

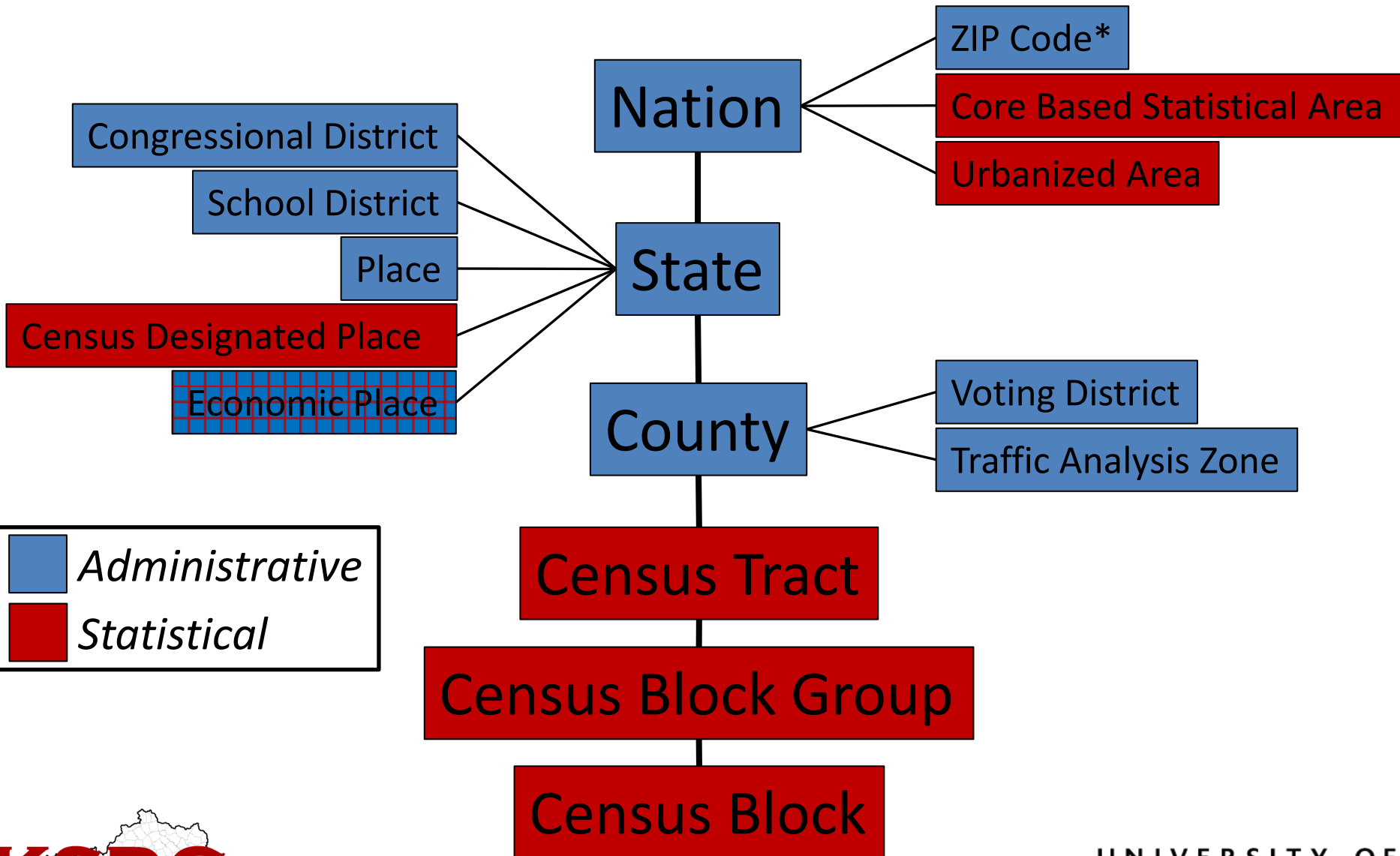
Census Geography, Mapping, and Spatial Tools

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Agenda

- Census Geography
- Geography and Mapping
Resources at [census.gov](https://www.census.gov)
- GIS Basics
- GIS Software/Geocoding
- Other Important Websites

Census Geography



Places

A *place* is a concentration of population....must have a name, be locally recognized, and not be part of any other place

A place is legally incorporated....or a statistical equivalent that the Census Bureau treats as a *census designated place* (CDP)

The most common places are cities and CDPs, but they may have other legal definitions (e.g., towns, villages)

Urbanized Areas

An *urbanized area* consists of densely developed territory that contains 50,000 or more people...urbanized areas are delineated to provide a better separation of urban and rural territory, population, and housing in large places

An *urban cluster* consists of densely developed territory that has >2,500 people but <50,000 people

[Guidelines for urban/rural delineations in Census 2010](#)

Core Based Statistical Areas (CBSAs)

A metropolitan statistical area (MSA) comprises the central county of an urbanized area (UA) (>50,000 people), plus adjacent counties having a high degree of integration as measured through commuting patterns.

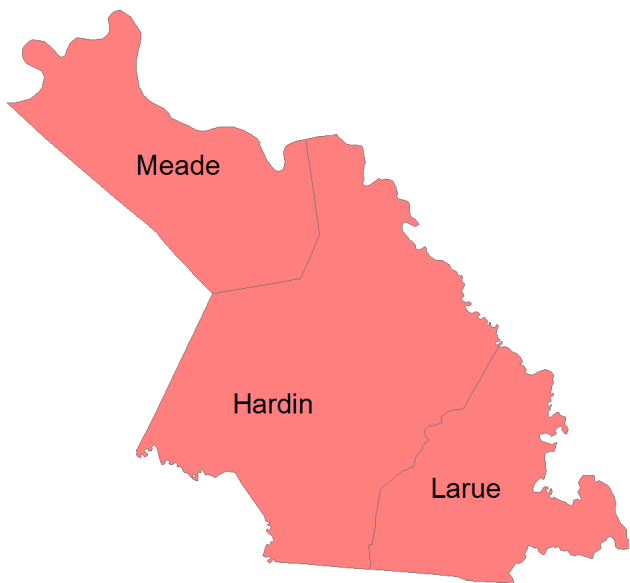
A micropolitan statistical area (μ SA) is similar, but with a minimum UA population of 10,000 (<50,000 people)

CBSAs include both MSAs and μ SAs

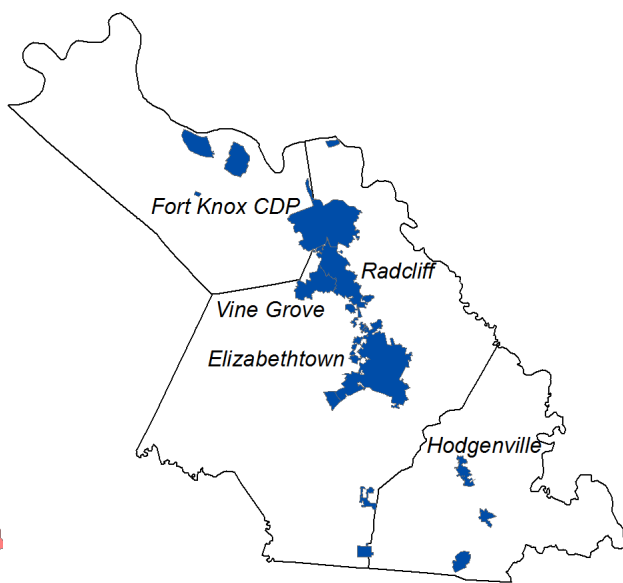
A combined statistical area (CSA) consists of two or more adjacent CBSAs that have substantial employment interchange

Metropolitan Area/Place/Urban Area

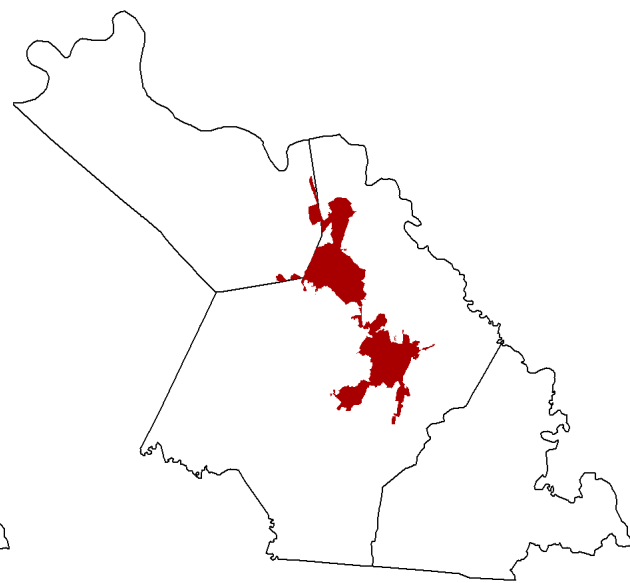
Elizabethtown-Fort Knox MSA



MSA



Places



Urbanized Area

Neighborhood

“Neighborhood” has no Census definition

Many social science researchers use Census tracts to proxy neighborhoods....sometimes block groups, zip codes, or other designations are used....

Census tract boundaries change over time. To help deal with the issue of changing boundaries, check out the [Longitudinal Tract Data Base](#)

The Problem With ZIP Codes

Conceptually, ZIP codes define address points (or delivery routes), and not polygons

The Census Bureau delineated ZIP Code Tabulation Areas (ZCTAs) in 2000 due to user demand

- Do not easily conform to other statistical/administrative areas
- May be discontinuous
- More heterogeneous than Census tracts
- PO Boxes and rural routes may be poorly identified

Geography at the Census Bureau

<https://www.census.gov/geo/>

Mapping Resources at census.gov

Boundary Reference Maps

PDF maps of various Census geographies

No demographic data

TIGERweb

Online maps of various Census geographies

Can identify features, add roads/hydrography, view terrain

Can query (look for specific names)

Can print maps

No demographic data

Mapping Resources at census.gov

[Thematic Maps](#)

Premade PDF maps for a limited number of social and demographic indicators

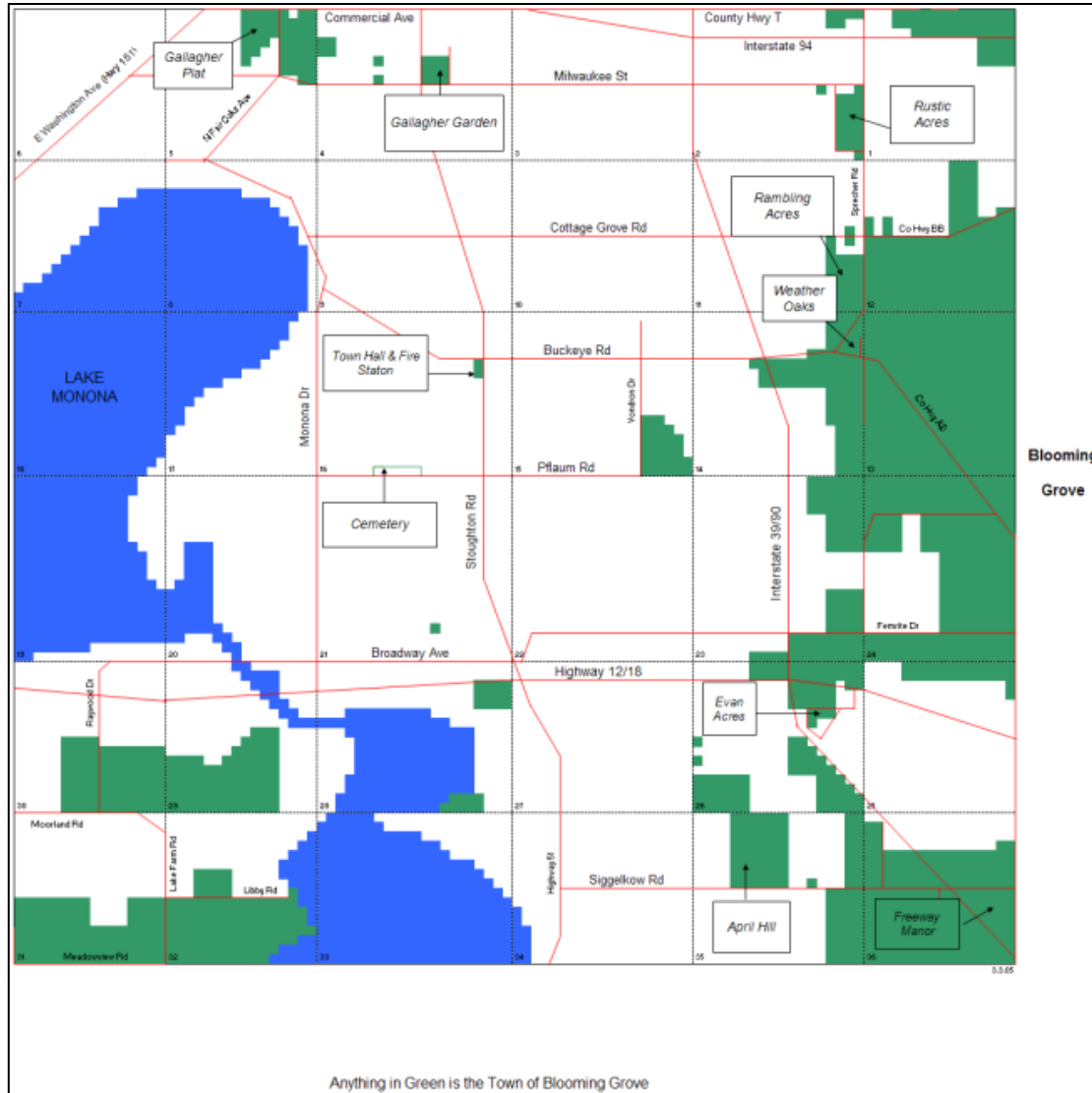
[Census 2010 Data Mapper](#)

Interactive maps for a limited number of variables
Can export maps to PDF

[Census Explorer](#)

Population, sociodemographic variables, retail, commuting
Data from 1990/2000 Decennial Census, 2012 ACS
No exporting/printing

Amazing...

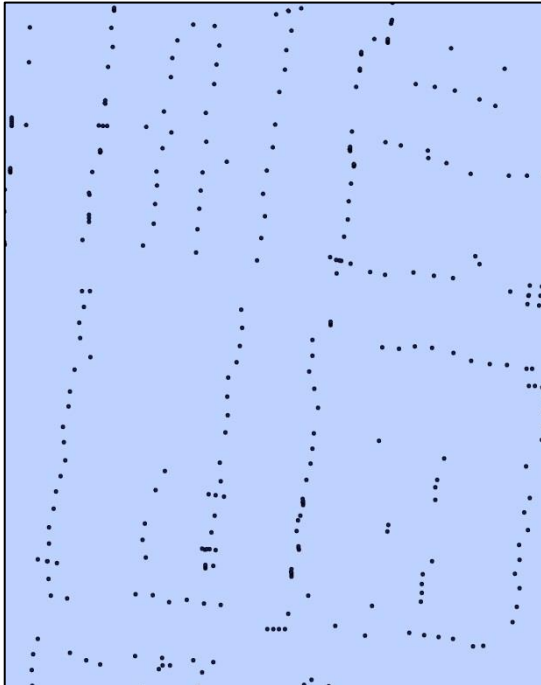


Why Use GIS?

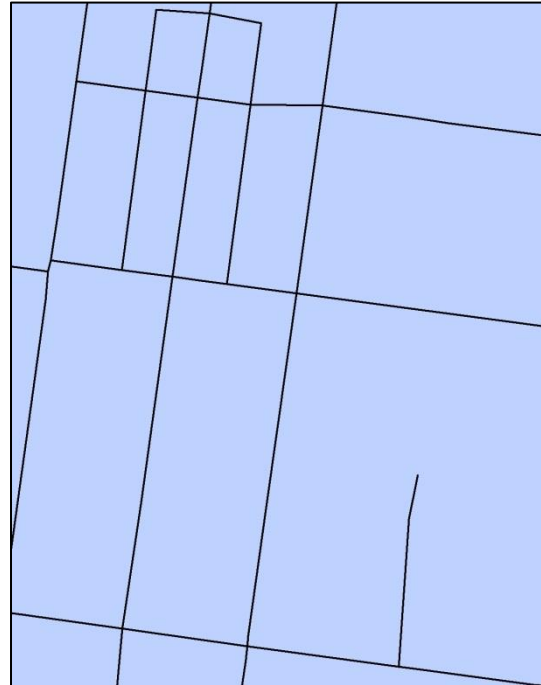
- GIS is a technology that allows us to better organize and analyze data which has a spatial component
- Relative to paper (PDF) maps, GIS is dynamic, scalable, query-able, and allows for the establishment of spatial relationships
- Examples of spatial relationships include proximity, direction, connectivity, association, and containment
- GIS allows us to spatially link disparate data sources, because all data that goes into the GIS is *georeferenced*

GIS Data

GIS Data represents geographic features such as points, lines, or polygons, using coordinates – Primary format for GIS data is the “shapefile”



Address Points



Street Network



Land Parcels

Census TIGER Shapefiles

TIGER shapefiles are available for most geographies (e.g., counties, tracts) – also include roads, rail, rivers, etc.

[TIGER Shapefiles](#)

Shapefiles are also available from other sources online...

Kentucky GIS Links

KyGeoportal:

<http://kygisserver.ky.gov/geoportal/catalog/main/home.page>

Kentucky Geography Network:

(includes new KYFromAbove imagery)

<http://kygeonet.ky.gov/>

Kentucky Geological Survey:

http://www.uky.edu/KGS/gis/kgs_gis.html

GIS Software

- The most commonly used GIS software is the ArcGIS suite from ESRI
- There is an open-source alternative, Quantum GIS (or QGIS), downloadable at <https://www.qgis.org>
- What you can do with QGIS...
 - Create maps...
 - Query shapefiles and maps...
 - Link disparate sources of data...
 - Aggregate data based on spatial location...
 - Generate spatial statistics analyses...

Geocoding in QGIS

Requires the MMQGIS plug-in...

1. On menu bar, Plugins => Manage and Install Plugins
2. In the search bar, type MMQGIS – the plugin will be installed automatically, and a new menu item appears
3. MMQGIS => Geocode => Geocode CSV with Google/OSM
4. Choose CSV file
5. Select Address, City, and State fields
6. Choose a location/name of the output shapefile

National Historical GIS

Shapefiles (Boundaries)

County from 1790, tract from 1910, metropolitan areas from 1950, places from 1980, SABINS school attendance

Summary tables

Decennial Census/ACS: County from 1790, tract from 1910

County Business Patterns (annual, 1970-2002)

Agricultural Census (1840-1950)

Manufacturing Census (1840-1940)

Time series tables

Comparable statistics from multiple censuses linked with standardized categories and codes for all years

National Historical GIS

[NHGIS](#)

Relationships Between Geographies

Geographic Correspondence Engine at the Missouri Census Data Center allows you to download files that show the intersections of different geographic entities (e.g., which places are in which counties?)

[MABLE/Geocorr \(2010 version\)](#)

[MABLE/Geocorr \(2000 version\)](#)

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