

NAC Recommendations
March 7, 2022 Special Meeting on Differential Privacy

A. MESSAGING FOR THE GENERAL PUBLIC

Recommendations regarding the Census Bureau’s messaging on legal requirements:

1. Differential privacy is not mentioned anywhere in Title 13 of the United States Code. Nevertheless, the Census Bureau has used messaging that states or implies that its decision to apply differential privacy to 2020 Census data products is directly mandated by federal law. It is not. Rather, the Bureau’s decision to use differential privacy as part of its disclosure avoidance is one choice among many options that the Bureau considered to protect respondent privacy.

a. RECOMMENDATION: The NAC recommends that in discussing what federal law requires to protect respondent privacy to census surveys, the Census Bureau should state the precise limitations of data dissemination in Title 13; namely, that among other legal duties, no Census employee or other authorized federal official may “make any publication whereby the data furnished by any particular establishment or individual under this title can be identified.” 13 U.S.C. § 9(2). **[APPROVED]**

b. RECOMMENDATION: The NAC recommends that the Census Bureau avoid messaging that states or implies that application of differential privacy to 2020 Census data products is directly required by federal law. **[APPROVED]**

c. RECOMMENDATION: The NAC recommends that the Census Bureau explain its legal duty to provide accurate data from the 2020 Decennial Census to the public and in what ways the use of differential privacy facilitates or impedes that duty. **[APPROVED]**

2. The Census Bureau did not apply differential privacy to data from any Decennial Census before the 2020 Census.

a. RECOMMENDATION: The NAC recommends that the Census Bureau explain why differential privacy was not used before the 2020 Census. **[APPROVED]**

b. RECOMMENDATION: The NAC recommends that in describing why the Census Bureau selected differential privacy to protect respondent privacy, the Census Bureau explain in language understandable to those who use and are affected by the 2020 Census data (plain language) the other disclosure avoidance methods it considered and how and why it decided to use differential privacy over those other methods. **[APPROVED]**

3. RECOMMENDATION: The NAC recommends that the Census Bureau explain why it believes differential privacy is necessary to protect respondent data that is readily available through other publicly available resources, including online searches. **[APPROVED]**

4. RECOMMENDATION: The NAC recommends that the Census Bureau release to the public any and all legal opinions or other legal memoranda that support the conclusion that the disclosure avoidance system (DAS) used for the 2010 Census could no longer ensure compliance with the restrictions in Title 13 and/or that differential privacy would secure greater compliance than the prior DAS. [APPROVED]

Recommendations for the readability of messaging to the general public:

5. Much of the Census Bureau’s messaging on differential privacy has been communicated in either highly technical language or in a manner that is not understandable to members of the general public.

a. RECOMMENDATION: The NAC recommends that the Census Bureau’s messaging for the general public (non-technical readers) be accomplished with the assistance of trained linguists to ensure the use of plain non-technical language in common usage, with a Flesch Kinkaid readability score of 70 or higher (readability at an 8th grade level in plain language easily understood by those 13 years of age and older). [APPROVED]

b. RECOMMENDATION: The NAC recommends that the Census Bureau provide the general public with a concise explanation of differential privacy in 250 words or less, which is what an average person can read in one minute (“the basic message”). [Note: This basic message to the general public on differential privacy would not be to the exclusion of a more detailed explanation, such what is available on the Census website or through future communications like the handbook.] [APPROVED]

c. RECOMMENDATION: The NAC recommends that wherever feasible in communications with the general public, the Census Bureau use examples or images to explain its use of differential privacy to facilitate the public’s understanding (“a picture is worth a thousand words”). [APPROVED]

6. RECOMMENDATION: The NAC recommends that messaging to the general public be through a stand-alone document (that is, a single document that could be read without consulting other sources) that includes hyperlinks to definitions, additional documents or detailed explanations if the reader wishes to obtain more information. [APPROVED]

Recommendations for messaging to distinct population groups:

7. The “basic message” of differential privacy that the Census Bureau provides to the general public must be accessible to those receiving it. As used in the recommendations that follow, the “basic message” refers to the concise explanation of differential privacy described in Recommendation 5(b).

a. RECOMMENDATION: The NAC recommends that the Census Bureau translate the “basic message” into all 59 languages and dialects for which translations were offered during the 2020 Decennial Census (see <https://www.census.gov/programs->

[surveys/decennial-census/decade/2020/planning-management/count/language-resources.html](https://www2.census.gov/programs-surveys/decennial-census/decade/2020/planning-management/count/language-resources.html)) and the Native Hawaiian and Pacific Islander languages for which translated Language Assistance Guides were offered during the 2010 Decennial Census (see <https://www2.census.gov/programs-surveys/decennial/2010/program-management/5-review/cpex/2010-memo-204.pdf>, p.5). **[APPROVED]**

b. RECOMMENDATION: The NAC recommends that the Census Bureau provide an audio translation of the “basic message” into every American Indian/Alaska Native language or dialect covered by Section 203 of the Voting Rights Act. **[APPROVED]**

8. Executive Order 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, directs federal agencies including the Census Bureau to evaluate whether their policies produce racially inequitable results when implemented and to make the necessary changes to ensure underserved communities are properly supported (see <https://www.commerce.gov/cr/programs-and-services/executive-orders-diversity-equity-inclusion-and-accessibility>).

a. RECOMMENDATION: The NAC recommends that the Census Bureau offer messaging that is culturally appropriate for distinct population groups and not just offer a single, uniform message on differential privacy, consistent with the mandate in EO 13985. **[APPROVED]**

b. RECOMMENDATION: The NAC recommends that the Census Bureau work with partners who represent distinct population groups to utilize focus groups to provide feedback on proposed messaging on differential privacy to those populations, consistent with the mandate in EO 13985. **[APPROVED]**

c. RECOMMENDATION: The NAC recommends that the Census Bureau create a permanent working group whose membership is open to the public to develop messaging on privacy (including differential privacy) for all Census data products that is appropriate to and understandable by all racial and ethnic population groups, consistent with the stated mandate in EO 13985. **[APPROVED]**

9. Before the release of the P.L. 94-171 redistricting data set, the Census Bureau held several tribal consultations to receive feedback from tribal governments on priority uses and the impact of differential privacy on the American Indian Alaska Native (AIAN) population.

a. RECOMMENDATION: The NAC recommends that consistent with the government-to-government relationship between the federal government and Tribal Nations, the Census Bureau hold tribal consultations on development of effective messaging for Tribal Nations. Those tribal consultations should focus on allowing tribal representatives and stakeholders to provide feedback to proposed Census Bureau explanations of differential privacy. **[APPROVED]**

b. RECOMMENDATION: The NAC recommends that all discussions during tribal consultations must be at an appropriate literacy level for the general public and materials must be sent in advance for tribal leaders and staff to review prior to the consultation to make their participation informed and meaningful. **[APPROVED]**

Recommendations for messaging in Statistics in Schools (SIS) program:

10. RECOMMENDATION: The NAC recommends that the Census Bureau include privacy (including differential privacy and the Disclosure Avoidance System (DAS)) in its SIS curriculum. **[APPROVED]**

11. RECOMMENDATION: The NAC recommends that the SIS curriculum for privacy, differential privacy and its DAS be developed in consultation with licensed and trained educators (teachers), to include instruction and hands-on exercises that will allow students to understand those concepts and their impact on publicly available data, such as the interactive online demonstration described in Recommendation 20. **[APPROVED]**

12. RECOMMENDATION: The NAC recommends that the Census Bureau's messaging for its SIS curriculum be accomplished using Flesch Kinkaid readability scores appropriate for each grade and age level of participating students. **[APPROVED]**

Recommendations for the content of messaging:

13. In much of the public discussion of differential privacy, concerns have been raised about differential privacy, such as it: (a) altered the population for the apportionment of congressional districts; (b) has made communities or certain population groups in more sparsely populated areas “disappear” from Census counts; (c) makes the P.L. 94-171 redistricting data and other 2020 Census data products too unreliable to use for redistricting, appropriations/funding decisions, and basic research; (d) makes 2020 Census data less reliable than surveys based upon sampling of only a portion of the population for which the Bureau is not currently applying differential privacy, such as the American Community Survey; (e) exposes the identity of prospective voters in redistricting; and (f) has a disproportionate (disparate) impact on communities of color and historically undercounted populations.

a. RECOMMENDATION: The NAC recommends that the Census Bureau consult with partners, stakeholders and tribes to identify the most common concerns about differential privacy. **[APPROVED]**

b. RECOMMENDATION: The NAC recommends that the Census Bureau develop a concise response written in plain language that responds to the most common concerns about differential privacy. **[APPROVED]**

14. RECOMMENDATION: The NAC recommends that the Census Bureau answer questions commonly raised about how accurate data can be made available to federal, tribal, state

and local users to ensure that appropriations/funding decisions are not negatively impacted by the Bureau's application of differential privacy to 2020 Census data products. **[APPROVED]**

15. **RECOMMENDATION:** The NAC recommends that the Census Bureau explain in concise and plain language how it will continue to develop and refine its application of differential privacy to future 2020 Census and other Census data products. **[APPROVED]**

16. **RECOMMENDATION:** The NAC recommends that the Census Bureau:

a. Provide a candid assessment of the impact that any method of protecting privacy has on the accuracy of the data the Census Bureau releases;

b. Describe the impact that previous disclosure avoidance methods used by the Bureau had on the accuracy of the data to which those methods were applied, such as: (i) it injects errors into the data products; (ii) fewer tables are available in the 2020 Census compared to the 2010 Census; (iii) application of differential privacy has resulted in delays from 2020 Census data products being made available to the public; and (iv) the impact that differential privacy has in breaking the connection between children and adults in many responding households; and

c. Acknowledge and address the trade-offs in applying differential privacy. **[APPROVED]**

17. Among the feedback heard from members of the general public, a concern has been raised that application of differential privacy will erase households that responded to the decennial survey. That concern has prompted statements by some respondents such as, "why should I complete the Census when the government can change my responses and make my household disappear from my tribe or my community?"

RECOMMENDATION: The NAC recommends that the Census Bureau's messaging be done in a sensitive manner that encourages, and does not discourage, respondents from completing decennial, annual and other periodic surveys conducted by the Bureau. **[APPROVED]**

Recommendations for the media used for messaging:

18. The NAC applauds the Census Bureau's early creation of an online video in partnership with outside experts to explain differential privacy in plain language (see <https://www.census.gov/library/video/2019/protecting-privacy.html>). However, at over 12½ minutes, it is too long and provides too much detail for the average user who may be interested in learning about differential privacy.

RECOMMENDATION: The NAC recommends that as part of its media to explain differential privacy, the Census Bureau should create a video that is tested with focus groups of diverse members of the general public to determine how much detail and the length needed to effectively promote a basic understanding of differential privacy,

consistent with the mandate that messaging be appropriate to and understandable by all racial and ethnic population groups, as provided by the mandate in EO 13985.
[APPROVED]

19. **RECOMMENDATION:** The NAC recommends that the Census Bureau make its messaging available through a variety of media, including online, print and through audio, to make it accessible to the widest possible audience, consistent with the stated mandate in EO 13985.
[APPROVED]

20. Mass media and national newspapers, such as the *New York Times* and the *Washington Post*, frequently offer readers interactive online tools to help them understand news stories. A similar approach should be taken for educating the general public about differential privacy. For example, the Bureau could create a dial, which when adjusted by the user will show that when they turn the dial more to privacy, it results in less accurate data.

RECOMMENDATION: The NAC recommends that the Census Bureau create interactive online demonstrations that facilitate the general public's understanding of: (a) the tradeoff between privacy and accuracy; (b) how that tradeoff occurs under differential privacy; and (c) a case study showing how adding more noise impacts the accuracy of data. The interactive demonstrations should be tested to ensure they are easy to use, fun, and effectively communicate to diverse audiences (as provided by EO 13985) to show how the Census Bureau uses its Disclosure Avoidance Systems (DAS), such as differential privacy, to strive for providing data as accurate as possible while protecting respondent privacy.
[APPROVED]

B. MESSAGING FOR USERS OF DETAILED INFORMATION

21. The Census Bureau received extensive feedback from stakeholders about differential privacy, which the Bureau has said informed its development of the top-down algorithm and the Privacy Loss Budget for the release of the P.L. 94-171 redistricting data set.

a. **RECOMMENDATION:** The NAC recommends that the Census Bureau issue a detailed report of its outreach, consultations, and public notice and comment on proposed application of differential privacy to each of the 2020 Census data products, including the number of responses received by respondent categories (such as academics, federal agencies, state government, local government, private NGOs, individuals, etc.).
[APPROVED]

b. **RECOMMENDATION:** The NAC recommends that in the detailed report recommended above, the Census Bureau identify all priority use studies that it received by priority use categories (such as redistricting, appropriations, housing, research, etc.).
[APPROVED]

c. **RECOMMENDATION:** The NAC recommends that in the detailed report recommended above, the Census Bureau explain how it used the priority use studies

received during each notice and comment period to adjust the algorithm and privacy loss budgets developed for each 2020 Census data product. **[APPROVED]**

d. **RECOMMENDATION:** The NAC recommends that in the detailed report recommended above, the Census Bureau provide a complete history of all algorithms, demonstration data sets, and privacy loss budgets considered in its development and application of differential privacy to 2020 Census data products, consistent with reasonable limitations on the specific information that is provided. **[APPROVED]**

22. **RECOMMENDATION:** The NAC recommends that the Census Bureau release a summary of its engagement with federal agencies on the potential impact of differential privacy on federal funding formulas, what solutions were developed to ensure the most accurate data for tribal, small, rural, and remote populations, and indicate which federal agency formulas use Decennial Census data vs. ACS vs. population estimates data. **[APPROVED]**

23. Local governments and communities need to have access to sub-state quality (operational metrics) of Census data to which differential privacy is applied to understand the quality of data and what messages need to be shared with communities for ongoing Census surveys.

a. **RECOMMENDATION:** The NAC recommends that the Census Bureau provide sub-state metrics and alternative sources of data to allow communities to understand the impact of differential privacy on the accuracy of data available to those communities. **[APPROVED]**

b. **RECOMMENDATION:** The NAC recommends that if the Census Bureau is limited in the sub-state metrics and alternative sources of data it can provide about the impact of differential privacy on data accuracy, then the Census Bureau should solicit from stakeholders what types of metrics they would like to see at a sub-state level so that the Bureau can provide alternatives or summary metrics to meet those needs. **[APPROVED]**

24. **RECOMMENDATION:** The NAC recommends that the Census Bureau develop a publicly available “lessons learned” summary of what it learned during the consultation and notice and comment process, and how those lessons can be applied to application of differential privacy to future Census data products. **[APPROVED]**

25. **RECOMMENDATION:** The NAC recommends that the Census Bureau enter into special data use agreements with researchers interested in evaluating and writing research papers to be published on the Bureau’s application of differential privacy to 2020 Census data products. **[APPROVED]**

26. **RECOMMENDATION:** The NAC recommends that the Census Bureau publicly release detailed information about presentations, analysis, deliberations and conclusions reached by members of the Data Stewardship Executive Policy Committee, or DSEP Committee, about application of differential privacy to 2020 Census data products. **[APPROVED]**

C. RECOMMENDATIONS FOR FUTURE CENSUS COMMUNICATIONS (INCLUDING PUBLICATIONS SUCH AS THE NOVEMBER 2021 HANDBOOK)

27. The Census Bureau's *Disclosure Avoidance for the 2020 Census: An Introduction*, released in November 2021 ("the Handbook") appears to be an effort to educate all audiences the same way, regardless of their level of technical expertise, in a single document. This "one-size-fits-all" approach results in a document that is not a good fit for any of the audiences. Some background information for the general public is too basic for the technical user, while the discussion of how the top-down algorithm was modeled and the Privacy Loss Budget was allocated is too technical for the general public.

a. RECOMMENDATION: The NAC recommends that the Census Bureau publish different versions of the Handbook to match the technical expertise and interest of each reader group, such as following a model proposed by a commentator (<https://aircloak.com/explaining-differential-privacy>) that identifies three audiences (easy, intermediate and professional) and provides a discussion that matches the level of proficiency of that audience. [APPROVED]

b. RECOMMENDATION: The NAC recommends that the Census Bureau identify the intended audience for each communication or publication. For example, "This introduction to differential privacy is intended to educate a non-technical user." [APPROVED]

28. The Handbook includes an effective explanation of some of the topics necessary to educate the general public and technical users about the DAS and differential privacy.

RECOMMENDATION: The NAC recommends that the Census Bureau continue to replicate the discussion on the following topics from the Handbook in its future communications: (a) an explanation of how differential privacy balances privacy and accuracy; (b) the advantages of using differential privacy over other methods of disclosure avoidance; and (c) explaining differential privacy in the context of computer power and technical sophistication as part of the increased threat of reidentification attacks. [APPROVED]

29. The Handbook is ineffective in explaining how the Census Bureau selected differential privacy over other disclosure avoidance systems, the limitations of differential privacy or the real-world impact that its application to 2020 Census data products has on priority uses such as political representation, Census-based appropriations, and research.

RECOMMENDATION: The NAC recommends that in the interest of full transparency in its future communications and publications, the Census Bureau describe: (a) how and why the Bureau decided to use differential privacy over other disclosure avoidance methods; (b) the limitations of differential privacy; (c) the impact of differential privacy on priority uses identified by data users and stakeholders; and (d) concerns that block-level data may be too noisy compared to more populated areas, in which data accuracy is improved while

the frequency of improbable and impossible results is substantially reduced. **[APPROVED]**

30. The Handbook has a disjointed presentation of many of the topics it covers and in places appears to have been produced from several different communications the Census Bureau has provided previously on its DAS and differential privacy. Some key issues and topics that should be addressed early in the document are included at or near the end or are omitted altogether.

a. **RECOMMENDATION:** The NAC recommends that the Census Bureau establish the need for and provide the rationale for differential privacy early in its communications and publications. In particular, near the beginning, the Bureau should explain why it has decided to use differential privacy for the first time in its release of 2020 Census data products, and why it began the process of constructing its top-down algorithm so late in the planning process for the 2020 Census. **[APPROVED]**

b. **RECOMMENDATION:** The NAC recommends that the Census Bureau thematically organize Frequently Asked Questions (FAQs) to address, among other topics: risk and known harms; why differential privacy is being used for the first time in the 2020 Census data products; use of differential privacy to balance data privacy with its utility; the Bureau's stakeholder and data user engagement and the concerns they raised; and comparing the need to protect privacy in data over time (such as a comparison between the 2010 and 2020 Decennial Censuses). **[APPROVED]**

31. The readability of the Handbook and other Census Bureau communications and publications can be improved in several ways.

a. The Epsilon for the PL94-171 data was 19.61. What does that mean? At the moment, explanations are not clear and advocates in the field who are paying close attention have yet to hear an explanation that is understandable. Having a clear idea from the definition will make it easier to determine if Epsilon is sufficient. Similar confusion is present for other key terms in the Glossary of the Handbook.

RECOMMENDATION: The NAC recommends that the Census Bureau explain key concepts in the Glossary in plain *and* statistical language, including "Differential," "Epsilon," "Noise" and "Privacy Loss Budget." **[APPROVED]**

b. **RECOMMENDATION:** The NAC recommends that the Census Bureau use hyperlinked text of key terms to allow readers who do not understand those terms to access definitions in the Glossary, without distracting more technical readers who do not need those explanations. **[APPROVED]**

c. **RECOMMENDATION:** The NAC recommends that the Census Bureau present examples or use studies as exhibits in its publications, and not as long passages in the main body of the publications, and make those examples easier for the general public to understand. **[APPROVED]**

d. RECOMMENDATION: The NAC recommends that the Census Bureau be more equity-focused in the examples it uses and appeal to a more racially and ethnically diverse audience (as required by EO 13985), such as not using only names that readers identify as likely being Non-Hispanic White people like “Bob” and “Alice.” **[APPROVED]**

e. RECOMMENDATION: The NAC recommends that the Census Bureau use more infographics to clearly and succinctly communicate data concepts, decision rules and other core ideas, such as Figure 2.1 in the Handbook (Creating Differentially Private Data for the 2020 Census Redistricting Files). Topics for which infographics should be developed include, for example: explaining the tradeoff in the Privacy Loss Budget and how it is set; depicting the invariant statistics for the 2020 Census redistricting data and where noise has been introduced; and depicting how the top-down algorithm works. **[APPROVED]**

32. The Handbook presents several important messages that are understated when they should be emphasized in the Census Bureau’s communications and publications.

RECOMMENDATION: The NAC recommends that the Census Bureau provide greater emphasis of its data stewardship, the development and use of the top-down algorithm, and limitations of differential privacy including its impact on more sparsely populated areas and smaller geographies. **[APPROVED]**

D. RECOMMENDATIONS REGARDING THE CONSEQUENCES OF DATA SUPPRESSION

33. RECOMMENDATION: The NAC recommends that the Census Bureau commit to maintaining a list of all circumstances brought to its attention where newly-suppressed data limited the ability to comply with state or federal law, and that the Bureau further commit to a public assessment of each such circumstance, including what has been done or could be done to ameliorate this consequence of data suppression. **[APPROVED]**

34. RECOMMENDATION: The NAC recommends that the Census Bureau, through the Department of Commerce, request sufficient appropriations to ensure resources are available to implement the NAC’s recommendations on messaging privacy, including differential privacy and the DAS. **[APPROVED]**

35. RECOMMENDATION: The NAC recommends that the Census Bureau use an algorithm that maintains the link/relationship between the child and adults in the households. **[APPROVED]**

36. The differential privacy algorithm breaks the link between children and adults. This de-linking of children and adults is likely to be more problematic in ACS and Demographic and Housing Characteristic (DHC) data and detailed DHC (D-DHC) data where more information on family structure is sought. Other methods of disclosure avoidance (cell suppression or swapping)

do not break the link between parents and children and should be considered to allow for reliable and comparable data on children and families.

RECOMMENDATION: The NAC recommends that the Bureau make a clear public statement that the differential privacy algorithm that breaks the link between children and adults will not be used for the ACS and the DHC/D-DHC. **[APPROVED]**