

Testing Improvements To ACS Response Through Design: Two Experiments In The Implementation Stage

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United States Census Bureau
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ACS Data User's Conference | May 29, 2025



The views expressed in this presentation are those of the author(s) and not necessarily those of the U.S. Census Bureau.

Why talk about testing before we launch?

- Good to present research at all stages
- Shows how we think about testing improvements
- Important for planning current and future research
- Charting research question -> data collection -> decision making

RED Internet Test

What is the RED Internet Test?

- RED = Response Option and Edit Message Design
- Internet-only instrument test
- One control and three treatments
- Randomly assigned groups
- Scheduled to launch for the August 2025 mailout

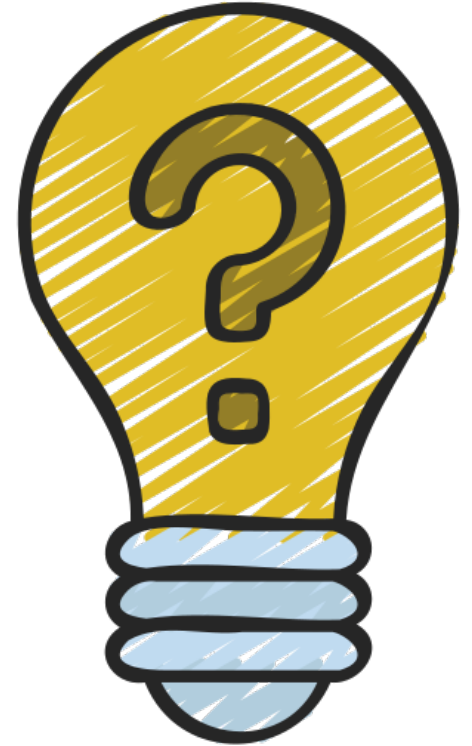
Research Questions

RESEARCH QUESTIONS

What changes can we make to boost internet response?

Can we improve usability and accuracy with changes to answer fields?

Can we improve data quality with changes to the error messaging?



EXPERIMENTAL DESIGN

Control and treatments

- Control – Current ACS format with no impacted screens
- Treatment 1 – Answer Field – 130 impacted screens
- Treatment 2 – Error Messages – 62 impacted screens
- Treatment 3 – Both (Answer Field/Error Messages) – 155 impacted screens

Control (Current ACS Display)

Answer Field

➔ Are you completing the American Community Survey for:

1721 RAINBOW DR
ANYTOWN, FL 55555 ?

☐ Yes
☐ No

Next ➔

Error

❗

- Please answer this important question.
- If you are uncomfortable providing your name, please provide a nickname.
- Please enter a 10-digit phone number.

➔ What is your name, telephone number, and email address? We will only contact you if needed for official Census Bureau business. [\(Help\)](#)

First Name MI Last Name

Telephone Number

() - -

Email Address

Confirm Email Address

Next ➔

Treatment 1 – Answer Field

Answer fields include both multiple choice and select-all-that-apply options

Changes include:

- Elongated box
- Dark green outline
- A light green shading with hover or select
- Vertically centered radio button when text wraps around

Treatment 1 – Answer Field

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American Community Survey

InstructionsFAQsSave and Log Out

14

a. Does Testa Test speak a language other than English at home? [\(Help\)](#)

☐ Yes

☐ No

◀ Previous

Next ▶

Where You Are

Basic Info

Housing Questions

Person Info

• Testa Test

• Testb Test

• Testc Test

Contact UsAccessibilityPrivacySecurity

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American Community Survey

InstructionsFAQsSave and Log Out

5

Please enter a specific response in the space below the checked box.

Is Testa Test of Hispanic, Latino, or Spanish origin? [\(Help\)](#)

☐ No, not of Hispanic, Latino, or Spanish origin

☐ Yes, Mexican, Mexican Am., Chicano

☐ Yes, Puerto Rican

☐ Yes, Cuban

☒ Yes, another Hispanic, Latino, or Spanish origin — Enter, for example, Salvadoran, Dominican, Colombian, Guatemalan, Spaniard, Ecuadorian, etc.

→

◀ Previous

Next ▶

Where You Are

Basic Info

Housing Questions

Person Info

Contact UsAccessibilityPrivacySecurity

Treatment 2 – Error Messages

Edit messages and highlighted boxes with write-ins

Changes include:

- Yellow background, only vertical edge border
- Arrows removed
- Boxes highlighted with a dark yellow outline
- Boxes don't trigger until the error triggers on the next page
- Multiple edit messages broken up

Treatment 2 – Error Messages

The screenshot shows the United States Census Bureau American Community Survey registration page. At the top, the United States Census Bureau logo is on the left, and the title "American Community Survey" is on the right. Below the title, there are three tabs: "Instructions", "FAQs", and "Save and Log Out". The main content area has a light blue background. Two yellow error message boxes are displayed at the top of the form. The first box says "Please enter a 10-digit phone number." and the second box says "Email addresses do not match. Please try again." Below these, there is a question icon and a question: "What is your name, telephone number, and email address? We will only contact you if needed for official Census Bureau business. ([Help](#))". The form fields are: "First Name" (Testa), "MI" (empty), "Last Name" (Test), "Telephone Number" (999 - 999 - 999), "Email Address" (test@test.com), and "Confirm Email Address" (test@test.net). A green "Next" button with a right arrow is at the bottom of the form. The footer contains "Contact Us" on the left and "Accessibility", "Privacy", and "Security" on the right.

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Census
Bureau

American Community Survey

Instructions | FAQs | Save and Log Out

Please enter a 10-digit phone number.

Email addresses do not match. Please try again.

➔ What is your name, telephone number, and email address? We will only contact you if needed for official Census Bureau business. ([Help](#))

First Name MI Last Name

Testa Test

Telephone Number

(999) - 999 - 999

Email Address

test@test.com

Confirm Email Address

test@test.net

Next ➔

Contact Us Accessibility Privacy Security

Treatment 3 – Both (Answer Field/Error Messages)

Treatment includes all changes from 1 and 2
Some questions impacted by both

Treatment 3 – Both (Answer Field/Error Messages)

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Bureau

American Community Survey

Instructions FAQs Save and Log Out

Please enter a specific response in the space below the checked box.

5 Is Testa Test of Hispanic, Latino, or Spanish origin? [\(Help\)](#)

☐ No, not of Hispanic, Latino, or Spanish origin

☐ Yes, Mexican, Mexican Am., Chicano

☐ Yes, Puerto Rican

☐ Yes, Cuban

☒ Yes, another Hispanic, Latino, or Spanish origin — Enter, for example, Salvadoran, Dominican, Colombian, Guatemalan, Spaniard, Ecuadorian, etc.

◀ Previous Next ▶

Contact Us Accessibility Privacy Security

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American Community Survey

Instructions FAQs Save and Log Out

Please answer this important question.

2 How is Testb Test related to Testa Test? Testb Test is Testa Test's ... [\(Help\)](#)

☐ Opposite-sex husband/wife/spouse

☐ Opposite-sex unmarried partner

☐ Same-sex husband/wife/spouse

☐ Same-sex unmarried partner

☐ Biological son or daughter

☐ Adopted son or daughter

☐ Stepson or stepdaughter

☐ Brother or sister

☐ Father or mother

☐ Grandchild

☐ Parent-in-law

☐ Son-in-law or daughter-in-law

☐ Other relative

☐ Roommate or housemate

☐ Foster child

☐ Other nonrelative

◀ Previous Next ▶

Contact Us Accessibility Privacy Security

Where You Are
Basic Info
Housing Questions
Person Info


Conclusions

Why does it matter?

- Data quality supported by internet response
- More people doing internet response
- Mobile response particularly important
- Need to hear from all kinds of people
- Changes to how errors work in a new platform
- Cost savings for self response

2025 QUESTIONNAIRE TIMING TEST

PROJECT OVERVIEW

- How to modify ACS mail contact strategy to increase online responses without increasing operational costs?
- 2025 Questionnaire Timing Test (QTT) compares alternative mail contact strategies:
 - 1) Adding a Quick Response (QR) code  to all mail contact materials
 - 2) Varying when the paper questionnaire is mailed (and referenced) during the self-response period

EXPERIMENTAL DESIGN

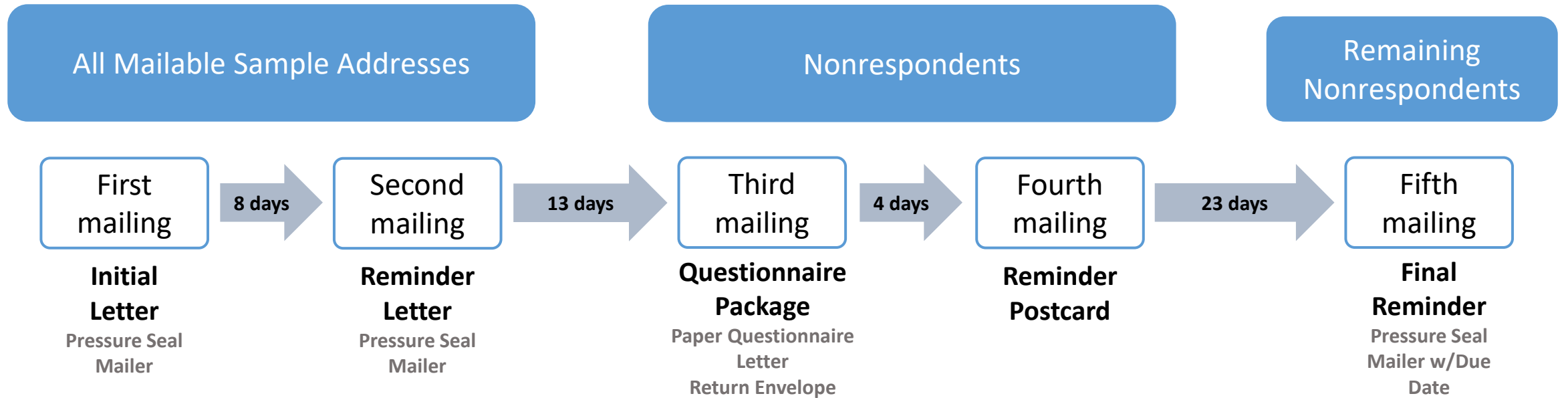
EXPERIMENTAL DESIGN

- September 2025 ACS production sample
- One control treatment randomly assigned to panel groups
- Four experimental treatments randomly assigned

Treatments	# of addresses
Control – ACS Production	48,000
Treatment 1 – QR Code	60,000
Treatment 2 – Internet First	60,000
Treatment 3 – Quest. + Postcard Last	60,000
Treatment 4 – Quest. Last	60,000

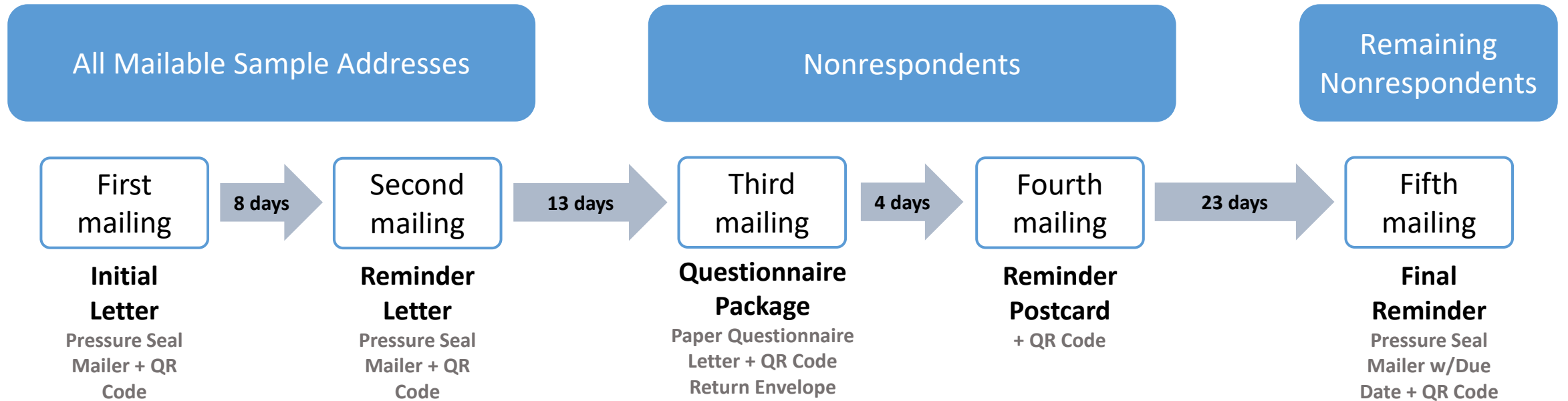
CONTROL TREATMENT

ACS PRODUCTION



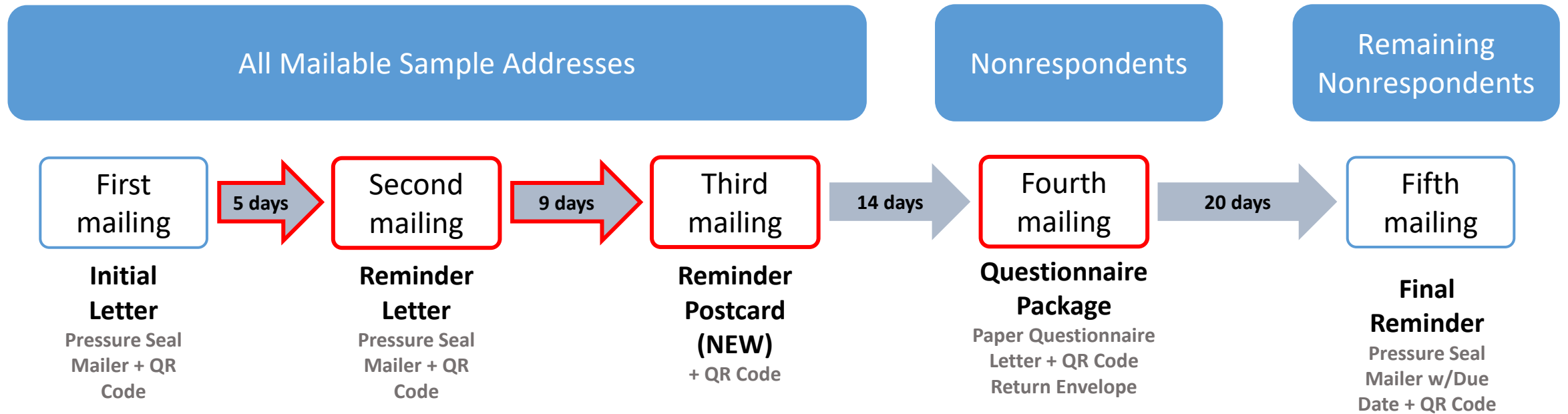
TREATMENT 1

QR CODE



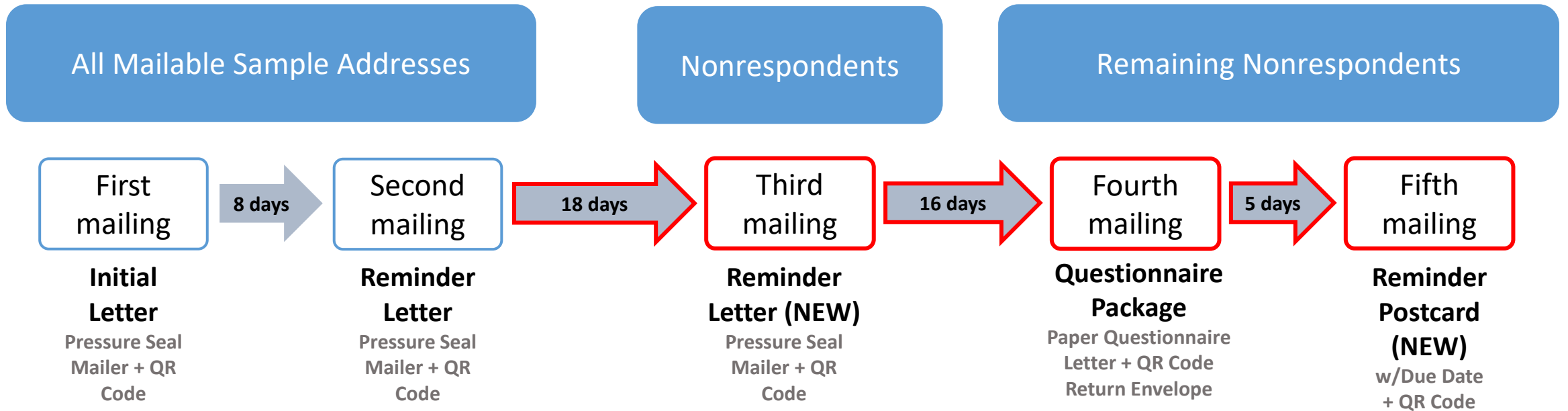
TREATMENT 2

2020 CENSUS INTERNET FIRST



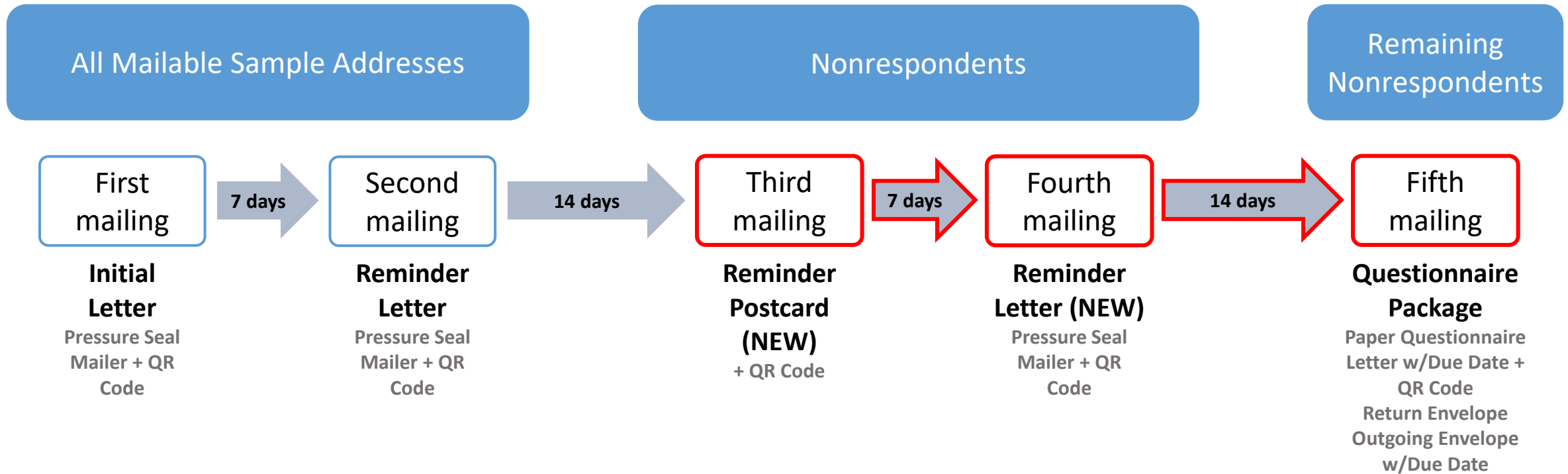
TREATMENT 3

QUESTIONNAIRE + POSTCARD LAST



TREATMENT 4

QUESTIONNAIRE LAST



EXAMPLE MAILING – INITIAL LETTER

ACS Production (Control)



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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 housing, education, 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 respond.census.gov/acs
Log in with this user ID:

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 are unable to complete the survey online, we will send you a paper questionnaire in a few weeks. If you need help completing the survey or have questions, please call 1-800-354-7271.

Thank you in advance for your prompt response.

We are conducting this survey under the authority of Title 13, U.S. Code, Sections 141 and 193, Title 13, Section 221, as changed by Title 18, imposes a penalty for not responding. Federal law protects your privacy and keeps your answers confidential (Title 13, U.S. Code, Section 9). The Census Bureau is not permitted to publicly release your responses in a way that could identify you. Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the systems that transmit your data. Disclosure of the information provided to us is permitted under the Privacy Act of 1974 (5 U.S.C. § 552a) and may be shared with Census Bureau staff for work-related purposes. Disclosure of this information is also subject to the published routine uses as identified in the Privacy Act System of Record Notice COMMERCE/CENSUS-5, Decennial Census Programs. By law, the Census Bureau can only use your response to produce statistics. Based on the information that you provide, you may be asked to participate in other Census Bureau surveys that are voluntary.

census.gov/acs

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Bureau

TREATMENT 1



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 housing, education, and jobs.

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census.gov/acs

Research Questions

RESEARCH QUESTIONS

TREATMENT 1

- What is the impact of including QR codes on self-response return rates / final response rates / form completeness?
- Are the demographic distributions of respondents different between control and Treatment 1?
- How would including QR codes affect data collection costs if implemented in production?



RESEARCH QUESTIONS

TREATMENTS 2 – 4



- What is the impact of the different self-response contact strategies on self-response return rates / final response rates / form completeness?
- What is the impact of removing the paper questionnaire reference on self-response return rates?
- Are the demographic distributions of respondents different among treatments?
- How would the experimental treatments affect data collection costs if implemented in production?

Conclusions

Why does it matter?

- Ease of access
- Supporting mobile response
- Finding the best way to time mailings for better response
- Cost saving by supporting internet self response

Thank you!

Brian Wilson, Joy Barger, Greg Seymour, J Taylor, Imani Tene Morgan, Justin Maietta
Rachel Horwitz and Beth Nichols
Leann Weyl, Samantha Spiers, Lauren Contard, Lindsay Longsine, Celeste Picone

MAIL MATERIALS

EXAMPLE #2 – QUESTIONNAIRE LETTER

ACS Production (Control)

FRONT

The front of the ACS Production (Control) questionnaire letter. It features the U.S. Census Bureau logo and seal at the top left, and the U.S. Census Bureau name and address at the top right. The main body of the letter contains a message from the Director, a request to complete the American Community Survey, and instructions on how to respond. The response options are listed with bullet points. A red box on the left side of the letter indicates the 'FRONT' side.

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

A message from the 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 **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 – like deciding where to build new schools, health clinics, and fire stations.

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

The Census Bureau is required by law to keep your information confidential.
The Census Bureau is not permitted to publicly release your responses in a way that could 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.

Nota: Vea al otro lado para responder en español.

ACS-140 (2/07) (02-13-2079) census.gov/acs

T2, T3 – 4th Mailing

The front of the T2, T3 – 4th Mailing questionnaire letter. It features the U.S. Census Bureau logo and seal at the top left, and the U.S. Census Bureau name and address at the top right. The main body of the letter contains a message from the Director, a request to complete the American Community Survey, and instructions on how to respond. The response options are listed with a QR code and a bolded reference to in-person interview. A red box on the left side of the letter indicates the 'FRONT' side.

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

A message from the Director of the U.S. Census Bureau:
The U.S. Census Bureau has sent you several requests to complete the **American Community Survey**. If you have not already responded to this important survey, please do so now.

Complete the survey using **ONE** of the following options:

Respond online at **respond.census.gov/acs**
OR
Fill out and mail back the enclosed questionnaire.

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 – like deciding where to build new schools, health clinics, and fire stations.

If you do not respond soon, 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 for your prompt response.

Nota: Vea al otro lado para responder en español.

ACS-140 (2/07) (02-13-2079) census.gov/acs

Adjusted phrasing to reflect new mail order (“...sent you several requests...”)

Added QR code

Moved sentence about random selection to back of letter and removed paragraph about confidentiality.

Removed bullets and simplified wording

Bolded reference to in-person interview

EXAMPLE #2 – QUESTIONNAIRE LETTER

ACS Production (Control)

T2, T3 – 4th Mailing

BACK

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, U.S. Code, Sections 141 and 193. Federal law protects your privacy and keeps your answers confidential (Title 13, U.S. 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.

Para completar la Encuesta sobre la Comunidad Estadounidense en español:

Por internet: Vaya a respond.census.gov/acs. Haga clic en "Responder en español".

Por teléfono: Llame al 1-877-833-5625 para hablar con un empleado de la Oficina del Censo que habla español. Usted puede completar la encuesta por teléfono o pedirnos que le enviemos un cuestionario en español.

您的地址被美国人口普查局随机选中参与美国社区问卷调查。
如果您对强制性的/必须填写的问卷调查有任何问题，请致电1-800-638-5945。

Địa chỉ của quý vị đã được Cục Thống Kê Dân Số Hoa Kỳ chọn ngẫu nhiên để tham gia vào cuộc Khảo Sát Cộng Đồng tại Mỹ. Nếu quý vị có thắc mắc về khảo sát bắt buộc này, vui lòng gọi số 1-877-221-9436.

Ваш адрес был выбран случайным образом Бюро переписи населения США для участия в Анкетировании населения США по месту жительства. Если у вас есть вопросы по поводу этого обязательного опроса, позвоните по телефону 1-866-225-2297.

귀하의 주소는 미국 지역사회 조사에 참여할 수 있도록 미국 인구조사국이 무작위로 선택하였습니다. 이 의무적인 설문조사에 대해 질문이 있으시면, 1-800-772-6728로 전화하십시오.

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, U.S. Code, Sections 141 and 193. Federal law protects your privacy and keeps your answers confidential (Title 13, U.S. 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?

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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.

Para completar la Encuesta sobre la Comunidad Estadounidense en español:

Por internet: Vaya a respond.census.gov/acs. Haga clic en "Responder en español".

Por teléfono: Llame al 1-877-833-5625 para hablar con un empleado de la Oficina del Censo que habla español. Usted puede completar la encuesta por teléfono o pedirnos que le enviemos un cuestionario en español.

您的地址被美国人口普查局随机选中参与美国社区问卷调查。
如果您对强制性的/必须填写的问卷调查有任何问题，请致电1-800-638-5945。

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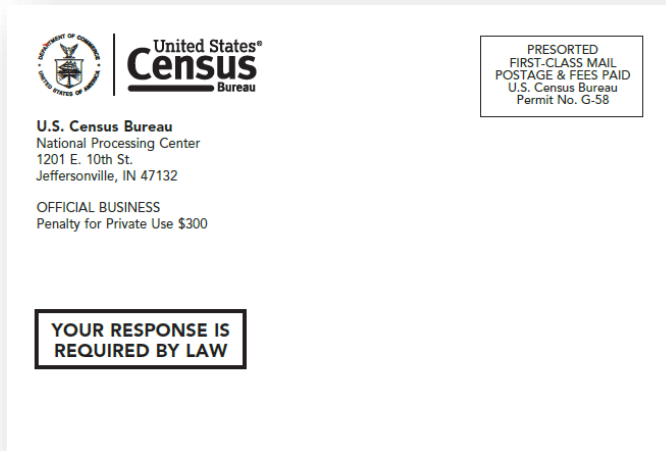
귀하의 주소는 미국 지역사회 조사에 참여할 수 있도록 미국 인구조사국이 무작위로 선택하였습니다. 이 의무적인 설문조사에 대해 질문이 있으시면, 1-800-772-6728로 전화하십시오.

Added sentence about random selection (from front), "The Census Bureau has randomly..."

EXAMPLE #3 – REMINDER POSTCARD

ACS Production (Control)

FRONT



United States[®]
Census
Bureau

U.S. Census Bureau
National Processing Center
1201 E. 10th St.
Jeffersonville, IN 47132

OFFICIAL BUSINESS
Penalty for Private Use \$300

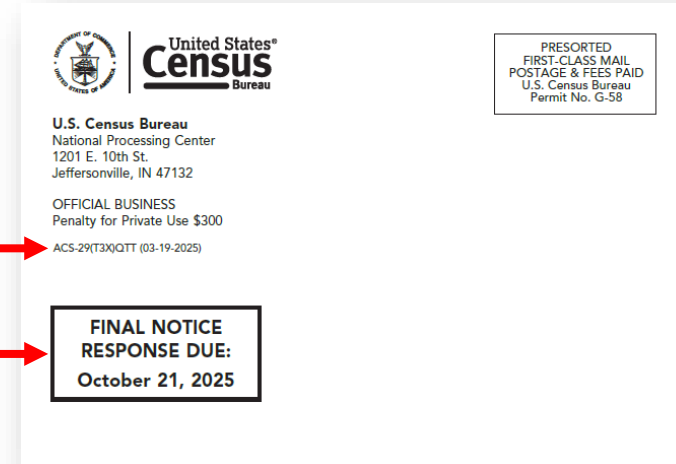
**YOUR RESPONSE IS
REQUIRED BY LAW**

PRESORTED
FIRST-CLASS MAIL
POSTAGE & FEES PAID
U.S. Census Bureau
Permit No. G-58

T3 – 5th Mailing

Moved form
label to front

Added due date



United States[®]
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U.S. Census Bureau
National Processing Center
1201 E. 10th St.
Jeffersonville, IN 47132

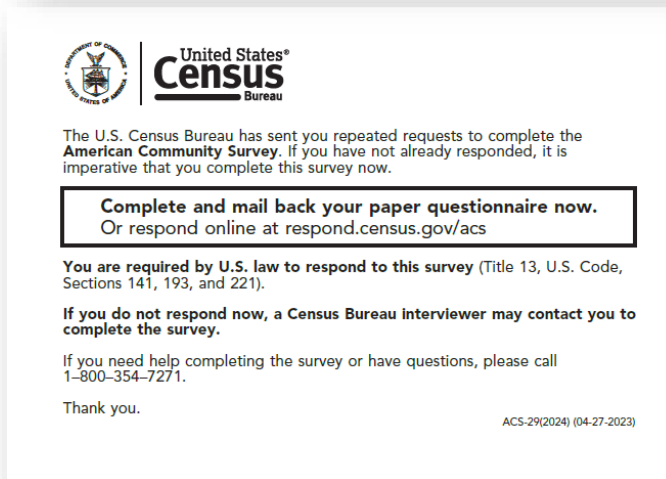
OFFICIAL BUSINESS
Penalty for Private Use \$300

ACS-29(T3X)QTT (03-19-2025)

**FINAL NOTICE
RESPONSE DUE:
October 21, 2025**

PRESORTED
FIRST-CLASS MAIL
POSTAGE & FEES PAID
U.S. Census Bureau
Permit No. G-58

BACK



United States[®]
Census
Bureau

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 online at respond.census.gov/acs

You are required by U.S. law to respond to this survey (Title 13, U.S. Code, Sections 141, 193, and 221).

If you do not respond now, 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.

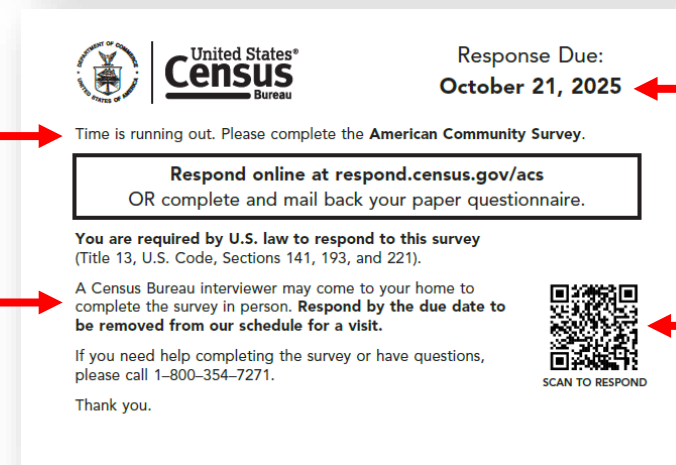
Thank you.

ACS-29(2024) (04-27-2023)

Adjusted
messaging to
reflect new
order and
increased
sense of
urgency

Added due date

Added QR code
w/instructions



United States[®]
Census
Bureau

Response Due:
October 21, 2025

Time is running out. Please complete the **American Community Survey**.


Respond online at respond.census.gov/acs
OR complete and mail back your paper questionnaire.

You are required by U.S. law to respond to this survey (Title 13, U.S. Code, Sections 141, 193, and 221).

A Census Bureau interviewer may come to your home to complete the survey in person. **Respond by the due date to be removed from our schedule for a visit.**

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

Thank you.


SCAN TO RESPOND