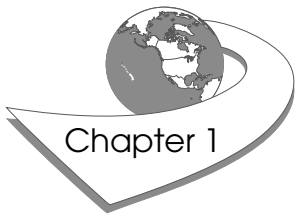

Census Bureau Geography

The Role of Geography in Census-Taking

"In its best interests, a civilized nation counts and profiles its people and institutions. Doing so ably and objectively is the abiding mission of the United States Census Bureau. We honor privacy, shun partisanship, invite scrutiny, and share our expertise globally. Striving to excel, we chronicle the Nation's past, describe its present, and illuminate its future."[1]

As the factfinder for the Nation, the Bureau of the Census, an agency of the U.S. Department of Commerce, collects, tabulates, and disseminates statistical data to meet a variety of needs. The original and foremost Census Bureau obligation is to provide the most complete and accurate population count possible for apportionment of the seats in the U.S. House of Representatives. Beyond this obligation, numerous other needs for Census Bureau data have developed over the years, such as the redistricting of States for congressional and legislative representation purposes, the charting of social and economic trends, the distribution of public funds authorized in Federal and State legislation, and the administration of public and private programs. All these needs require that the Census Bureau recognize many kinds of geographic areas—legal, administrative, and statistical—as the framework for the tabulation and presentation of data from its decennial, economic, agriculture, and governments censuses, as well as its periodic sample surveys and estimates programs.

The success of a census or sample survey depends not only on how well the Census Bureau designs the questionnaire, collects the data, and processes the results, but also on how well it links the collected data to geographic areas. In defining the geographic area framework for each specific census or survey, the geographic requirements consist of identifying the legal, administrative, and statistical entities to be used; promulgating official standards for those entities, where appropriate; determining the names, numeric codes, and boundaries for the entities selected; entering the required information about these entities into the TIGER data base;[2] preparing the maps necessary to support the data collection and data

dissemination functions; linking the address appearing on each census or survey questionnaire to its proper geographic location (for example, within a census block, a city, or a county); and providing the reference files and technology needed to assign the data collected to the full set of geographic entities used to report the results of that census or survey.

The value of most census and sample survey data relates directly to the ability of the Census Bureau to classify the data accurately and usefully into geographic areas, and to portray the geographic entities comprising those areas correctly and meaningfully on maps and in the resulting data products. The many geographic entities the Census Bureau recognizes and delineates often result in a geographic pattern that is quite complex. Tables 2-1 and 2-2 in Chapter 2, "Geographic Overview," provide a listing of the geographic entities for which the Census Bureau has tabulated statistical data in several of its recent censuses.

Providing a Selection of Geographic Area Choices for Data Users

The Census Bureau strives to provide data for those geographic areas most useful to the many and varied users of those data. To do this, the Census Bureau presents data summaries for the Nation's many legal and administrative entities, including States, American Indian and Alaska Native areas, counties, minor civil divisions (MCDs), incorporated places, congressional districts, and voting districts. To supplement these legally defined entities, the Census Bureau also provides data for a variety of other geographic entities that are helpful to the data users. To do this, the Census Bureau, usually in cooperation with State and local agencies, establishes, identifies, and delineates geographic entities referred to as *statistical areas*. These include regions, divisions, urbanized areas (UAs), census county divisions (CCDs), unorganized territories (UTs), census designated places (CDPs), census tracts, block numbering areas (BNAs), block groups (BGs), and census blocks.[3] The data user community, composed of numerous individuals, businesses, and agencies at all levels of government, each with somewhat different needs, can then select the geographic entity or set

of entities that most closely represent their geographic area of interest. For examples of how data users can meet their geographic needs, see Table 1-1.

Table 1-1. **User Needs and Data Product Choices**

Data User Situations	Data Product Choices
A student writing a history term paper needs the current and past population totals for a city.	A good starting point is the ***1990 Census of Population and Housing CPH-2 report series***, a set of publications that contains tables showing place populations in 1970, 1980, and 1990. The comparable 1970 and 1960 publications provide historical population counts for those incorporated places with 10,000 or more inhabitants, the former by decade from 1900 and the latter by decade from the earliest decennial census when each place existed.
A large manufacturer of consumer goods wants to evaluate its division of the Nation into marketing regions, advertising territories, and areas for conducting sample surveys of existing and potential customers.	The various censuses and sample surveys of the Census Bureau offer a wealth of socioeconomic data. These are available in various product formats: ***printed reports, magnetic tapes, microfiche, flexible diskettes, CD-ROM***, and most recently, ***electronic bulletin boards***. Standard summary statistics from censuses and sample surveys, plus estimates of population and income, are available for numerous kinds of large-area geographic entities such as regions, divisions, States, metropolitan areas, large cities, and counties. In addition to the standard data products, there are ***public-use microdata files*** that contain the full range of population and housing information from the 1990 census; these include several independently drawn sample files that feature different configurations of large-area geographic entities.
A religious organization is planning to expand its activities by establishing several new congregations throughout a metropolitan area. It needs socioeconomic profiles for a network of small areas within several counties. It also would like to combine these statistics with local sources of information.	Census tracts, and BNAs, are the most versatile units of small-area decennial census geography because they define small, relatively permanent areas designed to be homogeneous when originally established and because they average around 4,000 residents. The ***CPH-3 report series*** is a set of publications that contains many tables of demographic, social, economic, and housing statistics from the 1990 Census of Population and Housing. These publications provide an inexpensive, convenient source for small-area information throughout the United States. Moreover, during the intercensal period, local agencies often use census tracts as a geographic framework for aggregating and presenting their own small-area statistical compilations, such as housing starts and population growth estimates.

The many different kinds of geographic areas used by the Census Bureau to report statistical data serve various purposes, as defined by the specific use to be made of the data from a particular census, sample survey, or other program. The decennial census of population and housing provides data for the largest selection of geographic entities, including entities that are both large and small in area and those that are densely or sparsely populated. The decennial census can embrace this variety of entities because the very large number of people and housing units involved are distributed in sizable numbers throughout the Nation and its territories. The information collected in the other censuses and sample surveys conducted by the Census Bureau, such as statistics about manufacturing establishments, farms, or people unemployed, usually are more appropriate for presentation only when summarized into larger geographic entities, counties, metropolitan areas, or States. Such entities are appropriate because of the relatively small number of establishments located in many smaller areas or the small number of people involved in most sample surveys.

Despite the numerous levels of standard geography for which the Census Bureau tabulates statistical data, the existing geographic entities used to report the results of a specific census or sample survey sometimes do not match the needs of a specific user. As an example, the Census Bureau does not currently tabulate data for local school-attendance areas as part of its regular decennial census data series, yet many school boards need this level of geographic detail to help them determine the demographic characteristics of their service areas as well as to plan for school closings, new schools, and attendance-area boundary revisions. Census blocks, BGs, and census tracts or BNAs, together with county subdivisions and/or places, are typically small enough to serve as basic spatial units for aggregation into other types of analysis areas. For example, a school board generally can accumulate the statistics it needs for attendance areas by combining the data for a set of census blocks, BGs, and/or census tracts/BNAs. Increasingly, the State Data Centers, a relatively recent addition to the Census Bureau's outreach and data dissemination program, and private companies provide these types of user-specified geographic reaggregation services in order to supply needed data tabulations.

If a large number of data users identify a need for some category of geographic area unmet by the existing standard units, they can request that the Census Bureau consider and develop a new geographic concept that it will apply uniformly in aggregating the data collected in its current and future censuses. This occurred in the past when the Census Bureau developed and expanded the census tract program, when it developed the concept of UAs, and when it issued and refined the guidelines for voting district data tabulations.

Alternatively, individual users with highly specific geographic needs can request a special tabulation in which the Census Bureau will provide a one-time reaggregation of the data it collected into a specific area or set of areas; the Census Bureau provides data tabulations for nonstandard geographic areas upon receipt of reimbursement for relevant costs from the requesting person or agency. The Census Bureau's User Defined Areas Program (UDAP) offers this capability.

Geographic Areas Reference Manual

Definition, delineation, and user understanding of the various geographic entities used for data collection and reporting have been, and remain an important part of, the Census Bureau's mission, both in terms of fulfilling its obligations to the data user community and in conducting its data collection operations. To ensure that the data the Census Bureau presents for these areas are useful, the geographic entities used in the tabulations must reflect a meaningful geographic structure. To achieve this goal, the Census Bureau must consider carefully the various approaches others use and/or advocate to classify the Nation's land, institutions, and settlement. Because it is not always possible for the staff of the Census Bureau to know the geographic units most appropriate for classifying people and establishments in a particular census or sample survey, they must rely on the judgment of, and participation by, local, State, tribal, and other Federal officials. Consequently, it is important that these officials, as well as all data users, understand the types of geographic entities the Census Bureau uses in its data collection, tabulation, and dissemination processes.

The Census Bureau's Commitment to Help Data Users Understand Its Geographic Entities

To help governmental officials, scholars, researchers, market analysts, and other data users better understand the Census Bureau's geographic entities, the Census Bureau is publishing this *Geographic Areas Reference Manual.* The purpose of the *Geographic Areas Reference Manual* is to provide information about the basic geographic entities the Census Bureau uses in its various data tabulations and to document the purposes, definitions, standards, criteria, and procedures used to select, define, delineate, and revise these geographic entities. The manual serves as a composite source of information to serve the needs of the broad community of data users. It is a reference tool for Census Bureau staff; Members of Congress; officials in Federal, American Indian, Alaska Native, State, and local government agencies. It is also useful to data users in the business and academic communities, data analysts with an interest in demographic and/or economic statistics, and the general reader with an interest in geography. It provides a guide for the tribal and State officials and local Census Statistical Areas Committees that assist the Census Bureau in its geographic programs. It also provides information needed by the many other agencies and groups working with the Census Bureau to maintain and improve its treatment of geographic areas.

The information, knowledge, and insights gained from data users and from the past are a significant part of the presentations in the *Geographic Areas Reference Manual.* In this way, the manual represents a step toward an improved knowledge and understanding of these geographic entities and their role in the Census Bureau's processes. The manual also offers a perspective on the pragmatic problems associated with using these geographic entities, and describes how the Census Bureau responds to these problems. By enabling data users to better understand the concepts underlying the geographic entities for which it presents data, the Census Bureau anticipates that data users can make more effective use of these data. The role of the Census Bureau includes functions such as publishing guidelines, providing information on changes in geographic concepts, and cooperating with the data user community.

Providing published guidelines The *Geographic Areas Reference Manual* traces its beginnings to the *Census Tract Manual*. The first edition of the *Census Tract Manual* appeared in 1934. It described the series of steps a local Census Tract Committee needed to follow when it developed a census tract plan. The Census Bureau published the fifth (and last) edition of the *Census Tract Manual* in 1966. By then, the manual had been expanded to describe (1) the steps a local committee needed to take to develop a new census tract plan or to revise an existing one; (2) the basic definitional criteria for census tracts; (3) the standards set by the Census Bureau for census tracts; (4) the various types of data produced by the Census Bureau for census tracts; and (5) a history of, and general background information for, the census tract program. The census tract was the first, and for many years the only, geographic area that the Census Bureau delineated in cooperation with local officials.

Gradually, the Census Bureau involved tribal, State, and local officials in the delineation of additional geographic entities such as CCDs, CDPs, BNAs, and BGs. When the Census Bureau asked tribal, State, or local officials to delineate these entities, it also provided entity-specific guidelines to facilitate their work. Because these programs took place at various times during each decade, the Census Bureau did not attempt to consolidate the separate program requirements into a single document. Given the increasing role of tribal, State, and local agencies in the delineation of geographic areas and the obsolescence of the *Census Tract Manual*, there was an obvious need for a document that included background material and guidelines for the geographic entities used in the Census Bureau's statistical programs. This document would describe the roles of the participants working with the Census Bureau to implement the guidelines applicable to these geographic entities.

Providing information about changes in geographic concepts To make effective use of the statistical data presented by the Census Bureau, it is helpful for data users to be informed about the total framework of Census Bureau geography as it evolves to meet the challenges of modern

data collection and processing techniques. Recent decades have seen the Census Bureau undertake several important new initiatives to improve the census-taking process. These include the adoption of geographic programs to improve the mail census; for example, the creation of computerized geographic files, including the address coding guides (ACGs) of the 1970 census, the GBF/DIME-Files[4] of the 1970 and 1980 censuses, and the TIGER data base of the 1990 census. These improvements allowed the Census Bureau to extend the small-area geographic entities to all parts of the Nation by the 1990 census, assisted by the rapidly increasing use of automation in data processing and in map-making and other graphic presentations. As these developments continue, they become increasingly important in both their direct and indirect effect on the type, definition, and/or delineation of geographic areas for Census Bureau data tabulations and map portrayals. The geographic precision and detail included in the automated files improves the Census Bureau's performance in fulfilling its mission. This manual is an important component in understanding the geographic concepts that go into the automation of the Census Bureau's geographic framework so that this framework can be adjusted more effectively to respond to the ever-changing political, social, and economic dynamics of our Nation.

Cooperation with the data user community Data users need to be aware of the Census Bureau's commitments and obligations to the data-using public. Mutual cooperation with the data user community is, and will continue to be, a vital element in the Census Bureau's maintenance and update of its geographic area framework. In meeting this obligation to involve data users in planning the geographic structure, the Census Bureau has invited the network of local Census Statistical Areas Committees, State Data Centers, Business and Industry Data Centers, tribal groups, and other user groups to assist in delineating many of the geographic entities (see Chapter 3, "Local Census Statistical Areas Committees and Other Local Assistance"). These groups also serve as an important resource for distributing the resulting census data, maps,

and related geographic information to local data users. Their access to this manual should prove beneficial to everyone involved.

Organization of the Manual

The individual chapters of the Geographic Areas Reference Manual deal with specific geographic subjects or the specific kinds of geographic entities used in the various censuses and sample surveys conducted by the Census Bureau. Each chapter stands alone as a reference source for a particular type of geographic entity or a specific subject; however, it often is useful to interrelate the geographic information in two or more chapters to develop a comprehensive understanding of broader topics.

These chapters encompass the standard geography that the Census Bureau uses in presenting information from its decennial censuses of population and housing as well as its other censuses, sample surveys, and statistical programs. The internal structure of the chapters on geographic entities follows a common pattern. An introductory section defines the geographic entity (or more typically, the set of entities) under discussion and describes its relevance to the Census Bureau's statistical programs. Other sections provide information on the historical development of the entity, its definitional criteria and guidelines, its delineation procedures, and its relationships to other components of the Census Bureau's hierarchy of geographic entities.

Introductory chapters The first three chapters provide background information about the Census Bureau's geographic concepts, an overall rationale for the selection and use of specific geographic entities by the Census Bureau, and the participants in the processes required to establish the geographic framework for each census and sample survey. The latter also assist the Census Bureau with the task of disseminating the resulting geographic information and statistical data.

Subdivisions of the Nation One important category of geographic entities includes the major civil divisions of the Nation and its territories, that is, States, counties, American Indian and Alaska Native areas, and

their statistically equivalent entities, which include Puerto Rico, the Outlying Areas, tribal jurisdiction statistical areas (TJSAs), and tribal designated statistical areas (TDSAs), as well as the groupings of some or all of these entities into larger statistical units. Another important category comprises sub-State/subcounty entities—MCDs, CCDs, and UTs—referred to comprehensively as county subdivisions, and places. A third major category includes the chapters on the statistical tabulation units used to control and present data for small geographic areas—census tracts and BNAs, BGs, and census blocks. There also is a chapter on voting districts.

Population concentrations The fourth significant category of basic geographic areas includes those documenting settlement patterns or concentrations of population as defined by both the Census Bureau and other agencies. Geographic areas based on settlement patterns are discussed in the chapters on the urban and rural classification and metropolitan areas. The chapter on places (which describes incorporated places and CDPs) and the chapter on voting districts also overlap into this category.

Other topics There is a chapter on the Census Bureau's area measurement statistics and its water classification scheme. The manual concludes with a glossary of the Census Bureau's geographic terminology.

Notes and References

[1] U.S. Department of Commerce, Bureau of the Census (Strategic Planning Committee), *Strategic Planning for the Census Bureau and the Initial Strategic Plan* (leaflet), October 1985.

[2] The TIGER (Topologically Integrated Geographic Encoding and Referencing) data base (often called the TIGER File) is the set of computer files at the heart of the TIGER System. This computer data base contains all the geographic information representing roads, boundaries, and other geographic features along with their attributes (names, address ranges, geographic codes, and other information). The TIGER System includes, in addition to the TIGER data base, the computer software, procedures, and control systems necessary to update and use the TIGER data base.

[3] The Federal Office of Management and Budget (OMB) establishes another well-known set of statistical entities for which the Census Bureau provides data: metropolitan areas (MAs). Chapter 13 provides information about these entities.

[4] The geographic base files (GBFs), constructed using dual-independent map encoding (DIME) techniques, evolved from developmental work done in the late 1960s by the staff of the New Haven Census Use Study. The first files supplemented the ACGs prepared for the 1970 decennial census and allowed the Census Bureau to improve its processing of place-of-work responses to that census. All ACGs were converted to GBF/DIME-Files for the 1980 decennial census, and files were created for all new metropolitan areas to facilitate automated address matching operations for approximately one-half of the 1980 census housing unit addresses and to continue improvements in place-of-work response coding.