochure will not be included in this test. However, information from the third paragraph on page 1 and the first 2 paragraphs on page 2 must be included in A3 letter.

Appendix F: Modified Control Treatment
vs.
Revised Treatments

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment.

Form Name	Replacing	Location	Wording in Modified Control	Wording in Revised Design Treatment	Wording in Softened Revised Design Treatment	Wording in Minimal Revised Design Treatment
A3_Official Internet Invitation Letter	ACS-13(L)SM	Third Paragraph heading	**Your response is required by U.S. law.** Because your household has been asked to participate on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area.	Front: No changes Back of Letter: **Am I required to fill out the survey?** Yes. Your response to this survey is required by law (Title 13, U.S. Code, Sections 141, 193, and 221). As a randomly selected representative of your community, you are the voice of your neighbors and peers. To create an accurate picture of your community, it is critical that you respond.	~~**Your response is required by U.S. law.**~~ Because your household has been asked to participate on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area. Your response is required by U.S. law. Back of Letter: **Am I required to fill out the survey?** Yes. Your response to this survey is required by law (Title 13, U.S. Code, Sections 141, 193, and 221). As a randomly selected representative of your community, you are the voice of your neighbors and peers. To create an accurate picture of your community, it is critical that you respond.	**Your response is required by U.S. law.** Because your household has been asked to participate on behalf of your community, it is vital that you complete this survey to help meet critical needs in your area. Back of Letter: **Information about Your Responses** As a randomly selected representative of your community, you are the voice of your neighbors and peers. To create an accurate picture of your community, it is critical that you respond. Your response to this survey is required by Title 13, U.S. Code, Sections 141, 193, and 221.

Appendix F: Modified Control Treatment
vs.
Revised Treatments

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment

Form Name	Replacing	Location	Wording in Modified Control	Wording in Revised Design Treatment	Wording in Softened Revised Design Treatment	Wording in Minimal Revised Design Treatment
Rem2_Official Reminder Letter	ACS-20(L)	Heading of third paragraph	**Your response to this survey is required by law.** Your response is critically important to your local community and your country. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.	No changes	~~**Your response to this survey is required by law.**~~ Your response is critically important to your local community and your country and is required by law. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.	~~**Your response to this survey is required by law.**~~ Your response is critically important to your local community and your country. Responding promptly will prevent your receiving additional reminder mailings, phone calls, or personal visits from Census Bureau interviewers.
C6_Official Choice Letter in Paper Questionnaire Package	ACS-14(L)SM	Heading of third paragraph	**You are required by U.S. Law to respond to this survey.** The Census Bureau has randomly selected your address, not you personally, to receive this survey as part of a nationally representative sample.	**You are required by U.S. Law to respond to this survey.** The Census Bureau has randomly selected your address~~, not you personally~~, to receive this survey as part of a nationally representative sample.	~~**You are required by U.S. Law to respond to this survey.**~~ **Your response is important to your community.** The Census Bureau has randomly selected your address~~, not you personally~~, to receive this survey as part of a nationally representative sample. You are required by U.S. Law to respond to this survey.	~~**You are required by U.S. Law to respond to this survey.**~~ **Your response is important to your community.** The Census Bureau has randomly selected your address~~, not you personally~~, to receive this survey as part of a nationally representative sample.

Appendix F: Modified Control Treatment
vs.
Revised Treatments

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment

Form Name	Replacing	Location	Wording in Modified Control	Wording in Revised Design Treatment	Wording in Softened Revised Design Treatment	Wording in Minimal Revised Design Treatment
D1_Official First Reminder Card	ACS-29	Second paragraph	**Your response is required by U.S. law.** If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.	No changes	~~**Your response is required by U.S. law.**~~ If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.	~~**Your response is required by U.S. law.**~~ If you do not respond promptly, a Census Bureau interviewer may contact you to complete the survey.
E1_Official Final Reminder Card	ACS-23	Second paragraph	**You are required by U.S. law to respond to this survey** (Title 13, U.S. Code, Sections 141 and 193).	Change color of the postcard	~~**You are required by U.S. law to respond to this survey** (Title 13, U.S. Code, Sections 141 and 193).~~ Change color of the postcard	~~**You are required by U.S. law to respond to this survey** (Title 13, U.S. Code, Sections 141 and 193).~~ Change color of the postcard

Appendix F: Modified Control Treatment
vs.
Revised Treatments

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment

Form Name	Replacing	Location	Wording in Modified Control	Wording in Revised Design Treatment	Wording in Softened Revised Design Treatment	Wording in Minimal Revised Design Treatment
C1_Official Main Envelope for Paper Questionnaire Package Mailing	ACS-46	Front and back of envelope	Front: U.S. CENSUS FORM ENCLOSED **YOUR RESPONSE IS REQUIRED BY LAW** Back: **Your Response is required by law.** (This statement is also included in Spanish, Chinese, Vietnamese, Russian, Korean)	Front: **OPEN IMMEDIATELY** Back: ~~**Your Response is required by law.**~~ ~~(This statement is also included in Spanish, Chinese, Vietnamese, Russian, Korean)~~ Eliminate shading at bottom of envelope.	Front: U.S. CENSUS FORM ENCLOSED ~~**YOUR RESPONSE IS REQUIRED BY LAW**~~ **YOUR RESPONSE IS IMPORTANT TO YOUR COMMUNITY** Back: ~~**Your Response is required by law.**~~ ~~(This statement is also included in Spanish, Chinese, Vietnamese, Russian, Korean)~~ Eliminate shading at bottom of envelope.	Front: U.S. CENSUS FORM ENCLOSED ~~**YOUR RESPONSE IS REQUIRED BY LAW**~~ **YOUR RESPONSE IS IMPORTANT TO YOUR COMMUNITY** Back: ~~**Your Response is required by law.**~~ ~~(This statement is also included in Spanish, Chinese, Vietnamese, Russian, Korean)~~ Eliminate shading at bottom of envelope.

Appendix F: Modified Control Treatment
vs.
Revised Treatments

Note: The mandatory messaging is highlighted. Text crossed out indicates an omission from document for the given treatment

Form Name	Replacing	Location	Wording in Modified Control	Wording in Revised Design Treatment	Wording in Softened Revised Design Treatment	Wording in Minimal Revised Design Treatment
A1_Official Main Envelope for Initial Mailing	ACS-46IM	Front and back of envelope	Front: **YOUR RESPONSE IS REQUIRED BY LAW** Back: **Your Response is required by law.** (This statement is also included in Spanish, Chinese, Vietnamese, Russian, Korean)	Front: **OPEN IMMEDIATELY** Back: ~~**Your Response is required by law.**~~ ~~(This statement is also included in Spanish, Chinese, Vietnamese, Russian, Korean)~~ Eliminate shading at bottom of envelope.	Front: ~~**YOUR RESPONSE IS REQUIRED BY LAW**~~ **YOUR RESPONSE IS IMPORTANT TO YOUR COMMUNITY** Back: ~~**Your Response is required by law.**~~ ~~(This statement is also included in Spanish, Chinese, Vietnamese, Russian, Korean)~~ Eliminate shading at bottom of envelope.	Front: ~~**YOUR RESPONSE IS REQUIRED BY LAW**~~ **YOUR RESPONSE IS IMPORTANT TO YOUR COMMUNITY** Back: ~~**Your Response is required by law.**~~ ~~(This statement is also included in Spanish, Chinese, Vietnamese, Russian, Korean)~~ Eliminate shading at bottom of envelope.