OFFICE OF MANAGEMENT AND BUDGET

Alternative Approaches to Defining Metropolitan and Nonmetropolitan Areas

AGENCY: Executive Office of the President, Office of Management and Budget (OMB), Office of Information and Regulatory Affairs (OIRA).

ACTION: Notice of intent to review the standards currently used to define metropolitan areas and to propose standards for defining nonmetropolitan areas following the 2000 census.

SUMMARY: OMB defines metropolitan areas (MAs) in the United States and Puerto Rico for statistical purposes, following published standards. Statistical purposes include the collection, tabulation, and publication of data by Federal agencies for geographic areas. Decisions related to the criteria used to define MAs are made by OMB in consultation with members of the Metropolitan Area Standards Review Committee (MASRC), a group representing various statistical agencies within the Federal Government. The last revision of the MA standards was issued in 1990 (see Appendix A). OMB currently is conducting a full review of the MA concept and standards.

This Notice describes potential revisions to the MA standards based on findings from the ongoing review. The Notice begins with a brief history of the standards and a discussion of why they may need to be revised. It then lists the findings of the review process to date, distinguishing between points of general agreement and questions still needing to be resolved. The Notice presents four approaches to defining metropolitan and nonmetropolitan areas that answer in varying ways the unresolved questions.

Issues for Comment: OMB is interested in receiving comments from the public on (1) the suitability of the current standards, (2) principles that should govern any proposed revisions to the standards, (3) reactions to the four approaches outlined in this Notice, and (4) proposals for other ways by which to define metropolitan and nonmetropolitan areas. In particular, OMB seeks responses to the following key questions that will determine how metropolitan and nonmetropolitan areas will be defined in the future:

- What geographic unit should be used as the ''building block'' for defining areas for statistical purposes?
- What criteria should be used to aggregate the geographic building blocks into statistical areas?
- What criteria should be used to define a set of statistical areas of different types that together classify all the territory of the Nation?

DATES: Comments must be received on or before February 12, 1999.

ADDRESSES: Written comments should be submitted to James D. Fitzsimmons, Population Division, Bureau of the Census, Washington, DC 20233–8800; fax (301) 457–2644.

Electronic Data Availability and Comments: This **Federal Register** Notice is available electronically from the OMB home page on the World Wide Web: <<http://www.whitehouse.gov/WH/EOP/OMB/html/fedreg.html>>. **Federal Register** Notices also are available electronically from the U.S. Government Printing Office web site: <<http://www.access.gpo.gov/su____docs/aces/aces140.html>>. Questions about accessing the **Federal Register** online via GPO Access may be directed by telephone to (202) 512–1530 or toll free to (888) 293–6498; by fax to (202) 512–1262; or by E-mail to <<gpoaccess@gpo.gov>>.

FOR FURTHER INFORMATION CONTACT: James D. Fitzsimmons, Chair, Metropolitan Area Standards Review Committee, (301) 457–2419, or E-mail <<pop.frquestion@ccmail.census.gov>>.

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Part I. Background

A. What Is a Metropolitan Area?

Currently, an MA consists of a core area containing a large population nucleus, together with adjacent communities having a high degree of social and economic integration with that core. MAs generally include a city or a Census Bureau-defined urbanized area (UA) with 50,000 or more inhabitants. The county or counties that contain the large city or the UA are the central counties of the MA. Additional outlying counties are included in the MA if the counties meet specified requirements of commuting to or from the central counties and other selected requirements of metropolitan character. The term ''metropolitan area'' is a collective term that refers to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). The current (1990) standards for defining MAs are included as Appendix A of this Notice.

B. What Is the Purpose of Defining Metropolitan Areas?

MAs are a Federal statistical standard designed solely for the preparation, presentation, and comparison of data. Before the MA concept was introduced in 1949 with Standard Metropolitan Areas (SMAs), inconsistencies between statistical area boundaries and units made comparisons of data from Federal agencies difficult. Thus, MAs are defined according to specific, quantitative criteria (standards) to help government agencies, researchers, and others achieve uniform use and comparability of data on a national scale.

OMB recognizes that some Federal and state agencies are required by statute to use MAs for allocating program funds, setting program standards, and implementing other aspects of their programs. In defining MAs, however, OMB does not take into account or attempt to anticipate any of these nonstatistical uses that may be

made of MAs or their associated data. Agencies that elect to use MAs for such nonstatistical purposes are advised that the standards are designed for statistical purposes only and that any changes to the standards may affect the implementation of programs. This policy was documented in OMB memorandum M–94–22, dated May 5, 1994, entitled ''Use of Metropolitan Area Definitions'' (see Appendix B).

C. How Has the Metropolitan Area Concept Evolved?

As early as the first years of the twentieth century, the Federal Government recognized the need to identify large cities and their surrounding areas as single geographic entities and to provide data at that scale for social and economic analysis. Before the adoption of the MA concept in the late 1940s, several other kinds of related geographic areas were defined. These areas were based on different criteria and used by Federal agencies for data reporting purposes. Among these areas were the following:

Industrial Districts. Perhaps the first extensive attempt by the Federal Government to define areas based on a metropolitan concept was the identification of industrial districts for the 1905 Census of Manufactures. The Census Bureau published manufacturing and population data for 13 industrial districts composed of minor civil divisions (MCDs).

Metropolitan Districts. When adopted by the Census Bureau in 1910, each metropolitan district generally comprised a central city of at least 200,000 persons and all adjacent MCDs with population densities of at least 150 persons per square mile. Beginning in 1930, metropolitan districts were defined for all cities of at least 50,000 persons, with the additional requirement that each metropolitan district have a population of at least 100,000. Metropolitan districts were defined in terms of population density; measures of functional integration (such as commuting) were not used.

Industrial Areas. Industrial areas were introduced by the Census Bureau in the late-1920s for the Census of Manufactures to provide a coherent, integrated unit for reporting data related to industrial activity. Each industrial area comprised a county containing an important manufacturing city and adjacent counties with significant concentrations of manufacturing industries. Each of these areas usually employed at least 40,000 factory wage earners. In 1931, there were 33 recognized industrial areas.

Labor Market Areas. Before 1950, labor market areas (LMAs) were defined by the Bureau of Employment Security and consisted of counties and MCDs. Since 1950, the Bureau of Labor Statistics (BLS) has been responsible for defining LMAs. Current LMA definitions use MAs as starting points and consist of aggregations of counties (see below).

Lack of geographic comparability limited the use of data reported for these and other areas. In the mid-1940s, initial efforts to reconcile metropolitan districts and industrial areas failed, in part because of tensions between two groups, demographic data providers and economic data providers. The former wanted to continue using sub-county geographic building blocks to achieve greater precision and to maintain historical comparability with metropolitan districts. The latter had difficulty identifying precise locations of establishments below the county level and also had concerns about the availability and confidentiality of sub-county data.

The Interagency Committee on Standard Metropolitan Areas decided in March 1948 that counties would form the building blocks for SMAs. The Committee cited the greater availability of data for counties and concluded that use of a unit other than the county would restrict the amount of information available for SMAs and, consequently, would reduce the usefulness of the concept.

SMAs were first used for reporting data from the 1947 Census of Manufactures. The conceptual basis for the SMA was a community of nonagricultural workers who resided in and around a large city and were socially and economically linked with the central city as measured by commuting flows and telephone calls.

Changes to the standards since their adoption for the 1950 decennial census are detailed in Table 1. Few significant changes were made through the 1960s; those that were made affected the designation of central cities forming the cores of MAs. The standards became more complex in the 1970s and 1980s, in part to recognize the increasing variation in patterns of urban settlement. Requirements for central cities were adjusted for the 1980s, with the result that more cities were designated as central. Additional changes at that time meant MAs included fewer outlying counties, which needed to satisfy commuting requirements as well as a number of other criteria, including: population growth rate, percent urban population, percent of population living inside a UA, and overall population density. The 1990 (current) standards differ only modestly from those of the previous decade.

Since their adoption in the late 1940s, the MA standards have acknowledged that within states in New England, cities and towns are administratively more important than counties, and that a wide variety of data are compiled for these areas. For these reasons, cities and towns have been used as the building blocks of MAs in New England. The nonagricultural worker requirement that was present in the earlier standards was not applied in New England. Also, population density requirements differed between New England and elsewhere.

The standards for New England MAs remain different from the standards for the rest of the country. New England County Metropolitan Areas'county-based alternatives to the city-and town-based MAs of that region—were introduced in 1975 to facilitate comparisons between areas in New England and elsewhere.

In addition to MAs, other statistical area classifications currently are in use. These include:

Labor Market Areas. BLS currently defines LMAs, which are used for a variety of purposes, including reporting local area unemployment statistics. LMAs follow county boundaries except in New England, where towns and cities are the geographic building blocks. BLS defines major LMAs based on MSAs and PMSAs as defined by OMB. Outside of MAs, BLS defines small LMAs by aggregating counties (or towns) on the basis of commuting. LMAs are non-overlapping and geographically exhaustive.

Economic Areas. The Bureau of Economic Analysis (BEA) defines economic areas (EAs) for reporting geographically detailed economic data and for regional economic analysis. In delineating EAs, BEA identifies economic nodes. These nodes consist of 310 MSAs and PMSAs (NECMAs in New England) plus 38 nonmetropolitan counties. Each county not included in these nodes is analyzed to determine the node with which it is most closely associated. Measures such as commuting patterns and regional newspaper circulation are used to aggregate counties into ''component economic areas,'' which are then aggregated to form the final EAs. EAs are county-based, nonoverlapping, and geographically exhaustive.

In sum, the MA concept is part of an historical lineage of statistical geographic areas and is one of several

current areas used by Federal agencies for reporting data.

D. Why Should the Metropolitan Area Standards Be Reviewed for Possible Revision?

The MA standards, like other statistical standards, require review to ensure their continued usefulness. Previous reviews and revisions of the MA standards were completed in 1958, 1971, 1975, 1980, and 1990.

Comments received in recent years indicate there are four widely held opinions regarding the current MA standards that argue for their revision:

- Many users believe the current standards are overly complex and burdened with *ad hoc* criteria. Simplifying the standards would improve the chances that the system and its associated data would be understood.
- The MA concept has not changed significantly since 1950, yet population distribution and activity patterns in the United States have changed as a result of changes in transportation and other technologies, home/workplace relationships, and patterns of retail and other commercial location. Revised MA standards may better represent increasingly decentralized settlement and activity patterns.
- Computer-related advances in data collection, storage, and analysis, especially in technologies related to data geocoding (data linked to its geographic location of occurrence), make it feasible to consider a sub-county unit as the basic geographic building block for constructing statistical areas to represent settlement.
- MAs do not exhaustively classify the territory of the United States. As a result, social and economic linkages within the residual, nonmetropolitan territory are not taken into account appropriately in statistical data series.

Table 1
Evolution of Metropolitan Area Standards By Decade (1950s - 1960s)

Decade	Area Name	Central City and Central Core Criteria	Minimum Measures of Integration for Outlying County	Minimum Measures of Metropolitan Character for Outlying County
1950s	Standard Metropolitan Area	City of 50,000 or more population	• 15% or more commuting to central county, **OR** • 25% or more of the jobs in the county are accounted for by commuting from central county, **OR** • at least four phone calls per subscriber per month to central county	• 10,000 or more nonagricultural workers, **OR** • 10% or more of the nonagricultural workers in the MA, **OR** • 50% or more of population residing in MCDs with population density of at least 150 persons per square mile and contiguous to central city • two-thirds or more of labor force must be nonagricultural
1960s	Standard Metropolitan Statistical Area	City of 50,000 or more population, **OR** two contiguous cities with combined population of 50,000 or more	• 15% or more commuting to central county, **OR** • 25% or more of the jobs in the county are accounted for by commuting from central county	• 75% or more of labor force must be nonagricultural, **AND** • 50% or more of population residing in contiguous MCDs with population density of at least 150 persons per square mile, **OR** • nonagricultural employment is either equal to at least 10% of the nonagricultural employment of the central county or at least 10,000, **OR** • number of nonagricultural workers residing in county is either at least 10% of nonagricultural workers residing in central county or at least 10,000

Table 1 (continued)
Evolution of Metropolitan Area Standards By Decade (1970s-1980s)

Decade	Area Name	Central City and Central Core Criteria	Minimum Measures of Integration for Outlying County	Minimum Measures of Metropolitan Character for Outlying County
1970s	Standard Metropolitan Statistical Area	City of 50,000 or more population, **OR** city of at least 25,000 population together with contiguous places of population densities of at least 1,000 persons per square mile having a combined population of at least 50,000 in a county of at least 75,000 population	30% or more commuting to central county	• 75% or more of the labor force must be nonagricultural If less than 30% commute to central county, must meet two of the following: • 25% or more of population urban • 15% population growth rate • density of 50 or more persons per square mile and one of the following: • 15% or more commuting to central county • 15% or more commuting from central county • 20% or more commuting exchange with central county
1980s	• Metropolitan Statistical Area (MSA), • Consolidated Metropolitan Statistical Area (CMSA), • Primary Metropolitan Statistical Area (PMSA), • New England County Metropolitan Area (NECMA)	• UA of at least 50,000 population • If largest city has less than 50,000 population, MSA/CMSA must have at least 100,000 population • Central cities include largest city in MSA **AND** each city of at least 250,000 population or 100,000 workers **AND** each city of at least 25,000 population and 75 jobs per 100 workers and less than 60% out commuting **AND** each city of at least 15,000 population that is at least one-third the size of the largest central city and meets employment ratio and commuting percentage above.	Commuting: 50% or more and------> 40% or more and------> 25% or more and------> 15% or more and------>	Character: 25 or more persons per square mile, **OR** 35 or more persons per square mile, **OR** 35 or more persons per square mile and one of the following: • 50 or more persons per square mile • 35% or more urban population • 10% or more of population, or at least 5,000 persons in UA, **OR** 50 or more persons per square mile and two of the following: • 60 or more persons per square mile • 35% or more urban population • population growth rate of at least 20% • 10% or more of population, or at least 5,000 persons in UA

Table 1 (continued)
Evolution of Metropolitan Area Standards By Decade (1990s)

Decade	Area Name	Central City and Central Core Criteria	Minimum Measures of Integration for Outlying County	Minimum Measures of Metropolitan Character for Outlying County
1990s	Metropolitan Areas • MSA • CMSA • PMSA • NECMA	• City of at least 50,000 population, **OR** • UA of at least 50,000 population in an MA of at least 100,000 population • Central cities include largest city in MSA/CMSA **AND** each city of at least 250,000 population or at least 100,000 workers **AND** each city of at least 25,000 population and at least 75 jobs per 100 workers and less than 60% out commuting **AND** each city of at least 15,000 population that is at least 1/3 size of largest central city and meets employment ratio and commuting percentage above **AND** largest city of 15,000 population or more that meets employment ratio and commuting percentage above and is in a secondary noncontiguous UA **AND** each city in a secondary noncontiguous UA that is at least 1/3 size of largest central city of that UA and has at least 15,000 population and meets employment ratio and commuting percentage above.	Commuting: 50% or more and------> 40% to 50% and------> 25% to 40% and------> 15% to 25% and------> 15% to 25% and------>	Character: 25 or more persons per square mile, or 10% or more of population, or at least 5,000 persons in UA **OR** 35 or more persons per square mile, or 10% or more of population, or at least 5,000 persons in UA **OR** 35 or more persons per square mile and one of the following: • 50 or more persons per square mile • 35% or more urban population • 10% or more of population or at least 5,000 persons in UA, **OR** 50 or more persons per square mile and two of the following: • 60 or more persons per square mile • 35% or more urban population • population growth rate of at least 20% • 10% or more of population, or at least 5,000 persons in UA Less than 50 persons per square mile and two of the following: • 35% or more urban population • population growth rate of at least 20% • 10% or more of population, or at least 5,000 persons in UA

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Part II. Issues Posed by the Review

The MA standards are reviewed for possible revisions before each decennial census. The current review began early in this decade and already has included commissioned research, publications, presentations, discussions, and a conference (see Appendix C for notes from the 1995 ''Conference on New Approaches to Defining Metropolitan and Nonmetropolitan Areas''). This review process has elicited the views of Federal Government data providers, data users in the private and academic sectors, and other analysts who use MA data and definitions. Results to date include both points of general agreement and questions remaining to be resolved.

A. Points of General Agreement

There seems to be general agreement on the following:

- The Federal Government should continue to define standard statistical areas at the metropolitan level.
- Familiar components of settlement, such as those represented by today's MA definitions, should be in evidence in a new system.
- Revised standards should broaden territorial coverage by including and officially recognizing nonmetropolitan components of the settlement system.
- These statistical areas should be defined according to simplified standards that are applied consistently in all parts of the country using the same geographic building blocks.
- If the revised standards define metropolitan and nonmetropolitan areas using sub-county building blocks, an associated, alternative set of county-based areas also is desired.

B. Questions Remaining to Be Resolved

1. *What criteria should be used to define areas that exhaust the territory of the Nation?*

One criticism of the current MA standards is that they do not account for all of the territory of the United States. Although tremendous variation in settlement patterns exists throughout the country, the current system defines individual MAs and leaves all territory outside MAs simply as ''nonmetropolitan.'' It has been suggested that all parts of the U.S. territory, from the most to the least populated, should be assigned to a statistical area at the metropolitan or nonmetropolitan level. One approach to account for more of the country's territory would define statistical areas around cores of some minimum size that contain less than the 50,000 population minimum required by current MAs. Reducing the required core population threshold for statistical areas, however, probably still would leave some residual territory, the amount dependent on the core size requirement.

Another approach would be to classify areas based on a measure of settlement form such as population density. This approach would account for all of the territory of the country, although some of the resulting statistical areas probably would be small in geographic extent, population size, or both.

A related issue is the classification of types of locales, such as inner city, suburban, exurban, and rural, and whether such types should be identified within metropolitan and nonmetropolitan areas. The definitions of MAs in the past have not included such categories.

2. *What geographic unit should be used as the building block for defining statistical areas?*

MAs currently consist of entire counties, except in New England where towns and cities form the building blocks. Problems with using counties in this capacity have been apparent since the earliest discussions of MAs, as revealed in this 1946 comment on the relative merits of the MCD-based metropolitan district program:

* * * [T]he metropolitan district, based on small subdivisions of a county, comes much closer to representing the central concept of a metropolis and its satellite territory than does the metropolitan county or group of counties. The metropolitan county arose as a mere approximation to the metropolitan district, made necessary by the fact that intercensus population data were compiled on a county rather than on a minor civil division basis. The use of smaller territorial units than metropolitan counties * * * leads to a much more precise analysis of labor and housing markets (Bureau of the Census 1946).

These observations are still pertinent today. Wide regional variation in county size presents a problem when comparing data for different MAs. Further, the large size of some counties can mask smaller, densely populated clusters of settlement, so that patterns of social and economic linkages within counties are difficult to recognize. The use of smaller geographic building blocks, such as county subdivisions or census tracts, might help alleviate these problems.

Although there were critical comments, a key advantage to using counties as the geographic building block also was apparent in the 1940s: a wide range of data is available for counties, with the result that areas composed of counties also have considerable data available for them. (The range of Federal Government data available at the county level that also is, or could be, available for smaller areas is under review.) Counties also are familiar to data users, and their relatively small number may be seen as an advantage. These issues are taken up in more detail in Part III.D.

3. *What criteria should be used to aggregate the geographic units into statistical areas?*

The current MA system is based on the observation that large urban centers have both form and function. The form, or structural component—what we see on the landscape—is measured using such variables as population size and density. Settlement form largely determines the identification of central cities and central counties. The functional component—interactions of people and activities among places as measured by daily commuting flows—is key to the identification of qualified outlying counties. Substantial agreement exists that population density (or possibly housing unit density) and daily commuting continue to be the best means for defining areas consistently nationwide. At the same time, however, many observers concur that both the structural and functional components of cities and their surroundings have changed significantly since MAs were first defined. These components also have grown increasingly complex and difficult to measure. Part IV presents a classification based solely on measures of form (see Part IV.D), as well as other classifications (see Parts IV.A, B, and C) based on a combination of measures of form (to identify central cores) and measures of function (to identify outlying areas integrated with the core).

4. *Should the definition process follow strictly statistical rules, or should it take into account local opinion?*

The current standards take local opinion into account in specified circumstances. Application of strictly statistical rules for definition purposes would have the advantage of minimizing ambiguity and making definition of areas less time-consuming. Consideration of local opinion, however, can provide room for accommodating some issues of local significance without impairing the integrity of the system.

5. What should be the frequency of updating?

In the past, many observers have argued for minimizing changes in area definitions during the course of a decade to ensure that data bases can be maintained consistently and economically. The counter-argument is that definitions should be updated to reflect changed conditions as rapidly as the data permit. The frequency of updating depends in part on decisions concerning basic geographic units, criteria for aggregation, and, ultimately, data availability. Recent practice has been to review areas annually on the basis of Census Bureau population estimates and special censuses.

Part III. Form and Function in Metropolitan and Nonmetropolitan Area Definitions

Metropolitan and nonmetropolitan areas have characteristics that are structural, relating to population settlement form (population density, for instance, is a structural measure), and functional, reflecting geographic patterns of social and economic linkages that contribute to the development of an entire area (examples include daily commuting patterns and shopping trips). If a metropolitan and nonmetropolitan classification is purely structural, such as would be the case with areas based solely on population density (and as was the case with metropolitan districts before 1950), then only the degree of settlement is considered. Settlement form sometimes corresponds to patterns of activity and can serve as a surrogate for functional elements. If a system is purely functional and defined solely by measuring activity, then there is no clear depiction of the urban center from which influences arise and around which activity takes place. Current MAs make use of both structural and functional measures.

This portion of the Notice addresses the topics of functional integration, metropolitan character (structural characteristics), central cores, and geographic units used to define metropolitan and nonmetropolitan areas. Throughout this discussion, the phrase ''metropolitan and nonmetropolitan areas'' means those areas defined around urban centers of varying size and complexity. ''Metropolitan'' refers to those areas defined around larger cores (current MAs have cores with at least 50,000 population); ''nonmetropolitan'' refers to areas defined around smaller cores. These terminology conventions are for the immediate purposes of this discussion.

A. Functional Integration

1. Introduction

MAs have represented areas of urban influence extending beyond city limits. The concept of the MA—a core area containing a large population nucleus, together with adjacent areas that have substantial measurable interactions with that core—relies heavily on the notion of functional integration in determining geographic extent. This section discusses metropolitan and nonmetropolitan area functional integration, identifying commuting as the most appropriate indicator of functional integration.

2. Increasing Complexity of Commuting Patterns

The functional measure used in the MA standards has been the daily journey to work. Commuting identifies the extent of each MA in an equitable and uncomplicated way. By establishing place-to-place links between workers' homes and places of employment, commuting has provided a measure of the economic interactions within an area. MAs are units with distinctive identities based, in part, on where people live and where they go to work.

Recently, however, some scholars have suggested that as the United States becomes more interdependent, both internally and with the rest of the world, the concept of metropolitan functional integration needs to be examined more closely (Berry 1995). In addition, the increasing popularity of working at home raises questions about the relevance of commuting in defining metropolitan and nonmetropolitan areas.

Researchers (Fisher and Mitchelson 1981, Lewis 1983, Gordon and Richardson 1996, Dear and Flusty 1998) have commented on the growing complexity of metropolitan form and commuting patterns. Harvey (1989) and Fishman (1990) have noted changes in urban form that reflect larger economic forces. These changes call into question the dominance of a large population center over adjacent communities that have high levels of social and economic interactions with the center. Others, like Pressman (1985) and Castells (1989), have identified a new, broader functional integration, citing a variety of technological innovations, including: (1) the expansion of cellular phone and Internet use; (2) the global supremacy of American entertainment, news, and advertising; (3) the market swings driven by political events in distant countries; (4) the migration of factory out-sourcing and back-office operations to low-wage countries; and (5) the speed and flexibility of global finance and ability to move large sums of money around the world instantaneously. All of these developments suggest a change whereby individual places and areas become less important than the network structure itself, and small places become single nodes in a complex system of social and economic linkages created and organized under constantly shifting economic and political circumstances. These innovations point to the growing interdependence of places in general and some blurring of individual place identities.

It is equally clear, however, that the Nation remains the sum of many economic and social parts. Local and regional economies and labor markets continue to show different specialities and levels of performance. Local and regional character still exists, built in part upon identification of place of residence or work and awareness of the locality's history and geography.

The challenge in defining metropolitan and nonmetropolitan areas is to select appropriate functions or activities that capture economic and social integration within areas and the differences between areas. Before reconsidering commuting as a measure of functional integration, the following section discusses alternative measures of spatial interaction.

3. Alternative Measures

- The Internet provides the newest major medium for information flows across the United States. The aspatial nature of the Internet, however, poses difficulties for measuring functional integration, which assumes the ability to identify the origins and destinations of flows. The origin of each Internet session—the location of the user—generally is identifiable, but the destination is unclear: is it the location of the service provider, the location of the server on which a web page resides, or the physical location of the owner of the web page? Although Internet use generally involves a telephone call to a specific provider location, this is only to gain access to the wider web; the distance between the user and the location of the owner of the accessed web page is unimportant. Because the link between a user and a web page recedes into the background, such linkages defy identification as measures of functional integration between communities.
- Telephone traffic patterns were used in early MA definitions until commuting data became more widely

available and standardized. Issues concerning telephone service coverage largely have disappeared in recent decades.

• Cellular telephone systems provide a measure of the functional extent of metropolitan and some nonmetropolitan areas and highlight the role played by highway corridors. Coverage is uneven, however, due to competition between companies and the spatial segregation of different companies' customers. Standardizing the rapidly changing information about users and coverage areas is difficult.

• Media markets, or penetration patterns, offer an image of regions to marketers and advertisers, but many of the data are proprietary and exhibit uneven coverage. The advent of the Internet, national editions of newspapers, and cable and satellite television blurs the traditionally local flavor of media markets.

• Consumer spending could, in principle, provide a view of the functional extent of regional and metropolitan areas. Consumer expenditure surveys, however, do not provide much data for individual metropolitan and nonmetropolitan areas because of limited sample sizes.

In general, these alternative measures of functional integration are not as useful as commuting patterns because they: (1) sometimes depend on data that are not collected by Federal agencies and that may be subject to errors of unknown kind and magnitude; (2) sometimes are not generally accessible by the public (i.e., the measures are proprietary, sometimes copyrighted or for sale); (3) are without observations that are evenly distributed across the U.S. territory; and (4) are not measurable in terms of specific, common geographic units.

4. Continued Usefulness of Commuting Patterns as a Measure

Notwithstanding criticism of continued reliance on information about the daily journey to work, it remains the most reliable and broadly available measure of functional integration for two principle reasons:

• Commuting to work is still a significant activity for the vast majority of workers. Recent years have seen a rise in alternative work-residence arrangements. Shortened or irregular work weeks, flextime, full-and part-time work at home, and telecommuting some or all of the time are gaining in importance. The Census Bureau reported a 55 percent increase in those working at home between 1980 and 1990, from 2.2 million to 3.4 million workers. Still, those working at home represented only three percent of all workers in 1990. Ninety-seven percent of workers still commute to work and have separate location spheres for place-of-work and place-of-residence. This long-term pattern reflects the nature of many jobs, for instance, where service provision is location-specific or product manufacture occurs in a fixed location.

• The spatial patterns of commuting are more complex today than in previous decades, but no less important. The spatial structure of the urban environment is less consistently monocentric than was the case in the early part of the twentieth century. Given the diffusion of persons and jobs away from the core, commuting patterns are less likely to resemble a hub-and-spoke model than a polycentric structure of multiple employment nodes serving a region's needs. The increased complexity of these patterns, however, has not meant a decrease in their importance.

Over time, commuting patterns in many areas have become more complicated to delineate. Jobs have followed people out of the central city (and the central county), but the traditional urban core, with an employment-intensive central business district, still exists amidst high job growth in suburban areas. Commuting often is multidirectional, with no single dominant flow. The net commuting flow between any two areas may be quite low, while the gross flows may be substantial.

Work is still a dominant organizing activity in most people's lives. While urban settlement form has changed, the basic movement of workers traveling to a different location from where they live continues. The geographic extent of metropolitan and nonmetropolitan areas ''depends upon the commuting range, itself historically determined by social and technological conditions'' (Harvey 1989). The journey-to-work activity is nearly universal, even as the geographic nature of commuting has changed in recent decades. The challenge is to model and measure the current nature of commuting patterns to delineate metropolitan and nonmetropolitan areas.

B. Metropolitan Character

1. Introduction

Since SMAs were first defined in 1949, counties have needed to exhibit, in addition to integration (as measured by commuting), other attributes referred to collectively as ''metropolitan character'' to qualify as outlying. As the March 1958 MA standards noted, ''The criteria of metropolitan character relate primarily to the attributes of the county as a place of work or as a home for a concentration of non-agricultural workers.'' In practice, this has meant an emphasis primarily on population density as one aspect of what makes an outlying county ''metropolitan.'' This section addresses the suitability of including measures of metropolitan character—focusing on population density—in standards for defining areas in the next decade.

2. Density and Other Measures of Metropolitan Character

The initial inclusion of population density in the MA criteria reflected some common, contemporary assumptions about U.S. settlement patterns in 1949:

• An easily understood built environment: cities were densely settled centers of population and economic activity set against a backdrop of sparsely settled territory.

• Population density as a proxy for distance from the central business district: population density declined as distance from an urban center increased.

• Relationship of distance from the urban center and population density with social, economic, and cultural attributes of the population: urban and rural communities, for example, were understood to be different in characteristics ranging from industry and occupation to educational attainment and family size.

• Most important, metropolitan form and function were invariably linked; that is, metropolitan territory that was linked socially and economically necessarily had visible landscape characteristics and was typified by high relative population density.

Five decades of urban, suburban, and exurban growth may have subsequently altered the meaning of ''metropolitan character.'' Since 1949, additional measures of metropolitan character—rapid population growth, percentage of urban population, and presence of UA population—have been added to the standards to measure other important attributes. Up-to-date MA standards should continue to reflect the evolving nature of settlement patterns and demographic characteristics in the United States. Change in this aspect of the standards is not new: for example, the 1980 MA standards eliminated a metropolitan character criterion pertaining to non-agricultural workers; the steep drop in agricultural employment nationwide had made such a criterion irrelevant.

Enormous variation in population density still exists in the United States, from the densely populated sections of

some older cities to the sparsely settled areas of the interior West. An increasing share of the Nation's population, however, resides in a built environment that is of neither extremely high nor extremely low density. The percentage of the population living in rural areas has declined from approximately 29 to 24 since 1950, and the percentage of the population living in central cities of metropolitan areas has declined from 33 to 31 despite increases in the number of central cities. In contrast, the percentage of the Nation's population living within MAs but outside central cities has doubled, from 23 to 46. The Nation's population steadily has been moving away from landscapes of population density extremes, both high and low.

Population growth in nonmetropolitan America is occurring predominantly in the smaller cities and towns, particularly in areas adjacent to or near MAs. One consequence of this growth of intermediate density areas is a blurring of many of the sharp differences in population density that once existed between urban and rural areas or between metropolitan and nonmetropolitan areas.

Improvements in communications technology and transportation infrastructure also have blunted the differences between high-density and low-density areas. In the past, telephones, well-paved roads, and railroads connected rural areas with their urban markets, but the friction of distance was much higher than today; ideas and cultural attitudes traveled according to weekly, monthly, and seasonal rhythms.

In 1949, settlement form still was intertwined closely with function. Areas having high population densities also were those that were linked closely with urban centers. The 1949 SMA standards were written before the construction of interstate highways and could not have anticipated the changes in commuting and settlement patterns brought about by high-speed highways. These highways improved access to rural, low density areas that previously were beyond the scope of most urban influences and daily commuting. With less expensive long distance telephone service, interstate highways providing quick and easy access to cities and towns, satellite uplinks and commercial television broadcasting nationally, and the Internet, population density is a less significant variable. Population density no longer correlates with differences in industry, occupation, family structure, and other variables to the extent that it did 30 to 50 years ago. It is more difficult to argue that sparsely settled areas must meet different criteria of integration with central cores than areas with higher population densities. Consequently, population density has become less relevant as a direct measure of ways in which communities are linked socially and economically.

C. Central Cores

1. Introduction

Cores of metropolitan regions continue to be vital centers of activity even as the decentralization of many economic and social functions continues. Central business districts contain significant clusters of government facilities; corporate headquarters; finance, insurance, and real estate firms; entertainment complexes; and services that cater to these facilities. Many establishments located in suburban areas provide services to central city clients and depend heavily upon them. While the core has changed over time, it remains a key component of metropolitan regions.

The MA standards always have explicitly incorporated central cores as one of the major components in the definition of individual areas (see Table 1). Two kinds of changes in central core requirements are under consideration—changing minimum population requirements and changing criteria for the definition of cores.

2. Changing Minimum Population Requirements

One option under review would raise the minimum population level for the definition of MA cores from 50,000 to 100,000. Doubling the current threshold would take into account the significant increase (over 100 percent) in the Nation's population since 1930 (the first year in which the 50,000 person minimum was used in identifying cores of metropolitan districts) and the consequent relative decrease in the significance of a core of 50,000 population. The new threshold would facilitate greater comparability with another major statistical data set, the public use microdata samples (PUMS) from the decennial census, which are used extensively by researchers examining metropolitan and nonmetropolitan issues (Fotheringham and Pellegrini 1996).

Along with an increase in minimum population size for MA cores, the classification would be expanded to address smaller cores as well. By including provision for one or two additional sets of areas, the new standards could better account for gradations in population focused around urban centers of varying size throughout the United States. If MA cores were to have a minimum of 100,000 persons, then other sets of areas could be defined using cores of (1) at least 10,000 persons and less than 50,000 persons, and (2) at least 50,000 persons and less than 100,000 persons. Identifying coherent nonmetropolitan areas based around smaller population centers provides a potential improvement for analysts and researchers who are dissatisfied with a system that leaves nonmetropolitan areas largely undifferentiated.

3. New Criteria for Defining Cores

In addition to using places and Census Bureau-defined UAs based on population and population density to define metropolitan or nonmetropolitan cores, at least four other criteria could be used. One alternative would be to use housing unit density as the primary defining characteristic. A second alternative would be to combine two characteristics, population and employment. This would involve calculating ratios that compare the number of individuals employed in a geographic area to the number of residents in the same area. The explicit use of such an employment measurement in the definition of a core would be a logical extension of the use of another employment-related statistic, commuting patterns, to define those areas that are integrated with the core. A third option would be to rely solely on employment as the defining characteristic by delineating cores on the basis of employment density, defined as the number of jobs per unit of area.

A fourth alternative would use commuting data directly to identify cores as those areas that exhibit strong evidence of multi-directional commuting. In this approach, multi-directional commuting indicates interdependence within the core of an urban area and could be used to define inner city and inner suburban territory. Outlying territory integrated with a particular core would contain mostly uni-directional commuting flows toward that core and could be used to define outer suburban territory.

These different approaches to defining cores of metropolitan and nonmetropolitan areas reflect changes in settlement and commuting trends, as well as technological improvements in geographic analysis; yet, they remain consistent with the tradition of identifying the Nation's large urban centers.

D. Geographic Building Blocks for Metropolitan Areas and Nonmetropolitan Areas

1. Introduction

This section addresses the relative merits of various potential geographic building blocks. The geographic unit used to define metropolitan and nonmetropolitan areas is important to data providers and users due to: (1) its effect on the geographic extent of a statistical area; (2) its meaningfulness in describing economic and social integration between communities; and (3) the ability of Federal agencies to provide data for comparable statistical areas and their components. The choice of whether to use counties or county subdivisions as building blocks for MAs was a central issue in the 1940s during development of the MA program; resolution of the issue at that time favored greater availability of data over greater geographic precision in defining social and economic linkages.

The concerns raised in the 1940s also are central issues in this review. Counties are familiar geographic units offering the advantage of a wider range of statistically reliable economic and demographic data. Because of their geographic extent, however, counties can include territory and population not functionally integrated with a specific core. Sub-county entities offer greater resolution when analyzing economic and demographic patterns, and increased precision when defining statistical areas. These smaller units are at a disadvantage, however, because fewer economic and demographic data series are available for sub-county entities than for counties, and there would be less comparability of units defined on this basis with previously defined metropolitan and nonmetropolitan areas.

2. Characteristics of the Metropolitan and Nonmetropolitan Area Building Blocks

The geographic entity used as a building block should have the following characteristics:

- *Consistency*. The geographic building block should be delineated in a consistent fashion across the Nation. The degree to which this is the case both within a state and from one state to another affects the ability to make meaningful comparisons of demographic and economic data.
- *Data Availability and Utility*. Data for a geographic building block should be available from a wide variety of sources and should facilitate the linkage of various data sets.
- *Stability of Boundaries*. The ability of the geographic building block to be flexible in portraying demographic and economic change over time in areas is important when defining and analyzing social and economic linkages between communities.
- *Familiarity*. The geographic unit used to define metropolitan and nonmetropolitan areas should be meaningful and recognizable to a wide range of data users.

Table 2 details the advantages and disadvantages of using each of five geographic units (counties, county subdivisions, census tracts, ZIP Codes, and grid cells) as building blocks in relation to the characteristics outlined above. The following paragraphs summarize the significant issues from Table 2 and discuss related issues of confidentiality and data reliability.

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Table 2
Evaluation of Five Geographic Building Blocks

GEOGRAPHIC ENTITY	Consistency Across Entity	Stability of Boundaries	Portraying Change Over Time and Space	Data Availability	Familiarity
County	Each state establishes rules to define counties ---------- County size varies within a state, and from state to state	Boundaries rarely change; thus are useful for showing change of characteristics (population, economic factors, etc.) over stable areas.	Counties are stable, so are useful for showing general change in characteristics over time, but are too large for local-scale analysis.	Much data from many sources already are available at county level of aggregation. ---------- Few problems of confidentiality or statistical reliability exist.	Counties are familiar, easily identified (often shown on maps) and well-known.
County Subdivision: Minor Civil Division (MCD) together with Census County Division (CCD)	MCDs (in 28 states and DC) are legal units established by state rules. Some are governmental units, some are administrative (e.g., election districts). CCDs (in 22 states) are areas created for statistical purposes by local officials according to Census Bureau guidelines ---------- Land-area shape and size vary within a state and from state to state	MCD stability varies from state to state according to state law and annexation practices. Some MCDs are highly stable (e.g. in the Northeast) while some change annually with local annexations (e.g., in Ohio). CCDs generally are stable, although some changes have occurred since first established starting in 1950.	Because some MCDs and CCDs are unstable, MCDs and CCDs together are less useful than counties in showing change over time within a specific geographic area.	Most data are collected for MCDs with functioning governments; lesser amounts of data are collected for administrative MCDs and CCDs. ---------- MCDs and CCDs provide complete coverage of US area, but are of varying population size; smaller population in an entity means increasing issues of confidentiality and reliability.	MCDs with functioning governments are locally well-known, but to users outside the local area are less well-known. MCDs that are administrative units are less familiar. CCDs were created to structure statistical data, so are the least known of county subdivisions.

Table 2 (cont.)
Evaluation of Five Geographic Building Blocks

GEOGRAPHIC ENTITY	Consistency Across Entity	Stability of Boundaries	Portraying Change Over Time and Space	Data Availability	Familiarity
Census Tract	Local officials define census tracts according to Census Bureau criteria and guidelines. ---------- Census tracts have consistent population size; shape and land area varies with population density.	Boundaries generally are stable. Census tracts are designed to be relatively homogeneous with respect to population characteristics when first defined. When population grows, a tract may be divided but parts usually aggregate to original tract boundaries. Boundaries may change, in part reflecting changes in features used as boundaries.	The tract itself reflects change. As population density increases, tracts split (tract area becomes smaller).	Most demographic data are produced (or able to be produced) at census-tract level of aggregation. Small-area data increasingly are sought for analysis of demographic and economic characteristics and other issues such as home ownership. ---------- Tracts are designed with sufficient population size to assure confidentiality and statistical reliability of demographic data.	Census tracts are created to structure statistical data, so are not well known. Census tracts, however, may correspond to familiar local geography such as neighborhood or community.
ZIP Code	Established by USPS, ZIP Codes specify mail delivery routes and/or location rather than an area. ---------- ZIP Code of mail delivery point may be different than location of physical address.	ZIP Codes are the most unstable of the geographic entities. ZIP Codes can be taken out of use in one place and reused in another, giving false sense of comparability.	The ZIP Code itself reflects change. Routes are redrawn based on population growth and decline and on volume of mail to deliver.	ZIP Codes are used increasingly for data tabulation by public and private sector (for consumer behavior and neighborhood profiles) but ZIP Code users must approximate areal boundaries themselves.	Everyone in the United States uses ZIP Codes, so most users recognize the concept.
Grid Cell	Grid cells are not yet established as consistently defined areas. ---------- Each cell would encompass the same amount of area.	Once established, grid cells would not change over time thus would be useful to show change of characteristics over stable areas.	Grid cells could be designed to meet needs for analyzing change both within and across space.	All data collectors would need to convert from their current areal units to the standard grid cells. ---------- Selection of grid cell size would require consideration of confidentiality and reliability.	Grid cells are artificially constructed; while they facilitate control from an analysts' point-of-view, they are artificial areas compared to familiar units such as counties (or census tracts that correspond to neighborhood or community).

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Counties. Except in New England, counties currently are used to define MAs. Counties are well-known, with boundaries that rarely change, and they are useful for analyzing data over time. Data currently are available for counties from a wide variety of Federal, state, and local agencies and less frequently are limited by disclosure and statistical reliability issues than sub-county units. Counties, however, are established according to state laws and have as their primary purpose the administration of local government and provision of programs and services. As a result, there is little consistency in population size and land area among counties throughout the United States. The large size of counties in the West often poses challenges to measuring and analyzing localized shifts in population.

County Subdivisions. County subdivisions currently are used to define MAs in New England, and before 1950 were used to define metropolitan districts. County subdivisions include MCDs, such as towns and townships, and census county divisions (CCDs). MCDs are governmental or administrative entities defined according to state laws. CCDs are defined for statistical purposes by local officials using nationally consistent criteria and guidelines issued by the Census Bureau. As with counties, the population sizes and land areas of county subdivisions vary both within state and from one state to another. Governmentally functioning MCDs in the Northeast as well as most CCDs generally have stable boundaries; elsewhere, MCD boundaries may change because of annexations or mergers. Redistricting of administrative MCDs, particularly in Virginia and North Carolina, can result in substantial changes each decade. Accounting for these changes could require significant retabulations of data for metropolitan and nonmetropolitan areas, potentially compromising comparability of data over time. The volume of economic and demographic data collected and published for county subdivisions varies, with greater amounts available for MCDs with functioning governments and lesser amounts for MCDs without functioning governments and CCDs. Despite variations in population size and instability of boundaries for some MCDs and CCDs, county subdivisions could provide a compromise between the disadvantages posed by the geographic extent of counties and the more limited availability of economic data for some other sub-county geographic units.

Census Tracts. Local officials define census tracts using nationally consistent criteria and guidelines established by the Census Bureau. Census tracts have a consistent population size range (between 1,500 and 8,000, with an optimum of 4,000) to ensure statistical reliability of data. Census tracts vary in size and shape and tend to reflect contemporary local settlement patterns. Census tracts are meant to facilitate analysis of time-series data at a sub-county level, and are generally stable. Because they are defined in terms of population count, however, census tracts are capable of portraying change over time by changing boundaries. If a tract increases in population, it can be split to form new census tracts that aggregate to the original boundaries. For the 1990 decennial census, approximately 30 percent of all census tracts had boundary changes. Although demographic data generally are available for census tracts, a key disadvantage is the dearth of economic data available at the census tract level. Data for census tracts, however, are becoming increasingly important for understanding and analyzing patterns of home ownership and economic development, as well as the general social and physical environment within metropolitan and nonmetropolitan areas.

ZIP Codes. The U.S. Postal Service (USPS) establishes ZIP Codes to facilitate efficient mail delivery. ZIP Codes are linear rather than areal (i.e., they are routes that mail carriers walk or drive) and as a result do not have discrete boundaries. In some instances, when the volume of mail is particularly high, a ZIP Code may refer to a specific building, a floor within a building, or even a specific office. Because ZIP Codes exist for operational purposes, they can be taken out of use when the population of an area declines or when the USPS consolidates post offices. The USPS, however, sometimes reuses such ZIP Codes in a different location, thus creating a false sense of comparability if used as geographic areas. Despite their shortcomings as geographic units, ZIP Code use is, nevertheless, ubiquitous for collecting and reporting information on demographic and economic characteristics as well as for carrying out surveys and market analysis studies that report on consumption patterns and lifestyle characteristics.

Grid Cells. Grid cells are not in use currently by Federal statistical agencies. If established, however, they could provide ideal units for analyzing population change within stable boundaries. If relatively small in geographic extent, they also could be useful in measuring population change across space. Grid cells would be defined consistently nationwide and all would encompass a similar amount of territory. Although grid cells may offer advantages from delineation, measurement, and analysis standpoints, their lack of familiarity and relationship with geographic areas that are more real and familiar to people offer significant disadvantages to their use. In addition, adoption of grid cells would require data providers to convert from use of current geographic entities. Selection of grid cell size would require careful consideration of confidentiality and statistical reliability concerns.

3. Quality and Availability of Data

In general, the quality of data for particular areas is related to the allocation of questionnaire responses to specific geographic entities and to the statistical reliability of the data derived from a sample. The geographic precision of data is only as good as the completeness of location information provided in the response, and the quality of geographic codes assigned to it. This limitation affects the ability to report data at varying levels of geography.

Respondent confidentiality also must be considered when determining which geographic area to use as a building block, particularly if data are to be reported for components of metropolitan and nonmetropolitan areas. In general, the larger the number of observations (persons, households, establishments within a specific industry) within a geographic entity, the greater the ability to protect respondent confidentiality.

Not all Federal data can be provided for every level of geography, and the frequency with which Federal data are available also can vary by level of geography. Sample size limitations for some demographic survey data make survey results reliable only at higher levels of geography. The diffuse nature of modern manufacturing processes renders some economic data, for instance the amount of value added to a product at each step in the manufacturing process, difficult to portray at levels of geography below the state or Nation. Data that are available only from the decennial census place limitations on the frequency of updating some statistical areas. The uncertain availability of intercensal population estimates for census tracts, and the likelihood that tract-level commuting data from the American Community Survey will not be available for all census tracts until 2008, also will affect the ability to update metropolitan and nonmetropolitan areas.

4. Summary

The choice of a building block should focus on achieving the most precise geographic delineation of metropolitan and nonmetropolitan areas possible, given the constraints of data availability. Collecting, processing, and tabulating data at sub-county levels of geography are important technical issues that must be resolved within individual Federal statistical agencies if a sub-county geographic unit is to be used to define metropolitan and nonmetropolitan areas.

Counties and census tracts offer the greatest promise as potential building blocks for metropolitan and nonmetropolitan areas based on current availability and reliability of statistical data, general stability of boundaries over time, consistency of definitions, and familiarity among data users. Counties and census tracts, therefore, are used in the examples of alternative methods for defining metropolitan and nonmetropolitan areas that follow in Part IV.

Part IV. Alternative Approaches to Defining Metropolitan and Nonmetropolitan Areas

This part presents four alternative approaches to defining metropolitan and nonmetropolitan areas: (1) a commuting-based, county-level approach; (2) a commuting-based, census tract-level approach; (3) a directional commuting, census tract-level approach; and (4) a comparative population density, county-level approach. Table 3 summarizes how each approach addresses issues raised in Parts I and II of this Notice.

All four of these approaches differ from the current (1990) MA standards in many respects but have points in common with them as well. The first three approaches share with the current standards a reliance on commuting patterns, but depart from the standards' other criteria for inclusion of outlying areas in an MA. None of these three approaches uses population density, presence of urban population, or rapid population growth to evaluate outlying areas. The fourth approach uses population density as an indicator of the relative intensity of social and economic activity rather than attempting to identify individual cores or to quantify core-outlying area relationships.

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TABLE 3
Issues and Approaches

	Issues					
Approach	Areas Identified at Metropolitan/ Nonmetropolitan Level	Components of Settlement are Familiar	National, Exhaustive Coverage	Simplified, Nationally Consistent Standards	Criteria for Linking Outlying Areas with Cores	Update Frequency
Commuting-Based County-Level Approach	Delineation rules are explicit.	Central cores identified on basis of UAs and incorporated places. Counties used to define areas.	Exhaustive, four-tier system	Population criteria for cores; consistent commuting criterion used to assign all outlying areas to the three-tier statistical areas nationwide	Commuting	Reclassification of areas based on population of core dependent on special census or availability of population estimates. American Community Survey (ACS) commuting data for updating extent of areas to be available annually for all counties starting in 2003.
Commuting-Based Tract-Level Approach	Delineation rules are explicit in stage two.	Central cores identified on basis of UAs and incorporated places. Census tracts used to define areas.	Exhaustive. Three-tier system with some overlapping areas in stage one. Five-tier system with mutually exclusive areas in stage two	Population criteria for cores; commuting criteria used to assign all outlying areas to statistical areas nationwide	Commuting measured at two levels	Reclassifying and updating extent of areas dependent on availability of population estimates for census tracts. ACS commuting data for all census tracts to be available annually starting in 2008.
Directional Commuting Tract-Level Approach	Delineation rules are explicit.	UAs and incorporated places used to identify internal points. Census tracts used to define areas.	Exhaustive four-tier system	Statistical formula used to derive weighted commuting flows	Commuting	Reclassifying and updating extent of areas dependent on availability of population estimates for census tracts. ACS commuting data for all census tracts to be available annually starting in 2008.
Comparative Density County-Level Approach	No MAs are identified; user could aggregate counties.	Counties used to define areas.	Exhaustive. All counties are classified uniquely according to population density.	Population density is calculated easily. Counties are ranked nationally and within state.	None	Updating possible annually using county population estimates

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Although these approaches use either counties or census tracts as the building blocks for statistical areas, each could be implemented using other geographic units discussed in Part III.D. The population and commuting thresholds presented for these approaches were selected by analyzing 1990 population and commuting patterns but are intended primarily for illustrative purposes and are subject to modification based on further research and on comments received in response to this Notice. In general, each approach should be read, considered, and commented upon in terms of its adequacy in defining and describing social and economic ties among communities throughout the United States.

A. A Commuting-Based, County-Level Approach to Defining Metropolitan and Nonmetropolitan Areas

The MA has been successful as a standard statistical representation of the social and economic linkages between urban centers and outlying areas. This success is evident in MAs' continued use across broad areas of data collection, presentation, and analysis. Nevertheless, some users of metropolitan and nonmetropolitan area data have strongly expressed the view that the current standards are overly complex and burdened with *ad hoc* components. This first proposed alternative approach explicitly aims to provide a simpler method of defining metropolitan and nonmetropolitan regions.

Four kinds of areas are identified in this approach: metropolitan regions, defined around cores of at least 100,000 persons; mesopolitan regions, defined around cores of at least 50,000 persons and less than 100,000 persons; and micropolitan regions, defined around cores of at least 10,000 persons and less than 50,000 persons. Counties not included in a metropolitan, mesopolitan, or micropolitan region will constitute rural community areas.

In this approach, counties are the building blocks (see Figure 1). While this is in keeping with the current standards for most of the United States, it is a departure from current practice in New England. Outlying counties are included in metropolitan, mesopolitan, and micropolitan regions solely on the basis of commuting. Adjacent areas are combined when commuting rates indicate that the central counties are linked socially and economically. When metropolitan regions are combined, the initial metropolitan regions are recognized as primary metropolitan regions and the combined entity is recognized as a consolidated metropolitan region.

There are several advantages to this approach. First, counties are familiar geographic units for which a wide range of statistically reliable social and economic data are readily available. Second, the use of counties eases comparison with current and past MA definitions. Third, because of the greater availability of data for counties than for sub-county entities, statistical area definitions using counties can be updated more frequently than others. The potential availability of nationwide annual county-level commuting data from the Census Bureau's American Community Survey starting in 2003 raises the possibility of reviewing all definitions on an annual basis. Under the current standards, definition activity during intercensal years is largely limited to cases where new MAs can be designated on the basis of population estimates or special censuses.

There are, however, disadvantages to this approach as well. Because of their geographic extent, counties can include territory and population not functionally integrated with a specific core. The large geographic size of some counties often poses challenges to measuring and analyzing localized shifts in populations.

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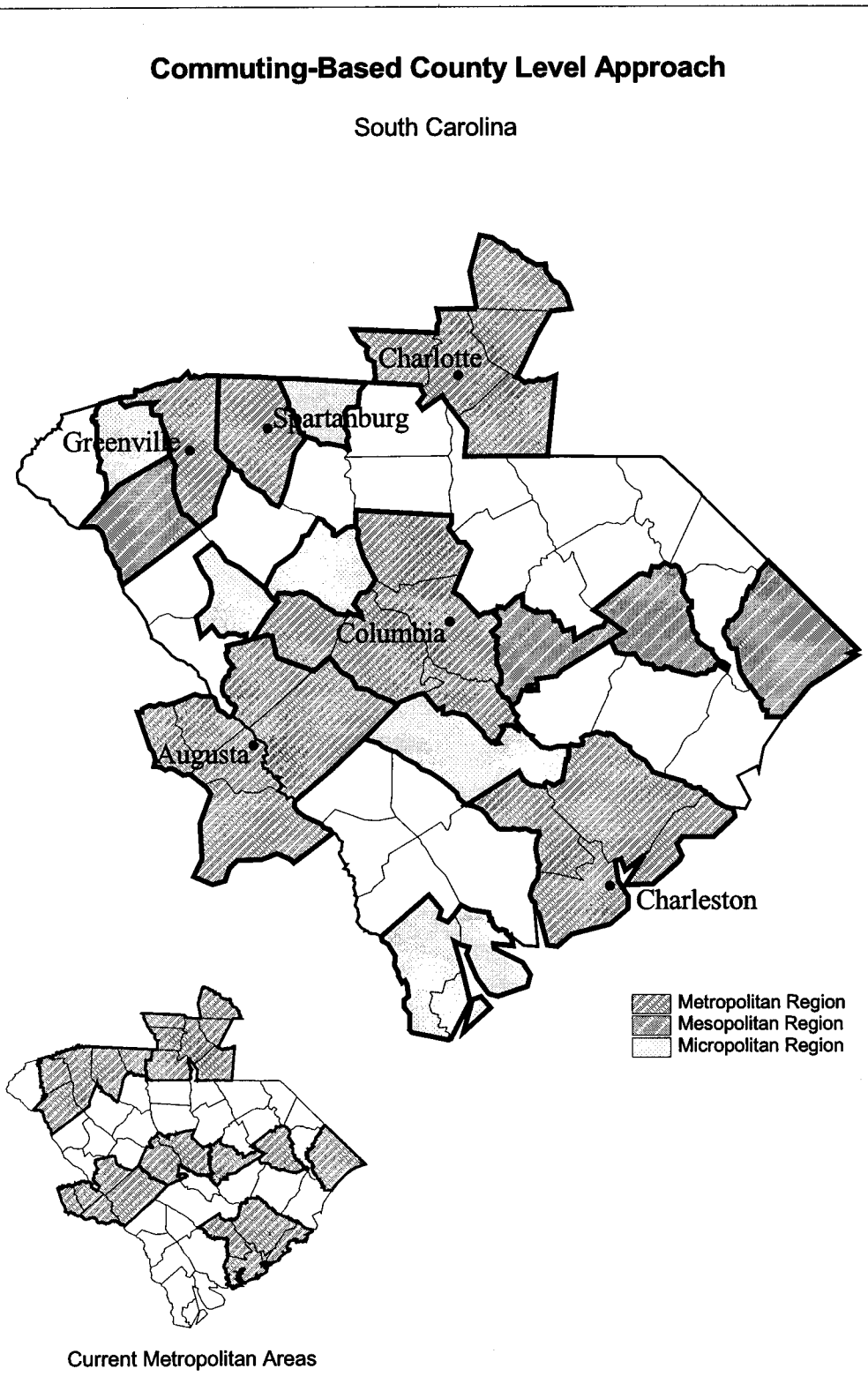

Figure 1

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1. Criteria for Defining Metropolitan Regions Using the Commuting-Based, County-Level Approach

a. Requirement for Qualification as a Metropolitan Region

Each metropolitan region must include a Census Bureau-defined UA of at least 100,000 persons.

b. Identification of Central Counties of a Metropolitan Region

The central county or counties of the metropolitan region are those counties where at least 50 percent of the population resides in the qualifier UA(s), or that contain at least 50 percent of the population of the qualifier UA(s). A central county of one metropolitan region cannot be included as an outlying county in another metropolitan region in the initial steps for defining metropolitan regions (see IV.A.1.d below).

c. Inclusion of Outlying Counties

A county is included in the metropolitan region as an outlying county if at least 25 percent of its resident workers commute to the central county or counties, or at least 15 percent of its resident workers commute to the central county or counties and at least 15 percent of its employment is accounted for by workers residing in the central county or counties.

A county that qualifies as an outlying county of more than one metropolitan region will be included in the metropolitan region with which it has the highest commuting exchange. A county that has a combined commuting exchange with central counties of two or more metropolitan regions that meets or exceeds the thresholds listed above, and is contiguous with counties already qualified for inclusion in those metropolitan regions, will be included in the metropolitan region with which it has the highest commuting exchange.

The counties included in the metropolitan region must form a continuous geographic entity. A central county of one metropolitan region cannot be classified as an outlying county of another metropolitan region at this stage in the definition process.

d. Combination of Adjacent Metropolitan Regions

Two adjacent metropolitan regions are combined if a central county of one metropolitan region qualifies as an outlying county of the other. If two or more metropolitan regions are combined, the metropolitan regions as defined before the combination will be designated as primary metropolitan regions and the area resulting from the combination will be designated as a consolidated metropolitan region.

e. Titles of Metropolitan Regions

The first name in the title of a metropolitan region or primary metropolitan region will be the name of the incorporated place with the largest population in the metropolitan region. The names of up to two additional incorporated places that are at least one-third the size of the largest incorporated place will be included in the metropolitan region or primary metropolitan region title in order of descending population rank.

The title of a consolidated metropolitan region will include the names of up to three incorporated places, including the first named incorporated places in the titles of component primary metropolitan regions (to a maximum of three) in order of descending population rank of incorporated places.

2. Criteria for Defining Mesopolitan Regions and Micropolitan Regions

The criteria for defining mesopolitan regions and micropolitan regions are the same as those for defining metropolitan regions, with two exceptions: the requirements for qualification and the criteria pertaining to combining mesopolitan and micropolitan regions. For the sake of brevity, only the requirements for qualification and criteria for combining adjacent mesopolitan regions and micropolitan regions are presented here.

a. Requirements for Qualification of Mesopolitan Regions and Micropolitan Regions

Each mesopolitan region must contain no part of a metropolitan region and must include a Census Bureau-defined UA or, outside of UAs, an incorporated place of at least 50,000 persons and less than 100,000 persons. Each micropolitan area must contain no part of a metropolitan or mesopolitan region and must include an incorporated place of at least 10,000 persons and less than 50,000 persons.

b. Combining Adjacent Mesopolitan Regions and Micropolitan Regions

Two adjacent mesopolitan regions (or two adjacent micropolitan regions) are combined if a central county of one mesopolitan region (or one micropolitan region) qualifies as an outlying county of the other.

3. Identification of Rural Community Areas

Counties not included in a metropolitan, mesopolitan, or micropolitan region will form the components of rural community areas. Contiguous counties will be grouped according to local opinion to form individual rural community areas within each state, subject to specified conditions. Titles for rural community areas will be based on the same criteria used to title metropolitan, mesopolitan, and micropolitan regions.

B. A Commuting-Based, Census Tract-Level Approach to Defining Metropolitan and Nonmetropolitan Areas

This second approach employs a two-stage process. First, it identifies statistical settlement areas based around cores of at least 10,000 persons and their associated daily influence areas. Second, it identifies metropolitan, mesopolitan, and micropolitan regions. Census tracts are the geographic units used in this approach. In the first stage, each statistical settlement area core is identified and linked with all qualifying statistical settlement area outlying census tracts on the basis of commuting, creating a system of overlapping areas. Any core or outlying census tract may be part of two or more statistical settlement areas. This outcome is meant to depict the overlapping and nested nature of social and economic linkages between communities throughout the United States. To account for all the territory of the United States, rural community areas are identified representing census tracts not contained within statistical settlement areas or their daily influence areas.

The second stage of this approach results in a non-overlapping classification, where each statistical area is mutually exclusive of all other statistical areas (see Figure 2). Criteria are employed to assign each census tract to only one metropolitan, mesopolitan, or micropolitan region. Census tracts not included in any of these areas are designated as either urban-influenced or rural-influenced, depending on whether the tracts meet specified criteria relating to commuting ties with cores of metropolitan, mesopolitan, or micropolitan regions.

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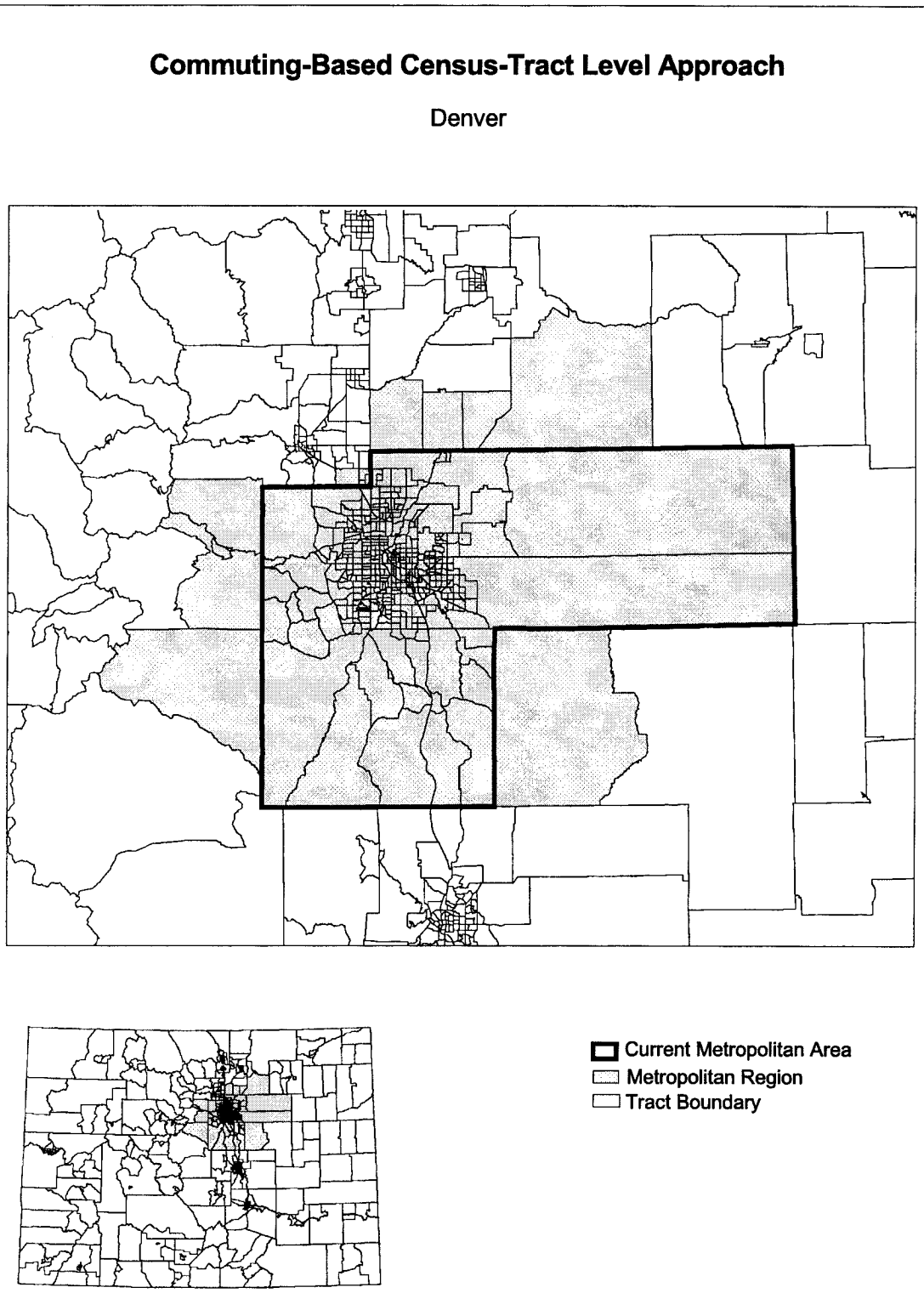

Figure 2

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There are several advantages to this approach. Identifying overlapping statistical areas in stage one of the delineation process depicts the multiple linkages among communities. Using census tracts as building blocks offers greater resolution when analyzing social and economic patterns and increased precision when defining statistical areas. Census tracts are defined nationwide using a consistent set of population guidelines; they are capable of portraying change over time and across space as their boundaries are updated to reflect population and settlement pattern changes.

There are disadvantages to this approach as well. First, the limited availability of economic and demographic data for census tracts at this time limits their use in analysis. Second, it is more difficult to compare areas defined using census tracts with MAs defined currently and in the past using counties. Third, the uncertain availability of intercensal population estimates for census tracts and the likelihood that tract-level commuting data from the Census Bureau's American Community Survey will not be available for all tracts until 2008 could result in a lack of data to update areas during much of the coming decade. As a result, metropolitan, mesopolitan, and micropolitan regions could be defined after the 2000 decennial census, but not updated until 2008 or later. Fourth, tract-level commuting data from the 2000 census may be less certain in some nonmetropolitan areas (where lists of commercial addresses are less complete and geocoding place-of-work locations therefore is more difficult) than in current MAs. These uncertainties in the quality of place-of-work geocoding may reduce the reliability of journey-to-work data for census tracts with small numbers of commuters.

1. Criteria to Establish Statistical Settlement Areas and Their Daily Influence Areas

a. Requirement for Qualification as a Statistical Settlement Area

Each statistical settlement area must include either a Census Bureau-defined UA or, outside of UAs, an incorporated place of at least 10,000 persons.

b. Identification of the Central Core of a Statistical Settlement Area

The core of a statistical settlement area consists of the census tract(s) in which 20 percent or more of the population falls within the UA or place identified in the previous step. In addition, at least 70 percent of the workers living in the statistical settlement area core must work within the core. This last criterion ensures that places that are strictly ''bedroom communities'' are not identified as cores of statistical settlement areas.

c. Qualification of Outlying Areas

A census tract is included in a statistical settlement area as an outlying census tract if at least 25 percent of resident workers in that tract commute to work in the core, or if at least 25 percent of the employment in the census tract is accounted for by workers residing in the core.

d. Titles of Statistical Settlement Areas

The title of a statistical settlement area will include the name of the incorporated place with the largest population. The names of up to two additional incorporated places that are at least one-third the size of the largest place will be included in the statistical settlement area title in order of descending population rank.

e. Identification of Daily Influence Areas

A census tract is included in the daily influence area of a statistical settlement area if at least 5 percent but less than 25 percent of the resident workers in that tract commute to work in the core of the statistical settlement area, or if at least 5 percent but less than 25 percent of the employment in the census tract is accounted for by workers residing in the core of the statistical settlement area.

f. Identification of Rural Community Areas

Census tracts not included in any statistical settlement area or daily influence area will form the components of rural community areas. Contiguous census tracts will be grouped according to specified conditions. Titles for rural community areas will be based on the same criteria used to title statistical settlement areas.

2. Identification of Metropolitan Regions, Mesopolitan Regions, and Micropolitan Regions

Stage two in this approach provides criteria for identifying mutually exclusive metropolitan, mesopolitan, and micropolitan regions, and then classifies the remaining territory as urban-influenced or rural-influenced.

a. Assigning Territory in Individual Statistical Settlement Areas

A census tract that is part of the core of more than one statistical settlement area will be assigned to the statistical settlement area in which it has a larger population within the associated qualifier UA. A census tract that is in the core of one statistical settlement area and outlying to one or more other statistical settlement areas will be included in the statistical settlement area in which it is part of the core.

A census tract that qualifies for inclusion as an outlying census tract in more than one statistical settlement area will be assigned to the statistical settlement area with which it has the highest level of commuting exchange.

At no time may a statistical settlement area contain discontiguous census tracts.

b. Combining Statistical Settlement Areas

Statistical settlement areas will be combined if the entire core of one is integrated with the entire core of the other according to the commuting thresholds contained in IV.B.1.c above.

c. Qualification of Outlying Census Tracts in Combined Statistical Settlement Areas

After two or more statistical settlement areas are combined, a census tract will qualify for inclusion as an outlying census tract in the combined area if its commuting exchange with the combined statistical settlement area core(s) meets the criteria outlined in IV.B.1.c above.

d. Distinguishing Between Metropolitan Regions, Mesopolitan Regions, and Micropolitan Regions

Any statistical settlement area that contains a Census Bureau-defined UA of at least 100,000 persons will be designated a metropolitan region. Any statistical settlement area not identified as a metropolitan region will be designated as a mesopolitan region if it contains a Census Bureau-defined UA of at least 50,000 persons and less than 100,000 persons, or if outside a UA, an incorporated place of at least 50,000 persons. Any statistical settlement area not identified as a metropolitan or mesopolitan region will be designated as a micropolitan region.

e. Titles of Metropolitan Regions, Mesopolitan Regions, and Micropolitan Regions

Each metropolitan, mesopolitan, or micropolitan region title will include the name of the incorporated place with the largest population. The names of up to two additional incorporated places that are at least one-third the size of the largest place will be included in the metropolitan, mesopolitan, or micropolitan region title in order of descending population rank.

f. Identification of Urban-Influenced and Rural-Influenced Census Tracts

After all metropolitan, mesopolitan, and micropolitan regions are defined, any unassigned census tract will be identified as urban-influenced if at least 5 percent but less than 25 percent of the resident workers in that tract commute to work in the core of a metropolitan, mesopolitan, or micropolitan region, or if at least 5 percent but less than 25 percent of the employment in the census tract is accounted for by workers residing in the core of a metropolitan, mesopolitan, or micropolitan region. Any census tract that does not meet these commuting criteria will be classified as rural-influenced.

C. A Directional Commuting, Census Tract-Level Approach to Defining Metropolitan and Nonmetropolitan Areas

The directional commuting approach also is a census tract-based system. It relies on the direction and relative strength of commuting flows to measure social and economic linkages. This concept can be visualized by imagining typical commuters driving toward a hypothetical center of metropolitan or nonmetropolitan population in the morning and away from it in the evening. This approach measures the mean weighted direction of all commuting flows from a particular tract toward a population center, rather than measuring the percentage of workers who commute between central cores and outlying areas (see Figure 3).

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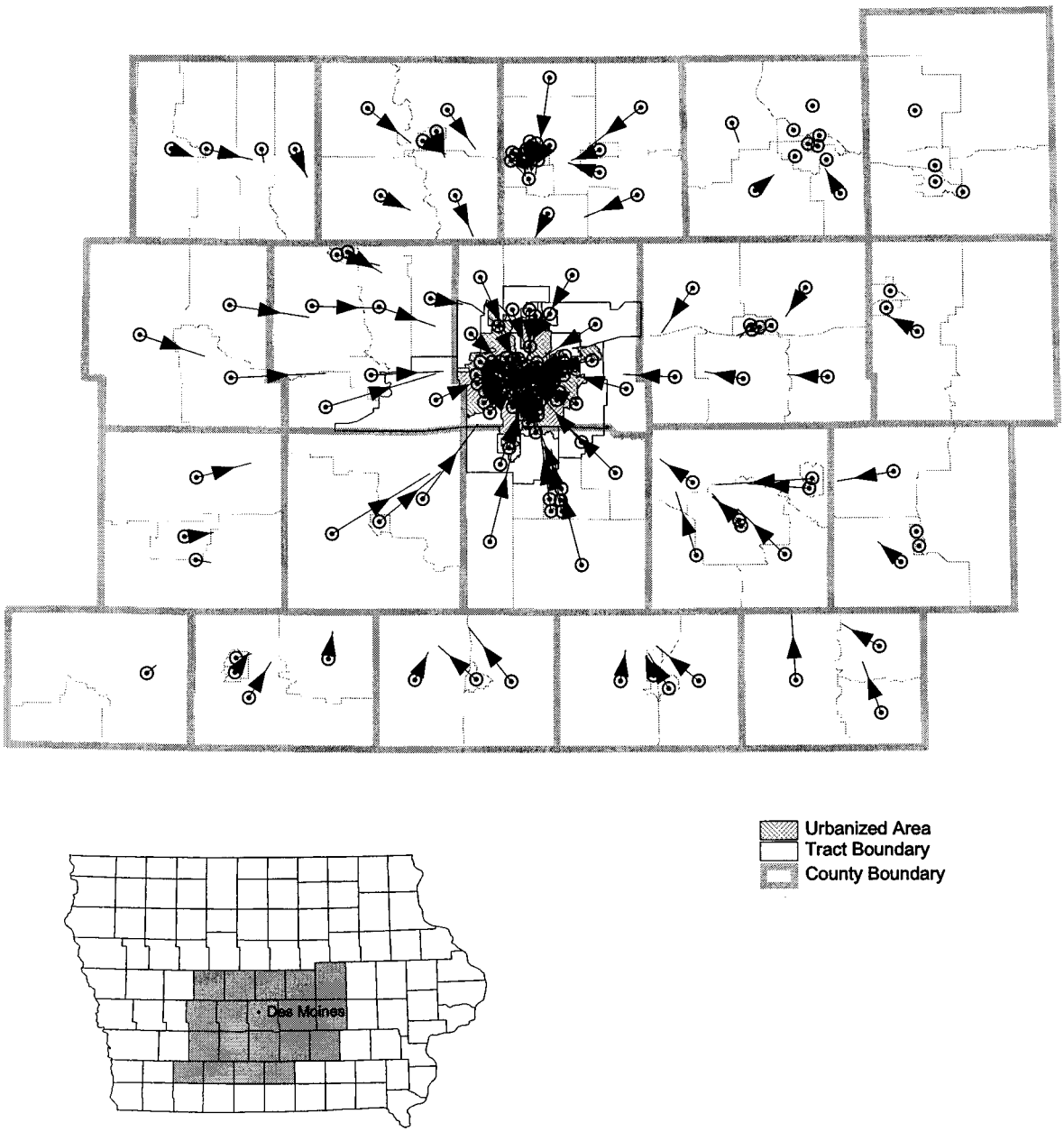

Figure 3

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The spatial characteristics of commuting flows never have been explicitly incorporated into the MA standards, even though the links between residence and work are inherently spatial. New research using disaggregated commuting flow data can measure flow characteristics that have been observed by highway and transit planners for decades.

The directional approach uses the weighted mean direction of commuting flows by census tract to associate census tracts with population centers. If the weighted mean flow of a given census tract is in the direction of a nearby population center, then the tract is included within the same statistical area as that center.

The directional approach for creating areas has one major advantage. It can mitigate shortcomings with geocoding place-of-work data by generalizing commuting flow. Lack of sufficient place-of-work address information may make the geocoding of tract-level commuting data from the 2000 decennial census difficult in some nonmetropolitan areas where lists of commercial addresses are less complete than in current MAs. Uncertainties in the quality of place-of-work geocoding may reduce the reliability of sub-county journey-to-work data in the absence of techniques such as directional statistical methods.

Several disadvantages also are associated with this approach. The linkage of a census tract with a center of population is subject to a specified level of angular tolerance and is subject as well to limitations of the commuting data. Implementation of this approach at the census tract-level limits annual updating of all metropolitan, mesopolitan, and micropolitan region definitions using commuting data from the American Community Survey until at least 2008. Other disadvantages associated with this approach are similar to those outlined in the commuting-based, census tract-level approach discussed above.

1. Criteria for Defining Metropolitan Regions, Mesopolitan Regions, and Micropolitan Regions

a. Requirements for Qualification

Each metropolitan region must include a Census Bureau-defined UA of at least 100,000 persons. Each mesopolitan region must contain no part of a metropolitan region and must include either a Census Bureau-defined UA of at least 50,000 persons and less than 100,000 persons, or if outside a UA, an incorporated place of at least 50,000 persons. Each micropolitan region must contain no part of a metropolitan or mesopolitan region and must contain an incorporated place of at least 10,000 persons and less than 50,000 persons.

b. Identification of Metropolitan Region, Mesopolitan Region, and Micropolitan Region Population Centers

Population centers are not cores *per se* but rather are starting points for the statistical analysis of commuting flows. The center point used in measuring directionality of commuting flows toward a metropolitan region is the ''internal point'' (see Part VII, ''Frequently Used Terms'') of the qualifier UA of 100,000 or more persons; in the case of mesopolitan regions, the center point used is the internal point of the qualifier UA of at least 50,000 and less than 100,000 persons, or, outside UAs, the internal point of the most populous incorporated place having at least 50,000 persons. The center point used in measuring directionality of commuting flows toward a micropolitan region is the internal point of the most populous incorporated place having at least 10,000 persons and less than 50,000 persons.

c. Calculation of Mean Weighted Direction of Commuting Flows

Statistical areas are delineated based on the weighted mean direction of commuting flows for census tracts with respect to population centers. A trigonometric formula is used to produce a weighted mean direction of flow for each tract of residence. Based on that value, a tract is assigned to the relevant nearby population center—the UA or place that lies directly in the path of the flow vector.

To associate census tracts' mean commuting flows with population centers, it is necessary to specify an angle of inclusion. This means determining a level of tolerance so that when a directional mean flow is toward a center of population but does not ''hit'' it directly, the flow is still associated with the center.

d. Qualification of Census Tracts for Inclusion in a Metropolitan Region, Mesopolitan Region, or Micropolitan Region

A census tract qualifies for inclusion in a metropolitan, mesopolitan, or micropolitan region if the largest flow of resident workers in the census tract is in the direction of the metropolitan, mesopolitan, or micropolitan region population center. If the flows are split evenly between two population centers, then local opinion will be sought to determine the census tract's assignment.

Metropolitan, mesopolitan, and micropolitan regions may not contain discontiguous census tracts. Under this approach, it is possible that the mean weighted commuting flows from census tracts close to a population center may point in a direction away from the center and in an opposite direction of more remote tracts; in such instances, the central census tracts will be included in the metropolitan, mesopolitan, or micropolitan region.

2. Identification of Rural Community Areas

Census tracts not included in a metropolitan, mesopolitan, or micropolitan region will form the components of rural community areas. Contiguous census tracts will be grouped according to local opinion, subject to specified conditions, to form individual rural community areas within each state.

D. A Comparative Density, County-Level Approach to Defining Statistical Areas

The three approaches to defining metropolitan and nonmetropolitan areas just described rely upon commuting as the measure of linkages between central and outlying areas. Journey-to-work data, however, do not accurately depict the activity patterns of people without a regular, fixed work location, such as those who work in sales, contracting, construction and landscaping trades, and as day- and itinerant-laborers; also missed are people who work at home (or people not counted in the workforce). In addition, the daily journey to work does not describe the many other, non-work activities that define relationships between individuals and communities, such as trips associated with shopping, recreation, and social and religious activities.

Residential population density can serve as a surrogate for other measures of activity in the absence of nationally consistent and reliable data sets describing all daily and weekly movements of individuals. Under this fourth proposed approach, an index is calculated to reflect relative settlement intensities of counties. The index number assigned to any given county is determined by multiplying its population density ranking ratio at the state level with its ranking ratio at the national level (see below). This provides a relative measure of activity intensity for comparative purposes nationwide by taking into account both the national and state contexts. For instance, Natrona County, Wyoming, which constitutes the Casper Metropolitan Statistical Area,

has a low overall population density when compared with most other counties in the United States, but it would be assigned a value that also reflects its relative importance within Wyoming.

This approach has several advantages. First, because the classification is based solely on residential population density, each county's index value can be calculated quickly after 2000 decennial census population counts become available (and without waiting for the later processing of journey-to-work data). Thereafter, the classification could be updated annually using Census Bureau population estimates. Second, a wide range of statistically reliable social and economic data are readily available for counties. Third, the use of counties facilitates comparability with past MA definitions, even though this approach differs markedly from the current MA standards. Fourth, population density can provide information about the intensity of activity or potential activity within a geographic area.

There are disadvantages to this approach as well. The obvious drawback is that social and economic linkages between counties are not described directly. Also, the large land area of some counties tends to lower overall population densities, and as a result, the index value for such a county would be relatively low in spite of relatively high population densities in some parts of the county (San Bernardino County, California provides a good example). Because population density is calculated by dividing total population by total land area, local, sub-county variations in population distribution patterns are not revealed.

1. Steps in Defining Density-Based Statistical Areas

a. The overall residential population density for each county is calculated by dividing total population by total land area.

b. All counties within a given state are ranked according to population density. The highest-density county is assigned the rank N, where N equals the number of counties in the state. The second-highest-density county is assigned the rank N–1; third-highest, N–2; and so forth. For example, if there are 100 counties in a state, then the county with the highest population density has a rank of 100; the county with the second highest population density is 99.

c. The state ranking ratio (SRR) of each county is calculated by dividing the rank of the county by the total number of counties in the state, using the following equation:

$$SRR = N\,[N-1, N-2, \ldots]/N$$

d. After assigning each county a ranking ratio within the state, steps a, b, and c are repeated at the national level. In this iteration, N will represent the number of counties within the United States (see Figure 4a).

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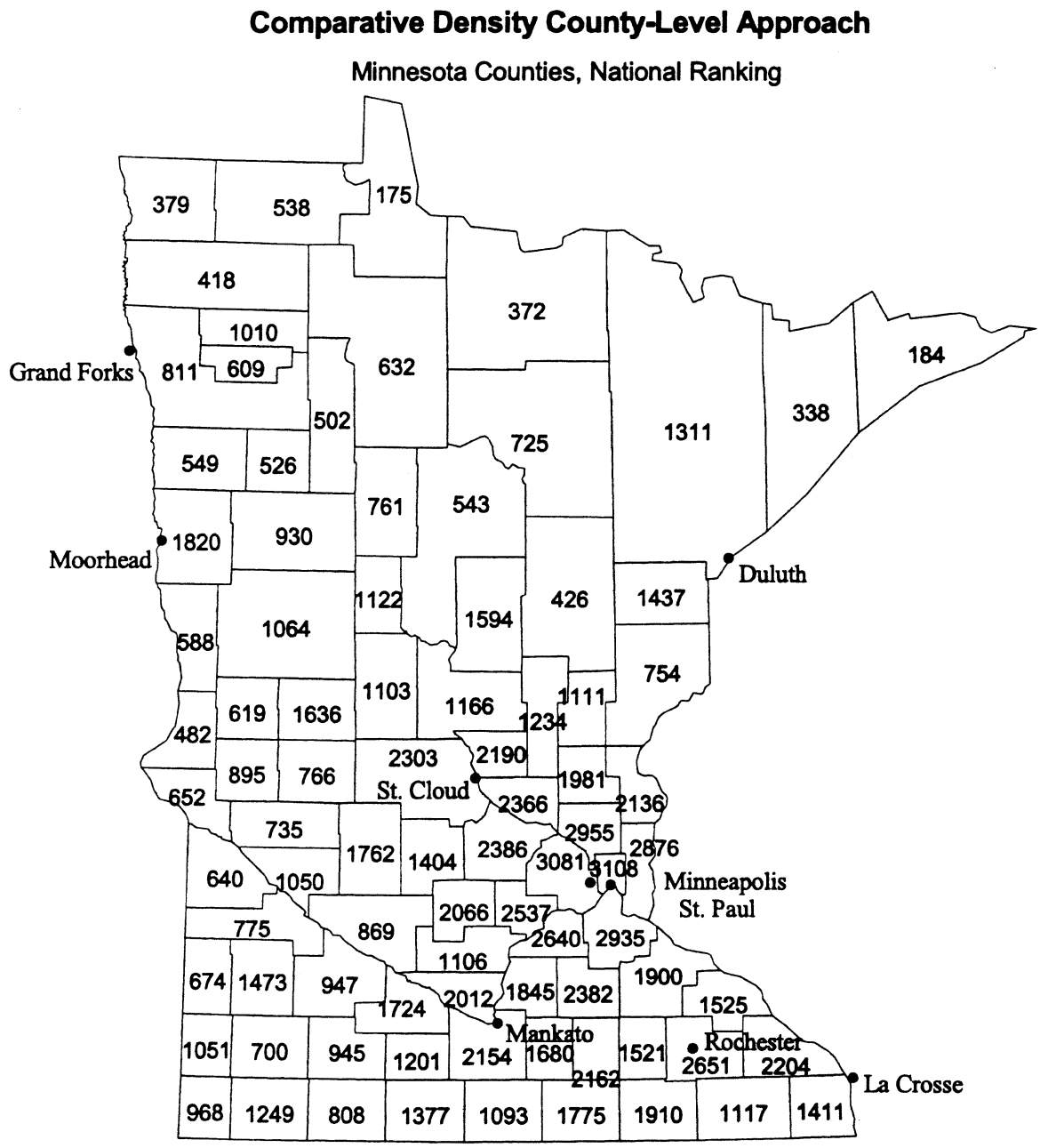

Representative Rankings (1990 data)

3141	New York County, NY	100th Percentile for US
2520	Nantucket County, MA	80th Percentile
1890	Santa Fe County, NM	60th Percentile
1265	Ward County, ND	40th Percentile
637	Natrona County, WY	20th Percentile
1	Yukon-Koyukuk Census Area, AK	First Percentile

Figure 4A

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e. Each county is assigned an index number (I) by multiplying its state ranking ratio (SRR) and the national ranking ratio (NRR) using the following equation:

SRR x NRR = I

This produces an index value that can be used to classify and compare counties throughout the United States in terms of population density, and thus relative social and economic importance (see Figure 4b).

2. Identification of Residential Density-Based Statistical Areas

This approach would produce index values for all counties that can be used for classification into as many density-based levels as needed. A five-level classification that ranges between an index value of 0.0 to .19 at the low end and a value of .80 to 1.0 at the high end captures most recognizable aspects of the settlement pattern of the United States. Contiguous counties in the same classification level then can be identified as individual density-based statistical areas.

3. Titles of Density-Based Statistical Areas

The title of a density-based statistical area will include the name of the incorporated place with the largest population within that area. The names of up to two additional incorporated places that are at least one-third the size of the largest place will be included in the title in order of descending population rank.

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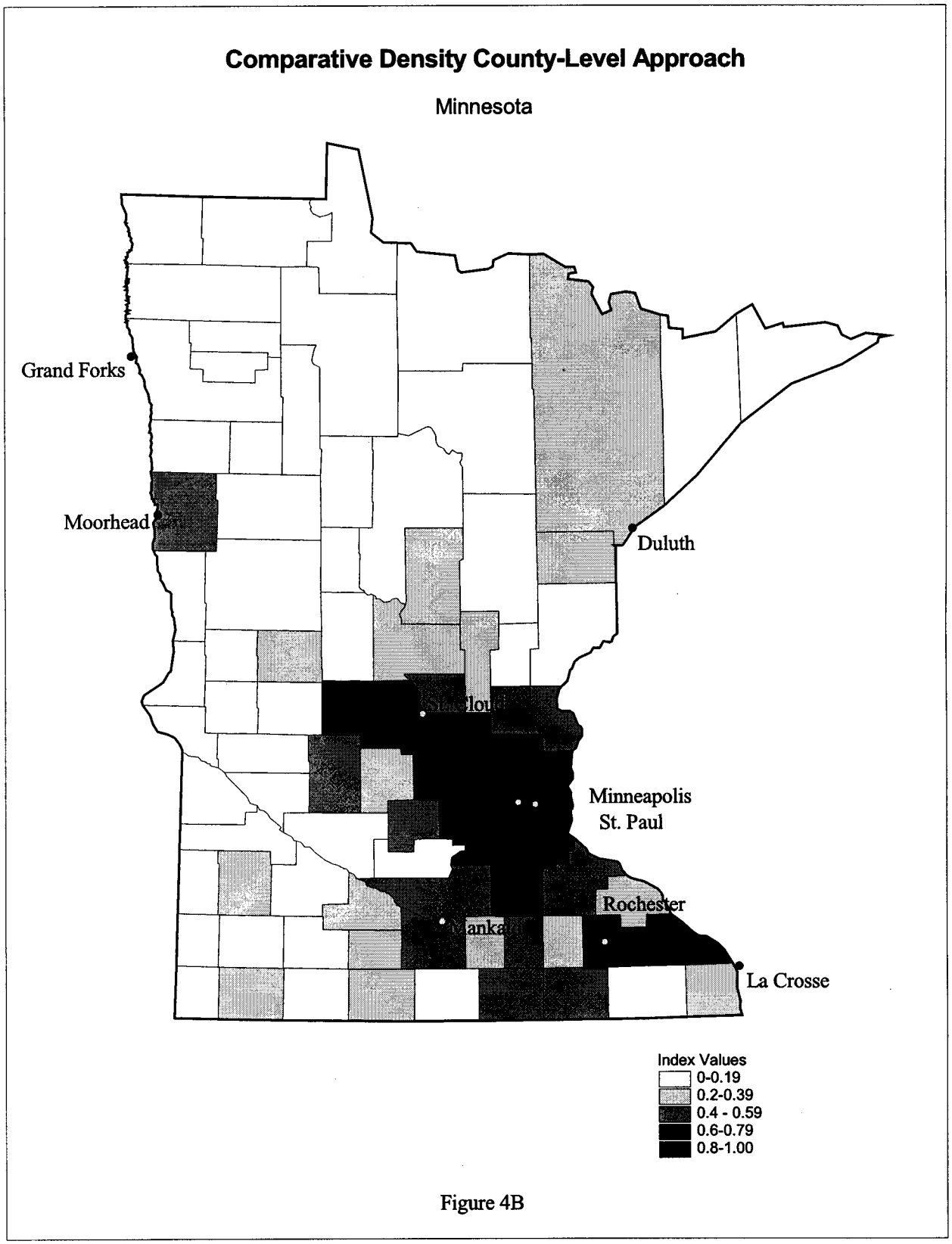

Figure 4B

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Part V. Additional Issues for Consideration

This portion of the Notice briefly discusses a few issues that were not fully addressed in Parts I through IV. These issues are: (1) how to account for residual areas or exhaust the territory of the Nation within a statistical area classification; (2) how best to meet data producers' and users' desires for both county-based and sub-county-based classifications; and (3) how to identify various settlement categories, such as inner city, suburban, exurban, and rural areas, in ways that are useful when analyzing and understanding settlement and economic patterns within metropolitan and nonmetropolitan areas.

A. Accounting for Residual Areas

Three of the four approaches presented in Part IV for defining metropolitan and nonmetropolitan areas relied on commuting patterns as a measure of linkages between outlying and central areas. In all three of these approaches, however, some residual territory could not be linked with the central areas. This section discusses methods for minimizing this residual territory when defining metropolitan and nonmetropolitan areas. These methods could be used individually or in combination.

One means of reducing residual territory is to establish a minimum commuting threshold low enough to ensure that all or nearly all territory is included within a metropolitan or nonmetropolitan area. Although this approach would result in areas that account for all the territory of the Nation, the necessary commuting threshold would be so low as to call into question the meaningfulness of social and economic linkages between centers and some outlying areas. As a result, the conceptual integrity of metropolitan and nonmetropolitan areas would be compromised.

A second method involves identifying cores of varying minimum sizes around which metropolitan and nonmetropolitan areas are defined using a commuting threshold that is sufficiently high to portray meaningful linkages. This approach does not eliminate the possibility that residual territory will remain, but reduces the extent of residual territory to a more meaningful set of areas. This approach is taken in Parts IV.A and IV.C.

A variant of this second approach reduces the extent of residual territory by defining influence zones associated with each metropolitan and nonmetropolitan area, as outlined in Part IV.B. An outlying area that does not qualify for inclusion in a metropolitan or nonmetropolitan area could fall within the influence area of a metropolitan or nonmetropolitan area. Still, the extent of residual territory is reduced rather than eliminated.

A third approach involves using additional measures of social and economic linkages, such as newspaper circulation, media market penetration, and commodity flows, in addition to commuting criteria, to eliminate residual territory. These other measures would be used as a last resort after all outlying areas are added to a metropolitan or nonmetropolitan area on the basis of commuting. This approach eliminates residual areas by assigning all territory to metropolitan or nonmetropolitan areas but in doing so establishes a two-tiered system of qualification. As a result, outlying areas within a particular metropolitan or nonmetropolitan area may be linked with the core, but by different criteria.

B. Development of Multiple Sets of Statistical Areas

Some data users have expressed an interest in both a county-based classification, which offers greater availability of data, and sub-county-based classifications, which offer greater geographic precision when defining metropolitan and nonmetropolitan areas. Data providers and users could choose the classifications that best fit their research and analysis needs, guided by advice about appropriate uses of each classification. The substantial downside to this approach is the potential confusion resulting from the existence of two or more parallel classifications. Data providers also would be faced with increased costs for preparing data according to two or more classifications.

C. Settlement Types Within Metropolitan and Nonmetropolitan Areas

Data providers and users have expressed a desire for official classification of a variety of settlement types—such as inner city, inner and outer suburb, and exurban—within metropolitan and nonmetropolitan areas. A key aspect of this issue has been the lack of an official designation of what constitutes ''suburban'' territory. Designations of such settlement types are not essential to defining social and economic linkages among communities within metropolitan and nonmetropolitan areas, but they are useful for analyzing and understanding settlement patterns. A separate settlement classification system that would be consistent with metropolitan and nonmetropolitan areas may be appropriate.

Measures that could be employed in delineating inner city, inner suburban, outer suburban, and exurban territory include, in some combination:

- median housing unit age or year of housing unit construction;
- commuting interchange with central core;
- directionality of commuting patterns;
- population or housing density; and
- road density.

High population density, older housing stock, multidirectional commuting, and contiguity with the inner city are typical of inner suburban areas, for example. Outer suburban areas are typified by moderate population density and age of housing stock and moderately unidirectional commuting flows. Exurban areas typically are of low population density, but are distinguished from other sparsely settled territory by newer housing and unidirectional commuting flows.

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Part VII. Frequently Used Terms

(An asterisk (*) denotes terms proposed for the purposes of this Notice)

Census county division (CCD)—A statistical subdivision of a county, established cooperatively by the Census Bureau and state and local government authorities, for the presentation of decennial census data in 21 states where minor civil divisions either do not exist or are unsatisfactory for the collection, presentation, and analysis of census statistics.

Census tract—A small, relatively permanent statistical subdivision of a county, delineated cooperatively by local statistical areas program participants and the Census Bureau. Census tracts for the 2000 decennial census will have between 1,500 and 8,000 inhabitants.

Central city—The largest city of a metropolitan statistical area or a consolidated metropolitan statistical area, plus additional cities that meet specified statistical criteria.

Central county—The county or counties of an MA containing the largest city or urbanized area, and to and from which commuting is measured to determine qualification of outlying counties.

Consolidated metropolitan statistical area (CMSA)—A geographic entity defined by OMB for statistical purposes. An area becomes a CMSA if it meets the requirements to qualify as a metropolitan statistical area, has a population of 1,000,000 or more, contains component parts that qualify as primary metropolitan statistical areas (PMSAs), and local opinion favors PMSA designation. Whole counties are components of CMSAs, except in New England, where they are composed of cities and towns.

County subdivision—A legal (minor civil division) or statistical (census county division) subdivision of a county.

* *Daily influence area* (DIA)—Territory that is minimally associated with a statistical settlement area.

Functional integration—The linkage of geographic entities according to patterns of social or economic interactions.

Geocoding—The practice of assigning data to a specific geographic location and a set of geographic codes.

* *Geographic building block*—The geographic unit, such as census tract, county subdivision, or county, that forms the basic geographic component of a metropolitan or nonmetropolitan area.

Internal point—A point, generally marking the central location within a geographic entity.

* *Mesopolitan region*—A geographic entity containing a core area of at least 50,000 persons and less than 100,000 persons plus adjacent communities having a high degree of social and economic integration with that core.

Metropolitan area (MA)—A collective term, established by OMB and used for the first time in 1990, to refer to metropolitan statistical areas, consolidated metropolitan statistical areas, and primary metropolitan statistical areas.

* *Metropolitan region*—A geographic entity containing a core area of at least 100,000 persons plus adjacent communities having a high degree of social and economic integration with that core.

Metropolitan statistical area (MSA)—A geographic entity, defined by OMB for statistical purposes, containing a core area with a large population center and adjacent communities having a high degree of social and economic integration with that center. Qualification of an MSA requires the presence of a city with 50,000 or more inhabitants, or the presence of an urbanized area and a total population of at least 100,000 (75,000 in New England). MSAs are composed of entire counties, except in New England where the components are cities and towns.

* *Micropolitan region*—A geographic entity containing a core area of at least 10,000 persons and less than 50,000 persons plus adjacent communities having a high degree of social and economic integration with that core.

Minor civil division (MCD)—A type of governmental unit that is the primary legal subdivision of a county, created to govern or administer an area rather than a specific population. MCDs are recognized by the Census Bureau as the county subdivisions of 28 states and the District of Columbia.

New England county metropolitan area (NECMA)—County-based areas defined by OMB to provide an alternative to the city-and town-based metropolitan statistical areas and consolidated metropolitan statistical areas in New England.

Outlying county—The county or counties that qualify for inclusion in a metropolitan area based on commuting ties with central counties and other specified measures of metropolitan character.

Population density—A measure of the number of people per geographic unit, usually expressed in terms of people per square mile or per square kilometer.

Population growth rate—The change in a population during a given period, as determined by births, deaths, and net migration, and commonly expressed as a percentage of the initial population.

Primary metropolitan statistical area (PMSA)—A county or group of counties that meet specified statistical criteria and receive local opinion support for recognition as a component of a consolidated metropolitan statistical area under OMB's metropolitan area standards.

Qualifier urbanized area—The urbanized area that results in qualification of a metropolitan area.

* *Rural community area* (RCA)—A geographic entity containing geographic units not included within a statistical settlement area, metropolitan region, mesopolitan region, or micropolitan region, nor within associated influence areas, and defined partly in accordance with local opinion.

* *Statistical settlement area* (SSA)—A geographic entity containing a core of at least 10,000 persons and surrounding communities that are linked socially and economically, as measured by commuting.

Urbanized area (UA)—A statistical geographic area defined by the Census Bureau, consisting of a central place(s) and adjacent densely settled territory that together contain at least 50,000 people, generally with an overall population density of at least 1,000 people per square mile.

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Acting Administrator, Office of Information and Regulatory Affairs.

Appendix A—Revised Standards for Defining Metropolitan Areas in the 1990s

Part I. Overview

Part I gives the structure of this document. Part II describes the changes from the previous standards and the reasons for the changes. Part III gives the official metropolitan area standards for the 1990s. Part IV gives a list of definitions of key terms and guidelines used in the standards. The terms in Part IV are listed in alphabetical order.

In Part III, sections 1 through 7 contain the basic standards for defining metropolitan statistical areas in all States except the New England States. They specify standards for determining: how large a population nucleus must be to qualify as an MSA (section 1); the central county/counties of the MSA (section 2); additional outlying counties with sufficient metropolitan character and integration to the central county/counties to qualify for inclusion in the MSA (section 3); the central city or cities of each MSA (section 4); whether two adjacent MSAs qualify to be combined (section 5); four categories or levels of MSAs, based on the total population

of each area (section 6); and the title of each MSA (section 7).

Sections 8 through 10 provide a framework for identifying PMSAs within an MSA of at least one million population. If such PMSAs are identified, the larger area of which they are components is designated a CMSA.

Sections 11 through 15 apply only to the New England States. In these States, metropolitan areas are composed of cities and towns rather than whole counties. Sections 11, 12, and 13 specify how New England MSAs are defined and titled. Sections 14 and 15 show how CMSAs and PMSAs are defined and titled.

Section 16 sets forth the standards for updating definitions between decennial censuses.

Part II. Changes in the Standards for the 1990s

The metropolitan area standards for the 1990s generally reflect a continuity with those adopted for the 1980s, and they maintain the basic concepts originally developed in 1950. The substantive modifications of the standards are specified below. Some other modifications have been made that involve word changes but not substance.

1. Effective April 1, 1990, the set of areas known as Metropolitan Statistical Areas (MSAs), Primary Metropolitan Statistical Areas (PMSAs), and Consolidated Metropolitan Statistical Areas (CMSAs) will be designated collectively as Metropolitan Areas (MAs). The reason for this change is to distinguish between the individual areas known as MSAs and the set of all areas.

2. A small group of counties containing a portion of a city's urbanized area will now qualify as outlying, even though their population density is relatively low. This change allows the inclusion in metropolitan areas of entire urbanized areas.

3. Counties included solely because they contain at least 2,500 population in a central city now will be assigned outlying county rather than central county status (section 3A(6)). This will ensure that additional outlying counties will not be designated solely because of commuting with a county including a small portion of the central city.

4. The largest city, and other cities of at least 15,000 in a secondary noncontiguous urbanized area within a metropolitan statistical area, now may be identified as central cities, provided that the other requirements for central cities are met (sections 4E and 4F). This allows cities that perform as central cities in secondary noncontiguous urbanized areas to be designated as central cities.

5. The employment criterion for inclusion in an area title is deleted; only the population criteria remain (section 7). This change was made because in 1980 only one area qualified based on employment.

6. A place qualifying as a central city but with less than one-third the population of the largest city may now be included in the metropolitan statistical area title if strongly supported by local opinion (section 7A(3)). Communities often have strong views on the way their MSAs are titled. This change allows taking these views into account.

7. The presence of a small portion (less than 2,500 population) of the largest city of a CMSA in a county no longer precludes consideration of that county as a PMSA (section 8B(4)). Such a small portion of a city does not alter the characteristics of the PMSA.

8. We have added standards for intercensal updating of metropolitan areas (section 16). These standards existed separately, but we felt they should be incorporated into the published standards.

9. Qualifying percentages and ratios are considered to one decimal and ratios on the basis of two decimals (in each case, one less decimal than previously) (Part IV). The previous standards implied a level of accuracy that was not justified.

10. Several technical adjustments were made (Part IV). For example, localities in Puerto Rico officially known as *aldeas* in 1980, are now termed *comunidades.*

Part III. Official Standards for Metropolitan Areas

Basic Standards. Sections 1 through 7 apply to all States except the six New England States, that is, Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. They also apply to Puerto Rico.[1]

Section 1. Population Size Requirements for Qualification

Each metropolitan statistical area must include:

A. A city of 50,000 or more population, or[2]

B. A Census Bureau defined urbanized area of at least 50,000 population, provided that the component county/counties of the metropolitan statistical area have a total population of at least 100,000.[3]

Section 2. Central Counties

The central county/counties of the MSA are:

A. Those counties that include a central city (see section 4) of the MSA, or at least 50 percent of the population of such a city, provided the city is located in a qualifier urbanized area; and B. Those counties in which at least 50 percent of the population lives in the qualifier urbanized area(s).

Section 3. Outlying Counties

A. An outlying county is included in an MSA if any one of the six following conditions is met:

(1) At least 50 percent of the employed workers residing in the county commute to the central county/counties, and either

(a) The population density of the county is at least 25 persons per square mile, or

(b) At least 10 percent, or at least 5,000, of the population lives in the qualifier urbanized area(s);

(2) From 40 to 50 percent of the employed workers commute to the central county/counties, and either

(a) The population density is at least 35 persons per square mile, or

(b) At least 10 percent, or at least 5,000, of the population lives in the qualifier urbanized area(s);

(3) From 25 to 40 percent of the employed workers commute to the central county/counties and either the population density of the county is at least 50 persons per square mile, or any two of the following conditions exist:

(a) Population density is at least 35 persons per square mile,

(b) At least 35 percent of the population is urban,

(c) At least 10 percent, or at least 5,000, of the population lives in the qualifier urbanized area(s);

(4) From 15 to 25 percent of the employed workers commute to the central county/counties,[4] the population density of the county is at least 50 persons per square mile, and any two of the following conditions also exist:

(a) Population density is at least 60 persons per square mile,

(b) At least 35 percent of the population is urban,

(c) Population growth between the last two decennial censuses is at least 20 percent,

(d) At least 10 percent, or at least 5,000, of the population lives in the qualifier urbanized area(s);

(5) From 15 to 25 percent of the employed workers commute to the central county/counties,[4] the population density of the county is less than 50 persons per square mile, and any two of the following conditions also exist:

(a) At least 35 percent of the population is urban,

(b) Population growth between the last two decennial censuses is at least 20 percent,

(c) At least 10 percent, or at least 5,000, of the population lives in the qualifier urbanized area(s);

(6) At least 2,500 of the population lives in a central city of the MSA located in the qualifier urbanized area(s).[5]

B. If a county qualifies on the basis of commuting to the central county/counties of two different MSAs, it is assigned to the area to which commuting is greatest, unless the relevant commuting percentages are within 5 points of each other, in which case local opinion about the most appropriate assignment will be considered.

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[1] Those provisions of sections 1 through 7 that are applicable to New England are specified in the standards relating to New England (sections 11 through 15).

[2] An MSA designated on the basis of census data according to standards in effect at the time of designation will not be disqualified on the basis of lacking a city of at least 50,000 population.

[3] An MSA designated on the basis of census data according to standards in effect at the time of designation will not be disqualified on the basis of lacking an urbanized area of at least 50,000 or a total MSA population of at least 100,000.

[4] Also accepted as meeting this commuting requirement are:

(a) The number of persons working in the county who live in the central county/counties is equal to at least 15 percent of the number of employed workers living in the county; or

(b) The sum of the number of workers commuting to and from the central county/counties is equal to at least 20 percent of the number of employed workers living in the county.

[5] See section 4 for the standards for identifying central cities.

C. If a county qualifies as a central county under section 2 and also qualifies as an outlying county of another metropolitan area under section 3A on the basis of commuting to (or from) another central county, both counties become central counties of a single merged MSA.

Section 4. Central Cities

The central city/cities of the MSA are:

A. The city with the largest population in the MSA;

B. Each additional city with a population of at least 250,000 or with at least 100,000 persons working within its limits;

C. Each additional city with a population of at least 25,000, an employment/residence ratio of at least 0.75, and at least 40 percent of its employed residents working in the city;

D. Each city of 15,000 to 24,999 population that is at least one-third as large as the largest central city, has an employment/residence ratio of at least 0.75, and has at least 40 percent of its employed residents working in the city;

E. The largest city in a secondary noncontiguous urbanized area, provided it has at least 15,000 population, an employment/residence ratio of at least 0.75, and has at least 40 percent of its employed residents working in the city;

F. Each additional city in a secondary noncontiguous urbanized area that is at least one-third as large as the largest central city of that urbanized area, that has at least 15,000 population and an employment/residence ratio of at least 0.75, and that has at least 40 percent of its employed residents working in the city.

Section 5. Combining Adjacent Metropolitan Statistical Areas

Two adjacent MSAs defined by sections 1 through 4 are combined as a single MSA provided:

A. The total population of the combination is at least one million, and:

(1) The commuting interchange between the two MSAs is equal to:

(a) At least 15 percent of the employed workers residing in the smaller MSA, or

(b) At least 10 percent of the employed workers residing in the smaller MSA, and

(i) The urbanized area of a central city of one MSA is contiguous with the urbanized area of a central city of the other MSA, or

(ii) A central city in one MSA is included in the same urbanized area as a central city in the other MSA; and

(2) At least 60 percent of the population of each MSA is urban.

B. The total population of the combination is less than one million and:

(1) Their largest central cities are within 25 miles of one another, or their urbanized areas are contiguous; and

(2) There is definite evidence that the two areas are closely integrated with each other economically and socially; and

(3) Local opinion in both areas supports the combination.

Section 6. Levels

A. Each MSA defined by sections 1 through 5 is categorized in one of the following levels based on total population:

Level A—MSAs of 1 million or more;
Level B—MSAs of 250,000 to 999,999;
Level C—MSAs of 100,000 to 249,999; and
Level D—MSAs of less than 100,000.

B. Areas assigned to Level B, C, or D are designated as MSAs. Areas assigned to Level A are not finally designated or titled until they have been reviewed under sections 8 and 9.

Section 7. Titles of Metropolitan Statistical Areas (MSAs)

A. The title of an MSA assigned to Level B, C, or D includes the name of the largest central city, and up to two additional city names, as follows:

(1) The name of each additional city with a population of at least 250,000;

(2) The names of the additional cities qualified as central cities by section 4, provided each is at least one-third as large as the largest central city; and

(3) The names of other central cities (up to the maximum of two additional names) if local opinion supports the resulting title.

B. An area title that includes the names of more than one city begins with the name of the largest city and lists the other cities in order of their population according to the most recent national census.[6]

C. In addition to city names, the title contains the name of each State in which the MSA is located.

Standards for Primary and Consolidated Metropolitan Statistical Areas (PMSAs and CMSAs).

Sections 8 through 10 apply to Level A metropolitan statistical areas outside New England.

Section 8. Qualifications for Designation of Primary Metropolitan Statistical Areas (PMSAs)

Within a Level A MSA:

A. Any county or group of counties that was designated an SMSA on January 1, 1980, will be designated a PMSA, unless local opinion does not support its continued separate designation for statistical purposes.

B. Any additional county/counties for which local opinion strongly supports separate designation will be considered for identification as a PMSA, provided one county is included that has:

(1) At least 100,000 population;

(2) At least 60 percent of its population urban;

(3) Less than 35 percent of its resident workers working outside the county; and

(4) Less than 2,500 population of the largest central city of the Level A MSA.

C. A set of two or more contiguous counties for which local opinion strongly supports separate designation, and that may include a county or counties that also could qualify as a PMSA under section 8B, also will be considered for designation as a PMSA, provided:

(1) Each county meets requirements (1), (2), and (4) of section 8B, and has less than 50 percent of its resident workers working outside the county;

(2) Each county in the set has a commuting interchange of at least 20 percent with the other counties in the set; and

(3) The set of two or more contiguous counties has less than 35 percent of its resident workers working outside its area.

D. Each county in the interim Level A MSA, not included within a central core under sections 8A through C, is assigned to the contiguous PMSA to whose central core commuting is greatest, provided this commuting is:

(1) At least 15 percent of the county's resident workers;

(2) At least 5 percentage points higher than the commuting flow to any other PMSA central core that exceeds 15 percent; and

(3) Larger than the flow to the county containing the Level A MSA's largest central city.

E. If a county has qualifying commuting ties to two or more PMSA central cores and the relevant values are within 5 percentage points of each other, local opinion is considered before the county is assigned to any PMSA.

F. The interim PMSA definitions resulting from these procedures (including possible alternative definitions, where appropriate) are submitted to local opinion. Final definitions of PMSAs are made based on these standards, and a review of local opinion.

G. If any primary metropolitan statistical area or areas have been recognized under sections 8 A through F, the balance of the Level A metropolitan statistical area, which includes its largest central city, also is recognized as a primary metropolitan statistical area.[7]

Section 9. Levels and Titles of Primary Metropolitan Statistical Areas

A. PMSAs are categorized in one of four levels according to total population, following the standards of Section 6A.

B. PMSAs are titled in either of two ways:

(1) Using the names of up to three cities in the primary metropolitan statistical area that have qualified as central cities of the Level A MSA under section 4, following the standards of section 7 for selection and sequencing; or

(2) Using the names of up to three counties in the PMSA, sequenced in order from largest to smallest population.

C. Local opinion on the most appropriate title will be considered.

[6] The largest central city included in an existing metropolitan area title will not be resequenced in or displaced from that title until both its population and the number of persons working within its limits are exceeded by those of another city qualifying for the area title.

[7] If section 8G would result in the balance of the Level A metropolitan statistical area including a noncontiguous county, this county will be added to the contiguous primary metropolitan statistical area to which the county has the greatest commuting.

Section 10. Designation and Titles of Consolidated Metropolitan Statistical Areas

A. A Level A metropolitan statistical area in which two or more primary metropolitan statistical areas are identified by section 8 is designated a consolidated metropolitan statistical area. If no primary metropolitan statistical areas are defined, the Level A area remains a metropolitan statistical area, and is titled according to section 7.

B. Consolidated metropolitan statistical areas are titled according to the following guidelines. Local opinion is always sought before determining the title of a consolidated metropolitan statistical area.

(1) The title of each area includes up to three names, the first of which is always the name of the largest central city in the area. A change in the first-named city in the title will not be made until both its population and the number of persons working within its limits are exceeded by the those of another city in the consolidated area.

(2) The preferred basis for determining the two remaining names is:

(a) The first city (or county) name that appears in the title of the remaining primary metropolitan statistical area with the largest total population; and

(b) The first city (or county) name that appears in the title of the primary metropolitan statistical area with the next largest total population.

(3) A regional designation may be substituted for the second and/or third names in the title if there is strong local support and the proposed designation is unambiguous and suitable for inclusion in a national standard.

Standards for New England

In the six New England States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont, the cities and towns are administratively more important than the counties, and a wide range of data is compiled locally for these entities. Therefore, the cities and towns are the units used to define metropolitan areas in these States. The New England standards are based primarily on population density and commuting. As a basis for measuring commuting, a central core is first defined for each New England urbanized area.

In New England, there is an alternative county-based definition of MSAs known as the New England County Metropolitan Areas (NECMAs) (see Part IV).

Section 11. New England Central Cores

A central core is determined in each New England urbanized area through the definition of two zones.

A. Zone A comprises:

(1) The largest city in the urbanized area;

(2) Each additional place in the urbanized area or in a contiguous urbanized area that qualifies as a central city under section 4, provided at least 15 percent of its resident employed workers work in the largest city in the urbanized area;[8]

(3) Each additional city or town at least 50 percent of whose population lives in the urbanized area or a contiguous urbanized area, provided at least 15 percent of its resident employed workers work in the largest city in the urbanized area plus any additional central cities qualified by section 11A(2).[8]

B. Zone B comprises each city or town that has:

(1) At least 50 percent of its population living in the urbanized area or in a contiguous urbanized area; and

(2) At least 15 percent of its resident employed workers working in Zone A.[8]

C. The central core comprises Zone A, Zone B, and any city or town that is physically surrounded by Zones A or B, except that cities or towns that are not contiguous with the main portion of the central core are not included.

D. If a city or town qualifies under sections 11A through C for more than one central core, it is assigned to the core to which commuting is greatest, unless the relevant commuting percentages are within 5 points of each other, in which case local opinion as to the most appropriate assignment also is considered.

Section 12. Outlying Cities and Towns

A. A city or town contiguous to a central core as defined by section 11 is included in its metropolitan statistical area if:

(1) It has a population density of at least 60 persons per square mile and at least 30 percent of its resident employed workers work in the central core; or

(2) It has a population density of at least 100 persons per square mile and at least 15 percent of the employed workers living in the city or town work in the central core.[9]

B. If a city or town has the qualifying level of commuting to two different central cores, it is assigned to the metropolitan statistical area to which commuting is greatest, unless the relevant commuting percentages are within 5 points of each other, in which case local opinion as to the most appropriate assignment also is considered.

C. If a city or town has the qualifying level of commuting to a central core, but has greater commuting to a nonmetropolitan city or town, it will not be assigned to any metropolitan statistical area unless the relevant commuting percentages are within 5 points of each other, in which case local opinion as to the most appropriate assignment will also be considered.

Section 13. Applicability of Basic Standards to New England Metropolitan Statistical Areas

A. An area defined by sections 11 and 12 qualifies as a metropolitan statistical area if it contains a city of at least 50,000 population or has a total population of at least 75,000.[10]

B. The area's central cities are determined according to the standards of section 4.

C. Two adjacent New England metropolitan statistical areas are combined as a single metropolitan statistical area provided the conditions of section 5A are met. Section 5B is not applied in New England.

D. Each New England metropolitan statistical area defined by sections 13A through C is categorized in one of the four levels specified in section 6A. Areas assigned to Level B, C, or D are designated as metropolitan statistical areas. Areas assigned to Level A are not finally designated until they have been reviewed under sections 14 and 15.

E. New England metropolitan statistical areas are titled according to the standards of section 7.

Section 14. Qualification for Designation of Primary Metropolitan Statistical Areas (PMSAs)

The following are qualifications within a Level A metropolitan statistical area in New England:

A. Any group of cities and towns that was recognized as a standard metropolitan statistical area on January 1, 1980, will be recognized as a primary metropolitan statistical area, unless local opinion does not support its continued separate recognition for statistical purposes.

B. Any additional group of cities and/or towns for which local opinion strongly supports separate recognition will be considered for designation as a primary metropolitan statistical area, if:

(1) The total population of the group is at least 75,000;

(2) It includes at least one city with a population of 15,000 or more, an employment/residence ratio of at least 0.75, and at least 40 percent of its employed residents working in the city;

(3) It contains a core of communities, each of which has at least 50 percent of its population living in the urbanized area, and which together have less than 40 percent of their resident workers commuting to jobs outside the core; and

(4) Each community in the core also has:

(a) At least 5 percent of its resident workers working in the component core city identified in section 14B(2), or at least 10 percent working in the component core city or in places already qualified for this core; this percentage also must be greater than that to any other core or to the largest city of the Level A MSA; and

(b) At least 20 percent commuting interchange with the component core city together with other cities and towns already

[8] Also accepted as meeting this commuting requirement are:

(a) The number of persons working in the subject city or town who live in the specified city or area is equal to at least 15 percent of the employed workers living in the subject city or town; or

(b) The sum of the number of workers commuting to and from the specified city or area is equal to at least 20 percent of the employed workers living in the subject city or town.

[9] This commuting requirement is also considered to have been met if:

(a) The number of persons working in the city or town who live in the central core is equal to at least 15 percent of the employed workers living in the city or town.

(b) The sum of the number of workers commuting to and from the central core is equal to at least 20 percent of the employed workers living in the city or town.

[10] A New England metropolitan statistical area designated on the basis of census data according to standards in effect at the time of designation will not be disqualified on the basis of lacking a total population of at least 75,000.

qualified for the core; this interchange also must be greater than with any other core or with the largest city of the Level A MSA.

C. Contiguous component central cores may be merged as a single core if:

(1) Section 14B would qualify the component core city of one core for inclusion in the other core; and

(2) There is substantial local support for treating the two as a single core.

D. Each city or town in the interim Level A MSA not included in a core under sections 14A through C is assigned to the contiguous PMSA to whose core its commuting is greatest, if:

(1) This commuting is at least 15 percent of the place's resident workers; and

(2) The commuting interchange with the core is greater than with the Level A MSA's largest city.

E. If a city or town has qualifying commuting ties to two or more cores and the relevant values are within 5 percentage points of each other, local opinion is considered before the place is assigned to any PMSA.

F. The interim PMSA definitions resulting from these procedures (including possible alternative definitions, where appropriate) are submitted to local opinion. Final definitions of PMSAs are made based on these standards, and a review of local opinion.

G. If any primary metropolitan statistical area or areas have been recognized under sections 14A through F, the balance of the Level A metropolitan statistical area, which includes its largest city, also is recognized as a primary metropolitan statistical area. [11]

Section 15. Levels and Titles of Primary Metropolitan Statistical Areas and Consolidated Metropolitan Statistical Areas in New England

A. New England primary metropolitan statistical areas are categorized in one of four levels according to total population, following section 6A.

B. New England primary metropolitan statistical areas are titled using the names of up to three cities in the primary area that have qualified as central cities under section 4, following the standards of section 7 for selection and sequencing.

C. Each Level A metropolitan statistical area in New England in which primary metropolitan statistical areas have been identified and supported by local opinion (according to section 14) is designated a consolidated metropolitan statistical area. Titles of New England consolidated metropolitan statistical areas are determined following the standards of section 10. A Level A metropolitan statistical area in which no primary metropolitan statistical areas have been defined is designated a metropolitan statistical area, and is titled according to the rules of section 7.

[11] If section 14G results in the balance of the Level A metropolitan statistical area including a noncontiguous city or town, this place will be added to the contiguous primary metropolitan statistical area to which it has the greatest commuting.

Section 16. Intercensal Metropolitan Area Changes

A. *Definitions.*

(1) A *Census Count* is a special census conducted by the U.S. Bureau of the Census or a decennial census count updated to reflect annexations and boundary changes since the census.

(2) A *Census Bureau Estimate* is a population estimate issued by the U.S. Bureau of the Census for an intercensal year.

B. *Qualification for Designation of a Metropolitan Statistical Area.* The qualifications for designation are as follows:

(1) A city reaches 50,000 population according to a Census Count or Census Bureau Estimate.

(2) A nonmetropolitan county containing an urbanized area (UA) defined by the Bureau of the Census at the most recent decennial census reaches 100,000 population according to a Census Count or Census Bureau Estimate. If the potential metropolitan statistical area centered on the urbanized area consists of two or more counties, their total population must reach 100,000. In New England, the cities and towns qualifying for the potential metropolitan statistical area must reach a total population of 75,000.

(3) The Census Bureau defines a new urbanized area based on a Census Count after the decennial census, and the potential metropolitan statistical area containing the urbanized area meets the population requirements of section 16.B(2).

If a metropolitan statistical area is qualified intercensally by a Census Bureau Estimate, the qualification must be confirmed by the next decennial census, or the area is disqualified.

C. *Addition of Counties.* Counties are not added to metropolitan statistical areas between censuses, except as follows:

(1) If a central city located in a qualifier urbanized area extends into a county not included in the metropolitan statistical area and the population of the portion of the city in the county reaches 2,500 according to a Census Count, then the county qualifies as an outlying county and is added to the metropolitan statistical area.

(2) If a metropolitan statistical area qualified intercensally under section 16B meets the requirements of section 5B for combination with a metropolitan statistical area already recognized, that combination may take place and thereby alter the definition of the existing metropolitan statistical area.

D. *Qualification for Designation of a Central City.* A Census Count serves to qualify a central city (section 4) that has failed to qualify solely because its population was smaller than required—for example, it did not qualify as the largest city of the metropolitan statistical area (section 4A), or was below 250,000 (4B), below 25,000 (4C), or below 15,000 (4D–F). If qualification requires comparison with the population of another city, comparison is made with the latest available Census Bureau Estimate or Census Count of the population of the other city.

E. *Area Titles.* The title of a metropolitan statistical area, primary metropolitan statistical area, or consolidated metropolitan statistical area may be altered to include the name of a place that has newly qualified as a central city on the basis described in section 16D, and that also meets the requirements of section 7. Such a change is made by adding the new name at the end of the existing title, but cannot be made if the title already contains three names. Names in area titles are not resequenced except on the basis of a decennial census.

F. Other aspects of the metropolitan area definitions are not subject to change between censuses.

Part IV. General Procedures and Definitions

This part specifies certain important guidelines regarding the data and procedures used in implementing the standards. It also gives definitions for ''city,'' ''urbanized area,'' and other key terms.

General Procedures

Local Opinion. Local opinion is the reflection of the views of the public on specified matters relating to the application of the standards for defining metropolitan areas, obtained through the appropriate congressional delegation, and considered after the thresholds in the statistical standards have been met. Members of the congressional delegation will be urged to contact a wide range of groups in their communities, including business or other leaders, Chambers of Commerce, planning commissions, and local officials, to solicit comments on specified issues. OMB will consider all pertinent local opinion material on these matters in determining the final definition and title of the area. After a decision has been made on a particular matter, OMB will not again request local opinion on the same question until after the next national census.

Local opinion is considered for:

(a) Combining two adjacent metropolitan statistical areas (of less than one million population) whose central cities are within 25 miles of each other (section 5B).

(b) Metropolitan statistical area titles (section 7A(3)).

(c) Identifying primary metropolitan statistical areas within consolidated metropolitan statistical areas (sections 8 and 14).

(d) Titling primary metropolitan statistical areas (sections 9 and 15).

(e) Titling consolidated metropolitan statistical areas after identification of the largest city (sections 10 and 15).

(f) Assignment of a county or place that, based on commuting, is eligible for inclusion in more than one area (sections 3B, 8E, 11D, 12B and 12C, and 14E).

New England County Metropolitan Areas (NECMAs). The New England County Metropolitan Areas (NECMAs) provide an alternative to the official city-and-town-based metropolitan statistical areas in that region for the convenience of data users who desire a county-defined set of areas.

The NECMA for a metropolitan statistical area includes:

1. The county containing the first-named city in the metropolitan statistical area title. In some cases, this county will contain the

first-named city of one or more additional metropolitan statistical areas.

2. Each other county which has at least half of its population in the metropolitan statistical area(s) whose first-named cities are in the county identified in step 1.

The NECMA for a consolidated metropolitan statistical area also is defined by the above rules, except that the New England portion of the consolidated metropolitan statistical area which includes New York City is used as the basis for defining a separate NECMA. No NECMAs are defined for individual primary metropolitan statistical areas.

The central cities of a NECMA are those cities in the NECMA that qualify as central cities of a metropolitan statistical area or consolidated metropolitan statistical area; some central cities may not be included in any NECMA title.

The title of the NECMA includes each city in the NECMA that is the first-named title city of a metropolitan area, in descending order of metropolitan statistical area (or primary metropolitan statistical area) total population. Other cities that appear in metropolitan area titles are included only if the resulting NECMA title would consist of no more than three names.

Levels for NECMAs are determined following section 6A of the official metropolitan area standards.

Percentages, Densities, and Ratios. Percentages and densities are computed to the nearest tenth (one decimal); ratios are computed to the nearest one hundredth (two decimals); and comparisons between them are made on that basis.

Populations. In general, the population data required by the standards are taken from the most recent national census. However, in certain situations either (1) the results of a special census taken by the Bureau of the Census, or (2) a population estimate published by the Bureau of the Census may be used to meet the requirements of the standards (section 16).

Review of Cutoffs and Values. OMB has promulgated these standards with the advice of the Federal Executive Committee on Metropolitan Areas, following an open period of public comment. After the 1990 decennial census data become available, the Federal Executive Committee will review the census data and their implications for the cutoffs and values used in the standards, and will report to OMB the results of its review.

Definitions of Key Terms

Central Core—The counties (or cities and towns in New England) that are eligible for initial delineation as primary metropolitan statistical areas because they meet specified population and commuting criteria.

City—The term ''city'' includes:

(a) Any place incorporated under the laws of its State as a city, village, borough (except in Alaska), or town (except in the New England States, New York, and Wisconsin). These comprise the category of incorporated places recognized in Bureau of the Census publications.

(b) In Hawaii, any place recognized as a census designated place by the Bureau of the Census in consultation with the State government; in Puerto Rico, any place recognized as a *zona urbana* or a *comunidad* by the Bureau of the Census in consultation with the Commonwealth government. (Hawaii and Puerto Rico do not have legally defined cities corresponding to those of most States.)

(c) Any township in Michigan, Minnesota, New Jersey, or Pennsylvania, and any town in the New England States, New York, or Wisconsin, at least 90 percent of whose population is classified by the Bureau of the Census as urban, provided it does not contain any part of a dependent incorporated place.

Commuting Interchange—The commuting interchange between two areas is the sum of the number of workers who live in either of the areas but work in the other.

County—For purposes of the standards, the term ''county'' includes county equivalents, such as parishes in Louisiana and boroughs and census areas (formerly census divisions) in Alaska. Certain States contain cities that are independent of any county; such independent cities in Maryland, Missouri, and Nevada are treated as county equivalents for purposes of the standards.

In Virginia, where most incorporated places of more than 15,000 are independent of counties, the standards usually regard each such city as included in the county from which it was originally formed, or primarily formed. In certain exceptional cases, the city itself is treated as a county equivalent, as follows:

(a) An independent city that has absorbed its parent county (Chesapeake, Hampton, Newport News, Suffolk, Virginia Beach); and

(b) An independent city associated with an urbanized area other than the one with which its parent county is primarily associated (for example, Colonial Heights).

A county included in a metropolitan area is either a central (section 2), or an outlying (section 3) county. An outlying county must be contiguous with a central county or with an outlying county that has already qualified for inclusion.

Employment/Residence Ratio—This ratio is computed by dividing the number of persons working in the city by the number of resident workers with place of work reported. (These items are taken from the most recent national census.) For example, a city with an equal number of jobs and working residents has an employment/residence ratio of 1.00.

Interim Area—An area that meets the requirements of sections 1 through 4, or sections 11 through 13, for metropolitan statistical area qualification, which needs to be further examined to determine: (1) if it qualifies for combination with any adjacent interim area, (2) its final level, based on population; and (3) if the area has 1 million or more population, the identification of primary metropolitan statistical areas, if any, and the preferences, expressed through local opinion, for consolidated or individual identity.

Largest Central City—The largest central city of a metropolitan area is the central city with the greatest population at the time of the initial metropolitan area designation. Once determined, the largest central city will not be replaced until both its population and the number of persons working within its limits are exceeded by those of another city in the area.

Outcommuting—The number (or percent) or workers living in a specified area, such as a city or a county, whose place of work is located outside that area.

Qualifier Urbanized Area—The qualifier urbanized area(s) for a metropolitan statistical area are:

1. The urbanized area that resulted in qualification under section 1B or the urbanized area containing the city that resulted in qualification under section 1A.

2. Any other urbanized area whose largest city is located in the same county as the largest city of the urbanized area identified in paragraph one above, or has a least 50 percent of its population in that county.

Secondary Noncontiguous Urbanized Area—An additional urbanized area within a metropolitan statistical area that has no common boundary of more than a mile with the main urbanized area around which the metropolitan statistical area is defined.

Standard Metropolitan Statistical Area—The term used from 1959 to 1983 to describe the statistical system of metropolitan areas, and the areas as individually defined. It was preceded by Standard Metropolitan Area (SMA) from 1950 to 1959, and superseded by Metropolitan Statistical Area in 1983. That term was adopted when the current system formally recognizing consolidated metropolitan statistical areas and their component primary metropolitan statistical areas was put in place. The term Metropolitan Area (MA) is used to describe the system and the areas collectively, but the individual areas will retain the MSA, CMSA, and PMSA nomenclature.

Urban—The Bureau of the Census classifies as urban:

(a) The population living in urbanized areas; plus

(b) The population in other incorporated or census designated places of at least 2,500 population at the most recent national census.

Urbanized Area—An area defined by the Bureau of the Census according to specific criteria, designed to include the densely settled area around a large place. The definition is based primarily on density rather than governmental unit boundaries. An urbanized area must have a total population of at least 50,000. (See qualifier urbanized area and secondary noncontiguous urbanized area).

Appendix B—OMB Memorandum M–94–22, ''Use of Metropolitan Area Definitions''

May 5, 1994

M–94–22

MEMORANDUM FOR HEADS OF DEPARTMENTS AND AGENCIES

FROM: Leon E. Panetta

SUBJECT: Use of Metropolitan Area Definitions

On December 28, 1992, the Office of Management and Budget issued revised metropolitan area (MA) definitions to reflect shifts in population and other demographic changes that had occurred during the preceding decade. At the time the revisions

were announced, we provided guidance (OMB Bulletin 93–05) to Federal departments and agencies concerning the use of MA definitions for statistical purposes.

During the past year, we have received a substantial number of letters from Members of Congress, local government officials, and others involved with administering various Federal programs. For the most part, their correspondence has been related to nonstatistical uses of the MA definitions in the allocation of Federal program funds. Their concerns have highlighted the need to reiterate the purposes for which OMB defines metropolitan areas and our advice with respect to other uses agencies may make of these definitions.

The metropolitan area classification provides a nationally consistent set of definitions suitable for collecting, tabulating, and publishing Federal statistics. The definitions of metropolitan areas are established and maintained solely for statistical purposes. In periodically reviewing and revising the MA definitions, OMB does not take into account or attempt to anticipate any nonstatistical uses that may be made of the definitions, nor will OMB modify the definitions to meet the requirements of any nonstatistical program.

We recognize that some legislation specifies the use of metropolitan areas for programmatic purposes, including allocating Federal funds. For example, the Health Care Financing Administration uses MAs to define labor market areas and gather hospital wage data that are used in developing a hospital wage index for the labor related portion of a hospital's standardized Medicare payment. The Department of Housing and Urban Development's Community Development Block Grant (CDBG) program targets 70 percent of CDBG funds to ''entitlement communities'' which include cities of 50,000 or more or central cities of MAs. We will continue to work with the Congress to clarify the foundations of the metropolitan area definitions and the resultant, often unintended consequences of their use for nonstatistical purposes.

In cases where there is no statutory requirement and an agency elects to use the MA definitions in a nonstatistical program, it is the sponsoring agency's responsibility to ensure that the definitions are appropriate for such use. When an agency is publishing for comment a proposed regulation that would use the MA definitions for a nonstatistical purpose, the agency should seek public comment on the proposed use of the MA definitions.

I would appreciate your sharing this information with others in your department or agency.

Note: The latest version of OMB Bulletin 93–05, referenced above, is OMB Bulletin No. 98–06, issued on June 23, 1998.

Appendix C—Summary of the Conference on New Approaches to Defining Metropolitan and Nonmetropolitan Areas

This conference, held on November 29–30, 1995 in Bethesda, Maryland, constituted part of the Office of Management and Budget's metropolitan area standards review that is to be completed by spring 2000. The conference provided an open forum for discussion of proposed alternative approaches to defining metropolitan and nonmetropolitan areas, as well as discussion of the current metropolitan area standards. Presentations of findings from four commissioned studies of alternative approaches to defining areas were the centerpiece of the conference. Papers from these studies were published in *Metropolitan and Nonmetropolitan Areas: New Approaches to Geographical Definition*, Population Division Working Paper No. 12, Bureau of the Census.

Conference Points of General Agreement

- The Federal Government should define standard metropolitan and nonmetropolitan areas.
- The metropolitan and nonmetropolitan areas defined should cover the entire territory of the United States and better account for the full range of settlement patterns than do the current, dichotomous metropolitan areas and nonmetropolitan residual.
- Metropolitan and nonmetropolitan areas should be defined according to the same set of rules for all parts of the country.
- A county-based set of metropolitan and nonmetropolitan areas is necessary, but also there should be alternative, sub-county unit-based areas.
- Familiar components of settlement—including those represented by today's metropolitan area definitions—should be in evidence in a new system.

Conference Views on Major Questions

The conference explicitly addressed a list of major questions that are fundamental to any set of areas defined by the Federal Government. These same questions had been addressed in the commissioned studies that were the centerpiece of the conference. Presented here are summaries of the conference discussions of these questions.

What should be the basic geographic units for defining areas? There was strong consensus that there must be a county-based set of defined areas for reasons of data availability, comparability, and familiarity, but also there were comments favoring additional sets of areas based on sub-county units for greater precision and special purposes. There were suggestions that multiple sets of areas should be provided, along with documentation on appropriate uses of those sets. There also were suggestions that the Census Bureau and the Office of Management and Budget should facilitate ''do-it-yourself'' definitions by making readily available as much small-area data as possible.

What should be the criteria for aggregating the basic units? Commuting data as obtained from the decennial census were regarded as the best measure for defining areas by most individuals addressing this question. Other data-including electronic media and newspaper market penetration data, local traffic study data, and wholesale distribution data-are available and usable for specific purposes. Population and housing density data are useful for some purposes within the definition task. Employment density also received mention.

Should there be hierarchies or multiple sets of areas? As already noted, there were comments favoring use of different geographic units to define sets of areas that would be available for different purposes. There also was discussion—without any clear outcome—of classifying entities within a nationwide metropolitan/nonmetropolitan definition framework into such categories as inner city and suburban.

What kinds of areas should receive official recognition? Inner city, suburban, and exurban all received mention as areas that should be recognized within metropolitan and nonmetropolitan areas, but this issue was not fully addressed.

Should a new system provide nationwide territorial coverage? There was strong agreement that the areas defined should cover the Nation's entire territory.

Should the definition process follow strictly statistical rules or allow a role for local opinion? There were reservations regarding the usefulness of local opinion in a program of standard statistical areas, but the majority view expressed was that soliciting local opinion can serve a useful purpose, particularly in providing room for accommodation on some issues of local significance without threatening the integrity of the national system. The incorporation of local opinion, two individuals noted, should come early in the definition process.

What should be the frequency of updating? There was little discussion of this topic, as the frequency of updating depends heavily on decisions concerning basic geographic units, criteria for aggregation, and data availability.

Should the Federal Government define metropolitan and nonmetropolitan areas? The overall view was strongly in favor of metropolitan and nonmetropolitan areas being defined, although a few individuals seemed to support the idea of ceasing the Federal Government's activity in this arena altogether. Areas defined by the Federal Government offer to a wide community of data users the advantage of direct data comparability, i.e., data from different sources for areas with the same boundaries. This advantage may rise in importance in the face of programs shifting to states. There also were those who argued in favor of a standard set of areas on the grounds that such areas were useful for non-statistical program administration. Others noted that the absence of a standard set of areas probably would produce competing sets of areas from different Federal agencies.

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