



WHAT ROLE DOES GEOGRAPHY PLAY IN THE CENSUS?

TEACHER VERSION

Subject Level:

High School Geography

Grade Level:

8-9

Approx. Time Required:

45-60 minutes

Learning Objectives:

- Students will be able to define and analyze different types of census geographic entities, and determine how data from different census geographic entities might be useful.

Activity Description

Students will learn about and review key geography and census terms, discover how the U.S. Census Bureau organizes space geographically, and understand why census data are collected in this way.

Suggested Grade Level:

8

Approximate Time Required:

45–60 minutes

Learning Objectives:

- Students will be able to define and analyze different types of census geographic entities, and determine how data from different census geographic entities might be useful.

Topics:

- Boundaries
- Geographic entities
- Spatial thinking

Skills Taught:

- Analyzing data
 - Drawing conclusions
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Materials Required

- The student version of this activity, 8 pages
- A printed version of the definitions in the teacher version of the activity

Activity Items

The following items are part of this activity. Items, their sources, and any relevant instructions for viewing them online appear at the end of this teacher version.

- Item 1: Excerpt From Chapter 1 of the Geographic Areas Reference Manual
- Item 2: Standard Hierarchy of Census Geographic Entities
- Item 3: Examples of Census Tracts, Census Block Groups, and Census Blocks

For more information to help you introduce your students to the Census Bureau, read [*“Census Bureau 101 for Students.”*](#) This information sheet can be printed and passed out to your students as well.

Standards Addressed

See chart below. For more information, read

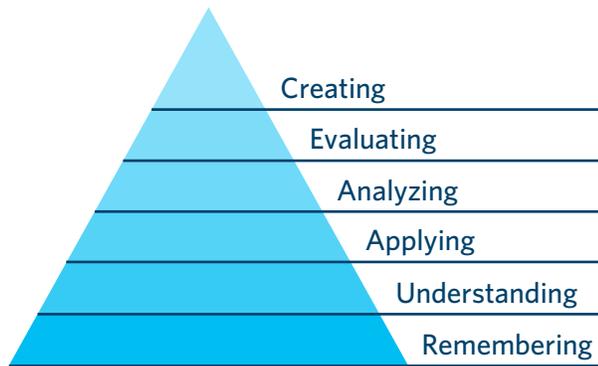
[*“Overview of Education Standards and Guidelines Addressed in Statistics in Schools Activities.”*](#)

National Geography Standards

Standard	Grade	The student knows and understands:
1 - How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information	8	Properties and Functions of Geographic Representations. The advantages and disadvantages of using different geographic representations—such as maps, globes, graphs, diagrams, aerial and other photographs, remotely sensed images, and geographic visualizations for analyzing spatial distributions and patterns
3 - How to analyze the spatial organization of people, places, and environments on Earth’s surface	8	Spatial Concepts. The meaning and use of spatial concepts, such as accessibility, dispersion, density, and interdependence

Bloom's Taxonomy

Students will **analyze** the differences between various census geographic entities.



Teacher Notes

Before the Activity

Teachers should review with students the terms and their definitions that appear on the following pages. Below are links to more information for some of the terms:

- Administrative entity, legal entity, and statistical entity: www.census.gov/geo/education/legstat_geo.html
- American Community Survey: www.census.gov/programs-surveys/acs
- Boundary: www.census.gov/geo/reference/gtc/gtc_boundarychange.html
- Census block: www.census.gov/geo/reference/gtc/gtc_block.html
- Census block group: www.census.gov/geo/reference/gtc/gtc_bg.html
- Census tract: www.census.gov/geo/reference/gtc/gtc_ct.html
- Geographic hierarchy: www.census.gov/geo/reference/gtc/gtc_geopres.html#hier

Teachers will cut out each of the terms and definitions on the pages that follow along the dotted lines, so that each term is separated from its definition.

Spatial

Pertaining to space on Earth's surface

American Community Survey

a nationwide survey, conducted monthly by the U.S. Census Bureau, that is designed to show how communities are changing; through asking questions of a sample of the population, the ACS produces national data on more than 35 categories of information, such as education, income, housing, and employment (Some data in this activity come from the American Community Survey.)

Decennial Census

a constitutionally required process for the purpose of reapportioning the U.S. House of Representatives, occurring every 10 years, that uses a questionnaire to count all U.S. residents at every address in the country (according to where they resided on April 1 of that census year.)

Boundary

The extent or limit of a geographic area such as a census block, census tract, county, or place; it may or may not follow a visible geographic feature.

Geographic Hierarchy

A system of relationships among geographic entities in which each geographic entity — except the smallest — is divided into units that in turn may be further divided (e.g., States are divided into counties, which are divided into county subdivisions.)

Geographic Entity

A geographic area of any type, such as a state, county, place, county subdivision, census tract, census block, country, or territory.

Administrative Entity

A geographic area — usually with legally defined boundaries but often without elected officials — created to administer elections and other governmental functions; this type of area includes school districts, voting districts, and ZIP codes.

Legal Entity

A geographic entity whose origin, boundary, name, and description result from charters, laws, treaties, or other administrative or governmental action. Examples of this type of entity include the United States, the District of Columbia, Puerto Rico, the Island Areas, counties, cities, boroughs, towns, villages, townships, American Indian reservations, Alaska Native villages, congressional districts, and school districts. The entities and their boundaries that the Census Bureau recognizes are those in existence on Jan. 1 of each calendar year.

Statistical Entity

A geographic area or combination of geographic entities for which the Census Bureau tabulates data; boundaries for this geographic area are not legally defined and the entity has no governmental power.

Small-Area Data

Census data that are tabulated at the census block, block group, and census tract/block numbering area levels.

Census Tract

A small, relatively permanent statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. These subdivisions — ideally containing 4,000 people and 1,600 housing units — nest within counties, and their boundaries normally follow visible geographic features.

Census Block

A statistical area bounded by visible geographic features, such as streets, roads, streams, and railroad tracks, and by nonvisible features, such as selected property lines; city, township, and county boundaries; and school districts. It is the smallest geographic unit for which the Census Bureau tabulates decennial census data.

Census Block Group

A statistical area that generally contains between 600 and 3,000 people and is used to present data.

Teachers should introduce the Census Bureau to students (refer to the *information sheet* mentioned earlier).

During the Activity

Teachers will tell students to read **Item 1**. Teachers could direct students to take turns reading paragraphs aloud or to read in small groups, or teachers could read to the class, asking that students follow along. Then teachers should ask students what they learned from the excerpt.

Teachers will distribute the slips of paper with the terms and definitions, giving each student either one term or one definition. If there are fewer students in the class than there are slips of paper, teachers could remove a few terms and their definitions from the stack; if there are more students in the class than there are slips of paper, teachers could divide students into small groups, giving each group one term or definition. Then teachers will direct students (or groups) to walk around the room to try to match each term with its definition. Once a pair (or group) of students feel they have made a correct match, teachers could direct them to raise their hands or stand in a certain area of the room.

After this, teachers should have students tape their terms and definitions next to each other on the board. If some matches are incorrect, teachers could tell students that they must work together to figure out which are wrong and fix them, offering assistance if necessary. Then teachers should review the terms and definitions with students, referring to **Item 2** to explain how the geographic entities appear in a hierarchy.

Then teachers will review **Item 3** with students and monitor students while they work individually on questions 1 and 2.

After the Activity

Teachers should ask students to share their answers from question 2 with a partner. If time allows, teachers should ask students to look for a common theme between their answers to write a one-sentence response to this question: What role does geography play in the census? Teachers should then ask partner groups to share their answers to question 2 with the class (or their sentence, if time allows).

Extension Ideas

- Teachers could direct students to other chapters in the Geographic Areas Reference Manual (www.census.gov/geo/reference/garm.html) to learn more about census geographic entities.
- Teachers could direct students to read this Census Bureau blog post (blogs.census.gov/2011/07/20/what-are-census-blocks) about census blocks.
- Teachers can also show students the Boundary and Annexation Survey (BAS) videos: Geographic Concepts (www.census.gov/geo/partnerships/bas/videos/geo-concepts.html) to offer more in-depth information about the Census Bureau's geographic concepts.

Student Activity

Click [here](#) to download a printable version for students.

Activity Items

The following items are part of this activity and appear at the end of this student version.

- Item 1: Excerpt From Chapter 1 of the Geographic Areas Reference Manual
- Item 2: Standard Hierarchy of Census Geographic Entities
- Item 3: Examples of Census Tracts, Census Block Groups, and Census Blocks

Student Learning Objectives

- I will be able to work with other students to define different types of census geographic entities.
- I will be able to analyze three different types of census geographic entities.
- I will be able to determine how data from different census geographic entities might be useful.

Your teacher will facilitate the first part of this activity, during which you will review **Item 1: Excerpt From Chapter 1 of the Geographic Areas Reference Manual**, participate in an interactive activity about key geography and census terms, then review **Item 2: Standard Hierarchy of Census Geographic Entities**.

Then, you will review **Item 3: Examples of Census Tracts, Census Block Groups, and Census Blocks** to answer the following questions:

1. How do these three types of census divisions compare with one another spatially — which is the largest in area, and which is the smallest?

Census tracts are the largest in area, and census blocks are the smallest. (Census block groups are in the middle.)

Teachers should note that this question could be difficult for students because the area in the smallest division may look artificially bigger due to the enlarged scale. Teachers should tell students to look carefully at the scale in the key.

2. How might data from these particular divisions be used, and by whom, based on what you learned in **Item 1**? Why is dividing geographic space in this way useful?

Student answers will vary but could include: Different levels of government may use data from these Census divisions to inform decisions about policy, school district boundaries, or health services, for example. Dividing geographic space in this way gives governments more tailored data (which means they can make more tailored decisions).

Item 1: Excerpt From Chapter 1 of the Geographic Areas Reference Manual



Census Bureau Geography

The Role of Geography in Census-Taking

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

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

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

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Item 1: Excerpt From Chapter 1 of the Geographic Areas Reference Manual (Continued)

MAF/TIGER system; preparing the maps necessary to support the data collection and data dissemination functions; linking the address appearing on each census or survey questionnaire to its proper geographic location (for example, with-in a census block, a city, or a county); and providing the reference files and technology needed to assign the data collected to the full set of geographic entities used to report the results of that census or survey.

The value of most census and sample survey data relates directly to the ability of the Census Bureau to classify the data accurately and usefully into geographic areas, and to portray the geographic entities comprising those areas correctly and meaningfully on maps and in the resulting data products. The many geographic entities the Census Bureau recognizes and delineates often result in a geographic pattern that is quite complex.

Providing a Selection of Geographic Area Choices for Data Users

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

Item 1: Excerpt From Chapter 1 of the Geographic Areas Reference Manual (Continued)

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

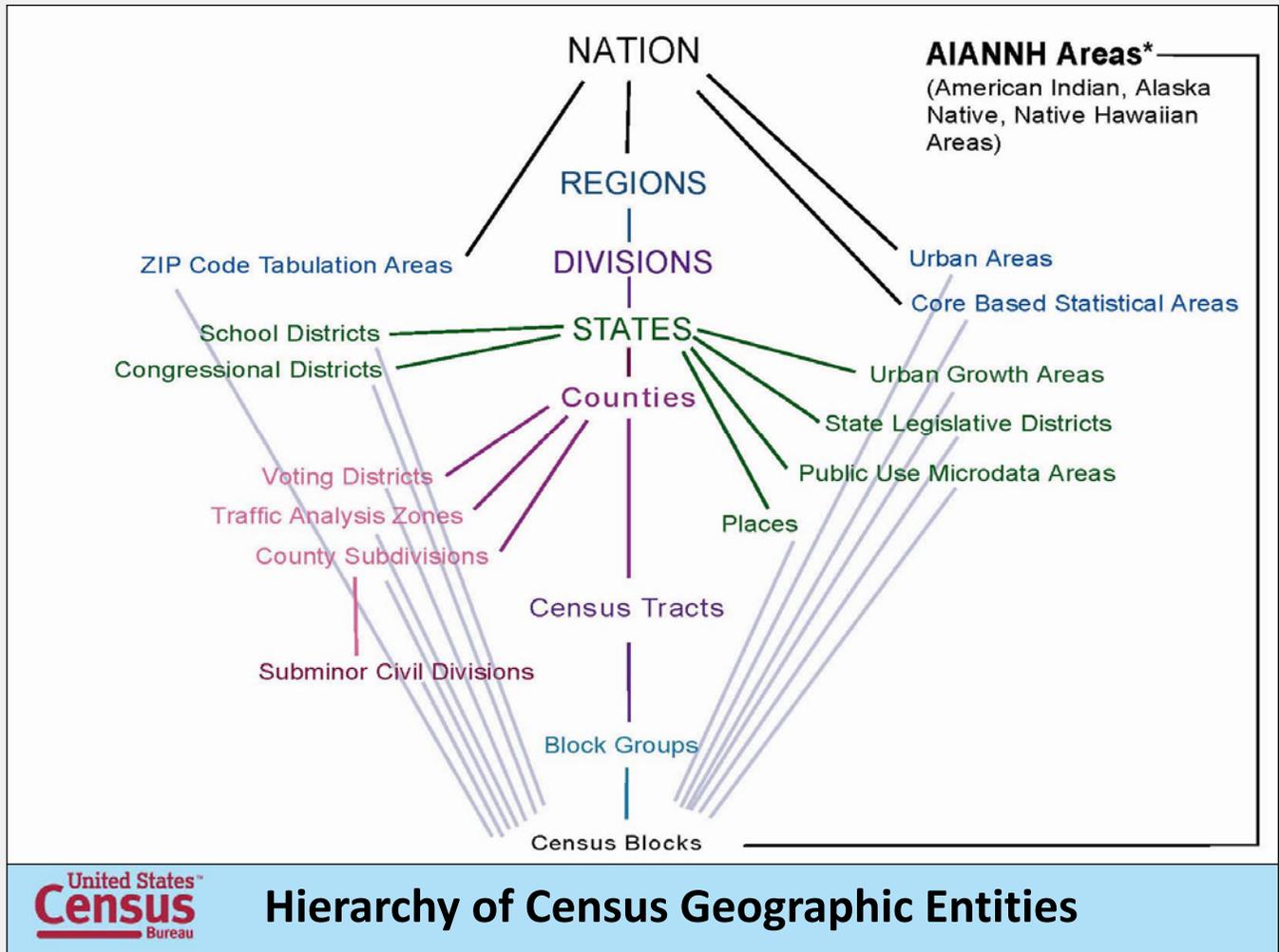
Data User Situations	Data Product Choices
<p>A student writing a history term paper needs the current and past population totals for a city.</p>	<p>A good starting point is the 2010 Census of Population and Housing CPH-2 report series, a set of publications that contains tables showing place populations in 1990, 2000 and 2010. The comparable 1980 publication provides historical population counts for the previous two censuses while the 1970 and 1960 publications provide historical population counts for those incorporated places with 10,000 or more inhabitants, the former by decade from 1900 and the latter by decade from the earliest decennial census when each place existed.</p>
<p>A large manufacturer of consumer goods wants to evaluate its division of the Nation into marketing regions, advertising territories, and areas for conducting sample surveys of existing and potential customers.</p>	<p>The various censuses and sample surveys of the Census Bureau offer a wealth of socioeconomic data. These are available in printed reports, digital media (CD-ROM & DVD), or downloadable from www.census.gov. Standard summary statistics from censuses and sample surveys, plus estimates of population and income, are available for numerous kinds of large-area geographic entities such as regions, divisions, States, metropolitan areas, large cities, and counties. In addition to the standard data products, there are public-use microdata files that contain the full range of population and housing information from the 2010 census; these include several independently drawn sample files that feature different configurations of large-area geographic entities.</p>
<p>A religious organization is planning to expand its activities by establishing several new congregations throughout a metropolitan area. It needs socioeconomic profiles for a network of small areas within several counties. It also would like to combine these statistics with local sources of information.</p>	<p>Census tracts are the most versatile units of small-area decennial census geography because they define small, relatively permanent areas designed to be homogeneous when originally established and because they average around 4,000 residents. The American Factfinder contains many tables of demographic, social, economic, and housing statistics from the 2010 Census of Population and Housing as well as a variety of surveys including the American Community Survey. Census tract data are available for the Decennial Census and the American Community Survey's 5-year estimates.</p>

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<http://census.gov/content/dam/Census/programs-surveys/sis/resources/StatisticsinSchoolsGARM.pdf>

To view the item electronically, click on the link above and go to Pages 1–3.

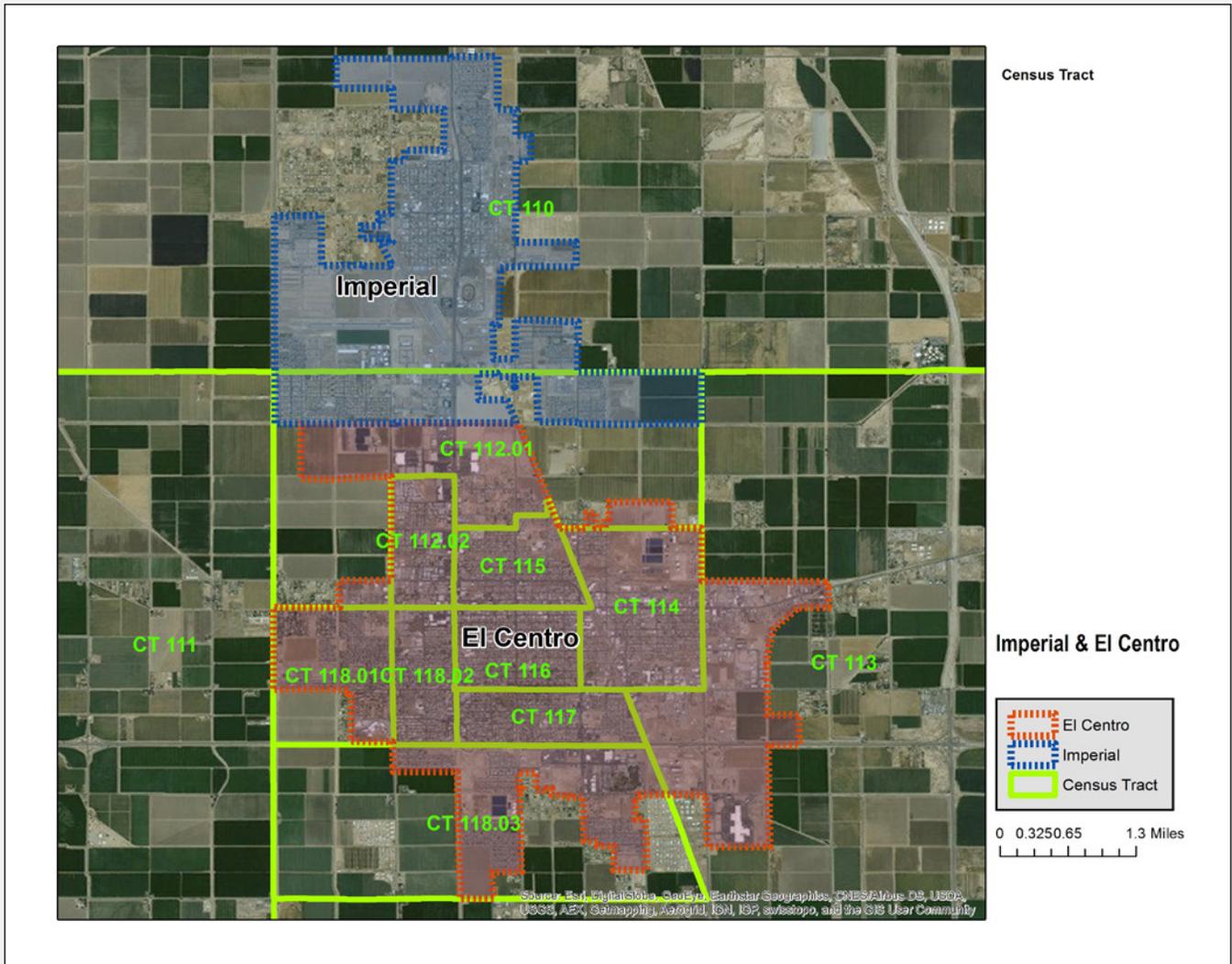
Item 2: Standard Hierarchy of Census Geographic Entities



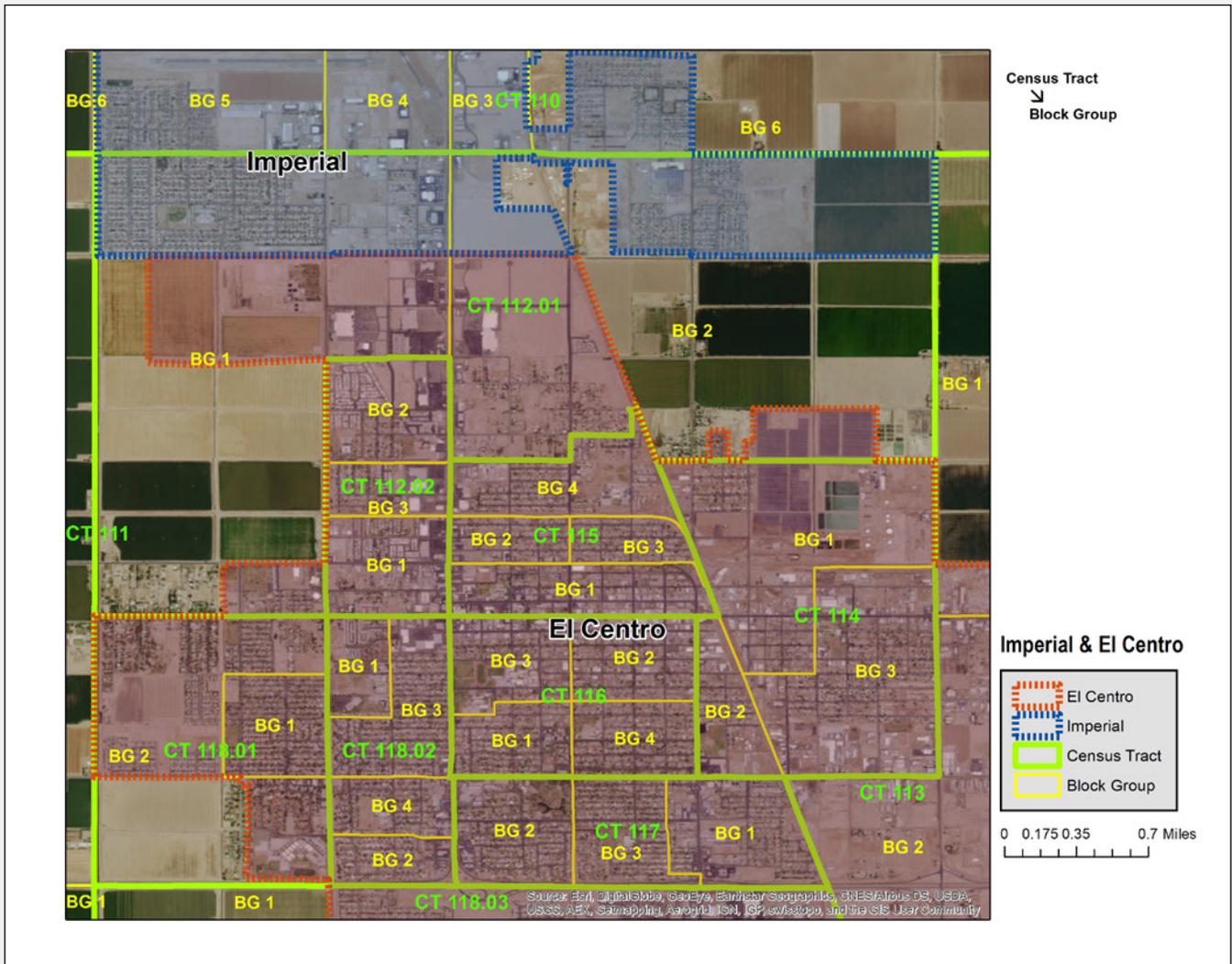
www.census.gov/mso/www/training/pdf/GEO_HQ_2012_Corrected.pdf?cssp=SERP

To view the item electronically, click on the link above and go to Page 4.

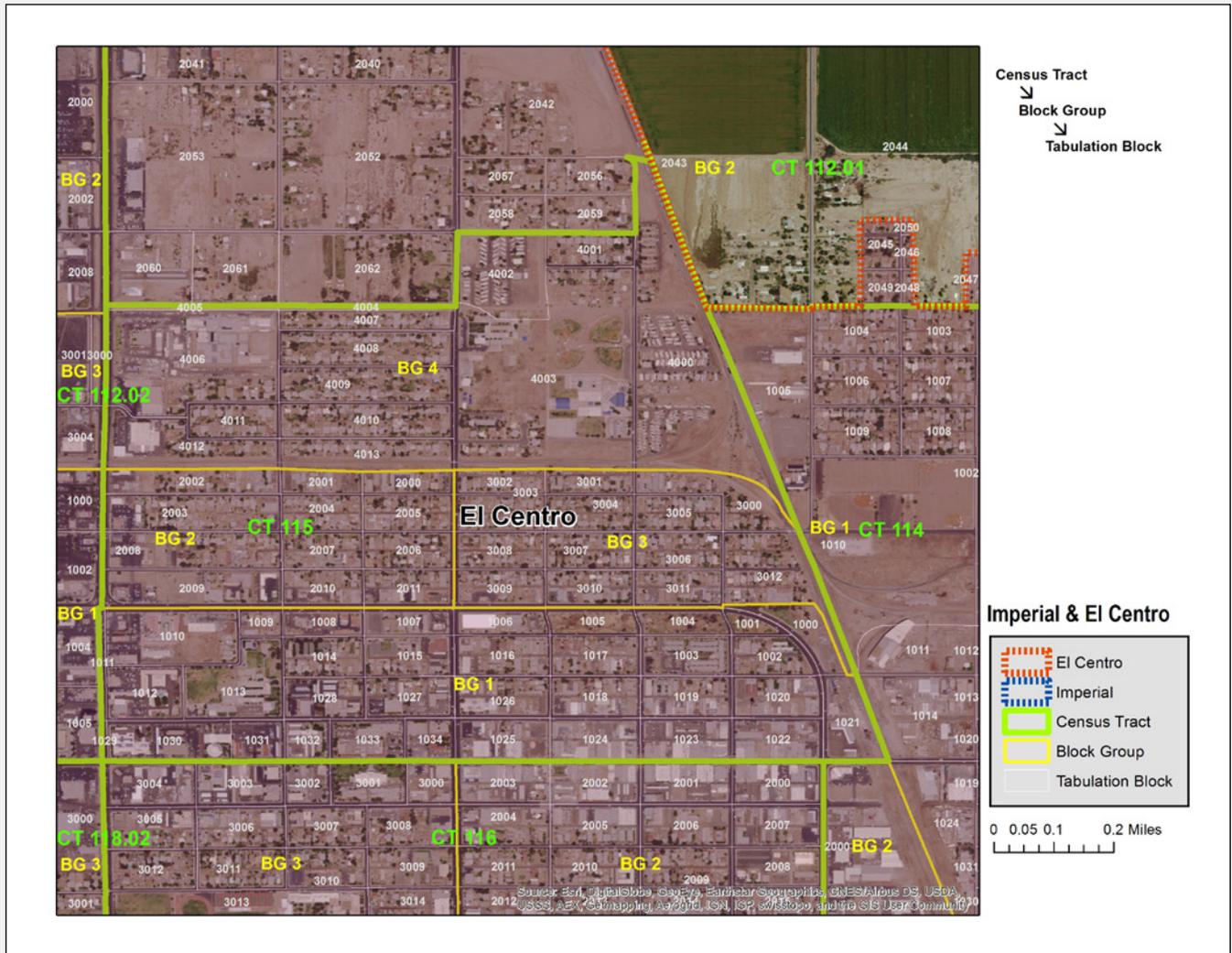
Item 3: Examples of Census Tracts, Census Block Groups, and Census Blocks



Item 3: Examples of Census Tracts, Census Block Groups, and Census Blocks (Continued)



Item 3: Examples of Census Tracts, Census Block Groups, and Census Blocks (Continued)



www.census.gov/mso/www/training/pdf/GEO_HQ_2012_Corrected.pdf?cssp=SERP

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