



DEPARTMENT OF COMMERCE

Bureau of the Census

[Docket Number 210212-0021]

Urban Areas for the 2020 Census — Proposed Criteria

AGENCY: Bureau of the Census, Department of Commerce.

ACTION: Notice of proposed program and request for comments.

SUMMARY: This notice provides the Bureau of the Census' (hereafter, Census Bureau's) proposed criteria for defining urban areas based on the results of the 2020 Decennial Census. It also provides a description of the changes from the final criteria used for the 2010 Census. The Census Bureau is requesting public comment on these proposed criteria. The Census Bureau delineates urban areas after each decennial census by applying specified criteria to decennial census and other data. Since the 1950 Census, the Census Bureau has reviewed and revised these criteria, as necessary, for each decennial census in order to improve the classification of urban areas by taking advantage of newly available data and advancements in geographic information processing technology.

DATES: Written comments must be submitted on or before **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Please direct all written comments on this proposed program via e-mail at geo.urban@census.gov to Vincent Osier, Geographic Standards, Criteria, and Quality Branch, Geography Division, U.S. Census Bureau. Please note that paper comments cannot be reviewed due to limited building access caused by the COVID-19 pandemic. Phone: 301-763-1128.

FOR FURTHER INFORMATION CONTACT: Requests for additional information on this proposed program should be directed to Vincent Osier, Geographic Standards,

Criteria, and Quality Branch, Geography Division, U.S. Census Bureau, via e-mail at geo.urban@census.gov. Phone: 301-763-1128.

SUPPLEMENTARY INFORMATION:

The Census Bureau's urban area classification is fundamentally a delineation of geographical areas, identifying individual urban areas as well as the rural portion of the nation. The Census Bureau's urban areas represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses. The boundaries of the urban areas have been defined primarily by using measures based on population counts and residential population density, and also by using measures based on criteria that account for non-residential urban land uses, such as commercial, industrial, transportation, and open space that are part of the urban landscape. Since the 1950 Census, when the Census Bureau first defined densely settled urbanized areas of 50,000 or more people, the urban area delineation process has addressed non-residential urban land uses through criteria designed to account for commercial enclaves, special land uses such as airports, and densely developed noncontiguous territory.

In delineating urban areas, the Census Bureau does not take into account or attempt to meet the requirements of any nonstatistical uses of these areas or their associated data. Nonetheless, the Census Bureau recognizes that some federal and state agencies use the Census Bureau's urban area classification for nonstatistical uses such as allocating program funds, setting program standards, and implementing aspects of their programs. The agencies that use the classification and data for such nonstatistical uses should be aware that the changes to the urban area criteria also might affect the implementation of their programs. In addition, the Census Bureau is not responsible for the use of its urban area classification in nonstatistical programs. If a federal, tribal, state, or local agency uses the urban area classification for nonstatistical purposes, it is that agency's responsibility to ensure that the classification is appropriate for such use.

1) **History**

Over the course of a century defining urban areas, the Census Bureau has introduced conceptual and methodological changes to ensure that the urban area classification keeps pace with changes in settlement patterns and with changes in theoretical and practical approaches to interpreting and understanding the definition of urban areas. Prior to the 1950 Census, the Census Bureau primarily defined “urban” as any population, housing, and territory located within incorporated places with a population of 2,500 or more. That definition was easy and straightforward to implement, requiring no need to calculate population density; to understand and account for actual settlement patterns on the ground in relation to boundaries of administrative units; or to consider densely settled populations existing outside incorporated municipalities. For much of the first half of the twentieth century, that definition was adequate for defining “urban” and “rural” in the United States, but by 1950 it became clear that it was incomplete.

Increasing suburbanization, particularly outside the boundaries of large incorporated places led the Census Bureau to adopt the urbanized area concept for the 1950 Census. At that time, the Census Bureau formally recognized that densely settled communities outside the boundaries of large incorporated municipalities were just as “urban” as the densely settled population inside those boundaries. Outside of urbanized areas of 50,000 or more people, the Census Bureau continued to recognize urban places with at least 2,500 and less than 50,000 persons. This basic conceptual approach to identifying urban areas remained in effect through the 1990 Census, albeit with some changes to criteria and delineation methods.

The Census Bureau adopted six substantial changes to its urban area criteria for the 2000 Census:

- Defining urban clusters using the same criteria as urbanized areas.

- Disregarding incorporated place and census designated place (CDP) boundaries when defining urbanized areas and urban clusters.
- Adoption of 500 persons per square mile (ppsm) as the minimum density criterion for recognizing some types of urban territory.
- An increase in the maximum jump distance for linking densely developed territory separated from the main body of the urban area by intervening low density territory from 1.5 to 2.5 miles. This recognized the prospect that larger clusters of non-residential urban uses might offset contiguity of densely settled territory.
- Introduction of the hop concept to provide an objective basis for recognizing that nonresidential urban uses, such as small commercial areas or parks, create small gaps between densely settled residential territories, but are part of the pattern of urbanization.
- Adoption of a zero-based approach to defining urban areas.

For the 2010 Census, the Census Bureau adopted moderate changes and enhancements to the criteria to improve upon the classification of urban and rural areas while continuing to meet the objective of a uniform application of criteria nationwide. These changes were:

- Use of census tracts as analysis units in the initial phase of delineation.
- Use of land use/land cover data from the National Land Cover Database (NLCD) to identify qualifying areas of non-residential urban land uses.
- Qualification of airports for inclusion in urban areas.
- Elimination of the designation of central places within urban areas.¹

¹ The central place concept was not necessary for urban area delineation and the resulting list of qualified central places largely duplicated the list of principal cities identified by the Metropolitan and Micropolitan Statistical Area standards. There was no conceptual reason to continue identifying two slightly different

- Requirement for minimum population residing outside institutional group quarters.
- Splitting large urban agglomerations.

The conceptual and criteria changes adopted for both the 2000 and 2010 Censuses, as well as the history of the Census Bureau’s urban area classification, are discussed in more detail in the document “A Century of Delineating a Changing Landscape: The Census Bureau’s Urban and Rural Classification, 1910 to 2010,” available at https://www2.census.gov/geo/pdfs/reference/ua/Century_of_Defining_Urban.pdf.

2) **Proposed Changes for the 2020 Urban Areas**

Adoption of a Housing Unit Density Threshold for Qualification of Census Blocks

The Census Bureau proposes adopting a housing unit density threshold of 385 housing units per square mile as the primary criterion for determining whether a census block qualifies for inclusion in an urban area, replacing the use of population density. The 385 housing units (occupied or vacant) per square mile density threshold utilized in the delineation of urban areas is consistent with the 1,000 persons per square mile density used in the past, based on the 2019 American Community Survey (ACS) 1-year data average of an estimated 2.6 persons per household for the United States. Housing unit density provides a more direct measure of the densely developed landscape than population density. The use of housing unit density will allow the Census Bureau to more accurately account for areas with substantial concentrations of housing that are considered part of the urban landscape, but have smaller than average persons per housing unit or seasonal populations or both. This change also will provide the ability to update the extent of urban areas between censuses, based on housing unit information in the Census Bureau’s Master Address File. Intercensal updates of urban areas have not been possible to date, due to the lack of population counts at the census block-level

lists of cities and other places that were central to their respective regions.

between decennial censuses. As a result, although the Census Bureau presented estimated populations for urban areas based on the ACS, these data were produced using boundaries defined based on data from the previous decennial census and did not keep pace with changes to the extent of urbanization. In addition, the Census Bureau's decision to adopt differential privacy methodology as a means for protecting the privacy of individual responses to the decennial census has been accompanied by the decision that published census block-level populations should be variant—that is, the published population count for any given census block will vary from the enumerated population count in order to protect individuals from reidentification. This will affect the calculation of population density at the census block-level. Housing unit counts, however, are invariant and will reflect the number of housing units enumerated in each block, and thus are a more consistent measure.

Qualify Urban Areas Based on a Minimum Threshold of 4,000 Housing Units or 10,000 Persons Instead of a Minimum Threshold of 2,500 Persons

The Census Bureau proposes that an area will qualify as urban if it contains at least 4,000 housing units or has a population of at least 10,000. The proposed increase in the minimum population responds to calls for the Census Bureau to increase its minimum threshold for defining urban areas from the 2,500-person minimum established in 1910. The proposed 10,000-person minimum threshold aligns with thresholds used by other federal agencies to distinguish between urban and rural areas as well as with the Office of Management and Budget's minimum threshold for urban areas that form the cores of micropolitan statistical areas. The proposal to adopt a housing unit threshold is consistent with our proposed shift to housing unit density and is proposed for the same reasons: it provides a more direct measure of settlement and the built environment and bases qualification on a measure that is not subject to variance resulting from the Census

Bureau's disclosure avoidance methodology. The proposed 4,000-housing unit threshold approximates the 10,000-person threshold based on the national average of 2.6 persons per household. We are proposing use of either threshold for qualification of an area as urban, based on the recognition that some areas have average persons per household sizes larger than the national average of 2.6, or may contain a substantial number of persons living in group quarters (or both), and, as a result, may have populations of 10,000 or more, but less than 4,000 housing units.

Cease Distinguishing Different Types of Urban Areas

The Census Bureau proposes to cease distinguishing different types of urban areas. In adopting this proposal, the Census Bureau would identify urban areas of 4,000 or more housing units or 10,000 or more persons without distinguishing types of urban areas. The 50,000-person threshold that has been used to distinguish between urbanized areas and smaller urban areas (whether urban places outside urbanized areas or urban clusters) no longer has the same meaning as when it was adopted in 1950 and, therefore, should no longer be used to distinguish types of urban areas. Further, the threshold is, to some extent, arbitrary; that is, as far as the Census Bureau has been able to determine from scholarship, there is no reason to assume that an urban area of just over 50,000 persons is fundamentally different in terms of economic and social functions and services than an area with just under 50,000 persons. Lastly, federal agencies apply a range of thresholds to various urban-rural classifications. These thresholds can be applied to the published data by the individual agencies to meet their own objectives.

Maximum Distances of Jumps

Jumps (and the shorter distance hops) recognize that urban development is not always a continuous and contiguous process across the landscape, and facilitate inclusion of noncontiguous densely developed territory that is considered part of the nearby urban

area. (For more information about the history and evolution of the jump and hop concepts, see “A Century of Delineating a Changing Landscape: The Census Bureau’s Urban and Rural Classification, 1910 to 2010,” available at https://www2.census.gov/geo/pdfs/reference/ua/Century_of_Defining_Urban.pdf.) The Census Bureau proposes reducing the maximum jump distance to 1.5 miles, returning to the maximum distance employed in urban area delineation from the 1950 Census through the 1990 Census. Data users, analysts, and some urban geographers expressed concern that the 2.5 mile maximum jump distance adopted for the 2000 Census was too generous in some situations and resulted in overextension of urban area territory. The Census Bureau proposed reverting to 1.5 miles in the proposed criteria for the 2010 Census, but responses from commenters were inconclusive and, as a result, no change was made. We continue to be concerned about the possible overextension of urban area territory in some situations as a result of the 2.5 mile maximum jump distance. The impervious surface criteria adopted in 2010 accounted for non-residential urban land uses, many of which also were in mind when we extended the jump distance for the 2000 Census. Thus, the two criteria serve largely the same purpose, but are applied separately, and when taken together, they can result in overextension of urban territory.

No Longer Include the Low Density Hop or Jump “Corridor” in the Urban Area

The Census Bureau proposes to no longer include within an urban area the low density territory intervening between the main body of the urban area and the outlying qualifying territory that is the destination of a hop or a jump or exempted territory that has been separated from the urban area core by water or wetlands. This will result in noncontiguous urban areas. Review of 2010 Census urban areas indicates that, due to their often irregular and relatively large geographic extent, including the corridor blocks sometimes resulted in the inclusion of population, housing, and territory that is otherwise of a rural nature and contains land uses that are not consistent with those found in the

densely developed blocks on either end of the hop or jump corridor. We note that the 1950 Census criteria for defining urbanized areas, while permitting jumps of up to 1.5 miles across low density intervening territory, did not call for inclusion of the low density jump corridor in the urban area. This change in criteria will result in a more accurate depiction of the patterns of urban development.

No Longer Include Low-Density Territory Located Within Indentations Formed During the Urban Area Delineation Process

Consistent with concerns about overbounding of urban areas and with the decision to no longer include the low-density hop and jump corridors within urban areas, we propose to cease including low-density territory within indentations that are formed during the delineation process when densely developed, qualifying territory surrounds low-density territory on three sides. Previous urban area criteria provided for the inclusion of indentations, when specified conditions were met, to 1) account for potential non-residential urban land uses that may be located within the indentation, 2) account for the potential for higher density development in the near future, and 3) produce smoother, less complicated boundaries for mapping purposes. Review of land uses within indentations formed during the 2010 urban area delineation has indicated that much of the territory remains less developed and less urban in character. Given that the impervious surface criteria are sufficient for identifying non-residential urban land uses and that modern computerized mapping and visualization methods provide the ability for users to view boundaries at various scales or “zoom levels,” thus reducing the need for smoother boundaries, we no longer see a need to close off indentations when delineating urban areas.

Splitting of Large Agglomerations of Densely Settled Territory

The automated process utilized by the Census Bureau results in the delineation of large agglomerations of continuously developed territory. While there is value in the identification of large agglomerations, some are too large and extensive to be of use for most analyses involving urban areas. Examples of large agglomerations of continuously developed territory exist throughout the United States and Puerto Rico, some encompassing only a pair of urban areas; others encompassing three or more urban areas extending across multiple states.

The question of when and how to merge adjacent urban areas or split large agglomerations has existed since the delineation of urban areas for the 1960 Census. Past criteria relied upon metropolitan statistical area or primary metropolitan statistical area definitions to determine whether to merge adjacent urban areas or, as was the case in the 2010 Census criteria, split agglomerations based on the previous decade's urbanized areas. Neither of these approaches relied upon objective measures consistent with the same time frame as the measures used in the delineation process. In other words, agglomerations were delineated based on data either from or contemporary with the decennial census, but were split based on the results of the previous decade's data and delineation.

For the 2020 Census, the Census Bureau proposes using worker flow data (i.e., commuting flows) from the Longitudinal Employer-Household Dynamics (LEHD) Program to identify whether the agglomeration represents a single functionally integrated region or whether commuting patterns indicate the presence of distinct urban areas within the larger agglomeration. The LEHD worker flow data would be used in two stages. The first stage is an analysis of adjacent 2010 Census urban areas, based on aggregate commuter flows into and out of each urban area. Adjacent 2010 Census urban areas will be merged if 50 percent or more of the workers in the smaller urban area are working in

the larger urban area and 50 percent or more of the jobs in the smaller urban area are filled by workers residing in the larger urban area. If not merged, urban areas are selected for further analysis and split boundary adjustment. The second stage is identification of where to split large agglomerations, based on patterns observed by performing “community” detection on the LEHD worker flow data. “Community” boundaries resulting from application of the Leiden Algorithm² to the worker flow data will be used to adjust 2010 Census urban area split boundaries for the final 2020 Census urban areas. Application of this criterion could shift territory from one 2010 urban area to a different 2020 urban area. The resulting splits will reflect contemporaneous commuting patterns, which in turn, serve as proxy measures for other kinds of economic and social interactions within urban areas.

3) Proposed Urban Area Criteria for the 2020 Census

The proposed criteria outlined herein apply to the United States,³ Puerto Rico, and the Island Areas of American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands. The Census Bureau proposes the following criteria and characteristics for use in identifying the areas that will qualify for designation as urban areas for use in tabulating data from the 2020 Census, the American Community Survey (ACS), the Puerto Rico Community Survey, and potentially other Census Bureau censuses and surveys.

A. 2020 Census Urban Area Definitions

² Thomas, I., A. Adam, and A. Verhetsel. Migration and commuting interactions fields: a new geography with community detection algorithm? 2017. *Belgeo*. [Online], 4. <http://journals.openedition.org/belgeo/20507>

Traag V.A, L. Waltman and N. J. van Eck. From Louvain to Leiden: guaranteeing well-connected communities. 2019. *Scientific Reports*. 9:5233.

³ For Census Bureau purposes, the United States includes the 50 States and the District of Columbia.

For the 2020 Census, an urban area will comprise a densely developed core of census blocks⁴ that meet minimum housing unit density requirements, along with adjacent territory containing non-residential urban land uses as well as other lower density territory included to link outlying densely settled territory with the densely settled core. To qualify as an urban area, the territory identified according to the proposed criteria must encompass at least 4,000 housing units or at least 10,000 persons. The term “rural” encompasses all population, housing, and territory not included within an urban area.

As a result of the urban area delineation process, an incorporated place or census designated place (CDP) may be partly inside and partly outside an urban area. Any census geographic areas, with the exception of census blocks, may be partly within and partly outside an urban area.

All proposed criteria based on land area, housing unit density, and population, reflect the information contained in the Census Bureau’s Master Address File/Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) Database (MTDB) at the time of the initial delineation. All calculations of housing unit density include only land; the areas of water contained within census blocks are not used in density calculations. Housing unit, population, and worker flow data used in the urban area delineation process will be those published by the Census Bureau for all public and official uses.

B. Proposed Urban Area Delineation Criteria

⁴ A census block is the smallest geographic area for which the Census Bureau tabulates data and is an area normally bounded by visible features, such as streets, rivers or streams, shorelines, and railroads, and by nonvisible features, such as the boundary of an incorporated place, minor civil division, county, or other 2020 Census tabulation entity.

The Census Bureau proposes to define urban areas primarily on the basis of housing unit density measured at the census block level of geography. The 385 housing units per square mile density threshold utilized in the delineation of urban areas is consistent with the 1,000 persons per square mile density used in the past, based on the 2019 ACS 1-year data average of an estimated 2.6 persons per household for the United States.

1. Identification of Initial Urban Area Cores

The Census Bureau proposes to begin the delineation process by identifying and aggregating contiguous census blocks each having a housing unit density of at least 385 housing units per square mile. This aggregation of continuous census blocks would be known as the “initial urban area core.” The initial urban area core must encompass at least 385 housing units (consistent with the requirement for at least 1,000 people in the 2010 criteria).

After the initial urban area core is identified, additional census blocks would be included if it is adjacent to other qualifying territory and if it meets any of the following criteria:

- a. It has a housing unit density of at least 385 housing units per square mile.
- b. At least one-third of the census block consists of territory with a level of imperviousness of at least twenty percent,⁵ and is compact in nature as defined by a shape index. A census block is considered compact when the shape index is at least 0.185 using the following formula: $I = 4\pi A/P^2$ where I is the shape index, A is the area of the entity, and P is the perimeter of the entity.

⁵ The Census Bureau has found in testing the NLCD that territory with an impervious percent less than twenty percent results in the inclusion of road and structure edges, and not the actual roads or buildings themselves.

- c. At least one-third of the census block consists of territory with a level of imperviousness of at least twenty percent, and at least forty percent of its boundary is contiguous with qualifying territory.

The Census Bureau would apply proposed criteria 1.a, 1.b, and 1.c above until there are no blocks to add to the urban area. Any “holes” or remaining nonqualifying territory completely contained within an initial urban area core that is less than five square miles in area will qualify as urban via the criteria for inclusion of enclaves, as set forth below in the III. B. 5., subheading entitled, “5. Inclusion of Enclaves.”

2. Inclusion of Group Quarters

Census blocks containing institutional and non-institutional group quarters that are adjacent to census blocks qualifying based on the criteria outlined in step 1 above (“1. Identification of Initial Urban Area Cores”) will be included in the urban area. This criterion accounts for the fact that group quarters, such as college dormitories, are not considered housing units by the Census Bureau, but generally are part of the urban landscape.

3. Inclusion of Noncontiguous Territory via Hops and Jumps

Noncontiguous territory that meets the proposed housing density criteria specified in section B.1.a and b above, but is separated from an initial urban area core of 385 housing units or more, may be added via a hop along a road connection of no more than 0.5 miles. Multiple hops may be made along a single road connection, thus accounting for the nature of contemporary urban development, which often encompasses alternating patterns of residential and non-residential uses.

After adding territory to an initial urban area core via hop connections, the Census Bureau will identify all urban area cores that have a housing unit count of 577 or more (consistent with the requirement for at least 1,500 people in the 2010 criteria) and add other qualifying territory via a jump connection.⁶ Jumps are used to connect densely settled noncontiguous territory separated from the urban area core by territory with low housing unit density measuring greater than 0.5 and no more than 1.5 road miles across. This process recognizes the existence of larger areas of non-residential uses or other territory with low housing unit density that do not provide a substantial barrier to interaction between outlying territory with high housing unit density and the urban area core. Because it is possible that any given densely developed area could qualify for inclusion in multiple cores via a jump connection, the identification of jumps in an automated process starts with the initial urban area core that has the largest total population and continues in descending order based on the total population of each initial urban area core. Only one jump is permitted along any given road connection. This limitation, which has been in place since the inception of the urban area delineation process for the 1950 Census, prevents the artificial extension of urban areas over large distances that result in the inclusion of communities that are not commonly perceived as connected to the particular initial urban area core. Exempted territory is not taken into account when measuring road distances across hop and jump corridors. In the case of both hops and jumps, the intervening, low density block or blocks are not included in the urban area.

4. Inclusion of Noncontiguous Territory Separated by Exempted Territory

⁶ All initial urban area cores with less than 4,000 housing units or 10,000 persons are not selected to continue the delineation as separate urban areas; however, these cores still are eligible for inclusion in an urban area using subsequent proposed criteria and procedures.

The Census Bureau proposes to identify and exempt territory in which residential development is substantially constrained or not possible due to either topographical or land use conditions.⁷ Such exempted territory offsets urban development due to particular land use, land cover, or topographic conditions. For the 2020 Census, the Census Bureau proposes the following to be exempted territory:

- Bodies of water; and
- Wetlands (belonging to one of eight wetlands class definitions⁸)

Noncontiguous qualifying territory would be added to a core via a hop or jump when separated by exempted territory, provided that it meets the following criteria:

- a. The road connection across the exempted territory (located on both sides of the road) is no greater than five miles, and
- b. The total length of the road connection between the initial urban area core and the noncontiguous territory, including the exempt distance and non-exempt hop or jump distances, is also no greater than five miles.

The intervening, low density block or blocks of water or wetlands are not included in the urban area.

5. Inclusion of Enclaves

The Census Bureau will add enclaves (that is, nonqualifying area completely surrounded by area already qualified for inclusion as urban) within the urban area, provided that they are surrounded only by land area that qualified for inclusion in

⁷ The land cover and land use types used to define exempted territory are limited to only those that are included in or can be derived from the Census Bureau's MTDB or the MRLC's most recent version of the NLCD nationally, consistently, and with some reasonable level of accuracy.

⁸ For the MRLC's 2016 NLCD, wetlands are identified as belonging to one of eight wetlands class definitions including woody, palustrine forested, palustrine scrub/shrub, estuarine forested, estuarine scrub/shrub, emergent herbaceous, palustrine emergent (persistent), or estuarine emergent.

the urban area based on housing unit density criteria, and at least one of the following conditions is met:

- a. The area of the enclave must be less than five square miles.
- b. All area of the enclave is surrounded by territory that qualified for inclusion in the initial urban area core and is more than a straight-line distance of 1.5 miles from a land block that is not part of the urban area.

Additional enclaves will be identified and included within the urban area if:

- a. The area of the enclave is less than five square miles,
- b. The enclave is surrounded by both land that qualified for inclusion in the urban area and water, and
- c. The length of the line of adjacency with the water is less than the length of the line of adjacency with the land.

6. Inclusion of Airports

After all territory has been added to the urban area core via hop and jump connections, and enclaves, the Census Bureau will then add whole census blocks that approximate the territory of airports, provided at least one of the blocks that represent the airport is within a distance of 0.5 miles of the edge of qualifying urban territory. An airport qualifies for inclusion if it is currently functional and one of the following criteria (per the Federal Aviation Administration's (FAA) Air Carrier Activity Information System.⁹) applies:

- a. It is a qualified cargo airport.
- b. It has an annual passenger enplanement of at least 2,500 in any year between 2011 and 2019.

⁹ The annual passenger boarding data only includes primary, non-primary commercial service, and general aviation enplanements as defined and reported by the FAA Air Carrier Activity Information System.

7. Additional Nonresidential Urban Territory

The Census Bureau will identify additional nonresidential urban-related territory that is noncontiguous, yet near the urban area. The Census Bureau recognizes the existence of large commercial and/or industrial land uses that are separated from an urban area by a relatively thin “green buffer,” small amount of undeveloped territory, and/or a narrow census block required for tabulation (such as a water feature, offset boundary, road median, or area between a road and rail feature). The Census Bureau will review all groups of census blocks whose members qualify as urban via the impervious surface criteria set forth in Section 1.b, have a total area of at least 0.15 square miles,¹⁰ and are within 0.25 miles of an urban area. A final review of these census blocks and surrounding territory¹¹ will determine whether to include this territory in an urban area.

8. Splitting Large Agglomerations and Merging Individual Urban Areas

Population growth and redistribution coupled with the automated urban area delineation methodology that will be used for the 2020 Census may result in large agglomerations of continuously developed territory that may encompass territory defined as separate urban areas for the 2010 Census. If such results occur, the Census Bureau will apply split and merge criteria.

For the 2020 Census, the Census Bureau proposes using worker flow data (i.e., commuting flows) from the Longitudinal Employer-Household Dynamics (LEHD) Program to identify whether the agglomeration represents a single

¹⁰ The Census Bureau found in testing that individual (or groups of) census blocks with a high degree of impervious surface land cover with an area less than 0.15 square miles tend to be more associated with road infrastructure features such as cloverleaf overpasses and multilane highways.

¹¹ Additional census blocks within eighty feet of the initial groups also qualifying as impervious, but failing the shape index, are also identified for review.

functionally integrated region or whether commuting patterns indicate the presence of distinct urban areas within the larger agglomeration. An agglomeration that encompasses two or more 2010 Census urban areas will be a candidate for splitting into smaller urban areas. This condition will trigger application of the following splitting criteria:

- a. Each pair of 2010 Census urban areas will be analyzed to determine whether to split or to remain merged. The 2010 urban area with the smaller population will be analyzed in relation to the 2010 urban area with the larger population.
- b. The 2010 Census urban area with the smaller population will remain in the agglomeration if at least 50 percent of its resident workers are employed within the larger 2010 Census urban area and at least 50 percent of the jobs in the smaller urban area are filled by workers residing within the larger 2010 Census urban area. If either of these conditions are not met, the smaller urban area will be split from the agglomeration and categorized based on the worker flow data.
- c. The 2010 Census urban areas are organized into four categories:
 1. Worker flows are 50 percent or more to or from another 2010 Census urban area, but not in both directions;
 2. Worker flows are less than 50 percent internal, but also less than 50 percent with any other single 2010 Census urban area;
 3. Adjacent 2010 Census urban areas that are in categories 1 or 2;
 4. Worker flows are 50 percent or more internal to the 2010 Census urban area.

- d. Community detection is performed on the LEHD worker flow data using the Leiden Algorithm to identify commuter-based communities. The resulting communities are used to adjust the 2010 Census urban area split boundaries based on thresholds set to each of the four categories. However, for all categories, at least 50 percent of the worker flow must be internal to all resulting urban areas. The boundary between two urban areas may also be modified to avoid splitting an incorporated place, CDP, or minor civil division (MCD) between two urban areas at the time of delineation.
- e. Upon running the community detection algorithm, the resulting communities are used to adjust the 2010 Census urban area split boundaries, and to identify the potential boundary between the resulting 2020 urban areas, starting with urban areas in the first category (below) and progressing to the fourth category (below).
- Category 1. For the smaller of each urban area pair, adjacent communities (identified by the Leiden Algorithm) are added from the larger urban area until the internal worker flow of the smaller urban area is greater than 50 percent. Communities can only be added to the smaller urban area until the total housing unit count increases by less than 50 percent.
 - Category 2. For the smaller of each urban area pair, adjacent communities (identified by the Leiden Algorithm) are added from the larger urban area until the internal worker flow is greater than 50 percent.

- Category 3. If there is greater than 10 percent worker flow between adjacent urban areas in categories 1 and 2, then they will be combined as one urban area and the criteria of the lowest category will be applied.
- Category 4. Split boundaries will be adjusted to their nearest community boundary.

9. Assigning Urban Area Titles

A clear, unambiguous title based on commonly recognized place names helps provide context for data users and ensures that the general location and setting of the urban area can be clearly identified and understood. The title of an urban area identifies the place(s) that is (are) the most populated within the urban area. All population requirements for places and MCDs apply to the portion of the entity's population that is within the specific urban area being named. The Census Bureau proposes the following criteria to determine the title of an urban area:

- a. The most populous incorporated place within the urban area that has a population of 10,000 or more will be listed first in the urban area title.
- b. If there is no incorporated place with a population of 10,000 or more, the urban area title will include the name of the most populous incorporated place or CDP within the urban area that has at least 2,500 people.
- c. Up to two additional places, in descending order of population size, may be included in the title of an urban area, provided that the place meets one of the following criteria:
 - a. The place has 250,000 or more people.

- b. The place has at least 2,500 people, and that population is at least two-thirds of the urban area population of the most populous place in the urban area.

If the urban area does not contain a place of at least 2,500 people, the Census Bureau will consider the name of the incorporated place, CDP, or MCD with the largest total population in the urban area, or a local name recognized for the area by the United States Geological Survey's (USGS) Geographic Names Information System (GNIS), with preference given to names also recognized by the United States Postal Service (USPS). The urban area title will include the USPS abbreviation of the name of each state or statistically equivalent entity in which the urban area is located or extends. The order of the state abbreviations is the same as the order of the related place names in the urban area title.¹²

If a single place or MCD qualifies as the title of more than one urban area, the largest urban area will use the name of the place or MCD. The smaller urban area will have a title consisting of the place or MCD name and the direction (North, South, East, or West) of the smaller urban area as it relates geographically to the larger urban area with the same place or MCD name.

If any title of an urban area duplicates the title of another urban area within the same state, or uses the name of an incorporated place, CDP, or MCD that is duplicated within a state, the name of the county that has most of the population of the largest place or MCD is appended, in parentheses, after the duplicate place or MCD name for each urban area. If there is no incorporated place, CDP, or

¹² In situations where an urban area is only associated with one place name but is located in more than one state, the order of the state abbreviations will begin with the state within which the place is located and continue in descending order of population of each state's share of the population of the urban area.

MCD name in the urban area title, the name of the county having the largest total population residing in the urban area will be appended to the title.

C. Definitions of Key Terms

Census Block: A geographic area bounded by visible and/or invisible features shown on a map prepared by the Census Bureau. A census block is the smallest geographic entity for which the Census Bureau tabulates decennial census data.

Census Designated Place (CDP): A statistical geographic entity encompassing a concentration of population, housing, and commercial structures that is clearly identifiable by a single name, but is not within an incorporated place. CDPs are the statistical counterparts of incorporated places for distinct unincorporated communities.

Census Tract: A small, relatively permanent statistical geographic subdivision of a county or county equivalent defined for the tabulation and publication of Census Bureau data. The primary goal of the census tract program is to provide a set of nationally consistent small, statistical geographic units, with stable boundaries that facilitate analysis of data across time.

Contiguous: Refers to two or more areas sharing common boundaries.

Core Based Statistical Area (CBSA): A statistical geographic entity defined by the U.S. Office of Management and Budget, consisting of the county or counties or equivalent entities associated with at least one core of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties

containing the core. Metropolitan and micropolitan statistical areas are the two types of core based statistical areas.

Enclave: An area with population or housing unit density lower than the minimum for qualification that is completely surrounded by area already qualified for inclusion as urban.

Exempted Territory: Pre-existing land cover that offsets the pattern of urban development.

Group Quarters (GQs): A place where people live or stay, in a group living arrangement that is owned or managed by an entity or organization providing housing and/or services for the residents. These services may include custodial or medical care, as well as other types of assistance, and residency is commonly restricted to those receiving these services. This is not a typical household-type living arrangement. People living in GQs are usually not related to each other. GQs include such facilities as college residence halls, residential treatment centers, skilled nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

Impervious Surface: Paved, man-made surfaces, such as roads, parking lots, and rooftops.

Indentation: Areas that are partially enveloped by, and likely to be affected by and integrated with, an already qualified urban territory.

Incorporated Place: A type of governmental unit, incorporated under state law as a city, town (except in New England, New York, and Wisconsin), borough (except in Alaska and New York), or village, generally to provide specific

governmental services for a concentration of people within legally prescribed boundaries.

Metropolitan Statistical Area: A core based statistical area associated with at least one urban area that has a population of at least 50,000. The metropolitan statistical area comprises the central county or counties or equivalent entities containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county or counties as measured through commuting.

Micropolitan Statistical Area: A core based statistical area associated with at least one urban area that has a population of at least 10,000, but less than 50,000. The micropolitan statistical area comprises the central county or counties or equivalent entities containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county or counties as measured through commuting.

Minor Civil Division (MCD): The primary governmental or administrative division of a county or equivalent entity in 29 states and the Island Areas having legal boundaries, names, and descriptions. MCDs represent many different types of legal entities with a wide variety of characteristics, powers, and functions depending on the state and type of MCD. In some states, some or all of the incorporated places also constitute MCDs.

New England City and Town Area (NECTA): A statistical geographic entity that is delineated by the U.S. Office of Management and Budget based on county subdivisions—usually cities and towns. NECTAs are defined using the same

criteria as county-based CBSAs, and, similar to CBSAs, NECTAs are categorized as metropolitan or micropolitan.

Noncontiguous: Two or more areas that do not share common boundaries, such that the areas are separated by intervening territory.

Rural: Territory not defined as urban.

Topologically Integrated Geographic Encoding and Referencing (TIGER):

Database developed by the Census Bureau to support its mapping needs for the decennial census and other Census Bureau programs. The topological structure of the TIGER database defines the location and relationship of boundaries, streets, rivers, railroads, and other features to each other and to the numerous geographic areas for which the Census Bureau tabulates data from its censuses and surveys.

Urban: Generally, densely developed territory, encompassing residential, commercial, and other non-residential urban land uses within which social and economic interactions occur.

Urban Area Core: Continuous area qualified as urban prior to the application of the hop and jump criteria.

Urban Cluster: A statistical geographic entity consisting of a densely settled core created from census tracts or blocks and contiguous qualifying territory that together have at least 2,500 persons but fewer than 50,000 persons.

Urbanized Area: A statistical geographic entity consisting of a densely settled core created from census tracts or blocks and adjacent densely settled territory that together have a minimum population of 50,000 people.

Ron S. Jarmin, Acting Director, Bureau of the Census, approved the publication of this Notice in the *Federal Register*.

Authority: Title 13, U.S.C., Chapter V.

Dated: February 16, 2021.

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[FR Doc. 2021-03412 Filed: 2/18/2021 8:45 am; Publication Date: 2/19/2021]