

ACS Research & Evaluation Analysis Plan (REAP)

**2021 Initial Mailing
Pressure Seal Test**

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1. INTRODUCTION

Beginning in March 2020, the U.S. Census Bureau's National Processing Center (NPC) operations were impacted by the coronavirus (COVID-19) pandemic. The NPC did not send any American Community Survey (ACS) mailings from mid-March through June 2020.¹

In late June, staffing levels at the NPC were sufficient to resume ACS mailings. However, because of the interruption in operations and continued staffing constraints, it was necessary to reduce the number of ACS mailings. Starting with the July 2020 panel, the ACS self-response mail contact strategy changed to two mail contacts per sampled housing unit.² For the October 2020 panel, a third mailing was added. In addition to the staffing shortages, there was an insufficient supply of pre-assembled mail packages for the remainder of the calendar year. Therefore, the Census Bureau decided to alternate between two types of initial mailings. The July, September, November, and December panels received the initial mailing package used in the normal mailout strategy. The August and October panels received a pressure seal letter as the initial mailing, inviting them to respond online.

We created the new pressure seal letter by combining content from the initial mailing package and reminder letter and by modifying that content to fit the new format and mailout strategy. While this approach solved the staffing and supply issue, there were some concerns about how effective the pressure seal letter would be compared to the typical initial mailing package. Intuitively, it seems that a larger initial mail package would be more noticeable than a pressure seal letter. Thus, we anticipated a decrease in response with the smaller mailing. Previous testing showed no significant difference in the self-response rates when comparing a pressure seal letter to a letter in a *regular-sized* envelope (Risley 2017).

Surprisingly, data from the August 2020 panel, which was sent the pressure seal letter, showed higher response rates compared to the July 2020 panel which received the initial mail package. However, the response rates for August 2020, were still lower than the August 2019 response rates. There are several factors that confound these comparisons. Differences between July and August panels may be due to the difference in the mail type, but could also be a consequence of an additional mailing sent for the 2020 Census one week prior to the August ACS mailing, other 2020 Census communications, or differences in respondent behavior due to the pandemic. Differences between 2020 and 2019 may also have occurred because we did not send a reminder letter as a second mailing in 2020. Additionally, comparisons are limited due to wording differences in the mailings (e.g., the August 2020 pressure seal letter did not mention a paper questionnaire would be coming, but both the July 2020 mailing and August 2019 mailing

¹ The April, May, and June 2020 panels did not receive any mail contacts.

² Under normal circumstances, the mail contact strategy includes up to five mail contacts.

did). For the October 2020 panel, we again sent a pressure seal letter as the initial mailing, and again we saw an increase in responses.³

The purpose of this test is to determine if using a pressure seal letter for the initial mailing results in higher response rates in a situation where we can control for some of the above confounding factors such as wording differences, lack of a second mailing, and the effect of 2020 Census communications. If response rates using the pressure seal letter are not significantly lower than response rates using the initial mail package, then it would be cost effective to change the ACS contact strategy because a pressure seal letter is cheaper than an initial mail package.

2. BACKGROUND

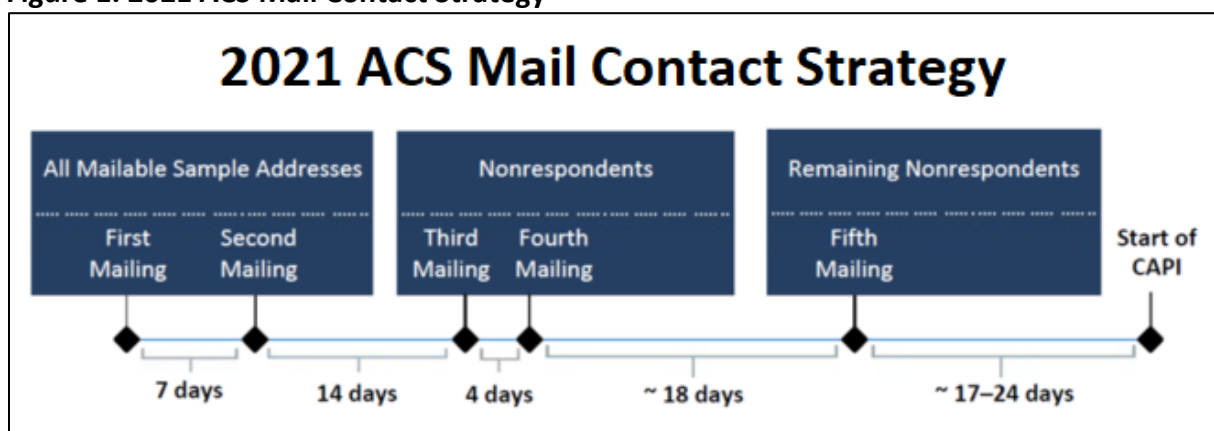
This section presents information on:

1. the normal ACS data collection strategy
2. the 2020 ACS data collection strategy before the coronavirus pandemic
3. the 2020 ACS data collection strategy during the coronavirus pandemic

2.1 Normal ACS Data Collection Strategy

When the NPC returns to normal operations, the 2021 ACS mail contact strategy will follow the plan outlined below. This test will not occur until the normal ACS data collection strategy is in place. Figure 1 outlines the 2021 ACS mail contact strategy.

Figure 1. 2021 ACS Mail Contact Strategy



The first two mailings are sent to all mailable addresses in the monthly sample. The first mailing is a package that includes a letter, a multilingual brochure, and a card with instructions on how to respond via the internet. The letter contains an invitation to participate in the ACS online and

³ The increase was nominal; there was no statistical testing performed.

more information in a *frequently asked questions* (FAQs) format on the back of the letter. The letter also provides the Telephone Questionnaire Assistance (TQA) phone number if anyone at the address has any questions. A week later, the same addresses are sent a second mailing (reminder letter as a pressure seal letter).

Responding addresses are removed from the address file after the second mailing to create a new mailing universe of nonrespondents; these addresses are sent the third and fourth mailings.⁴ The third mailing is a package that includes a letter, a paper questionnaire, and a business reply envelope. Four days later, these addresses are sent a fourth mailing (reminder postcard) which encourages them to respond.

After the fourth mailing, responding addresses are again removed from the address file to create a new mailing universe of nonrespondents. The remaining sample addresses are sent the fifth mailing (a more urgent final reminder letter with a due date in a pressure seal letter).

Two to three weeks later, responding addresses are removed and undeliverable and undeliverable addresses (from the initial sample) are added to create the universe of addresses eligible for the Computer-Assisted Personal Interview (CAPI) nonresponse followup operation.⁵ Of this universe, a subsample is chosen to be included in the CAPI operation. Field representatives attempt to call to interview those selected for CAPI by phone. If they cannot reach them by phone, or do not have a phone number, they visit the addresses to conduct in-person interviews.

Additional information can be found in the ACS Design and Methodology Report (U.S. Census Bureau 2014).

2.2 2020 ACS Data Collection Strategy Before the Coronavirus Pandemic

The data collection strategy for 2020 was not planned to be different in terms of the number and types of mailings. However, the language of some of the materials was changed to address potential respondent confusion between the ACS and the 2020 Census.

Table 1 outlines the changes that were made to help distinguish the ACS from the 2020 Census. There were no changes made to the first mailing instruction card and multilingual brochure, third mailing questionnaire and return envelope, the fourth mailing, or the interior of the fifth mailing. Due to the coronavirus pandemic, the mailings in Table 1 were sent only for the March 2020 panel; some of the language distinguishing the 2020 Census from the ACS was used in mailings developed during the pandemic.

⁴ Addresses deemed “undeliverable as addressed” (UAA) by the United States Postal Service are also removed from the address files for subsequent mailings.

⁵ CAPI interviews start at the beginning of the month following the fifth mailing.

Table 1. Differences Between the Normal ACS Materials and ACS Materials During the 2020 Census

Mailing	Mail Material	What Was Changed	Specific Wording Differences
First Mailing	Envelope	Form number is different to help with processing	
	Letter	2020 Census text (front of letter)	Added text: “The American Community Survey is not the 2020 Census. This survey asks questions about topics not on the 2020 Census, such as veteran status, transportation, and internet access.”
		2020 Census FAQs included (back of letter)	Added two additional FAQs about the 2020 Census
Second Mailing	Exterior of Pressure Seal Letter	Mentions the ACS on the exterior	Added text: U.S. Census Bureau American Community Survey
	Interior of Pressure Seal Letter	2020 Census text included	Added text: “Some households, including yours, will receive both the American Community Survey and the 2020 Census this year.”
Third Mailing	Envelope	Form number is different to help with processing	
	Letter	2020 Census text (front of letter)	Added text: “This year, the Census Bureau is also conducting the 2020 Census. The American Community Survey is different from the 2020 Census.”
		2020 Census FAQs included (back of letter)	Also changed “Your response to this survey is required by law” to “Your response to the American Community Survey is required by law”. Added two additional FAQs about the 2020 Census
Fifth Mailing	Exterior of Pressure Seal Letter	Mentions the ACS on the exterior	Added text: U.S. Census Bureau American Community Survey

2.3 2020 ACS Data Collection Strategy During the Coronavirus Pandemic

Due to the temporary shutdown of operations at NPC between mid-March and June, the mailing contact strategy for July 2020 through the beginning of 2021 was changed from five mailings to two or three mailings. July through September panels were sent two mailings, while the October panel and subsequent months will receive three mailings.

In addition to the reduction in the number of mailings, the type of mailing sent to each panel varied due to supply and staffing shortages. Depending on the panel, the first mailing could be an initial mail package or a pressure seal letter. The second mailing varied within panel (July to September), with nonrespondents receiving either a paper questionnaire package or a reminder pressure seal letter. Table 2 outlines the mailing contact strategy for the second half of 2020. Changes to staffing may result in changes to this plan.

Table 2. Mailing Contact Strategy July 2020 to December 2020

Panel	First Mailing	Second Mailing	Third Mailing
Jul 2020	Initial Mail Package	Paper Questionnaire Package or Pressure Seal Letter	None
Aug 2020	Pressure Seal Letter	Paper Questionnaire Package or Pressure Seal Letter	None
Sep 2020	Initial Mail Package	Paper Questionnaire Package or Pressure Seal Letter	None
Oct 2020	Pressure Seal Letter	Paper Questionnaire Package	Pressure Seal Letter
Nov 2020	Initial Mail Package	Paper Questionnaire Package	Pressure Seal Letter
Dec 2020	Initial Mail Package	Paper Questionnaire Package	Pressure Seal Letter

We combined content from the first and second 2020 ACS mailing materials to create the new initial pressure seal letter. We modified some of the content to fit a pressure seal letter, such as moving the Census Bureau address to the upper right corner and condensing the FAQs that appear on the back of the initial mail package letter to the bottom in small font. We also modified the benefits listed in the second paragraph to address potential new concerns due to the pandemic. In addition, we dropped the reference to a paper questionnaire.⁶ See Appendix A for images of the pressure seal letter used as the first mailing in August 2020.

The contact strategies for 2021 have not yet been decided. The current plan is to send three mailings and use a pressure seal letter for the first mailing for at least January 2021. The contact strategy will most likely mirror that of the October 2020 panel. Ideally, we will send the initial mail package (instead of the pressure seal letter) and add a fourth mailing starting in February,

⁶ For the July, August, and September panels, it was not true for every housing unit that a paper questionnaire would be sent. Some housing units were sent the questionnaire while others received a pressure seal letter reminding them to respond online. See Table 2.

but there are concerns that these mailings may not be feasible. In April 2021 we hope to return to normal five-mailings strategy.

Since the paper questionnaire will be sent to all addresses in 2021, unlike in 2020, we designed a new initial pressure seal letter to use starting January 2021 that includes a reference to the paper questionnaire. The 2021 initial pressure seal letter also removes the 2020 specialized language that distinguishes the 2020 Census from the ACS. See Appendix B for images of the pressure seal letter to be used as the first mailing in January 2021 and how it differs from the one used in August 2020.

3. LITERATURE REVIEW

In 2014, the Census Bureau collaborated with Reingold, Inc. to research ways to improve the ACS mail materials. Focus groups and interviews were conducted in which participants were asked to rank ACS mail packages as to how likely they were to notice and open the packages. Pressure seal letters were ranked as one of the most effective. Participants saw these letters as more official (government-like) and considered them more confidential (Reingold 2014).

Statistics Canada used a pressure seal letters for the 2016 Canadian Census and also found that pressure seal letters were considered more official than a traditional envelope in the eyes of the public (Graziadei 2016).

Statistics Canada found the following benefits of using pressure seal letters:

- The letters offered the ability to include personal or confidential information (e.g., login information).⁷
- The use of pressure seal letters reduced both costs and paper waste due to the elimination of a separate envelope.
- The printer had the capacity to produce 1.6 million pressure seal letters a day, increasing the efficiency of mail assembly.

In 2017, the Census Bureau conducted a field test to see if replacing some of the ACS mail materials (reminder letters and postcards) with pressure seal letters would affect response rates. The results of that test showed that replacing the reminder letter (second mailing) with a pressure seal letter would not negatively impact self-response and would be a cost-saving change (Risley 2017). This test did not however test replacing the initial mail package with a pressure seal letter.

⁷ As opposed to a postcard.

4. RESEARCH QUESTIONS AND METHODOLOGY

This section discusses the sample design, experimental design, and research questions and metrics of the 2020 Initial Mailing Pressure Seal (IMPS) Test. The goal of this test is to assess if sending a pressure seal letter as the initial mailing affects response metrics.

4.1 Sample Design

The 2021 IMPS Test will be conducted using the May 2021 ACS production sample.⁸ The monthly ACS production sample consists of approximately 290,000 housing unit addresses and is divided into 24 nationally representative groups (referred to as methods panel groups) of approximately 12,000 addresses each. Each of the treatments in this test will use two randomly assigned methods panel groups (approximately 24,000 mailing addresses per treatment). The control treatment will use two methods panel groups and will receive production ACS materials, but will be sorted and mailed separately from production. All remaining methods panel groups will receive production ACS materials.

4.2 Experimental Design

This test will include a control and four experimental treatments: an initial mail package (control), an initial mail package with a modified letter, and three modified pressure seal letters. Addresses not part of the test will receive the initial mail package production materials.⁹

In addition to testing for the effect of using a pressure seal letter versus an initial mail package, we will test the effect of mentioning that a paper questionnaire will be sent in a later mailing. The pressure seal letter used in the August 2020 panel did not include a sentence mentioning the paper questionnaire because, due to staff shortages at NPC, not every address received the paper questionnaire package as the third mailing (see Table 2).¹⁰ Therefore, we are also testing the effect of the paper questionnaire sentence on response metrics.

We will conduct this test when the ACS mailing strategy returns to the five-mailing contact strategy. Having all five mailings will account for how changes in the first mailing interact with subsequent mailings, especially the second mailing, which was not sent in the August 2020 and October 2020 panels. All of the treatments will adhere to the same overall ACS mailing strategy (the number of mailings, types of mailings, and timing of mailings).

⁸ The current plan is to conduct this test in May 2021, but we may conduct it in a later panel depending on the contact strategy. We will only run this test once the ACS returns to a five-mailing contact strategy.

⁹ Previous research indicates that in ACS experiments, postal procedures alone could cause a difference in response rates at a given point in time between smaller experimental treatments and larger control treatments, with response for the small treatments having a negative bias (Heimel 2016). Thus, the treatments are structured to be of similar size, and the control will be sorted and mailed separately from the rest of production cases so that the control and treatments have similar mail delivery timing.

¹⁰ Due to staff shortages at NPC from the coronavirus pandemic, only around 60 percent of nonresponders were sent a paper questionnaire. The remaining 40 percent were sent a pressure seal reminder letter.

4.2.1 Control – Initial Mail Package

As mentioned in Section 2.1, the initial mail package includes a letter inviting residents of the sampled address to participate in the ACS online and stating that a paper questionnaire will be sent in a few weeks to those unable to respond online. Along with the letter, the package also contains a multilingual brochure and an instruction card. The address mailing label of the instruction card contains the User ID, which is used when responding online. See Appendix C for images of all contents of the Initial Mail Package.

4.2.2 Treatment 1 – Initial Mail Package without a Paper Questionnaire Reference

Treatment 1 will be an initial mail package with a new letter that excludes the reference to a paper questionnaire. The only difference between the contents of this treatment and the control will be the paper questionnaire sentence in the letter. It is possible that self-response increased in August 2020 due to recipients being unaware of the paper response option.¹¹ See Appendix D for images of the Treatment 1 letter.

4.2.3 Treatment 2 – Pressure Seal Letter with a Paper Questionnaire Reference

Treatment 2 will be a pressure seal letter that includes a User ID and a reference to the paper questionnaire. The wording of this pressure seal letter will mirror the wording in the control initial mail package letter as closely as possible. However, the User ID will be included in the letter. We decided not to test a pressure seal letter without the User ID included, because we would never implement a pressure seal letter in production that did not include a User ID.¹² Additionally, FAQs that appear on the back of the initial mail package letter were condensed and included in small font in the pressure seal mail letter. See Appendix D for images of the Treatment 2 pressure seal letter.

4.2.4 Treatment 3 – Pressure Seal Letter without a Paper Questionnaire Reference

Treatment 3 will be a pressure seal letter with the reference to a paper questionnaire removed. The only difference between the wording of this treatment and Treatment 2 will be the paper questionnaire sentence. Treatment 3 will be the closest match to what was sent out in August 2020 (see Appendix A). See Appendix D for images of the Treatment 3 pressure seal letter.

4.2.5 Treatment 4 – Pressure Seal Letter with a De-emphasized Paper Questionnaire Reference

Treatment 4 will be a pressure seal letter that includes a reference to the paper questionnaire that is de-emphasized (un-bolded and in the middle of the paragraph). Besides the paragraph

¹¹ Treatment 1 will use the same envelope and contain the same multilingual brochure and instruction card as the control (see Appendix C for images).

¹² All pressure seal letters will include a User ID on the letter. A User ID is provided in the initial mail package on the instruction card, but is not provided on the letter itself due to how the initial mail package is printed and assembled.

containing the paper questionnaire reference, the rest of the wording of this treatment will be the same as Treatment 2 and Treatment 3. See Appendix D for images of the Treatment 4 pressure seal letter.

See Appendix E for a comparison of the treatments.

4.3 Research Questions

The 2021 IMPS Test will answer the following questions:

RQ1. What is the impact of using a pressure seal letter in the initial mailing on self-response return rates (overall and by mode)?

RQ2. What is the impact of removing the reference to a paper questionnaire on self-response return rates (overall and by mode)?

RQ3. What is the impact of de-emphasizing the reference to a paper questionnaire on self-response return rates (overall and by mode)?

RQ4. What is the overall impact of each of the experimental treatments on final response rates and data collection costs (overall and by mode)?

4.4 Analysis Metrics

All self-response analyses, except for the cost analysis, will be weighted using the ACS base sampling weight (the inverse of the probability of selection). Cases in the CAPI subsample will have a CAPI subsampling factor that will be multiplied by the base weight, unless they are self-responses. The sample size will be able to detect differences of approximately 1.25 percentage points between the self-response return rates of the experimental treatments (with 80 percent power and $\alpha=0.1$). We will use a significance level of $\alpha=0.1$ when determining significant differences between treatments.

4.4.1 Self-Response Return Rates

To determine the effect of each treatment on self-response, we will calculate the self-response return rates at two points in time in the data collection cycle – before the third mailing and before the start of CAPI. Self-response return rates will be calculated for total self-response combined and separately for internet, mail, and TQA responses. If there are no significant differences in TQA rates between treatments, we may combine mail and TQA rates.

The self-response return rates will be calculated using the following formula:

$$\text{Self-Response Return Rate} = \frac{\text{Number of mailable and deliverable sample addresses that either provided a non-blank}^{13} \text{ return by mail or TQA, or a complete or sufficient partial}^{14} \text{ response by internet}}{\text{Total number of mailable and deliverable sample addresses}^{15}} * 100$$

To assess the impact on self-response return rates of using a pressure seal letter (RQ1), we will compare the control to Treatment 2 and compare Treatment 1 to Treatment 3. To assess the impact on self-response return rates of removing the reference to a paper questionnaire (RQ2), we will compare the control to Treatment 1 and compare Treatment 2 to Treatment 3. To assess the impact on self-response return rates of de-emphasizing a reference to a paper questionnaire (RQ3), we will compare both Treatment 2 and Treatment 3 to Treatment 4. See Appendix E for a table of the comparisons.

If we receive more than one return from an address, then the return received first will be considered the response. In the rare case that we receive two returns on the same day, then we will choose the mail return.

4.4.2 Final Response Rates

To determine the effect of the experimental treatments on overall response to the survey, we will calculate final overall response rates and how each response mode contributes to the overall final response rate. The final response rates will be calculated using the following formula:

$$\text{Final Response Rate} = \frac{\text{Number of eligible sample addresses that either provided a non-blank return}^{14} \text{ by mail or TQA, a complete or sufficient partial}^{15} \text{ response by internet, or a complete CAPI interview}}{\text{Total number of sample addresses eligible to reply to the survey and not sampled out of CAPI}} * 100$$

The denominator does not include UAAs (unless the address did respond or is in the CAPI sample) and does not include addresses that are found to be a business, demolished, under construction, etc.

¹³ A blank form is a form in which there are no persons with sufficient response data and there is no telephone number listed on the form.

¹⁴ A sufficient partial internet response is one in which the respondent reached the *Pick Next Person* screen for a household with two or more individuals on the roster or has gone through the place of birth question for a 1-person household.

¹⁵ We will remove addresses deemed to be UAA by the Postal Service if no response is received.

If we receive more than one response from an address, then the response received first will be considered the response. In the rare case that we receive two responses on the same day, then we will choose the response in the following order: (1) mail, (2) TQA, (3) internet, and (4) CAPI.

4.4.3 Cost Analysis

In evaluating the different experimental treatments, it is not sufficient to compare only the self-response return rates and final response rates. If one or more of the experimental treatments increases self-response, subsequent mailings and the CAPI workloads (which cost more per case to complete than self-response cases) would be smaller.

Because the only changes will occur in the initial mailing, we are interested in the effect on self-response prior to determining the second mailing universe (M2). An increase in self-response before the M2 cut decreases the number of mailing pieces that need to be sent out and reduces cost.¹⁶ Calculating the return rates before the M2 cut and CAPI cut will give us an idea of how the experimental treatments would affect operational and mailing costs if they were implemented into a full ACS production year.

We will conduct a cost analysis to estimate the costs of putting each of the treatments into production. We may not perform a cost analysis for the control or Treatment 1 if their self-response return rates are significantly lower than the other treatments because the initial mail package is more expensive than a pressure seal letter. Since the cost model uses projected workload differences to project survey costs, this part of the analysis will not be weighted.

4.4.4 Additional Analysis Metrics

Prior to answering the research questions, we will investigate the underlying data to ensure there are no differences between treatments in metrics that could affect the research question results. We will examine the rate at which addresses are flagged by the USPS as being UAA, as return rates and response rates can be influenced by UAA rates.

If there are significant differences between treatments in how each response mode contributes to the overall final response rate, then we will look at major demographic distributions of Person 1 (who is typically the respondent) from sufficiently complete responses. We assume respondents in all of the treatments will have similar demographic characteristics, but mode differences in response rates could indicate an experimental difference in the treatments. Only significant findings from these analyses will be reported.

We will also examine TQA workload during the months the test is active. Not telling recipients that a paper questionnaire will be sent in a few weeks could increase calls to TQA. Since the TQA workload is collected daily for all calls and not differentiated by panel, we cannot know for certain if a change in workload is because of a particular treatment or the test overall.

¹⁶ The M2 mailing universe cut occurs before sending the third mailing (paper questionnaire).

However, we will still examine the workload and compare it to previous months and years to see if there are any substantial changes during the months the test is active.

5. ASSUMPTIONS AND LIMITATIONS

5.1 Assumptions

1. A single ACS monthly sample is representative of an entire year (twelve panels) and the entire frame sample, with respect to both response rates and cost, as designed.
2. A single methods panel group (1/24 of the full monthly sample) is representative of the full monthly sample, as designed.
3. We assume that there is no difference between treatments in mail delivery timing or subsequent response time. The treatments will have the same sample size and use the same postal sort and mailout procedures. Previous research indicated that postal procedures alone could cause a difference in response rates at a given point in time between experimental treatments of different sizes, with response for the smaller treatments lagging (Heimel 2016).

5.2 Limitations

1. Group quarters and sample housing unit addresses from remote Alaska and Puerto Rico are not included in the sample for the test.
2. The cost analysis uses estimates to make cost projections. These estimates do not account for monthly variability in production costs such as changes in staffing, production rates, or printing price adjustments.
3. There are materials and information in the initial mail package that will not be provided with the pressure seal letter (e.g., the multilingual brochure). Thus, we cannot draw separate conclusions about the effects of the mailer-type distinguished from the inclusion of extra materials.
4. It is unknown how long the coronavirus pandemic will last and what effects it could have on the implementation of this field test. A coronavirus exposure at NPC could slow or stop operations and delay this test. In addition, impacts of the pandemic on respondents' lives may affect their likelihood of responding or how they respond even when a normal mailing strategy resumes.

6. TABLE SHELLS

Below are samples of tables that will be used in the final report to show results from this test.

Table 3. Sample Table for Overall Self-Response Return Rates

Point in Data Collection Cycle	Treatment X	Treatment Y	Difference	P-value
Before Third Mailing	%%.%	%%.%	%%.%(#. #)	###
Before CAPI	%%.%	%%.%	%%.%(#. #)	###

Source: U.S. Census Bureau, American Community Survey, 2021 Initial Mailing Pressure Seal Test, DRB #####

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. An asterisk (*) indicates a statistically significant result. Significance was tested based on a two tailed t-test at the $\alpha=0.1$ level.

Table 4. Sample Table for Internet Self-Response Return Rates

Point in Data Collection Cycle	Treatment X	Treatment Y	Difference	P-value
Before Third Mailing	%%.%	%%.%	%%.%(#. #)	###
Before CAPI	%%.%	%%.%	%%.%(#. #)	###

Source: U.S. Census Bureau, American Community Survey, 2021 Initial Mailing Pressure Seal Test, DRB #####

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. An asterisk (*) indicates a statistically significant result. Significance was tested based on a two tailed t-test at the $\alpha=0.1$ level.

Table 5. Sample Table for Mail Self-Response Return Rates

Point in Data Collection Cycle	Treatment X	Treatment Y	Difference	P-value
Before Third Mailing	%%.%	%%.%	%%.%(#. #)	###
Before CAPI	%%.%	%%.%	%%.%(#. #)	###

Source: U.S. Census Bureau, American Community Survey, 2021 Initial Mailing Pressure Seal Test, DRB #####

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. An asterisk (*) indicates a statistically significant result. Significance was tested based on a two tailed t-test at the $\alpha=0.1$ level.

Table 6. Sample Table for TQA Self-Response Return Rates

Point in Data Collection Cycle	Treatment X	Treatment Y	Difference	P-value
Before Third Mailing	%%.%	%%.%	%%.%(#. #)	###
Before CAPI	%%.%	%%.%	%%.%(#. #)	###

Source: U.S. Census Bureau, American Community Survey, 2021 Initial Mailing Pressure Seal Test, DRB #####

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. An asterisk (*) indicates a statistically significant result. Significance was tested based on a two tailed t-test at the $\alpha=0.1$ level.

Table 7. Sample Table for Final Response Rates

	Treatment X	Production	Difference	P-Value
Overall Response	%%.%	%%.%	%%.%(#. #)	###
Internet	%%.%	%%.%	%%.%(#. #)	###
Mail	%%.%	%%.%	%%.%(#. #)	###
TQA	%%.%	%%.%	%%.%(#. #)	###
CAPI	%%.%	%%.%	%%.%(#. #)	###

Source: U.S. Census Bureau, American Community Survey, 2021 Initial Mailing Pressure Seal Test, DRB #####

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. An asterisk (*) indicates a statistically significant result. Significance was tested based on a two tailed t-test at the $\alpha=0.1$ level.

Table 8. Sample Table for Self-Response Return Rates at Closeout for Cost Analysis

Mode	Control	Treatment 1	Treatment 2	Treatment 3	Treatment 4
Self-Response	%%.%	%%.%	%%.%	%%.%	%%.%
Internet	%%.%	%%.%	%%.%	%%.%	%%.%
Mail	%%.%	%%.%	%%.%	%%.%	%%.%
TQA	%%.%	%%.%	%%.%	%%.%	%%.%

Source: U.S. Census Bureau, American Community Survey, 2021 Initial Mailing Pressure Seal Test, DRB #####

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. An asterisk (*) indicates a statistically significant result. Significance was tested based on a two tailed t-test at the $\alpha=0.1$ level.

Table 9. Sample Table for ACS Annual Total Cost Estimates

Treatment	Estimate of the Cost Difference from Control
Treatment 1	\$#,###,###
Treatment 2	\$#,###,###
Treatment 3	\$#,###,###
Treatment 4	\$#,###,###

Source: U.S. Census Bureau, American Community Survey, 2021 Initial Mailing Pressure Seal Test, DRB #####

Note: Negative values are denoted with parentheses and indicate a cost savings.

7. POTENTIAL CHANGES TO ACS

This test could result in a change to the ACS contact strategy if the response rates using the pressure seal letter are significantly higher or not significantly different than the response rates using the initial mail package. Specifically, the ACS contact strategy would change whether the first mailing is a pressure seal letter instead of a mail package. Alternatively, if the pressure seal letter is not shown to be cost effective, but the self-response rates for the treatments that do not mention the paper questionnaire are higher than the treatments that do mention it, the initial mail package letter could be modified to remove the reference to the paper questionnaire.

8. REFERENCES

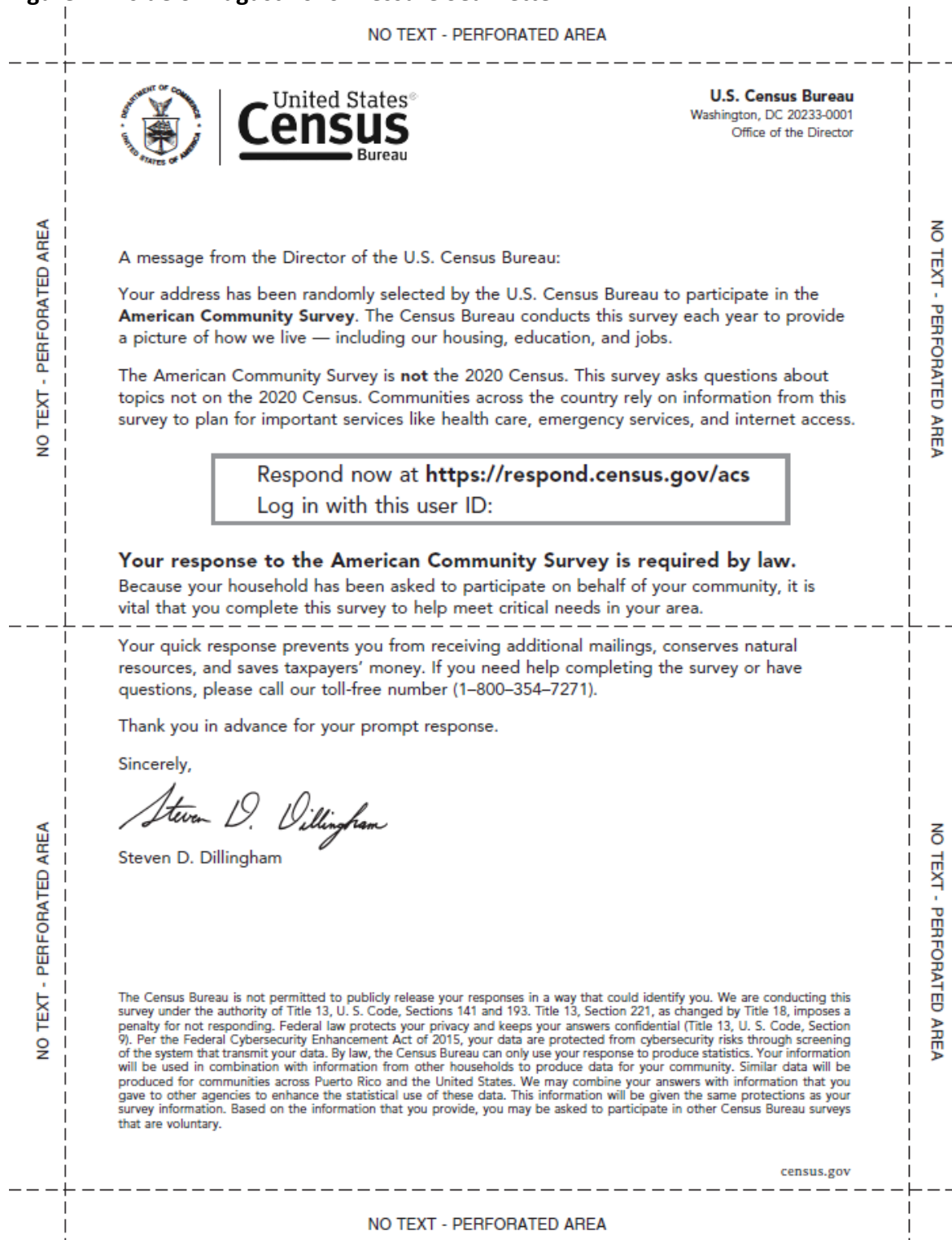
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U.S. Census Bureau (2014). "American Community Survey Design and Methodology," Retrieved on November 18, 2020 from http://www2.census.gov/programs-surveys/acs/methodology/design_and_methodology/acs_design_methodology_ch12_2014.pdf.

Appendix A. Images of the August 2020 Pressure Seal Letter

Figure 2. Inside of August 2020 Pressure Seal Letter



Appendix B. Images of the January 2021 Pressure Seal Letter

Figure 4. Inside of January 2021 Pressure Seal Letter

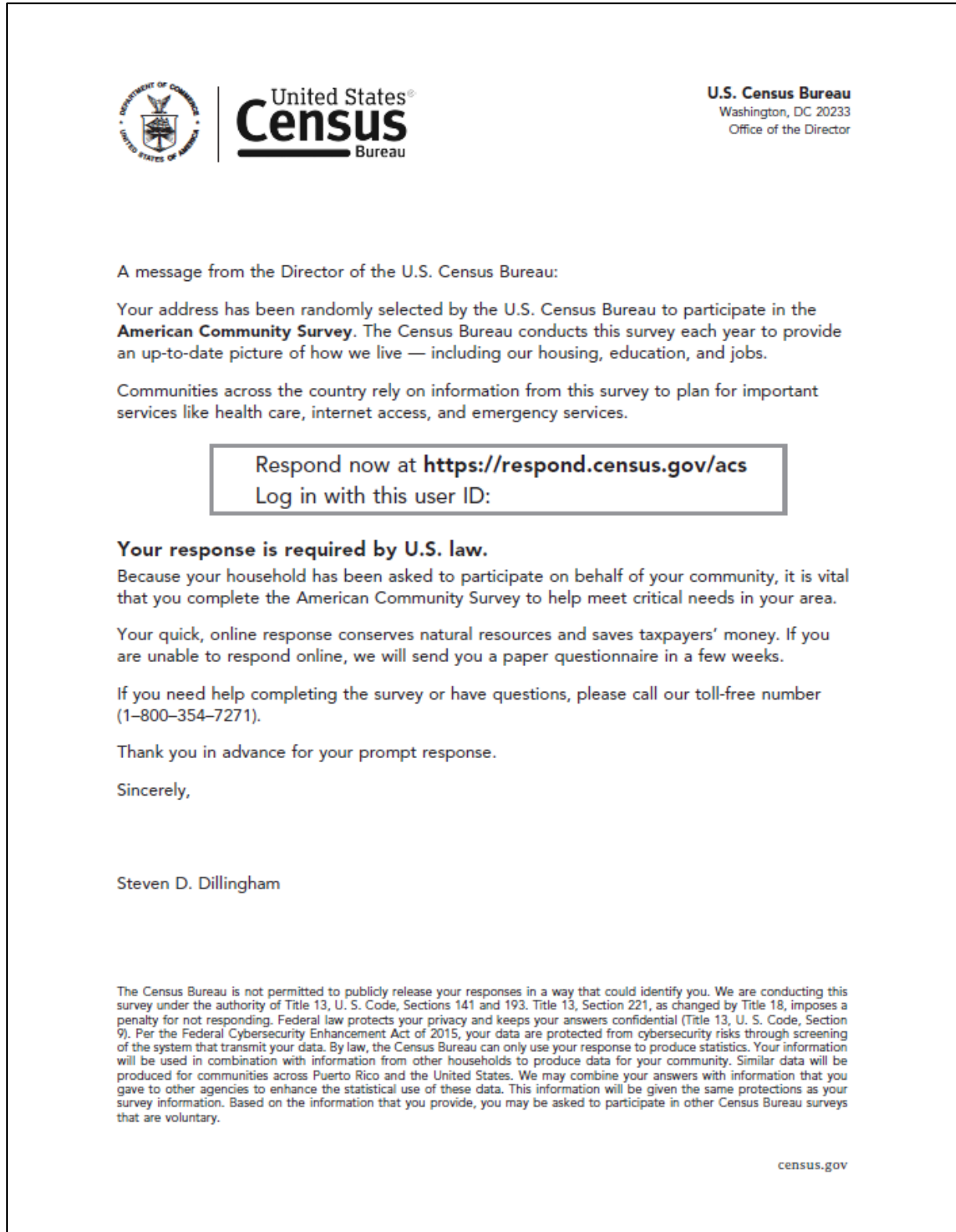


Figure 5. Outside of January 2021 Pressure Seal Letter

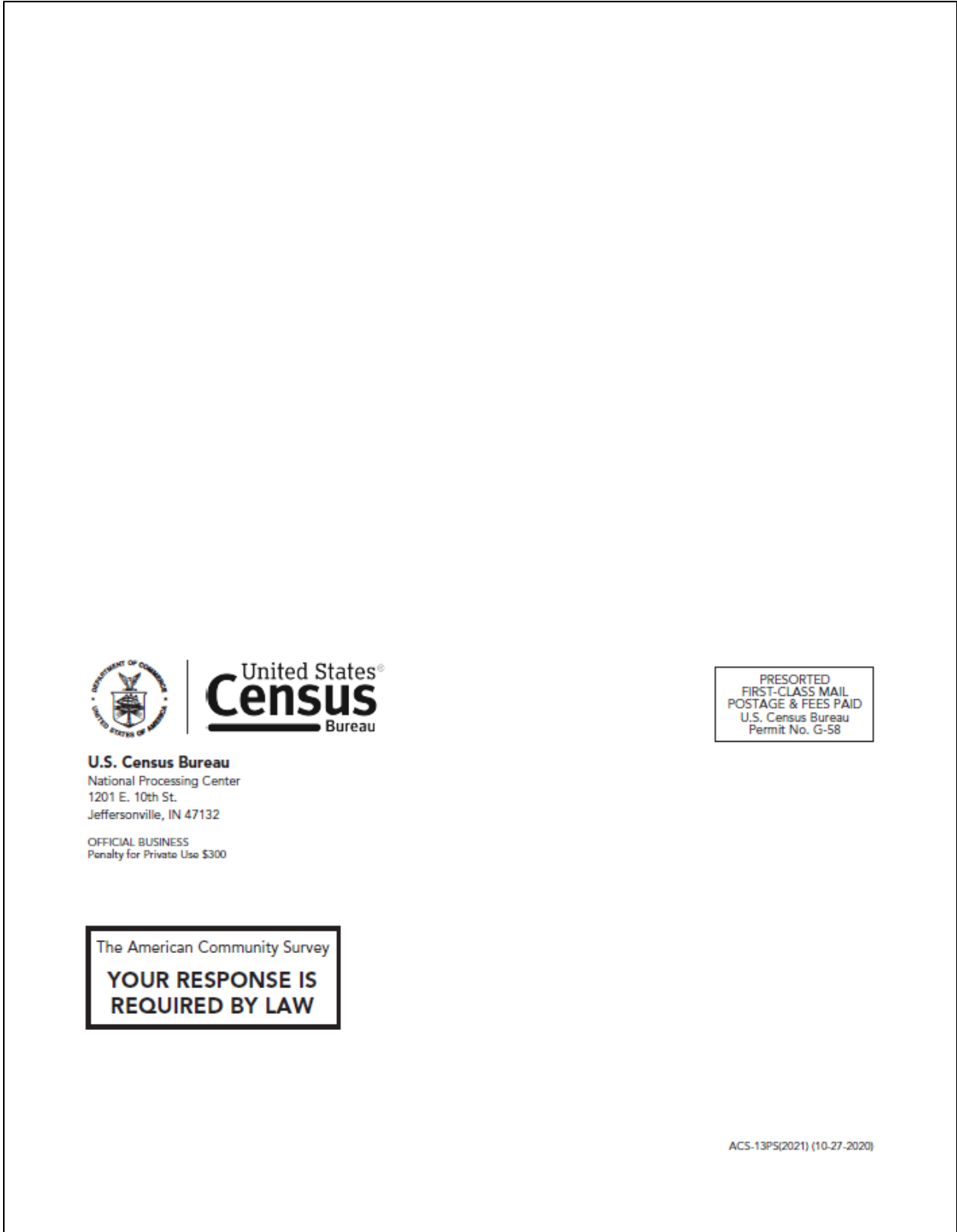


Figure 6. Differences Between Inside of August 2020 and January 2021 Pressure Seal Letters

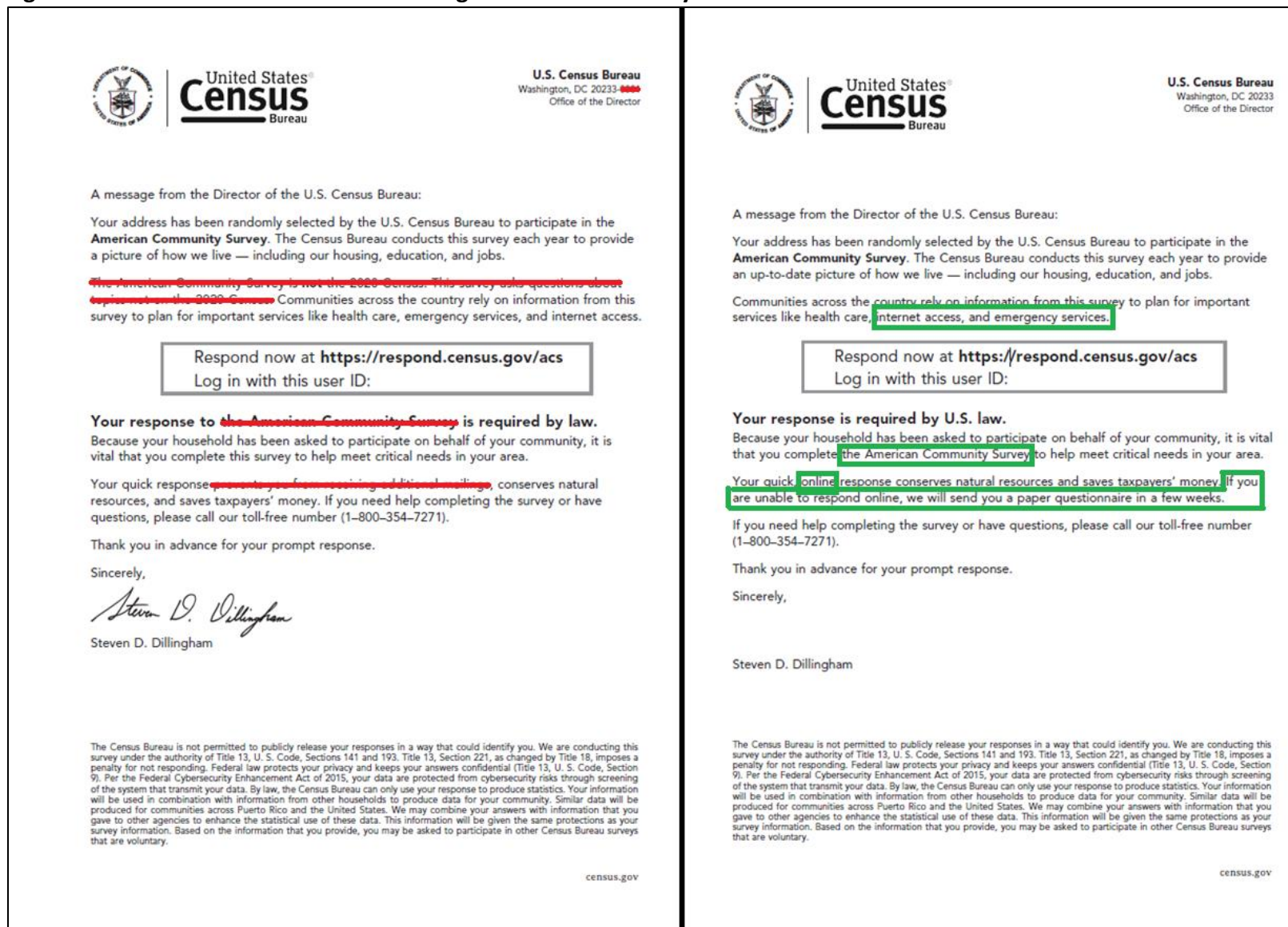
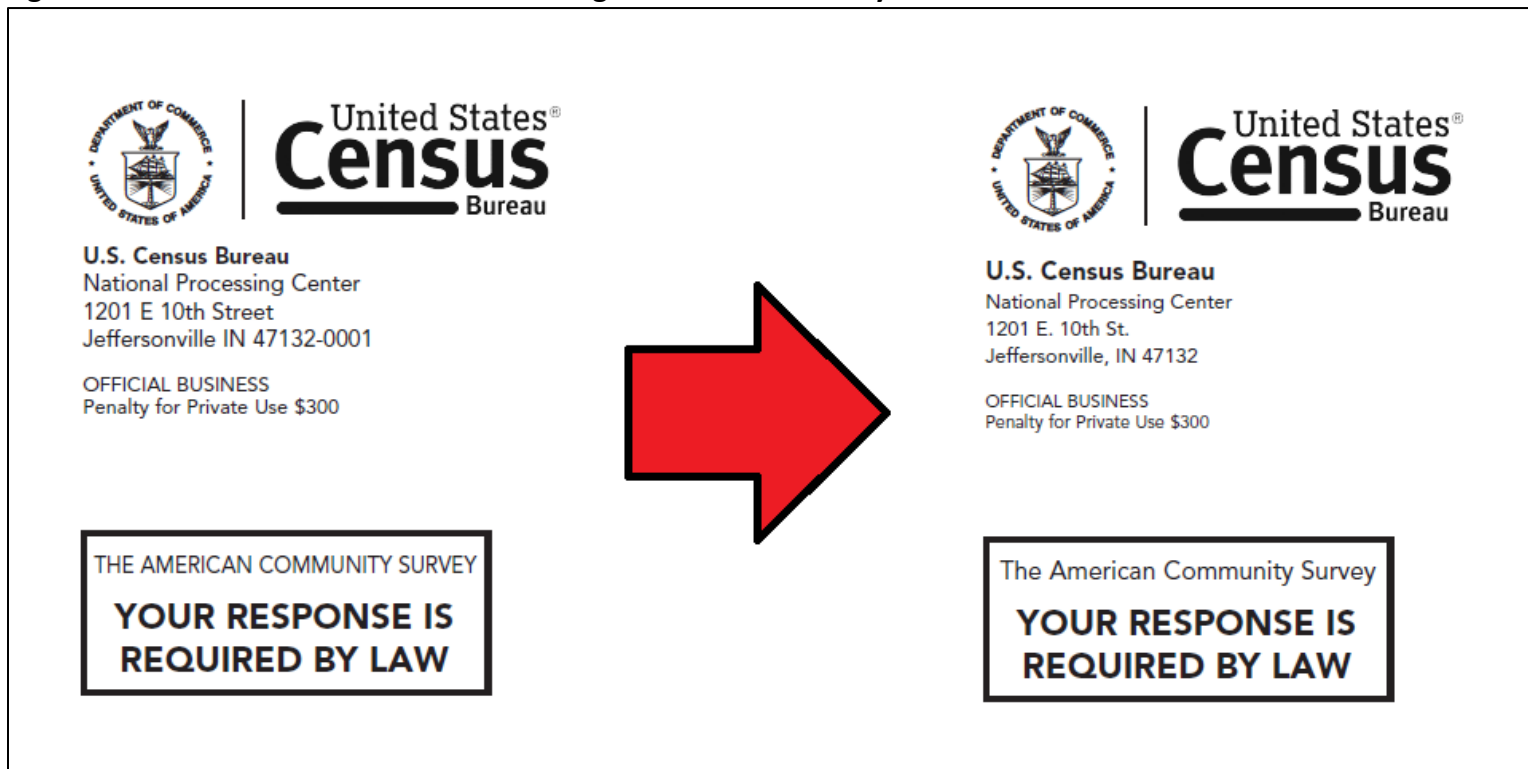


Figure 7. Differences Between Outside of August 2020 and January 2021 Pressure Seal Letters



Appendix C. Images of the Initial Mail Package (Control)

Figure 8. Front of Initial Mail Package Envelope

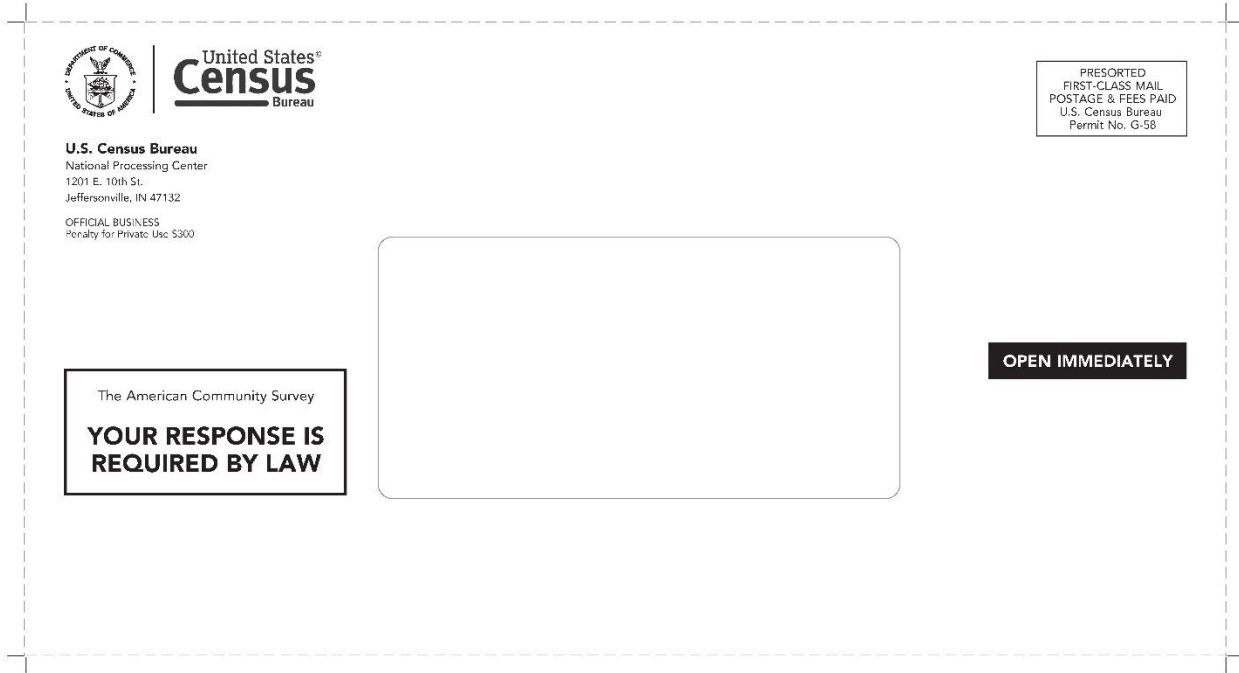


Figure 9. Back of Initial Mail Package Envelope

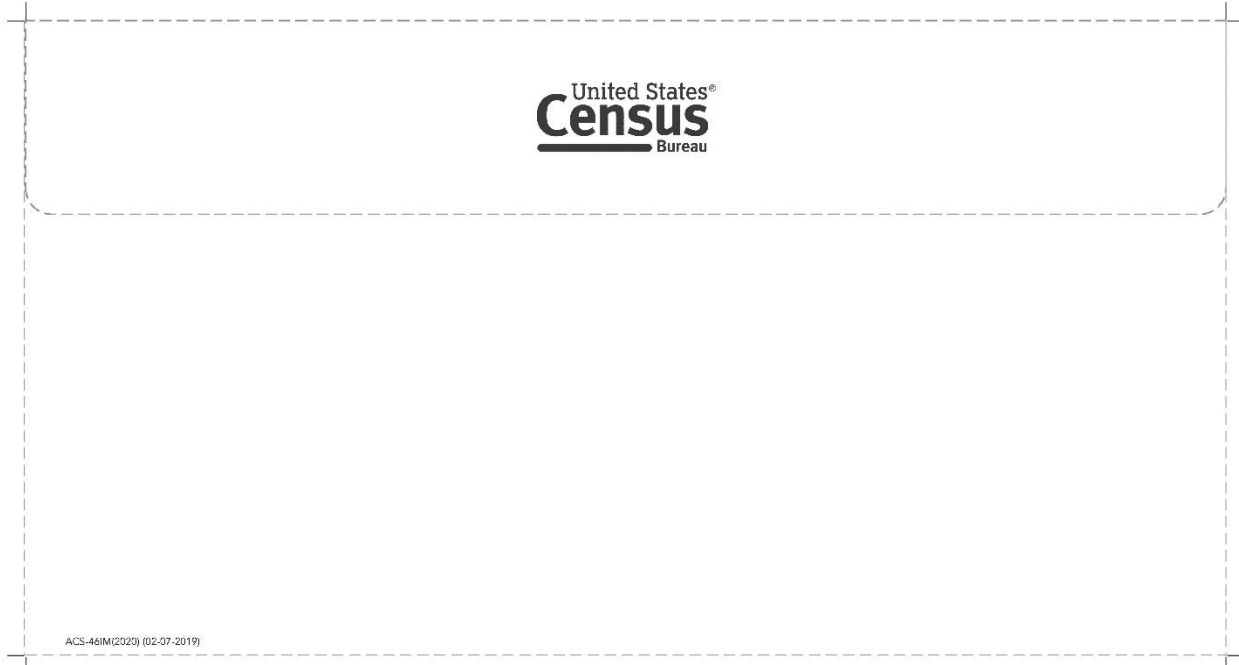


Figure 10. Front of Initial Mail Package Letter



United States[®]
Census
Bureau

U.S. Census Bureau
Washington, DC 20233
Office of the Director

A message from the 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 our toll-free number (1-800-354-7271).

Thank you in advance for your prompt response.

Sincerely,

Steven D. Dillingham

Enclosures

American Community Survey data help determine the annual distribution of more than **\$675 billion** in federal funds to **communities nationwide**.

ACS-13(L)(2020) (08-02-2019)

census.gov

Figure 11. Back of Initial Mail Package Letter

Will my response be confidential?

Yes. The U.S. Census Bureau is required by law to protect this information. The Census Bureau is not permitted to publicly release your responses in a way that could identify you. We are conducting this survey under the authority of Title 13, United States Code, Sections 141 and 193. Federal law protects your privacy and keeps your answers confidential (Title 13, United States Code, Section 9). Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the systems that transmit your data.

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). Title 13, as changed by Title 18, imposes a penalty for not responding. 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?

By law, the Census Bureau can only use your responses to produce statistics. 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 Puerto Rico and 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.

Figure 12. Outside of Multilingual Brochure

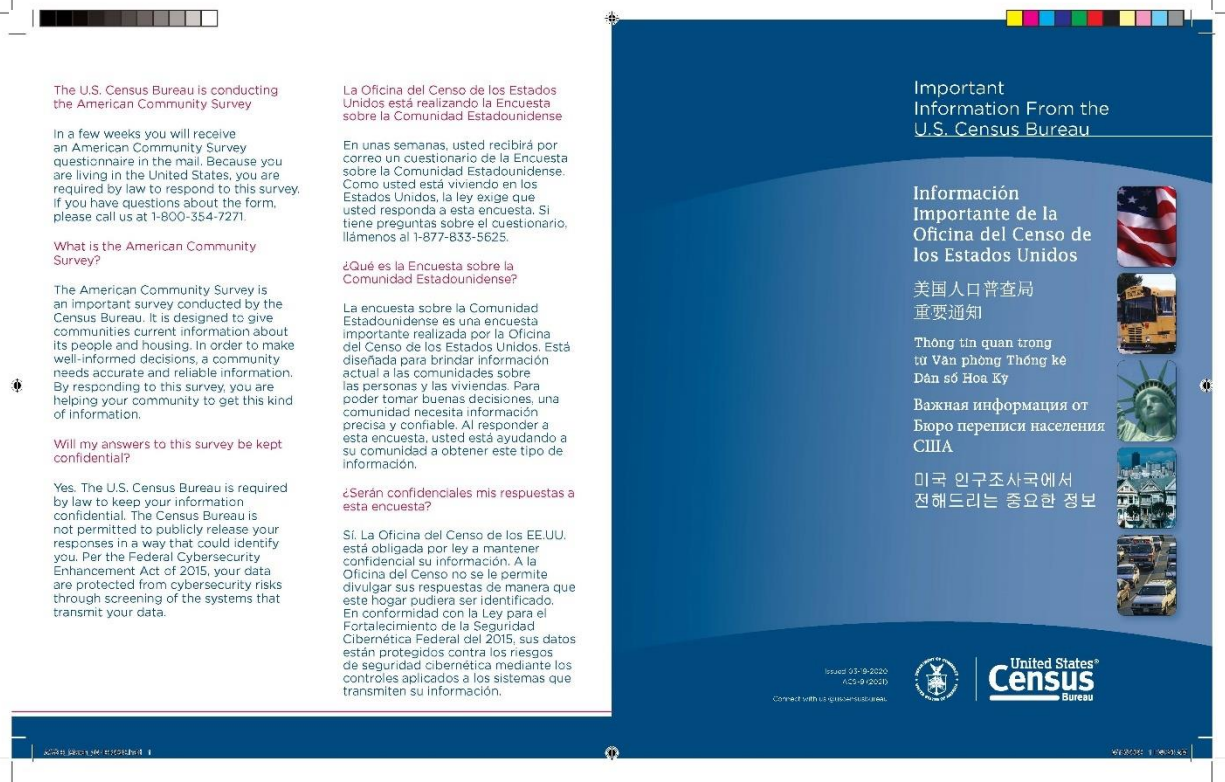


Figure 13. Inside of Multilingual Brochure

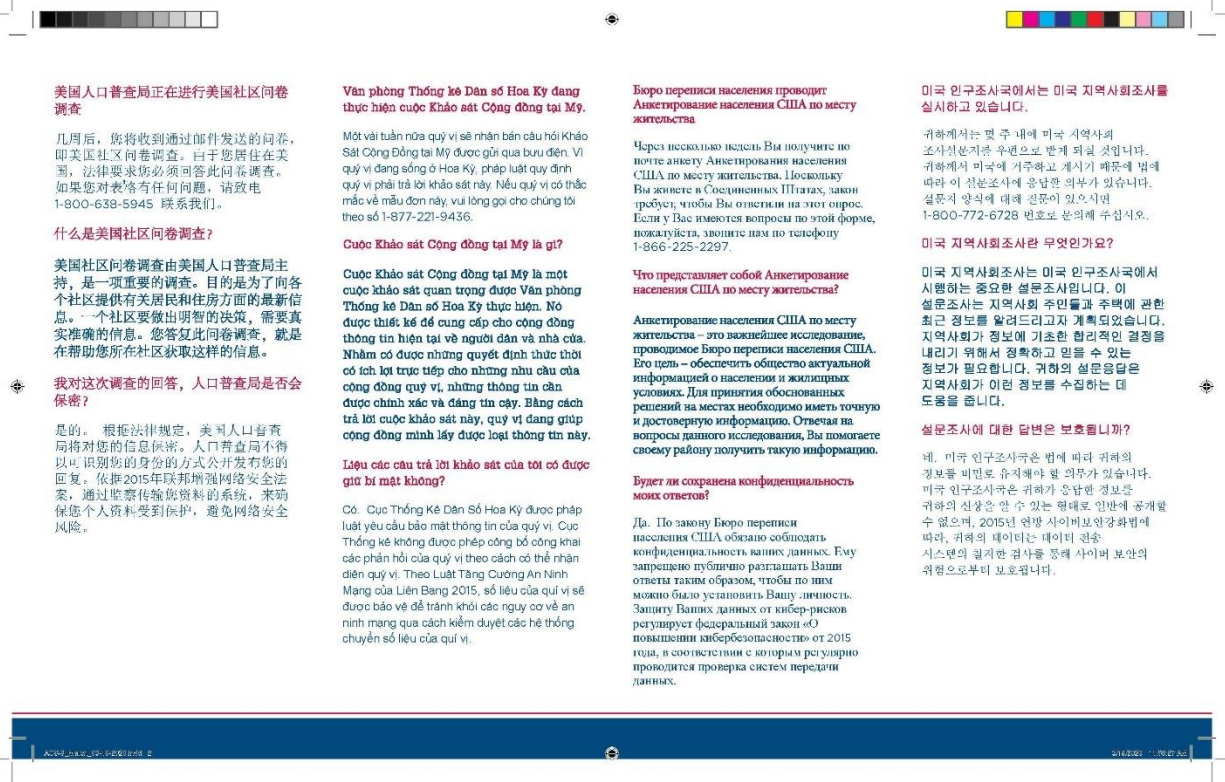


Figure 14. Front of Instruction Card



Figure 15. Back of Instruction Card



Appendix D. Images of the Experimental Treatments (Treatment 1 – 4)

Figure 16. Front of Treatment 1 Letter



United States®
Census
Bureau

U.S. Census Bureau
Washington, DC 20233
Office of the Director

A message from the 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.

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 our toll-free number (1-800-354-7271).

Thank you in advance for your prompt response.

Sincerely,

Steven D. Dillingham

Enclosures

American Community Survey data help determine the annual distribution of more than **\$675 billion** in federal funds to **communities nationwide**.

ACS-13(LX)IMPS-T1 (11-05-2020)

census.gov

Figure 17. Back of Treatment 1 Letter

Will my response be confidential?

Yes. The U.S. Census Bureau is required by law to protect this information. The Census Bureau is not permitted to publicly release your responses in a way that could identify you. We are conducting this survey under the authority of Title 13, United States Code, Sections 141 and 193. Federal law protects your privacy and keeps your answers confidential (Title 13, United States Code, Section 9). Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the systems that transmit your data.

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). Title 13, as changed by Title 18, imposes a penalty for not responding. 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?

By law, the Census Bureau can only use your responses to produce statistics. 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 Puerto Rico and 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.

Figure 18. Front of Treatment 2 Pressure Seal Letter

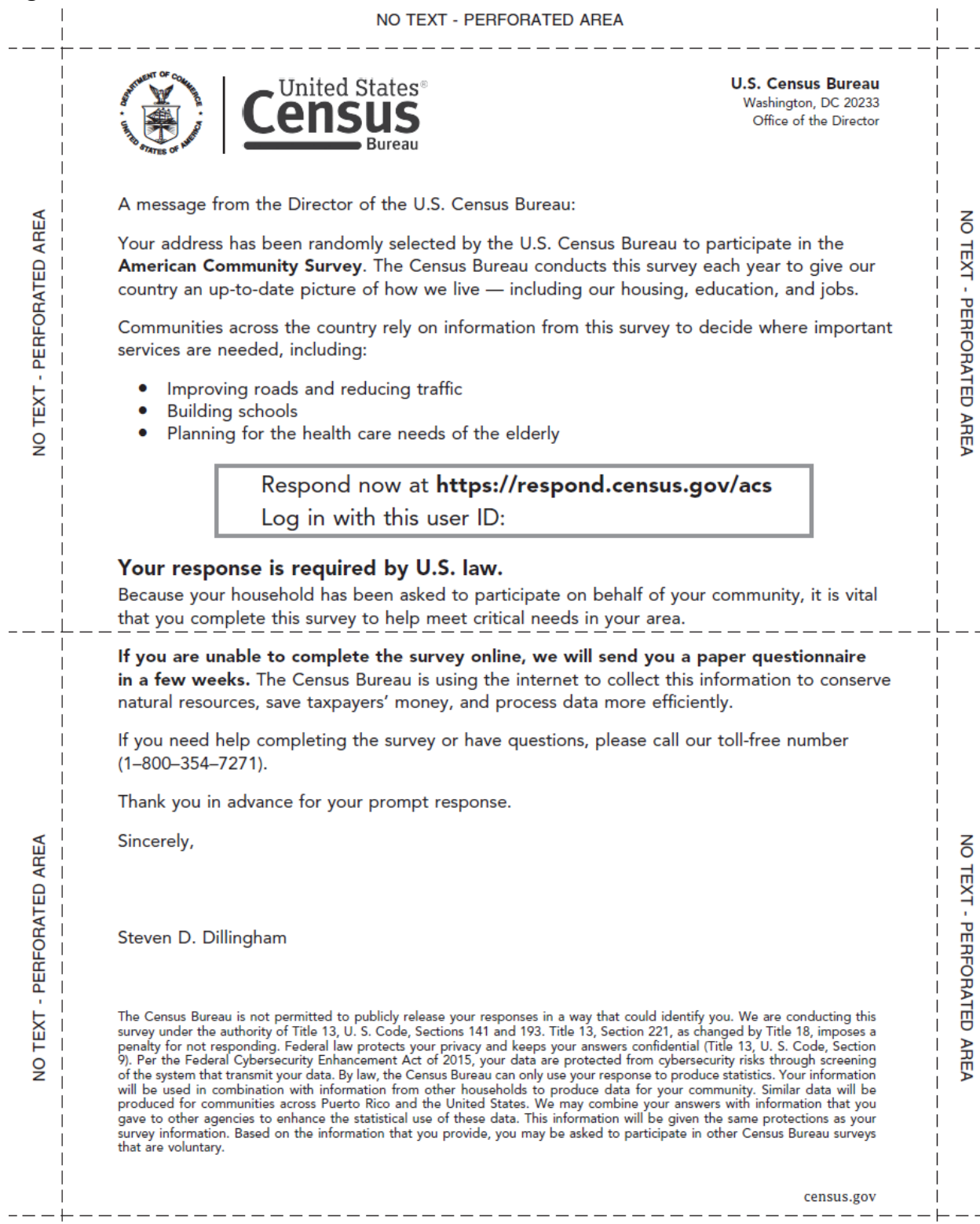


Figure 19. Back of Treatment 2 Pressure Seal Letter

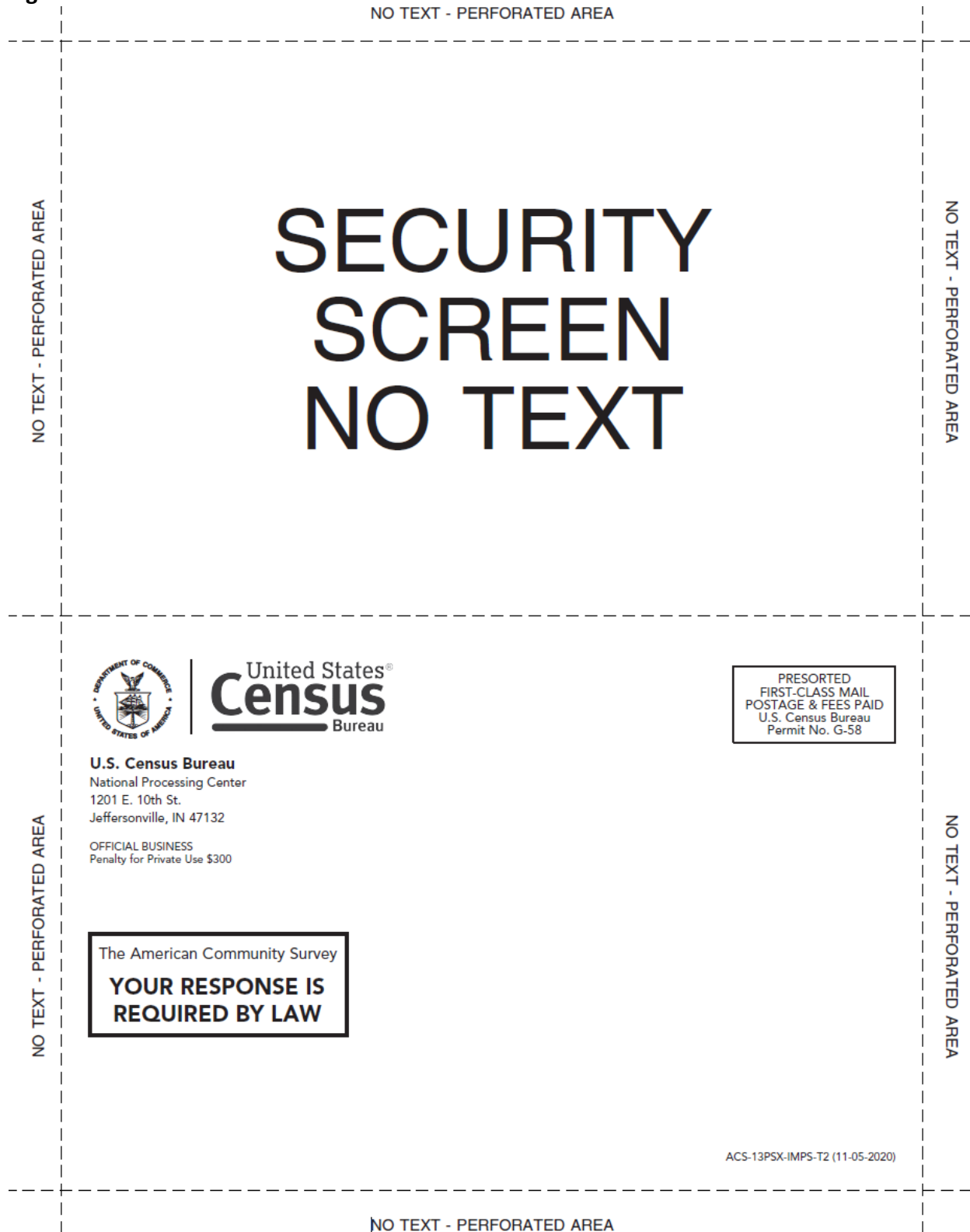


Figure 20. Front of Treatment 3 Pressure Seal Letter

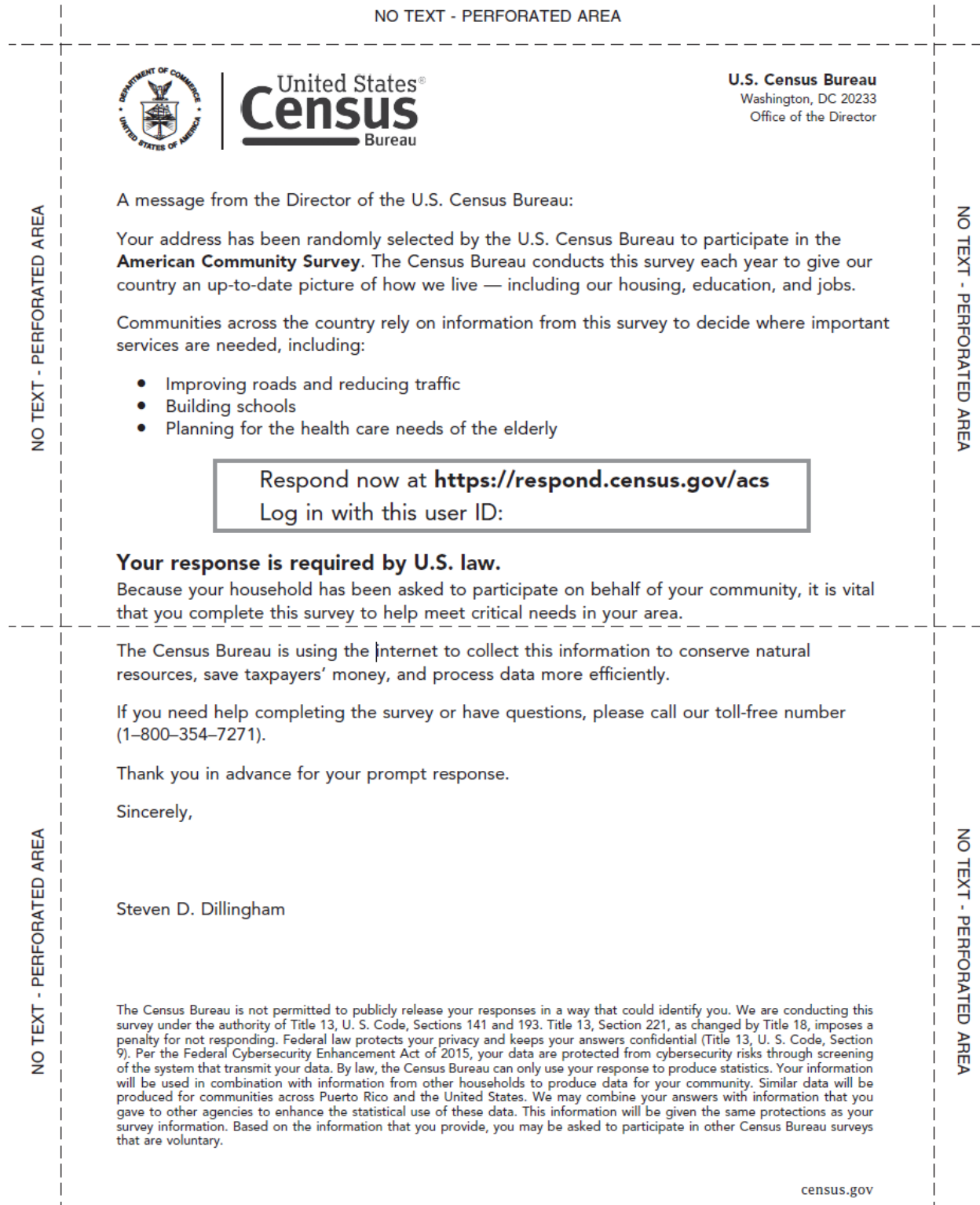


Figure 21. Back of Treatment 3 Pressure Seal Letter

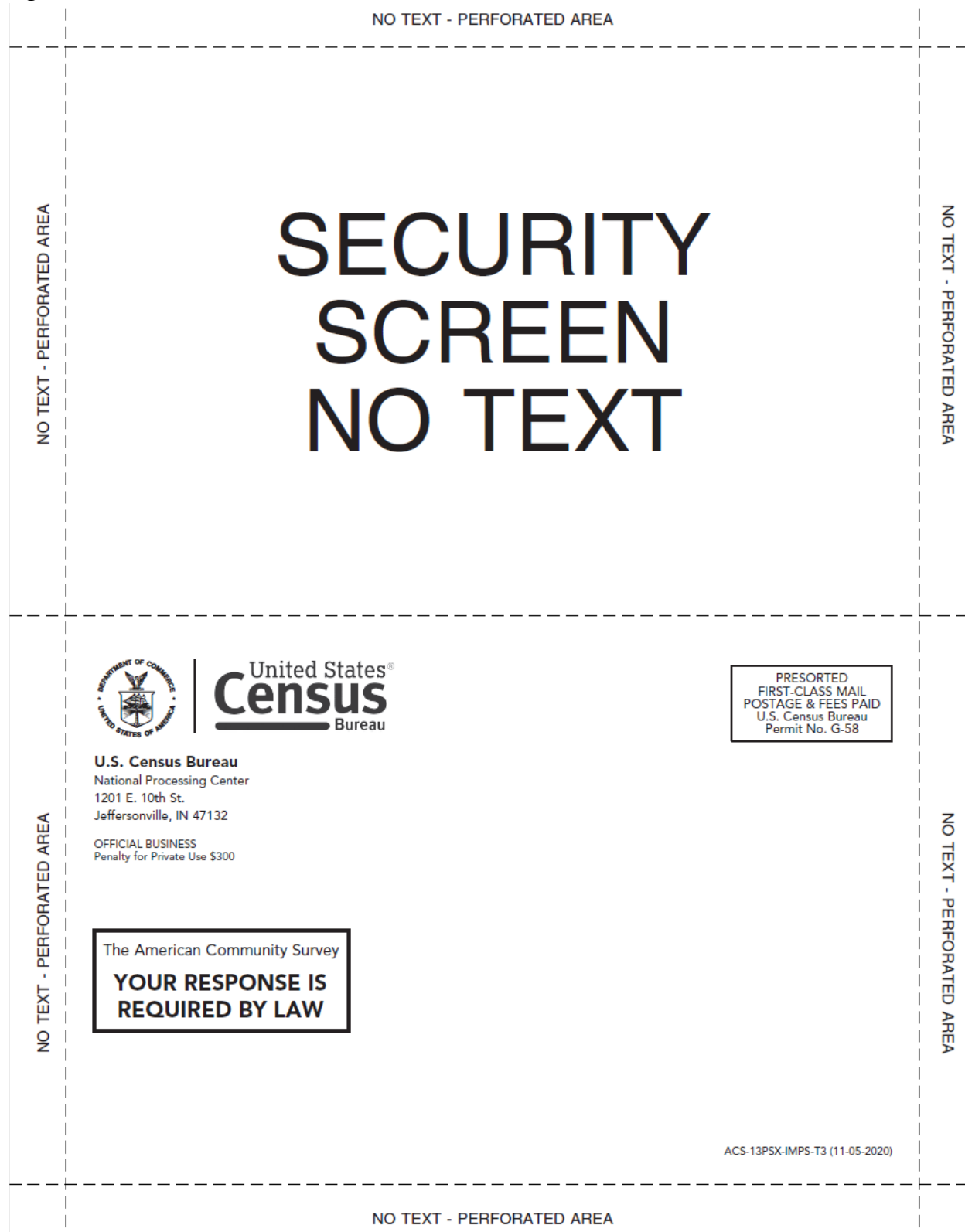


Figure 22. Front of Treatment 4 Pressure Seal Letter

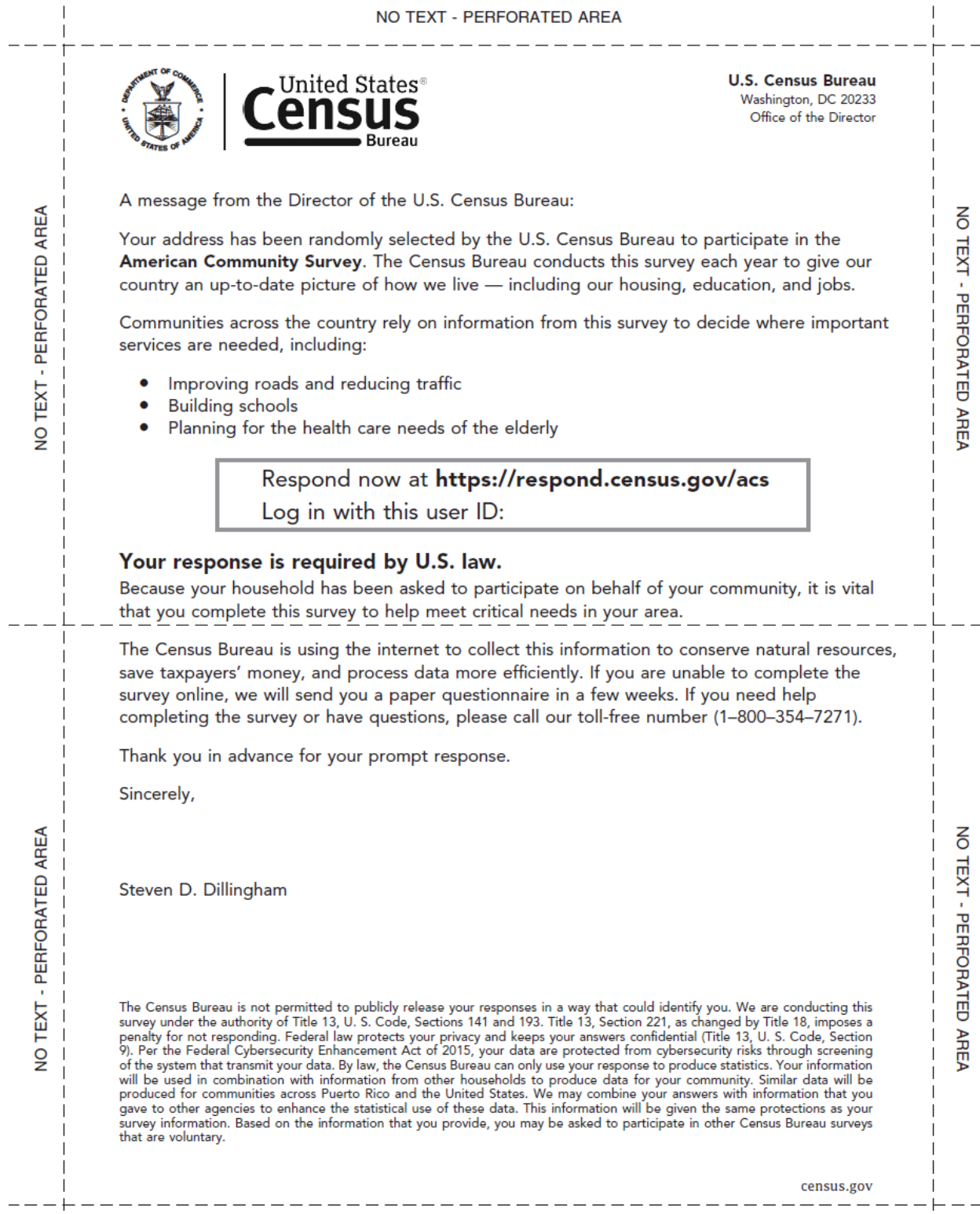
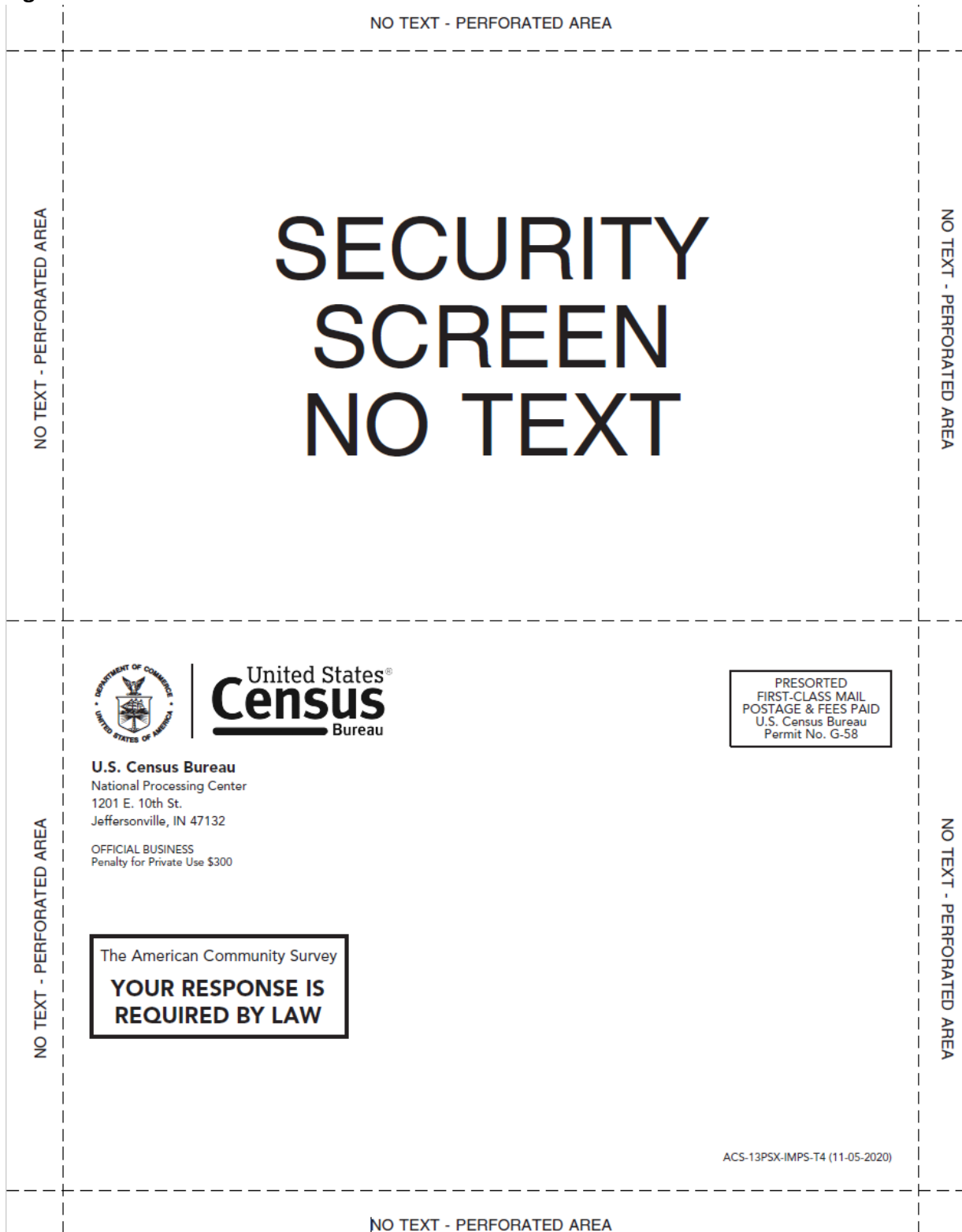


Figure 23. Back of Treatment 4 Pressure Seal Letter



Appendix E. Comparison of Treatments

Table 10. Comparison of Treatments

Item	Control	Treatment 1	Treatment 2	Treatment 3	Treatment 4
Description	Initial Mail Package used in production.	Initial Mail Package without a paper questionnaire reference.	Pressure Seal Letter with paper questionnaire reference.	Pressure Seal Letter without paper questionnaire reference.	Pressure Seal Letter with de-emphasized paper questionnaire reference.
Comparison(s)	Treatment 1 Treatment 2	Control Treatment 3	Control Treatment 3 Treatment 4	Treatment 1 Treatment 2 Treatment 4	Treatment 2 Treatment 3
Return Address*	Under logo	Under logo	Upper right corner	Upper right corner	Upper right corner
Response call out box[‡]	No User ID	No User ID	Contains user ID	Contains user ID	Contains user ID
Questionnaire Reference[†]	If you are unable to complete the survey online, we will send you a paper questionnaire in a few weeks.	Sentence omitted.	If you are unable to complete the survey online, we will send you a paper questionnaire in a few weeks.	Sentence omitted.	If you are unable to complete the survey online, we will send you a paper questionnaire in a few weeks (no bold).
Response Motivation[†] – <i>“The Census Bureau is using the internet to collect this information to conserve natural resources, save taxpayers’ money, and process data more efficiently.”</i>	After paper questionnaire reference	Own paragraph	After paper questionnaire reference	Own paragraph	Before the paper questionnaire reference
Legal Text*	In FAQs on back of letter	In FAQs on back of letter	In small print at bottom of letter, text rearranged to fit	In small print at bottom of letter, text rearranged to fit	In small print at bottom of letter, text rearranged to fit
Size (in inches)*	Envelope - 11.5x6	Envelope - 11.5x6	Bi-fold mailer -8.5x5.5	Bi-fold mailer - 8.5x5.5	Bi-fold mailer - 8.5x5.5

*Difference will not be tested and is a consequence of changing to pressure seal letter.

† Difference will be tested.

‡Difference will be tested in conjunction with other changes