Version

2.0

pdGeoTIGER User Guide

ZIP+4 and Address Range GeoCoding Databases

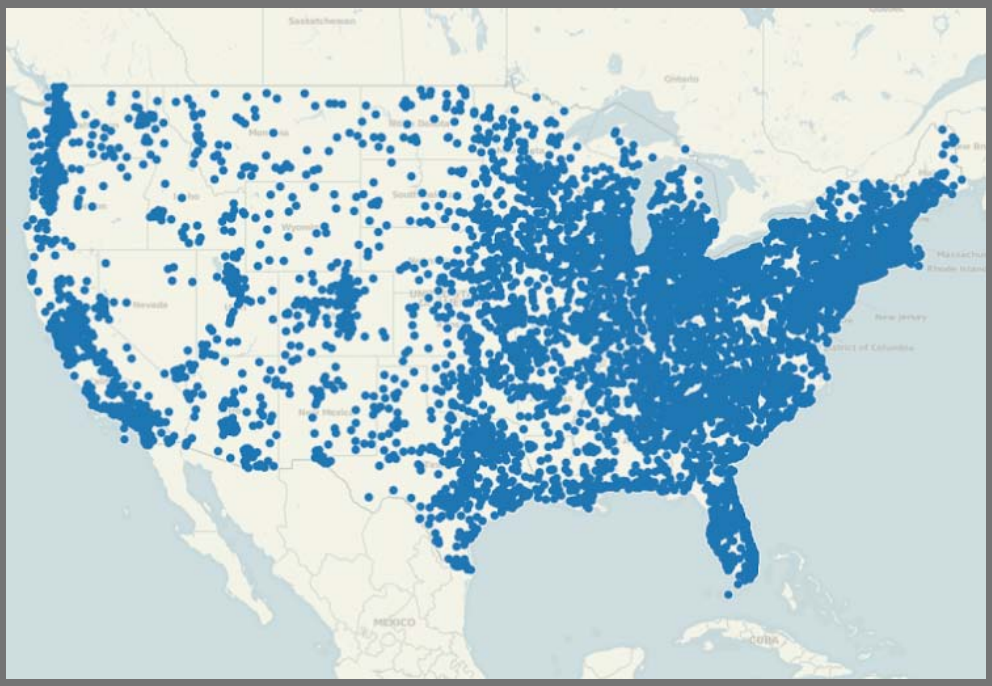
An easy-to-use, comprehensive, and up-to-date United States GeoCoding package that permits exceptionally precise assignment of latitude and longitude coordinates, area size data, urban and rural indicators, and legal and statistical area identifiers and indicators.

The *Standard* edition offers ZIP+4 matching. The *Pro* edition has ZIP+4 and Address Range matching.

The base information is drawn from the most recent U.S. Census Bureau *TIGER/Line® Shapefiles,* but the product is enriched with millions of proprietary corrections and enhancements.

It covers all 50 states, the District of Columbia, and the Commonwealth of Puerto Rico.

The product also includes the *pdGeoSupplement* geographic area reference database.



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INTRODUCTION

Location data plays a central role in decision making, from market analysis and risk assessment to targeting and customer management, and it is important precise GeoCoding information is employed from the start. **pdGeoTIGER** was developed to provide exactly this.

This easy-to-use, comprehensive, and up-to-date United States GeoCoding package permits exceptionally precise assignment of latitude and longitude coordinates, area size data, urban and rural indicators, legal and statistical area identifiers and indicators, and other information.

The base information is drawn from the most recent U.S. Census Bureau *TIGER/Line® Shapefiles,* but the package is enriched with millions of proprietary corrections and enhancements.

The product download also includes *pdGeoSupplement* which provides additional information about U.S. Census Bureau legal and statistical areas.

pdGeoTIGER is available in **Pro** and **Standard** editions. This guide covers both versions.

PRO EDITION

The *Pro* edition has an accurate over 31 million record ZIP+4 GeoCoding file, an accurate over 60 million record Address Range GeoCoding database for even greater precision, and a bonus geography reference file. It covers all 50 states, the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area).

STANDARD EDITION

The *Standard* edition has the same accurate over 31 million record ZIP+4 GeoCoding file and bonus geography reference information, but does not include the Address Range database. It covers all 50 states, the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area).

QUICK START

pdGeoTIGER is a United States GeoCoding package that permits exceptionally precise assignment of latitude and longitude coordinates, area size data, urban and rural indicators, legal and statistical area identifiers and indicators, and other information.

The base information is drawn from the most recent U.S. Census Bureau *TIGER/Line® Shapefiles,* but the package is enriched with millions of proprietary corrections and enhancements.

The product has both a ZIP+4 database and, with the *Pro* edition or when the *pdGeoTIGER Standard to Pro Upgrade Pack* has been added to a *Standard* edition, a separate Address Range database. The databases are separated into one or two files for each of the 50 states, the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area). Most states have one file but, due to size, California, Ohio, and Texas are in two parts in the Address Range database.

Information is provided at the Census Block level. The first field is the PEACOCK_ID primary key, a unique identifier for each record, followed by a series of fields used for matching records, followed by detailed information about each entity.

The databases provide designations for U.S. Census Bureau legal and statistical areas. A legal area is a geographic entity where the boundaries, name, origin, and area description result from charters, laws, treaties, or other administrative or governmental action. A statistical area is any geographic entity or combination of entities identified and defined solely for the tabulation and presentation of data. Statistical area boundaries are not legally defined and the entities have no governmental standing.

The ZIP+4 file is organized with one record for each USPS ZIP+4 area. Users can simply match their lists against the USPS 5-digit ZIP Code and 4-digit Plus4 add-on code information.

The Address Range file is organized with one record for each range of street addresses. The address ranges point to a sequential line of potential addresses and not individual addresses. All possible structure numbers are included in the range, from the first structure to the last, and all numbers of the same parity (odd, even, or both) in between, regardless of if the actual structure currently exists.

The parity of an address is important because address ranges usually only include structure numbers of the same odd/even parity, however, a relatively small percentage have both odd and even numbers (assigned a “B” in the ADDRPARITY field), and must be considered.

This quick start explanation demonstrates the basic use of the software, but much more is also available. Read on for more information.

IMPORTING DATA INTO YOUR SYSTEM

pdGeoTIGER is designed to be compatible with any database system. It comes in multiple file formats, uses only the ANSI character set, and has a well-defined layout.

INCLUDED DATABASE FILES

Both the *Pro* and *Standard* editions include an accurate over 31 million record ZIP+4 GeoCoding file and a copy of Peacock Data's proprietary *pdGeoSupplement* database. The *Pro* version adds an accurate over 60 million record Address Range GeoCoding file.

ZIP+4 GEOCODING FILE

Both the *Pro* and *Standard* editions have a ZIP+4 GeoCoding database which can be identified with "z4" at the end of the file names. There are separate files for all 50 states, the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area).

ADDRESS RANGE GEOCODING FILE

The *Pro* edition, and the *Standard* version when the *pdGeoTIGER Standard to Pro Upgrade Pack* has been added, has an Address Range GeoCoding database which can be identified with "ar" at the end of the file names. It is separated into one or two files for each of the 50 states, the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area). Most states have one file but, due to size, California, Ohio, and Texas are in two parts.

PDGEOSUPPLEMENT

Both the *Pro* and *Standard* editions have *pdGeoSupplement*, an over 300,000 record proprietary, easy-to-use, comprehensive, and up-to-date United States national reference database for U.S. Census Bureau legal and statistical areas covered by Peacock Data GeoCoding, U.S. Census 2010, and American Community Survey (ACS) database products. It is a companion file for *pdGeoTIGER, pdCensus2010*, and *pdACS2013;* and the supplement is provided with the product downloads. See separate documentation for more information.

FILE FORMATS

The database is available in three common file formats. Each format contains the same data.

Available file formats are:

CSV-COMMA SEPARATED VALUES

Files in Comma Separated Values (CSV) format (also known as Comma Delimited) separate fields with commas, and alpha/numeric character fields are usually delimited with double quotes (in case some of the field content includes commas). This format is the most commonly used. It is a native format for Microsoft Excel and is compatible with nearly all database management systems and spreadsheets.

TXT-FIXED LENGTH

Files in Fixed Length (TXT) format (also known as Standard Data Format or SDF) use constant field positions and lengths for all records. In other words, each field starts and ends at the same place in the text file and each record is on a separate line. While not as popular as comma separated values, this format is preferred by many due to its input precision and is widely used to transfer data between different software programs. It is compatible with most database management systems and spreadsheets.

DBF-DATABASE

Files in DBF database format (also known as xBase) are native to Microsoft FoxPro and Visual FoxPro, dataBased Intelligence dBase, Alaska Software XBase++, Apollo Database Engine, Apycom Software DBFView, Astersoft DBF Manager, DS-Datasoft Visual DBU, Elsoft DBF Commander, GrafX Software Clipper and Vulcan.NET, Multisoft FlagShip, Recital Software Recital, Software Perspectives Cule.Net, and xHarbour.com xHarbour. They are also compatible with any database management system that can import the DBF (xBase) format, such as Microsoft Access, Microsoft SQL Server, and numerous others.

CHARACTER SET

The ANSI character set is utilized for all database records. This includes ASCII values 0 to 127 and extended values 128 to 255. These are also known as the extended Latin alphabet. Some users may needs to configure their database system to import the extended values. In many cases the option will be labeled the “Latin-1” character set.

FILE LAYOUTS AND DATA DEFINITIONS

Below are the complete layout specifications and data definitions of all files provided with *pdGeoTIGER* (except *pdGeoSupplement* which is provided in separate documentation).

Each line below contains the following information: FIELD NUMBER: field position number. FIELD NAME: name of field. FIELD TYPE: field data type; "*Chr*" = alpha/numeric characters, "Num" = numbers. FIELD LENGTH: length of field. DECIMAL PLACES: number of decimal places (if any). START POSITION: field starting position. END POSITION: field ending position. DESCRIPTION: data definition of field contents.

LAYOUT OF PDGEOTIGER ZIP+4 FILE

Field Count: 70

Total Length: 418

Record Count: 31,205,869

FIELD NUMBER	FIELD NAME	FIELD TYPE	FIELD LENGTH	DECIMAL PLACES	START POSITION	END POSITION	DESCRIPTION
1	PEACOCK_ID	Chr	16		1	16	Primary key; unique identifier for each record; concatenation of the State FIPS Code, plus the County FIPS Code, plus a hyphen, plus the USPS 5-digit ZIP Code, plus a hyphen, plus the USPS 4-digit Plus4 add-on code
2	ZIP10	Chr	10		17	26	Concatenation of the USPS 5-digit ZIP Code, plus a hyphen, plus the USPS 4-digit Plus4 add-on code
3	ZIP	Chr	5		27	31	USPS 5-digit ZIP Code
4	PLUS4	Chr	4		32	35	USPS 4-digit Plus4 add-on code
5	GEOFLAG	Chr	1		36	36	GeoCoding Confidence Indicator: 1 = Highest GeoCoding confidence 2 = Medium-High confidence 3 = Medium confidence 4 = Medium-Low confidence 5 = Lowest GeoCoding confidence
6	GEOID	Chr	15		37	51	Geographic Identifier; concatenation of the State FIPS Code, plus the County FIPS Code, plus the Census Tract, plus the Census Block, that together uniquely hierarchically defines the geographic area
7	LATITUDE	Chr	11		52	62	Internal point latitude coordinate in degrees (7 decimal places)
8	LONGITUDE	Chr	12		63	74	Internal point longitude coordinate in degrees (7 decimal places)
9	LATRAD	Num	18	15	75	92	Internal point latitude coordinate converted to radians for use in trigonometry functions (15 numeric places)

10	LONRAD	Num	18	15	93	110	Internal point longitude coordinate converted to radians for use in trigonometry functions (15 numeric places)
11	LATDMS	Chr	14		111	124	Internal point latitude coordinate in degrees/minutes/seconds
12	LONDMS	Chr	15		125	139	Internal point longitude coordinate in degrees/minutes/seconds
13	LANDWATER	Chr	1		140	140	Land and Water Indicator: G = Glacier I = Intermittent Water L = Land P = Permanent Water S = Swamp/Marsh
14	AREA	Num	14		141	154	Total area in square meters
15	UR	Chr	1		155	155	Urban/Rural Indicator: U = Urban R = Rural
16	REGION	Chr	1		156	156	Region: 1 = Northeast 2 = Midwest 3 = South 4 = West 9 = Not in a region (insular areas)
17	DIVISION	Chr	1		157	157	Division: 1 = New England 2 = Middle Atlantic 3 = East North Central 4 = West North Central 5 = South Atlantic 6 = East South Central 7 = West South Central 8 = Mountain 9 = Pacific 0 = Not in a division (insular areas)
18	STATEFP	Chr	2		158	159	State FIPS Code
19	STATEABBR	Chr	2		160	161	State USPS Postal Abbreviation
20	STATE	Chr	20		162	181	State Name
21	COUNTYFP	Chr	3		182	184	County FIPS Code
22	COUNTY	Chr	21		185	205	County Name
23	COUNTYLONG	Chr	33		206	238	County name and translated legal/statistical area description
24	TRACT	Chr	6		239	244	Census Tract
25	BLOCKGRP	Chr	1		245	245	Census Block Group
26	BLOCK	Chr	4		246	249	Census Block
27	BLOCKSUF	Chr	1		250	250	Census Block Suffix
28	COUSUBFP	Chr	5		251	255	County Subdivision FIPS Code
29	SUBMCDFP	Chr	5		256	260	Subminor Civil Division FIPS Code (Commonwealth of Puerto Rico subbarrio)
30	ESTATEFP	Chr	5		261	265	Estate FIPS Code (U.S. Virgin Islands only)
31	PLACEFP	Chr	5		266	270	Place FIPS Code
32	CONCITFP	Chr	5		271	275	Consolidated City FIPS Code

33	ANRCFP	Chr	5		276	280	Alaska Native Regional Corporation FIPS Code
34	AIANNH	Chr	4		281	284	American Indian Area/Alaska Native Area/Native Hawaiian Home Land
35	AIANNHFP	Chr	5		285	289	American Indian Area/Alaska Native Area/Native Hawaiian Home Land Fips Code
36	AIANNHLI	Chr	1		290	290	American Indian Area/Alaska Native Area/Native Hawaiian Home Land Reservation/Statistical Entity or Off-Reservation Trust Land/Native Hawaiian Home Land Indicator: T = Off-Reservation Trust Land R = Reservation or Statistical Entity M = Mixed
37	AITSUB	Chr	3		291	293	American Indian Tribal Subdivision
38	AITSUBFP	Chr	5		294	298	American Indian Tribal Subdivision FIPS Code
39	TTRACT	Chr	6		299	304	Tribal Census Tract
40	TBLKGRP	Chr	1		305	305	Tribal Block Group
41	CSAFP	Chr	3		306	308	Combined Statistical Area FIPS Code
42	METMICFP	Chr	5		309	313	Metropolitan/Micropolitan Statistical Area (CBSA) FIPS Code
43	METDVFP	Chr	5		314	318	Metropolitan Division FIPS Code
44	CNECTAFP	Chr	3		319	321	Combined New England City and Town Area FIPS Code
45	NECTAFP	Chr	5		322	326	New England City and Town Area FIPS Code
46	NECTDVFP	Chr	5		327	331	New England City and Town Area Division FIPS Code
47	UA	Chr	5		332	336	Urban Area
48	UGA	Chr	5		337	341	Urban Growth Area (Oregon and Washington)
49	CD	Chr	2		342	343	Congressional District FIPS Code: 01 to 53 = Congressional district codes 00 = At large (single district for state) 98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas
50	SLDUPR	Chr	3		344	346	State Legislative District (Upper Chamber)
51	SLDLWR	Chr	3		347	349	State Legislative District (Lower Chamber)
52	VTD	Chr	6		350	355	Voting District
53	SDELM	Chr	5		356	360	School District (Elementary)
54	SDSEC	Chr	5		361	365	School District (Secondary)
55	SDUNI	Chr	5		366	370	School District (Unified)
56	PUMA	Chr	5		371	375	Public Use Microdata Area (PUMA 5% File)

57	ZCTA5	Chr	5		376	380	Census 5-digit ZIP Code Tabulation Area (ZCTA)
58	CD112	Chr	2		381	382	112th Congress Congressional District FIPS Code: 01 to 53 = Congressional district codes 00 = At large (single district for state) 98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas
59	STATEFP10	Chr	2		383	384	State FIPS Code from the first Census 2010 release
60	COUNTYFP10	Chr	3		385	387	County FIPS Code from the first 2010 release
61	TRACT10	Chr	6		388	393	Census Tract from the first 2010 release
62	BLOCKGRP10	Chr	1		394	394	Census Block Group from the first 2010 release
63	BLOCK10	Chr	4		395	398	Census Block from the first 2010 release
64	CD111	Chr	2		399	400	111th Congress Congressional District FIPS Code: 01 to 53 = Congressional district codes 00 = At large (single district for state) 98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas
65	STATEFP00	Chr	2		401	402	State FIPS Code from Census 2000
66	COUNTYFP00	Chr	3		403	405	County FIPS Code from 2000
67	TRACT00	Chr	6		406	411	Census Tract from 2000
68	BLOCKGRP00	Chr	1		412	412	Census Block Group from 2000
69	BLOCK00	Chr	4		413	416	Census Block from 2000
70	CD108	Chr	2		417	418	108th Congress Congressional District FIPS Code: 01 to 53 = Congressional district codes 00 = At large (single district for state) 98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas

LAYOUT OF PDGEOTIGER ADDRESS RANGE FILE

Field Count: 84

Total Length: 685

Record Count: 60,577,821

FIELD NUMBER	FIELD NAME	FIELD TYPE	FIELD LENGTH	DECIMAL PLACES	START POSITION	END POSITION	DESCRIPTION
1	PEACOCK_ID	Chr	22		1	22	Primary key; unique identifier for each record; a concatenation of the geographic identifier, plus a hyphen, plus a sequential number for each record with the same geographic identifier
2	MATCHKEY	Chr	50		23	72	Match key preset for easy matching; concatenation of the corrected USPS 5-digit ZIP Code plus the full street address line in UPPER CASE without hyphens or spaces
3	FROMHN	Chr	12		73	84	From (low) house or structure number
4	TOHN	Chr	12		85	96	To (high) house or structure number
5	ADDRPARITY	Chr	1		97	97	Address Parity Indicator: O = Odd E = Even B = Both
6	ADDRSIDE	Chr	1		98	98	Address Side Indicator: L = Left side of the street R = Right side of the street
7	REVRANGE	Chr	1		99	99	Reversed Range Indicator: Y = To and From range information is corrected
8	FULLNAME	Chr	60		100	159	Full street address line in Mixed Case; concatenation of the street prefix qualifier, prefix direction, prefix type, street name, suffix type, suffix direction, and suffix qualifier with a space between each part (e.g., N Main St, Old Lawson Creek Rd)
9	PREQUAL	Chr	5		160	164	Street prefix qualifier in Mixed Case (e.g., Old, Hst, Scn)
10	PREDIR	Chr	2		165	166	Street prefix direction (e.g., N, W, SE, SW)
11	PRETYPE	Chr	40		167	206	Street prefix type in Mixed Case (e.g., County Road, Indian Service Route, US Highway)
12	STREETNAME	Chr	60		207	266	Base street name in Mixed Case (e.g., Main, Lawson Creek, 52nd)
13	SUFTYPE	Chr	15		267	281	Street suffix type in Mixed Case (e.g., Ave, Rd, St, Blvd)

14	SUFDIR	Chr	2		282	283	Street suffix direction (e.g., N, W, SE, SW)
15	SUFQUAL	Chr	5		284	288	Street suffix qualifier in Mixed Case (e.g., Alt, Bus, Pvt)
16	ZIP	Chr	5		289	293	Original USPS 5-digit ZIP Code provided in the Census TIGER/Line® Shapefiles before correction
17	PLUS4	Chr	4		294	297	USPS 4-digit Plus4 add-on code
18	PDZIPCOR	Chr	5		298	302	USPS 5-digit ZIP Code with Peacock Data corrections
19	SOURCETYPE	Chr	1		303	303	Source Type Indicator: 1 = Census TIGER/Line® Shapefiles data 2 = Census TIGER/Line® Shapefiles data algorithmically enhanced to accommodate new address ranges 3 = Peacock Data corrected Census TIGER/Line® Shapefiles data-high confidence 4 = Peacock Data corrected Census TIGER/Line® Shapefiles data-medium confidence 5 = Peacock Data variation or proprietary data
20	GEOID	Chr	15		304	318	Geographic Identifier; concatenation of the State FIPS Code, plus the County FIPS Code, plus the Census Tract, plus the Census Block, that together uniquely hierarchically defines the geographic area
21	LATITUDE	Chr	11		319	329	Internal point latitude coordinate in degrees (7 decimal places)
22	LONGITUDE	Chr	12		330	341	Internal point longitude coordinate in degrees (7 decimal places)
23	LATRAD	Num	18	15	342	359	Internal point latitude coordinate converted to radians for use in trigonometry functions (15 numeric places)
24	LONRAD	Num	18	15	360	377	Internal point longitude coordinate converted to radians for use in trigonometry functions (15 numeric places)
25	LATDMS	Chr	14		378	391	Internal point latitude coordinate in degrees/minutes/seconds
26	LONDMS	Chr	15		392	406	Internal point longitude coordinate in degrees/minutes/seconds
27	LANDWATER	Chr	1		407	407	Land and Water Indicator: G = Glacier I = Intermittent Water L = Land P = Permanent Water S = Swamp/Marsh
28	AREA	Num	14		408	421	Total area in square meters

29	UR	Chr	1		422	422	Urban/Rural Indicator: U = Urban R = Rural
30	REGION	Chr	1		423	423	Region: 1 = Northeast 2 = Midwest 3 = South 4 = West 9 = Not in a region (insular areas)
31	DIVISION	Chr	1		424	424	Division: 1 = New England 2 = Middle Atlantic 3 = East North Central 4 = West North Central 5 = South Atlantic 6 = East South Central 7 = West South Central 8 = Mountain 9 = Pacific 0 = Not in a division (insular areas)
32	STATEFP	Chr	2		425	426	State FIPS Code
33	STATEABBR	Chr	2		427	428	State USPS Postal Abbreviation
34	STATE	Chr	20		429	448	State Name
35	COUNTYFP	Chr	3		449	451	County FIPS Code
36	COUNTY	Chr	21		452	472	County Name
37	COUNTYLONG	Chr	33		473	505	County name and translated legal/statistical area description
38	TRACT	Chr	6		506	511	Census Tract
39	BLOCKGRP	Chr	1		512	512	Census Block Group
40	BLOCK	Chr	4		513	516	Census Block
41	BLOCKSUF	Chr	1		517	517	Census Block Suffix
42	COUSUBFP	Chr	5		518	522	County Subdivision FIPS Code
43	SUBMCDFP	Chr	5		523	527	Subminor Civil Division FIPS Code (Commonwealth of Puerto Rico subbarrio)
44	ESTATEFP	Chr	5		528	532	Estate FIPS Code (U.S. Virgin Islands only)
45	PLACEFP	Chr	5		533	537	Place FIPS Code
46	CONCITFP	Chr	5		538	542	Consolidated City FIPS Code
47	ANRCFP	Chr	5		543	547	Alaska Native Regional Corporation FIPS Code
48	AIANNH	Chr	4		548	551	American Indian Area/Alaska Native Area/Native Hawaiian Home Land
49	AIANNHFP	Chr	5		552	556	American Indian Area/Alaska Native Area/Native Hawaiian Home Land Fips Code

50	AIANNHLI	Chr	1		557	557	American Indian Area/Alaska Native Area/Native Hawaiian Home Land Reservation/Statistical Entity or Off-Reservation Trust Land/Native Hawaiian Home Land Indicator: T = Off-Reservation Trust Land R = Reservation or Statistical Entity M = Mixed
51	AITSUB	Chr	3		558	560	American Indian Tribal Subdivision
52	AITSUBFP	Chr	5		561	565	American Indian Tribal Subdivision FIPS Code
53	TTRACT	Chr	6		566	571	Tribal Census Tract
54	TBLKGRP	Chr	1		572	572	Tribal Block Group
55	CSAFP	Chr	3		573	575	Combined Statistical Area FIPS Code
56	METMICFP	Chr	5		576	580	Metropolitan/Micropolitan Statistical Area (CBSA) FIPS Code
57	METDVFP	Chr	5		581	585	Metropolitan Division FIPS Code
58	CNECTAFP	Chr	3		586	588	Combined New England City and Town Area FIPS Code
59	NECTAFP	Chr	5		589	593	New England City and Town Area FIPS Code
60	NECTDVFP	Chr	5		594	598	New England City and Town Area Division FIPS Code
61	UA	Chr	5		599	603	Urban Area
62	UGA	Chr	5		604	608	Urban Growth Area (Oregon and Washington)
63	CD	Chr	2		609	610	Congressional District FIPS Code: 01 to 53 = Congressional district codes 00 = At large (single district for state) 98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas
64	SLDUPR	Chr	3		611	613	State Legislative District (Upper Chamber)
65	SLDLWR	Chr	3		614	616	State Legislative District (Lower Chamber)
66	VTD	Chr	6		617	622	Voting District
67	SDELM	Chr	5		623	627	School District (Elementary)
68	SDSEC	Chr	5		628	632	School District (Secondary)
69	SDUNI	Chr	5		633	637	School District (Unified)
70	PUMA	Chr	5		638	642	Public Use Microdata Area (PUMA 5% File)
71	ZCTA5	Chr	5		643	647	Census 5-digit ZIP Code Tabulation Area (ZCTA)

72	CD112	Chr	2		648	649	112th Congress Congressional District FIPS Code: 01 to 53 = Congressional district codes 00 = At large (single district for state) 98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas
73	STATEFP10	Chr	2		650	651	State FIPS Code from the first Census 2010 release
74	COUNTYFP10	Chr	3		652	654	County FIPS Code from the first 2010 release
75	TRACT10	Chr	6		655	660	Census Tract from the first 2010 release
76	BLOCKGRP10	Chr	1		661	661	Census Block Group from the first 2010 release
77	BLOCK10	Chr	4		662	665	Census Block from the first 2010 release
78	CD111	Chr	2		666	667	111th Congress Congressional District FIPS Code: 01 to 53 = Congressional district codes 00 = At large (single district for state) 98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas
79	STATEFP00	Chr	2		668	669	State FIPS Code from Census 2000
80	COUNTYFP00	Chr	3		670	672	County FIPS Code from 2000
81	TRACT00	Chr	6		673	678	Census Tract from 2000
82	BLOCKGRP00	Chr	1		679	679	Census Block Group from 2000
83	BLOCK00	Chr	4		680	683	Census Block from 2000
84	CD108	Chr	2		684	685	108th Congress Congressional District FIPS Code: 01 to 53 = Congressional district codes 00 = At large (single district for state) 98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas

Note that the layouts above are also available in Excel XLS files provided with the database. Programmers can use these files to create table shells for the pdGeoTIGER *data.*

DATABASE VERSION NUMBER

Depending on the file format, the version number of each copy of *pdGeoTIGER* is written in the first or second row of the first or second column of the database files in X.X.X format. The first number is the main version number of

the release. The number after the first dot is the update for the version indicated. The number after the second dot references a minor revision.

USING THE *PDGEOTIGER* DATABASE

pdGeoTIGER is a GeoCoding database that permits exceptionally precise assignment of United States latitude and longitude coordinates, area size data, urban and rural indicators, legal and statistical area identifiers and indicators, and other information.

Users can match the addresses on their lists against the *pdGeoTIGER* database based on the ZIP+4 Code and, with the *Pro* edition or when the *pdGeoTIGER Standard to Pro Upgrade Pack* has been added to a *Standard* edition, based on the address range as well for added precision.

The product download also includes *pdGeoSupplement* which provides additional information about U.S. Census Bureau legal and statistical areas.

The *pdGeoTIGER* databases encompass the following:

- All 50 states
- District of Columbia (federal district)
- Commonwealth of Puerto Rico (insular area; unincorporated organized territory)

The *pdGeoSupplement* database encompasses the following:

- United States nation
- All 50 states
- District of Columbia (federal district)
- Incorporated unorganized territory of Palmyra Atoll (incorporated as part of the Territory of Hawaii in 1900 but not admitted along with the state in 1959; largely privately owned by the Nature Conservancy; variable population of 4-20 scientists and research scholars)
- Unincorporated organized territories:
    - Guam
    - Commonwealth of the Northern Mariana Islands
    - Commonwealth of Puerto Rico
    - U.S. Virgin Islands
- Unincorporated unorganized territories:
    - *Pacific Ocean*:
        - American Samoa
            - Swains Island (administered by American Samoa)
        - Baker Island (now uninhabited)
        - Howland Island (now uninhabited)
        - Jarvis Island (now uninhabited)
        - Johnston Atoll (now uninhabited)
        - Kingman Reef (largely submerged; now uninhabited)
        - Midway Islands (also known as Midway Atoll; now inhabited only by caretakers)

        - Wake Island (also known as Wake Atoll; now inhabited only by civilian contractors)
    - *Caribbean Sea*:
        - Bajo Nuevo Bank (also known as the Petrel Islands; mostly submerged; uninhabited)
        - Navassa Island (now uninhabited)
        - Serranilla Bank (mostly submerged; uninhabited)
- Extraterritorial jurisdiction of Guantanamo Bay Naval Base

DATABASE ORGANIZATION

The product has both a ZIP+4 database and, with the *Pro* edition or when the *pdGeoTIGER Standard to Pro Upgrade Pack* has been added to a *Standard* edition, a separate Address Range database. The databases are separated into one or two files for each state, the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area). Most states have one file but, due to size, California, Ohio, and Texas are in two parts in the Address Range database.

The ZIP+4 file is organized with one record for each USPS ZIP+4 area. The Address Range file is organized with one record for each range of street addresses. Information is provided at the Census Block level. The first field is the PEACOCK_ID primary key, a unique identifier for each record, followed by a series of fields used for matching records, followed by detailed information about each entity.

The database structure is organized as follows:

- Peacock ID—unique identification number (first field in all files)
- Matching records
    - ZIP+4 matching (ZIP+4 fields 2–5)
    - Address range matching (Address Range fields 2–19)
- Geo ID—hierarchically identification number (ZIP+4 field 6; Address Range field 20)
- Latitude and longitude coordinates (ZIP+4 fields 7–12; Address Range fields 21–26)
- Land and water area (ZIP+4 fields 13–14; Address Range fields 27–28)
- Urban and rural indicator (ZIP+4 field 15; Address Range field 29)
- Legal and statistical areas (ZIP+4 fields 16–70; Address Range fields 30–84)

Review File Layout and Data Definitions for more information.

PEACOCK_ID FIELD

The first field in the database is a unique identification number for each record. It serves as the primary key and no two records have this same exact number. In the ZIP+4 files, it is a concatenation of the State FIPS Code (STATEFP), plus the County FIPS Code (COUNTYFP), plus a hyphen, plus the USPS 5-digit ZIP Code (ZIP), plus a hyphen, plus the USPS 4-digit Plus4 add-on code (PLUS4). In the Address Range files (available with the *Pro* edition or when the *pdGeoTIGER Standard to Pro Upgrade Pack* has been added to a *Standard* edition), it is a concatenation of the geographic identifier (GEOID), plus a hyphen, plus a sequential number for each record with the same geographic identifier.

RECORD CODE FIELDS

- **PEACOCK_ID** | Primary Key
  Each record is identified by a 16-chatacter (ZIP+4 files) or 22-character (Address Range files) alpha/numeric primary key that is unique for each record (see above for details).

MATCHING RECORDS

The primary use for *pdGeoTIGER* is matching residential and business list records to latitude and longitude coordinates, area size data, urban and rural indicators, legal and statistical area identifiers and indicators, and other information contained in the fields beginning with the GEOID field and extending to the CD108 field at the end of the file. This can be accomplished in two ways, using the ZIP+4 files and, with the *Pro* edition or when the *pdGeoTIGER Standard to Pro Upgrade Pack* has been added to a *Standard* edition, using the address range files.

ZIP+4 MATCHING

In the ZIP+4 files, matching is against ZIP+4 information, as opposed to a range of street addresses. 52 accurate ZIP+4 databases, totaling over 31 million records, are provided for each state, the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area).

ZIP+4 MATCHING FIELDS

- **ZIP10** | Concatenation of the USPS 5-digit ZIP Code (ZIP), plus a hyphen, plus the USPS 4-digit Plus4 add-on code (PLUS4) (example, “93301-1126”)

- **ZIP** | USPS 5-digit ZIP Code (“93301” portion from the example)

- **PLUS4** | USPS 4-digit Plus4 add-on code (“1126” portion from the example)

- **GEOFLAG** | GeoCoding Confidence Indicator
  Each record has a one-character numeric code indicating the GeoCoding confidence.
  1 = Highest GeoCoding confidence (highest precision)
  2 = Medium-High confidence
  3 = Medium confidence
  4 = Medium-Low confidence
  5 = Lowest GeoCoding confidence

To determine GeoCoding, users can simply match their lists against the ZIP10 field, a concatenation of the USPS 5-digit ZIP Code (ZIP), plus a hyphen, plus the USPS 4-digit Plus4 add-on code (PLUS4) (example, “93301-1126”); or against both the parsed ZIP field, the USPS 5-digit ZIP Code (“93301” portion from the example) and PLUS4 field, the USPS 4-digit Plus4 add-on code (“1126” portion from the example).

For added precision, users can also employ the GeoCoding confidence flag provided in the GEOFLAG field to filter matches based on the requirements of a project. This field is provided because U.S. Census lines and USPS ZIP+4 lines do not necessarily follow the same path, so Census lines can cross over USPS lines, meaning a ZIP+4 code can

be in more than one legal or statistical area. In these cases, latitude and longitude coordinates and geographic areas are estimated based on such factors as population size, land area, and historical information. Most of the estimates will likely be correct, but some with be false matches, and the GeoCoding confidence code indicates the likeliness of a true and precise match.

The GEOFLAG field is designed so the GeoCoding confidence codes range from the highest confidence of "1" to the lowest confidence of "5". A confidence of "1" means no Census lines cross USPS lines and the geographic information is precise. If any lines are crossed, a confidence code of "2", "3", "4", or "5" is assigned depending on the number of lines crossed as well as the size and general importance of the lines and geographic areas affected.

Note that a very small percentage of records in the ZIP+4 database will have only the 5-digit portion of the USPS ZIP+4 Code and will be missing the USPS 4-digit Plus4 add-on code. These correspond to a few address ranges where the USPS has not assigned add-on codes, or the coding was missing or deemed inaccurate. In these cases, estimates are provided representing the entire USPS 5-digit ZIP Code area and a GeoCoding confidence of "5" is entered in the GEOFLAG field. These records should be used sparingly.

Regardless of the shortcomings of ZIP+4 GeoCoding, the ZIP+4 database is exceptionally accurate, and will correctly cover a very high percentage of residential and business list records. Nevertheless, the issue of GeoCoding confidence can be eliminated by utilizing the Address Range database (available with the *Pro* edition or when the *pdGeoTIGER Standard to Pro Upgrade Pack* has been added to a *Standard* edition); however, Address Range matching is considerably more complicated compared to the simplicity of matching against ZIP+4 records, which may be an overriding factor for some users, and the ZIP+4 precision will be satisfactory for many projects.

ADDRESS RANGE MATCHING

Address range matching is available with the *Pro* edition or when the *pdGeoTIGER Standard to Pro Upgrade Pack* has been added to a *Standard* edition. Compared to ZIP+4 matching, address range matching is considerably more complicated, but it can offer more precise results.

In the Address Range files, matching is against a range of street addresses, as opposed to ZIP+4 information. 55 accurate Address Range databases, totaling over 60 million records, are provided for each state, the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area). California, Ohio, and Texas are divided into two files due to their size.

ADDRESS RANGE MATCHING FIELDS

- **MATCHKEY** | Match key preset for easy matching; concatenation of the corrected USPS 5-digit ZIP Code (PDZIPCOR) and the full street name (FULLNAME) in UPPER CASE without hyphens or spaces
- **FROMHN** | From (low) house or structure number
- **TOHN** | To (high) house or structure number

- **ADDRPARITY** | Address Parity Indicator
  Each record has a one-character alphabetic code indicating the parity of the structure number.
  O = Odd
  E = Even
  B = Both

- **ADDRSIDE** | Address Side Indicator
  Each record has a one-character alphabetic code indicating which side of the street the structure number is located.
  L = Left side of the street
  R = Right side of the street

- **REVRANGE** | Reversed Range Indicator
  Affected records have a logical one-character alphabetic code indicating if the To and From range information has been inverted to correct an odd/even reversal error in the Census TIGER/Line® Shapefiles, so the low number is now in the FROMHN field and the high number is now in the TOHN field.
  Y = To and From range information is corrected

- **FULLNAME** | Full street address line in Mixed Case; concatenation of the street prefix qualifier (PREQUAL), prefix direction (PREDIR), prefix type (PRETYPE), base name (STREETNAME), suffix type (SUFTYPE), suffix direction (SUFDIR), and suffix qualifier (SUFQUAL) as available with a space between each part (examples, “N Main St”, “Old Lawson Creek Rd”).

- **PREQUAL** | Street prefix qualifier in Mixed Case (examples, “Old”, “Hst”, “Scn”)

- **PREDIR** | Street prefix direction (examples, “N”, “W”, “SE”, “SW”)

- **PRETYPE** | Street prefix type in Mixed Case (examples, “County Road”, “Indian Service Route”, “US Highway”)

- **STREETNAME** | Base street name in Mixed Case (examples, “Main”, “Lawson Creek”, “52nd”)

- **SUFTYPE** | Street suffix type in Mixed Case (examples, “Ave”, “Rd”, “St”, “Blvd”)

- **SUFDIR** | Street suffix direction (examples, “N”, “W”, “SE”, “SW”)

- **SUFQUAL** | Street suffix qualifier in Mixed Case (examples, “Alt”, “Bus”, “Pvt”)

- **ZIP** | Original USPS 5-digit ZIP Code provided in the Census *TIGER/Line® Shapefiles* before corrections

- **PLUS4** | USPS 4-digit Plus4 add-on code—only filled when needed to differentiate addresses duplicated within the same USPS 5-digit ZIP Code

- **PDZIPCOR** | USPS 5-digit ZIP Code with Peacock Data corrections

- **SOURCETYPE** | Source Type Indicator
  Each record has a one-character numeric code indicating the source of the record.
  1 = Census *TIGER/Line® Shapefiles* data
  2 = Census *TIGER/Line® Shapefiles* data algorithmically enhanced to accommodate new address ranges
  3 = Peacock Data corrected Census *TIGER/Line® Shapefiles* data—high confidence
  4 = Peacock Data corrected Census *TIGER/Line® Shapefiles* data—medium confidence
  5 = Peacock Data variation or proprietary data

In address range matching, the included address ranges point to a sequential line of potential addresses and not individual addresses. All possible structure numbers are included in the range, from the first structure to the last, and all numbers of the same parity (odd, even, or both) in between, regardless of if the actual structure currently exists.

The address range files are set up for the easiest address range matching possible considering the involvedness. As one option, users can match the MATCHKEY, FROMHN, TOHN, and ADDRPARITY fields against their residential and business lists. The MATCHKEY field is a concatenation of the USPS 5-digit ZIP Code (PDZIPCOR) and full street name (FULLNAME) in UPPER CASE without hyphens or spaces. Users then create a duplicate string from the addresses in their lists to match against the MATCHKEY field. Then qualifying records need to be comparing to establish which one meets the structure number range and parity criteria using the information in the FROMHN, TOHN, and ADDRPARITY fields.

For more control, alternatively users can match directly against the FULLNAME field or the parsed address fields (PREQUAL, PREDIR, PRETYPE, STREETNAME, SUFTYPE, SUFDIR, SUFQUAL), along with the PDZIPCOR (or ZIP), FROMHN, TOHN, and ADDRPARITY fields.

The parity of an address (contained in the ADDRPARITY field) is important because address ranges usually only include structure numbers of the same odd/even parity, however, a relatively small percentage have both odd and even numbers (assigned a “B” in the ADDRPARITY field), and must be considered.

Some address ranges may have a full USPS 9-digit ZIP Code, with the first five digits contained in the ZIP field and the final four digits in the PLUS4 field. The purpose of these is to differentiate addresses duplicated within the same USPS 5-digit ZIP Code. When a full USPS 9-digit ZIP Code is made available, it is advised to first try to match against the address range with the full code, and only secondarily against the address range with just the first five USPS ZIP Code digits.

Note that address ranges can include structure numbers with alphabetic characters, which help to uniquely identify addresses; or hyphens, which separate avenue numbers, private road designators, and grid cell numbers, from structure numbers.

ADDRESS RANGE VARIATIONS

The Address Range files include address range variations. These additions do not disturb the original Census *TIGER/Line® Shapefiles* data, but significantly enhances it.

Variations are provided (in addition to the original record) when there are alternative spellings or address constructions that are more in line with USPS databases. For example, the Census *TIGER/Line® Shapefiles* may use a street name of "Co Rd 7", in which case *pdGeoTIGER* would usually also provide a new variation record with the street name of "County Road 7" and another with the street name of "County Rd 7". Note that the inclusion of variations involves a number of factors. Variation records are marked with a "5" in the SOURCETYPE field.

ZIP CODE CORRECTIONS

The Address Range files include two USPS 5-digit ZIP Code fields, ZIP and PDZIPCOR. ZIP holds the original code numbers provided in the Census *TIGER/Line® Shapefiles* before corrections, and PDZIPCOR holds the same code numbers after Peacock Data corrections are made using newer USPS data. Any original code numbers that were verified as accurate or could not be updated are also included in this field.

Both versions of the USPS 5-digit ZIP Code are included so the original information remains undisturbed while users can still take advantage of corrected code numbers. A total of over one million 5-digit ZIP Code corrections are included affecting both the Address Range and ZIP+4 databases.

Records with corrections are marked with a "3" or "4" in the SOURCETYPE field of the Address Range files. "3" is entered for the highest confidence corrections and "4" for medium confidence corrections. The confidence level is determined by the algorithms used in the update process.

ABOUT THE *TIGER/LINE® SHAPEFILES*

While coverage is very high, users should be aware the U.S. Census Bureau *TIGER/Line® Shapefiles* on which *pdGeoTIGER* is based has gaps and limitations. There are address range overlaps, odd/even reversals, and low/high orientation reversals. With the exception of overlaps, these may be valid. Peacock Data has corrected most of low/high orientation reversals as indicated in the REVRANGE field.

The Census *TIGER/Line® Shapefiles* also do not provide data for every field in every record. For example, Voting District numbers (VTD) are not assigned when a state or locality does not follow U.S. Census Bureau guidelines when drawing ward and precinct lines. And, as another kind of example, the SUBMCDFP field is only filled in the Commonwealth of Puerto Rico (insular area) file; this is the Subminor Civil Division (subbarrio) Federal Information Processing Series (FIPS) code. Subbarrios do not exist in the U.S. states or the District of Columbia (federal district).

The Census *TIGER/Line® Shapefiles* generally contain only address ranges with structure number-street name style addresses. It does not have rural route and post office box addresses because these do no reference a specific geographic area and latitude and longitude coordinates cannot be applied. It also does not include information for some small places where the USPS provides only post office box service, as well as for single address-address ranges (due to privacy concerns), including out-of-parity and out-of-sequence ranges that cover only a single structure number.

The Census *TIGER/Line® Shapefiles*, however, may contain structure numbers assigned for use by local emergency services, but not recognized by the USPS for mail delivery.

GEOID FIELD

A geographic identification field provides a unique identifier for records at the same Census Block geographic level. It is a concatenation of the State FIPS Code (STATEFP), plus the County FIPS Code (COUNTYFP), plus the Census Tract (TRACT), plus the Census Block (BLOCK), that together uniquely hierarchically defines the geographic area.

If users already know the geographic identification for records on their lists, they can match against this field to pick up the latitude and longitude coordinates, area size data, urban and rural indicators, legal and statistical area identifiers and indicators, and other information contained in the fields beginning with the LATITUDE and LONGITUDE fields and extending to the CD108 field at the end of the file.

IDENTIFICATION FIELDS

- **GEOID** | Geographic Identifier
  Each record is identified by a 15-character numeric code that uniquely hierarchically defines the Census Block (see above for details).

LATITUDE AND LONGITUDE COORDINATES

Any location on Earth can be described with two numbers—its latitude and its longitude. If a pilot or a ship's captain wants to specify a position on a map, these are the coordinates they would use. In actuality, these coordinates are angles, measured in degrees, minutes of arc, and seconds of arc.

Internal point latitude and longitude coordinates are a calculated point that is at or near the geographic center of the entity. For some irregularly shaped entities (such as those shaped like a crescent), the calculated geographic center may be located outside the boundaries of the area. In such instances, the internal point is identified as a point inside the entity boundaries nearest or near the calculated geographic center.

The database provides U.S. Census Bureau internal point latitude and longitude coordinates for Census Blocks and they are presented in multiple formats. The examples given below are for the same latitude and longitude coordinates in Apache County, Arizona.

CHARACTERISTICS FIELDS

- **LATITUDE** | Latitude coordinate in degrees
- **LONGITUDE** | Longitude coordinate in degrees
  Seven decimal places; examples, +34.0874945, -109.3283640.

- **LATRAD** | Latitude coordinate converted to radians
- **LONRAD** | Longitude coordinate converted to radians
  15 numeric places; useful for trigonometry functions; examples, 0.594939012780458, -1.908139917618838.

- **LATDMS** | Latitude coordinate in degrees/minutes/seconds
- **LONDMS** | Longitude coordinate in degrees/minutes/seconds
  Useful when printing out coordinates in documents and on websites; examples, 34° 5' 15'' N, 109° 19' 42'' W.

Note that while degree coordinates have seven decimal places, the positional accuracy of these coordinates may not be as great as the seven decimal places suggest because spatial accuracy varies with the source materials used. Therefore, the data may not be suitable for high-precision measurement applications such as engineering problems, property transfers, or other uses requiring highly accurate measurements of the earth's surface.

LATITUDE

Latitude gives a location north or south of the equator. On a map it is represented by horizontal lines (or parallels) that circle the globe. Many will tell you that the size of one degree of latitude is the same anywhere on the globe, but in reality it increases slightly from the equator to the poles as a result of the earth's polar flattening.

The important lines of latitude are:

- 0° - The Equator
- 23.5°N and S - The Tropics (called Cancer in the north and Capricorn in the south)
  - between these two, at some time of the year, the sun is directly overhead
  - beyond each of these the sun is never directly overhead
- 66.5°N and S - The Polar Circles
- 90°N and S - The Poles
  - beyond the Poles and the Polar Circles 24 hours of daylight (midnight sun) is possible in summer and 24 hours without any daylight is possible in winter

LONGITUDE

Longitude gives a location east or west of the prime meridian. On a map it is represented by vertical lines that circle the globe and are divided into 360 degrees. The prime meridian (the meridian of Greenwich, England) is at 0 degrees longitude, and the east and west meridians (lines of longitude) converge on the opposite side of the earth to meet at 180 degrees longitude, the anti-prime meridian, which also defines, with some diversions to pass around various territories and island groups, the International Date Line. Longitude coordinates east of the prime meridian are east longitude (and are given positive numbers when used in equations). Longitude coordinates west of the prime meridian are west longitude (and are given negative numbers when used in equations).

DISTANCE FORMULAS

At the equator one degree of latitude is 68.7 miles, at the polls it is 69.4 miles, and at 45 degrees it is 69.1 miles. As you can see, the distance varies, but only a small amount. Conversely, the size of one degree of longitude varies greatly. At the equator one degree of longitude is 69.2 miles, about the same size as a degree of latitude; however, the size gradually decreases to zero as the meridians converge at the poles. At 45 degrees one degree of longitude is 49 miles.

This large variation in the size of a degree of longitude, dependent on where it is located, is the main stumbling block in distance formulas. Some calculations are approximations that completely or largely ignore these variations and accept a margin of error which can be more than ten percent. Other more precise calculations take the variations into account, but they are considerably more complex.

FORMULA 1

This approximation formula, based on the Pythagorean theorem ($a^2 + b^2 = c^2$), named after Greek mathematician Pythagoras (ca. 570 BC–ca. 495 BC), is the simplest, but it has a considerable margin of error. Both versions of the equation are the same but use different notation. The radical ("√") in the first equation indicates the square root should be calculated from the value within it. The square root of a number n is a number r such that $r^2 = n$, or, in other words, a number r whose square (the result of multiplying the number by itself) is n.

$$d = \sqrt{x^2 + y^2} \quad ; \quad distance = \text{sqrt}(x * x + y * y)$$

Where: $x = 69.1 \times (lat_2 - lat_1)$
$y = 53.0 \times (long_2 - long_1)$

Excel: `=SQRT((69.1*(lat2–lat1))^2+(53*(long2–long1))^2)`

FORMULA 2

This approximation formula variation of Formula 1 adds a cosine math function to improve accuracy. The cosine of a right-angled triangle is the length of the side adjacent to the right angle divided by the length of the hypotenuse (the longest side of a right-angled triangle, at the side opposite the right angle); or, stated as an equation: $\cos = \frac{a}{h}$.

$$d = \sqrt{x^2 + y^2} \quad ; \quad distance = \text{sqrt}(x * x + y * y)$$

Where: $x = 69.1 \times (lat_2 - lat_1)$
$y = 69.1 \times (long_2 - long_1) \times \cos\left(\frac{lat_1}{57.3}\right)$

Excel: `=SQRT((69.1*(lat2–lat1))^2+(69.1*(long2–long1)*COS(lat1/57.3))^2)`

FORMULA 3

This formula, which falls under the class of Great Circle Distance Calculations and derives from the Spherical Law of Cosines, is significantly more accurate than the approximation formulas above; however, it can have large rounding errors if the distance is small. It requires first converting the latitude and longitude coordinates to radians by dividing them by $\left(\frac{180}{\pi}\right)^{\circ}$ (approximately 57.2957795130824 degrees). This is because angles need to be in radians to pass them to trigonometry functions. Fortunately, with Peacock Data database products, the degrees-to-radians conversions are already included in separate fields. Note that $acos$ is sometimes used to mean the same as $arccos$. Also note that carrying degrees-to-radians calculations out to more decimal places provides greater precision (15 numeric places is ideal).

$$d = R \times \arccos[\sin(\varphi_1) \times \sin(\varphi_2) + \cos(\varphi_1) \times \cos(\varphi_2) \times \cos(\lambda_2 - \lambda_1)]$$

Where: $\varphi_1, \varphi_2 =$ latitude of the points in radians
$\lambda_1, \lambda_2 =$ longitude of the points in radians
$R =$ radius of the earth:
- Statute miles: $R = 3959$
- Kilometers: $R = 6371$
- Nautical miles: $R = 3440$

Excel: `=R*ACOS(SIN(lat1)*SIN(lat2)+COS(lat1)*COS(lat2)*COS(long2-long1))`

The radiuses of the earth are mean values. The equatorial radius is 6,378.1 kilometers. The polar radius is 6,356.8 kilometers. Also note that a nautical mile is the average length of one minute of one degree along the Great Circle of the Earth (about one minute of arc of latitude measured along any meridian; or about one minute of arc of longitude at the equator). In 1929 it was internationally agreed that a nautical mile would be exactly 1,852 meters (6,076 feet $1\frac{25}{64}$ inches). Prior to this time, different countries had different definitions of a nautical mile.

FORMULA 4

This variation of Formula 3 includes the degrees-to-radians conversions in the equation itself.

$$d = R \times \arccos\left[\sin\left(\frac{\varphi_1}{rad}\right) \times \sin\left(\frac{\varphi_2}{rad}\right) + \cos\left(\frac{\varphi_1}{rad}\right) \times \cos\left(\frac{\varphi_2}{rad}\right) \times \cos\left(\frac{\lambda_2 - \lambda_1}{rad}\right)\right]$$

Where: $\varphi_1, \varphi_2 =$ latitude of the points in degrees
$\lambda_1, \lambda_2 =$ longitude of the points in degrees
$rad = \left(\frac{180}{\pi}\right)^{\circ} \approx 57.2957795130824°$
$R =$ radius of the earth:
- Statute miles: $R = 3959$
- Kilometers: $R = 6371$
- Nautical miles: $R = 3440$

Excel:
```
=R*ACOS(SIN(lat1/57.2957795130824)*SIN(lat2/57.2957795130824)
      +COS(lat1/57.2957795130824)*COS(lat2/57.2957795130824)*
            COS(long2/57.2957795130824-long1/57.2957795130824))
```

FORMULA 5

This is known as the Haversine formula which also falls under the class of Great Circle Distance Calculations. It is a special case of a more general formula in spherical trigonometry, the Law of Haversines. It is numerically better-conditioned for small distances than the Great Circle formulas previously discussed; however, it also suffers from rounding errors for the special (and somewhat unusual) case of antipodal points (on opposite ends of the sphere). The use of this formula became simplified with the availability of tables for the haversine function (the first equation in the formula). Remember that angles need to be in radians to pass them to trigonometry functions (see Formula 3). You can also apply the degrees-to-radians conversions in the equation itself (similar to the example in Formula 4).

The Haversine formula (as referenced by R. W. Sinnott, "Virtues of the Haversine", *Sky and Telescope*, Volume 68, Number 2, 1984, page 159) is:

Haversine: $a = \sin^2\left(\frac{\varphi_2-\varphi_1}{2}\right) + \cos(\varphi_1) \times \cos(\varphi_2) \times \sin^2\left(\frac{\lambda_2-\lambda_1}{2}\right)$

Formula: $c = 2 \times \operatorname{atan2}\left(\sqrt{a}, \sqrt{(1-a)}\right)$

$d = R \times c$

Where: $\varphi_1, \varphi_2 =$ latitude of the points in radians
$\lambda_1, \lambda_2 =$ longitude of the points in radians
$R =$ radius of the earth:
- Statute miles: $R = 3959$
- Kilometers: $R = 6371$
- Nautical miles: $R = 3440$

Excel:
```
=R*2*ATAN2(SQRT(1-(SIN((lat2-lat1)/2)^2+COS(lat1)*COS(lat2)*
      SIN((long2-long1)/2)^2)),SQRT(SIN((lat2-lat1)/2)^2
            +COS(lat1)*COS(lat2)*SIN((long2-long1)/2)^2))
```

FORMULA 6

While the most precise formulas presented so far have a margin of error that can be less than a meter, even more exacting equations are available. Among the most precise are found in Vincenty's formulae, two related iterative methods developed by Thaddeus Vincenty (1920–2002; born Tadeusz Szpila), a Polish American geodesist who received the U.S. Department of Commerce Medal for Meritorious Service for his work. The formulae, published in 1975, use an accurate ellipsoidal model of the earth (as opposed to the spherical model utilized in the equations above). They are widely employed in Geodesy (a scientific discipline that deals with the measurement and representation of the Earth) because the system can have a precision within 0.5 mm (0.000015 inches).

Vincenty's formulae are:

NOTATION

Define the following notation:

$a =$ length of semi-major axis of the ellipsoid (radius at equator; 6 378 137.0 meters in WGS 1984)

$f =$ flattening of the ellipsoid (1/298.257 223 563 in WGS 1984)

$b = (1-f)a =$ length of semi-minor axis of the ellipsoid (radius at the poles)

$\varphi_1, \varphi_2 =$ latitude of the points

$U_1 = \arctan[(1-f)\tan\varphi_1] =$ reduced first latitude (first latitude on the auxiliary sphere)

$U_2 = \arctan[(1-f)\tan\varphi_2] =$ reduced second latitude (second latitude on the auxiliary sphere)

$L = L_2 - L_1 =$ difference in longitude points

λ_1, λ_2 = longitude of the points on the auxiliary sphere

α_1, α_2 = forward azimuths at the points

α = azimuth at the equator

s = ellipsoidal distance between the two points

σ = arc length between points on the auxiliary sphere

INVERSE PROBLEM

Given the coordinates of the two points (φ_1, L_1) and (φ_2, L_2), the inverse problem finds the azimuths α_1, α_2 and the ellipsoidal distance s.

Calculate U_1, U_2, and L, and set initial value of $\lambda = L$. Then iteratively evaluate the following equations until λ converges:

$$\sin\sigma = \sqrt{(\cos U_2 \sin\lambda)^2 + (\cos U_1 \sin U_2 - \sin U_1 \cos U_2 \cos\lambda)^2}$$

$$\cos\sigma = \sin U_1 \sin U_2 + \cos U_1 \cos U_2 \cos\lambda$$

$$\sigma = \arctan\frac{\sin\sigma}{\cos\sigma}$$

$$\sin\alpha = \frac{\cos U_1 \cos U_2 \sin\lambda}{\sin\sigma}$$

$$\cos^2\alpha = 1 - \sin^2\alpha$$

$$\cos(2\sigma_m) = \cos\sigma - \frac{2\sin U_1 \sin U_2}{\cos^2\alpha}$$

$$C = \frac{f}{16}\cos^2\alpha\,[4 + f(4 - 3\cos^2\alpha)]$$

$$\lambda = L + (1 - C)f\sin\alpha\,\{\sigma + C\sin\sigma\,[\cos(2\sigma_m) + C\cos\sigma\,(-1 + 2\cos^2(2\sigma_m))]\}$$

When the change in λ is negligible (e.g.,$10^{-12} \approx 0.06\ mm$), evaluate the following:

$$u^2 = \cos^2\alpha\frac{a^2 - b^2}{b^2}$$

$$A = 1 + \frac{u^2}{16384}\{4096 + u^2[-768 + u^2(320 - 175u^2)]\}$$

$$B = \frac{u^2}{1024}\{256 + u^2[-128 + u^2(74 - 47u^2)]\}$$

$$\Delta\sigma = B\sin\sigma\left\{\cos(2\sigma_m) + \frac{1}{4}B\left[\cos\sigma(-1 + 2\cos^2(2\sigma_m)) - \frac{1}{6}B\cos(2\sigma_m)(-3 + 4\sin^2\sigma)(-3 + 4\cos^2(2\sigma_m))\right]\right\}$$

$$s = bA(\sigma - \Delta\sigma)$$

$$\alpha_1 = \arctan\left(\frac{\cos U_2 \sin\lambda}{\cos U_1 \sin U_2 - \sin U_1 \cos U_2 \cos\lambda}\right)$$

$$\alpha_2 = \arctan\left(\frac{\cos U_1 \sin\lambda}{-\sin U_1 \cos U_2 - \cos U_1 \sin U_2 \cos\lambda}\right)$$

Between two nearly antipodal points, the iterative formula may fail to converge; this will occur when the first approximation at λ as computed by the equation above is greater than π in absolute value.

DIRECT PROBLEM

Given an initial point (φ_1, L_1) and initial azimuth, α_1, and a distance, s, along the geodesic the problem is to find the end point (φ_2, L_2) and azimuth, α_2.

Start by calculating the following:

$$\tan U_1 = (1-f)\tan\varphi_1$$

$$\sigma_1 = \arctan\left(\frac{\tan U_1}{\cos\alpha_1}\right)$$

$$\sin\alpha = \cos U_1 \sin\alpha_1;\ \cos^2\alpha = (1-\sin\alpha)(1+\sin\alpha)$$

$$u^2 = \cos^2\alpha\,\frac{a^2-b^2}{b^2}$$

$$A = 1 + \frac{u^2}{16384}\{4096 + u^2[-768 + u^2(320 - 175u^2)]\}$$

$$B = \frac{u^2}{1024}\{256 + u^2[-128 + u^2(74 - 47u^2)]\}$$

Then, using an initial value $\sigma = \frac{s}{bA}$ iterate the following equations until there is no significant change in σ:

$$2\sigma_m = 2\sigma_1 + \sigma$$

$$\Delta\sigma = B\sin\sigma\Big\{\cos(2\sigma_m) + \tfrac{1}{4}B\Big[\cos\sigma(-1+2\cos^2(2\sigma_m)) - \tfrac{1}{6}B\cos(2\sigma_m)(-3+4\sin^2\sigma)(-3+4\cos^2(2\sigma_m))\Big]\Big\}$$

$$\sigma = \frac{s}{bA} + \Delta\sigma$$

Once σ is obtained to sufficient accuracy, evaluate:

$$\varphi_2 = \arctan\left(\frac{\sin U_1\cos\sigma + \cos U_1\sin\sigma\cos\alpha_1}{(1-f)\sqrt{\sin^2\alpha + (\sin U_1\sin\sigma - \cos U_1\cos\sigma\cos\alpha_1)^2}}\right)$$

$$\lambda = \arctan\left(\frac{\sin\sigma\sin\alpha_1}{\cos U_1\cos\sigma - \sin U_1\sin\sigma\cos\alpha_1}\right)$$

$$C = \frac{f}{16}\cos^2\alpha\,[4 + f(4 - 3\cos^2\alpha)]$$

$$L = \lambda - (1 - C)f\sin\alpha\,\{\sigma + C\sin\sigma\,[\cos(2\sigma_m) + C\cos\sigma\,(-1 + 2\cos^2(2\sigma_m))]\}$$

$$\alpha_2 = \arctan\left(\frac{\sin\alpha}{-\sin U_1\sin\sigma + \cos U_1\sin\sigma\cos\alpha_1}\right)$$

If the initial point is at the North or South pole then the first equation is indeterminate. If the initial azimuth is due East or West then the second equation is indeterminate. If a double valued $atan2$ type function is used then these values are usually handled correctly.

VINCENTY'S MODIFICATION

In a letter to the Survey Review in 1976, Vincenty suggested replacing his series expressions for A and B with simpler formulas using German geodesist Friedrich Robert Helmert's (1843–1917; best known for his writing on "propagation of uncertainty") expansion parameter k_1:

$$A = \frac{1 + \frac{1}{4}(k_1)^2}{1 - k_1}$$

$$B = k_1\left(1 - \frac{3}{8}(k_1)^2\right)$$

Where: $k_1 = \frac{\sqrt{(1+u^2)}-1}{\sqrt{(1+u^2)}+1}$

NEARLY ANTIPODAL POINTS

As noted above, the iterative solution to the inverse problem fails to converge or converges slowly for nearly antipodal points. An example of slow convergence is $(\varphi_1, L_1) = (0^\circ, 0^\circ)$ and $(\varphi_2, L_2) = (0.5^\circ, 179.5^\circ)$ for the WGS 1984 ellipsoid. This requires about 130 iterations to give a result accurate to 1 mm. Depending on how the inverse method is implemented, the algorithm might return the correct result (19 936 288.579 meters), an incorrect result, or an error indicator.

An example of a failure of the inverse method to converge is $(\varphi_1, L_1) = (0^\circ, 0^\circ)$ and $(\varphi_2, L_2) = (0.5^\circ, 179.7^\circ)$ for the WGS 1984 ellipsoid. In an unpublished report, Vincenty gave an alternative iterative scheme to handle such cases. This converges to the correct result of 19 944 127.421 meters after about 60 iterations; however, in other cases many thousands of iterations are required.

LAND AND WATER AREA

The database provides land and water characteristics and total area size for Census Blocks.

CHARACTERISTIC FIELDS

- **LANDWATER** | Land and Water Indicator
  Each record has a one-character alphabetic code indicating the land and water characteristics of the Census Block:
  G = Glacier
  I = Intermittent Water
  L = Land
  P = Permanent Water
  S = Swamp/Marsh

- **AREA** | Total area for the Census Block in whole square meters

Total area size for Census Blocks is a 14-character numeric value given in whole square meters. Note the following conversion formulas:

- To convert square meters to square miles:
  $$mi^2 = m^2 \times 0.00000038610215854781$$
- To convert square meters to square yards:
  $$yd^2 = m^2 \times 1.1959900463011$$
- To convert square meters to square feet:
  $$ft^2 = m^2 \times 10.76391041671$$
- To convert square meters to square inches:
  $$in^2 = m^2 \times 1550.0031000062$$
- To convert square meters to acres:
  $$ac = m^2 \times 0.00024710538146717$$
- To convert square meters to square kilometers:
  $$km^2 = m^2 \times 0.000001$$
- To convert square meters to square centimeters:
  $$cm^2 = m^2 \times 10000$$
- To convert square meters to square millimeters:
  $$mm^2 = m^2 \times 1000000$$
- To convert square meters to hectares:
  $$ha = m^2 \times 0.0001$$

URBAN AND RURAL INDICATOR

Urban and rural characteristics are provided for Census Blocks. For the 2010 Census, the U.S. Census Bureau classified as urban all territory, population, and housing units located within urbanized areas (UA) and urban clusters (UC), both defined using the same criteria. The U.S. Census Bureau delineates UA and UC boundaries that represent densely developed territory, encompassing residential, commercial, and other nonresidential urban land

uses. In general, this territory consists of areas of high population density and urban land use resulting in a representation of the "urban footprint." Rural areas consist of all territory, population, and housing units located outside UAs and UCs.

For the 2010 Census, the urban and rural classification was applied to the 50 states; the District of Columbia (federal district); and the Commonwealth of Puerto Rico, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands insular areas.

CHARACTERISTICS FIELDS

- **UR** | Urban/Rural Indicator
  Each record has a one-character alphabetic code indicating if the Census Block is urban or rural:
  U = Urban
  R = Rural

LEGAL AND STATISTICAL AREAS

The *pdGeoTIGER* and companion *pdGeoSupplement* databases provide designations for U.S. Census Bureau legal and statistical areas. A legal area is a geographic entity where the boundaries, name, origin, and area description result from charters, laws, treaties, or other administrative or governmental action. A statistical area is any geographic entity or combination of entities identified and defined solely for the tabulation and presentation of data. Statistical area boundaries are not legally defined and the entities have no governmental standing.

The following is a listing of available geographic areas categorized by legal and statistical areas:

LEGAL AREAS

- Alaska Native Regional Corporation
- American Indian Off-Reservation Trust Land
- American Indian Reservation (both federally and state-recognized)
- American Indian Tribal Subdivision (within legal American Indian Areas)
- Congressional District
- Consolidated City
- County (and equivalent entities; except Census Areas in Alaska)
- Estate (in U.S. Virgin Islands only)
- Native Hawaiian Home Land
- Incorporated Place
- Minor Civil Division (MCD, such as towns and townships in the Northeast and Midwest)
- School District (Elementary, Secondary, and Unified)
- State (and equivalent entities)
- State Legislative District (upper and lower chamber)
- Subminor Civil Division (sub-MCD, Sub-Barrio; in Puerto Rico only)
- Urban Growth Area (in Oregon and Washington)
- United States

- Voting District

STATISTICAL AREAS

- American Indian/Alaska Native Statistical Area
  - Alaska Native Village Statistical Areas
  - Tribal Designated Statistical Area
  - Oklahoma Tribal Statistical Area
  - State Designated Tribal Statistical Area
  - American Indian Tribal Subdivision (within Oklahoma Tribal Statistical Areas)
- Census 5-Digit Zip Code Tabulation Area (ZCTA)
- Census Area (statistical county equivalents in Alaska)
- Census County Division (CCD), Census Subarea (in Alaska), and unorganized territory (Statistical County Subdivision)
- Census Block
- Census Block Group
- Census Block Suffix
- Census Designated Place (CDP)
- Census Tract
- Combined New England City and Town Area
- Combined Statistical Area
- Division
- Metropolitan/ Micropolitan Statistical Area (and related statistical areas)
- Metropolitan Division
- New England City and Town Area
- New England City and Town Area Division
- Public Use Microdata Area (PUMA 5% File)
- Region
- Urban Area

Fields listed below can be in *pdGeoTIGER*, the *pdGeoSupplement* reference file, or both. The location(s) of the field is indicated in parentheses at the end of the line identifying the field name; for example, "(pdGeoTIGER, pdGeoSupplement)" means the field is in both databases. Note that for user convenience some coding fields in *pdGeoSupplement* can be in two locations, in a field specific for the geographic area and in a general identification field.

UNITED STATES

The United States of America consists of all 50 states and the District of Columbia (federal district). The U.S. Census Bureau does not recognize insular areas as part of the United States. United States designations are blank for American Indian Area/Alaska Native Area/Native Hawaiian Home Land (AIANNH), American Indian Tribal Subdivision, Tribal Census Tract, and Tribal Block Group records.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  The United States is identified by a common name and a translated legal/statistical area description.

- **US** | United States Census Code (pdGeoSupplement)
- **USCCODE** | United States Census Code (pdGeoSupplement)
  The United States is identified by a single-character numeric Census code:
  1 = United States
  0 = Not part of the United States (assigned to insular areas)

REGION

These are groupings of states and the District of Columbia (federal district) that subdivide the United States. There are four regions: Northeast, Midwest, South, and West. Each region is divided into two or more divisions. The Commonwealth of Puerto Rico and other insular areas are not part of any region.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each region is identified by a common name and a translated legal/statistical area description.

- **REGION** | Region Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | Region Census Code (pdGeoSupplement)
  Each region is identified by a single-character numeric Census code:
  1 = Northeast
  2 = Midwest
  3 = South
  4 = West
  9 = Not in a region (insular areas)

DIVISION

These are groupings of states and the District of Columbia (federal district) that subdivide the four regions. There are nine divisions. The Commonwealth of Puerto Rico and other insular areas are not part of any division.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each division is identified by a common name and a translated legal/statistical area description.

- **DIVISION** | Division Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | Division Census Code (pdGeoSupplement)

  Each division is identified by a single-character numeric Census code:

  1 = New England
  2 = Middle Atlantic
  3 = East North Central
  4 = West North Central
  5 = South Atlantic
  6 = East South Central
  7 = West South Central
  8 = Mountain
  9 = Pacific
  0 = Not in a division (insular areas)

STATE (OR EQUIVALENT ENTITY)

These are the primary governmental divisions of the United States. In addition to the 50 states, the U.S. Census Bureau treats the District of Columbia (federal district), the Commonwealth of Puerto Rico, American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, the U.S. Virgin Islands, and the other insular areas as the statistical equivalents of states. (Note that Puerto Rico is the only insular area covered in *pdGeoTIGER*.)

IDENTIFICATION FIELDS

- **STATE** | Common Name (pdGeoTIGER)
- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)

  Each state or statistically equivalent entity is identified by a common name and a translated legal/statistical area description.

- **STATEFP** | State FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | State FIPS Code (pdGeoSupplement)

  Each state or statistically equivalent entity is identified by a two-character numeric Federal Information Processing Series (FIPS) code.

- **ANSICODE** | State ANSI Code (pdGeoSupplement)

  Each state or statistically equivalent entity is identified by an eight-character numeric National Standard (ANSI) code.

- **STATEABBR** | State USPS Postal Abbreviation (pdGeoTIGER, pdGeoSupplement)

  Each state or statistically equivalent entity is identified by a two-character alphabetic U.S. Postal Service (USPS) postal abbreviation.

COUNTY (OR EQUIVALENT ENTITY)

These are the primary legal divisions of most states. In Louisiana, these divisions are known as parishes. In Alaska, which has no counties, the equivalent entities are the organized boroughs, city and boroughs, municipalities, and Census areas; the latter of which are delineated cooperatively for statistical purposes by the state of Alaska and the U.S. Census Bureau. In four states (Maryland, Missouri, Nevada, and Virginia), there are one or more incorporated places that are independent of any county organization and constitute primary divisions of the states. These incorporated places are known as independent cities and are treated as equivalent entities for purposes of data presentation. The District of Columbia (federal district) and Guam (insular area) have no primary divisions, and each area is considered an equivalent entity for purposes of data presentation.

All counties in Connecticut and Rhode Island and nine counties in Massachusetts were dissolved as functioning governmental entities; however, the U.S. Census Bureau continues to present data for these historical entities in order to provide comparable geographic units at the county level of the geographic hierarchy for these states and represents them as nonfunctioning legal entities.

The U.S. Census Bureau treats the following insular area entities as equivalents of counties for purposes of data presentation:

- Municipios in the Commonwealth of Puerto Rico
- Districts and islands in American Samoa
- Municipalities in the Commonwealth of the Northern Mariana Islands
- Islands in the U.S. Virgin Islands

IDENTIFICATION FIELDS

- **COUNTY** | Common Name (pdGeoTIGER)
- **NAME** | Common Name (pdGeoSupplement)
- **COUNTYLONG** | Translated LSAD (pdGeoTIGER)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each county or statistically equivalent entity is identified by a common name and a translated legal/statistical area description.

- **COUNTYFP** | County FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | County FIPS Code (pdGeoSupplement)
  Each county or statistically equivalent entity is identified by a three-character numeric Federal Information Processing Series (FIPS) code based on alphabetical sequence that is unique within states.

- **ANSICODE** | County ANSI Code (pdGeoSupplement)
  Each county or statistically equivalent entity is identified by an eight-character numeric National Standard (ANSI) code.

CENSUS TRACT

These are small, relatively permanent statistical subdivisions of a county or equivalent entity that are updated by local participants prior to each decennial Census as part of the U.S. Census Bureau *Participant Statistical Areas Program*. The bureau delineates Census Tracts in situations where no local participant exists or where state, local, or tribal governments decline to participate. The primary purpose of Census Tracts is to provide a stable set of geographic units for the presentation of statistical data.

Census Tracts generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people. A Census Tract usually covers a contiguous area; however, the spatial size of Census Tracts varies widely depending on the density of settlement. Census Tract boundaries are delineated with the intention of being maintained over a long time so that statistical comparisons can be made from Census to Census. Census Tracts occasionally are split due to population growth or merged as a result of substantial population decline.

Census Tract boundaries generally follow visible and identifiable features. They may follow nonvisible legal boundaries, such as minor civil division (MCD) or incorporated place boundaries in some states and situations, to allow for Census-Tract-to-governmental-unit relationships where the governmental boundaries tend to remain unchanged between censuses. State and county boundaries always are Census Tract boundaries in the standard Census geographic hierarchy.

Census Tracts are identified by an up to four-digit integer number and may have an optional two-digit suffix; for example 1457.02 or 23. The Census Tract codes consist of six digits with an implied decimal between the fourth and fifth digit corresponding to the basic Census Tract number but with leading zeroes and trailing zeroes for Census Tracts without a suffix. The tract number examples above would have codes of 145702 and 002300, respectively.

Some ranges of Census Tract numbers in the 2010 Census are used to identify distinctive types of Census Tracts. The code range in the 9400s is used for those Census Tracts with a majority of population, housing, or land area associated with an American Indian area and matches the numbering used in the 2000 Census. The code range in the 9800s is new for 2010 and is used to specifically identify special land-use Census Tracts; that is, Census Tracts defined to encompass a large area with little or no residential population with special characteristics, such as large parks or employment areas. The range of Census Tracts in the 9900s represents Census Tracts delineated specifically to cover large bodies of water. This is different from the 2000 Census when water-only Census Tracts were assigned codes of all zeroes (“000000”); “000000” is no longer used as a Census Tract code for the 2010 Census.

The U.S. Census Bureau uses suffixes to help identify Census Tract changes for comparison purposes. Census Tract suffixes may range from .01 to .98. As part of local review of existing Census Tracts before each Census, some Census Tracts may have grown enough in population size to qualify as more than one Census Tract. When a Census Tract is split, the split parts usually retain the basic number but receive different suffixes. For example, if Census Tract 14 is split, the new Census Tract numbers would be 14.01 and 14.02. In a few counties, local participants request major changes to, and renumbering of, the Census Tracts; however, this is generally discouraged. Changes to individual Census Tract boundaries usually do not result in Census Tract numbering changes.

IDENTIFICATION FIELDS

- **TRACT** | Tract Census Code (pdGeoTIGER)
  Each Census Tract is identified by a six-character numeric Census code that is unique within counties and equivalent entities with an implied decimal between the fourth and fifth digit to accommodate an optional suffix (see above for details).

CENSUS BLOCK GROUP

These are statistical divisions of Census Tracts generally defined to contain between 600 and 3,000 people and used to control Census Block numbering. A Census Block Group consists of clusters of Census Blocks within the same Census Tract that have the same first digit of their four-digit Census Block number. For example, Census Blocks 3001, 3002, 3003, through 3999 in Census Tract 1210.02 belong to Census Block Group 3 in that Census Tract. Most Census Block Groups were delineated by local participants in the U.S. Census Bureau *Participant Statistical Areas Program*. The U.S. Census Bureau delineated Census Block Groups only where a local or tribal government declined to participate, and a regional organization or State Data Center was not available to participate.

A Census Block Group usually covers a contiguous area. Each Census Tract contains at least one Census Block Group, and Census Block Groups are uniquely numbered within the Census Tract. Within the standard Census geographic hierarchy, Census Block Groups never cross state, county, or Census Tract boundaries but may cross the boundaries of any other geographic entity.

Census Block Groups have a valid code range of 0 through 9. Census Block Groups beginning with a zero only contain water area and are generally in coastal and Great Lakes water and territorial seas, but also in larger inland water bodies. For the 2010 Census, a Census Block Group 0 for the water portion can be delineated in any Census Tract and not just those Census Tracts also defined to only include water area. This is a change from the 2000 Census, when Census Block Groups coded 0 only existed in Census Tracts with a code of 0. To differentiate between county-based Census Block Groups and Tribal Block Groups, the codes for Tribal Block Groups use an alphabetic character.

IDENTIFICATION FIELDS

- **BLOCKGRP** | Block Group Census Code (pdGeoTIGER)
  Each Census Block Group is identified by a one-character numeric Census code ("0" though "9") based on the first digit of the Census Block (see above for details).

CENSUS BLOCK

These are statistical areas bounded by visible features, such as streets, roads, streams, and railroad tracks, and by nonvisible boundaries, such as selected property lines and city, township, school district, and county limits and short line-of-sight extensions of streets and roads. Generally, Census Blocks are small in area; for example, a block in a city bounded on all sides by streets. Census Blocks in suburban and rural areas may be large, irregular, and bounded by a variety of features, such as roads, streams, and transmission lines. In remote areas, Census Blocks may encompass hundreds of square miles. Census Blocks cover the entire territory of the United States, the

District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas. Census Blocks nest within all other Census geographic entities and are the basis for all tabulated data.

Census Blocks are numbered uniquely with a four-digit Census Block number from 0000 to 9999 within Census Tracts, which nest within the state and county. The first digit of the Census Block number identifies the Census Block Group. Census Block numbers beginning with a zero (in Census Block Group 0) are only associated with water-only areas.

IDENTIFICATION FIELDS

- **BLOCK** | Block Census Code (pdGeoTIGER)
  Each Census Block is identified by a four-character numeric Census code that is unique within Census Tracts (see above for details).

CENSUS BLOCK SUFFIX

These generally represent Census Blocks that split in order to identify separate geographic entities that divide the original Census Block. For example, when a city limit runs through Census Block 1001, the data for the portion inside the city is tabulated in Census Block 1001A and the portion outside, in Census Block 1001B. A Census Block Suffix "Z" represents a "crews-of-vessels" entity for which the U.S. Census Bureau tabulates data, but it does not represent a true geographic area; such a block is shown on Census maps associated with an anchor symbol and a Census Tract or Census Block numbering area with a .99 suffix. Census Block Suffixes are not permanent and change with each annual cycle of Census Block suffixing. Most Census Blocks do not have a Census Block Suffix. A Census Block Suffix is a single-character alphabetic code, normally “A” or “B”.

IDENTIFICATION FIELDS

- **BLOCKSUF** | Block Suffix Census Code (pdGeoTIGER)
  Each Census Block Suffix is identified by a one-character alphabetic Census code, normally “A” or “B” (see above for details).

COUNTY SUBDIVISION

These are the primary divisions of counties and equivalent entities. They include Census county divisions, Census subareas, minor civil divisions, and unorganized territories, and can be classified as either legal or statistical.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each county subdivision is identified by a common name and a translated legal/statistical area description.

- **COUSUBFP** | County Subdivision FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | County Subdivision FIPS Code (pdGeoSupplement)
  Each county subdivision is identified by a five-character numeric Federal Information Processing Series (FIPS) code based on alphabetical sequence that is unique within states.

- **ANSICODE** | County Subdivision ANSI Code (pdGeoSupplement)
  Each county subdivision is identified by an eight-character numeric National Standard (ANSI) code.

SUBMINOR CIVIL DIVISION (SUB-MCD)

These are legally defined subdivisions of county subdivisions in the Commonwealth of Puerto Rico (insular area) and locally are known as subbarrios. They are the equivalent of estates in the U.S. Virgin Islands (insular area). The U.S. Census Bureau recognizes barrios and barrios-pueblo as the primary legal divisions of municipios. These entities are similar to the minor civil divisions (MCD) used for reporting data in 29 states of the United States. Subbarrios in 23 municipios are the primary legal subdivisions of the barrios-pueblo and some barrios. The U.S. Census Bureau presents the same types of statistical data for these subminor civil divisions (sub-MCD) as it does for the barrios and barrios-pueblo. There is no geographic entity in the United States equivalent to the subbarrio.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each subminor civil division is identified by a common name and a translated legal/statistical area description.

- **SUBMCDFP** | Subminor Civil Division FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | Subminor Civil Division FIPS Code (pdGeoSupplement)
  Each subminor civil division is identified by a five-character numeric Federal Information Processing Series (FIPS) code.

- **ANSICODE** | Subminor Civil Division ANSI Code (pdGeoSupplement)
  Each subminor civil division is identified by an eight-character numeric National Standard (ANSI) code.

ESTATE

The Estate Federal Information Processing Series (FIPS) code field (ESTATEFP) is included in pdGeoTIGER *for future use, but the U.S. Virgin Islands is currently not covered in the database, so it is not filled. Estates are covered in* pdGeoSupplement.

These are legally defined subdivisions of the three major islands (county equivalent entities) in the U.S. Virgin Islands (insular area) and locally are known as estates. They are the equivalent of sub-MCDs in the Commonwealth of Puerto Rico (insular area) and are similar to the minor civil divisions (MCD) used for reporting data in 29 states of the United States. Estates have legally defined boundaries and are much smaller in area than the Census Subdistricts (county subdivisions), but do not necessarily nest within these districts. The boundaries of the estates are primarily those of the former agricultural plantations that existed at the time Denmark transferred the islands to the United States in 1917. The names and boundaries of the estates are in common usage by residents and in government administration. The boundaries of the estates are as of January 1, 2010 and were provided to the U.S.

Census Bureau by the U.S. Virgin Islands Office of the Lieutenant Governor. There is no geographic entity in the United States equivalent to the estate.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each estate is identified by a common name and a translated legal/statistical area description.

- **ESTATEFP** | Estate FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | Estate FIPS Code (pdGeoSupplement)
  Each estate is identified by a five-character numeric Federal Information Processing Series (FIPS) code (see above for details).

- **ANSICODE** | Estate ANSI Code (pdGeoSupplement)
  Each estate is identified by an eight-character numeric National Standard (ANSI) code.

PLACE

These are made up of incorporated places and Census Designated Places (CDP). Incorporated Places are those reported to the U.S. Census Bureau as legally in existence as of January 1, 2010, as reported in the latest *Boundary and Annexation Survey (BAS),* under the laws of their respective states. An incorporated place is established to provide governmental functions for a concentration of people as opposed to a minor civil division, which generally is created to provide services or administer an area without regard, necessarily, to population. Places always are within a single state or equivalent entity, but may extend across county and county subdivision boundaries. An incorporated place usually is a city, town, village, or borough, but can have other legal descriptions. For U.S. Census Bureau data tabulation and presentation purposes, incorporated places exclude:

- Boroughs in Alaska (treated as statistical equivalents of counties)
- Towns in the New England states, New York, and Wisconsin (treated as MCDs)
- Boroughs in New York (treated as MCDs)

Census Designated Places (CDP) are the statistical counterparts of incorporated places, and are delineated to provide data for settled concentrations of population that are identifiable by name but are not legally incorporated under the laws of the state in which they are located. The boundaries usually are defined in cooperation with local or tribal officials and are generally updated prior to each decennial Census. These boundaries, which usually coincide with visible features or the boundary of an adjacent incorporated place or another legal entity boundary, have no legal status, nor do these places have officials elected to serve traditional municipal functions. CDP boundaries may change from one decennial Census to the next with changes in the settlement pattern; a CDP with the same name as in an earlier Census does not necessarily have the same boundary. CDPs must be contained within a single state and may not extend into an incorporated place. There are no population size requirements for CDPs.

Hawaii is the only state that has no incorporated places recognized by the U.S. Census Bureau. All places shown in decennial U.S. Census data for Hawaii are CDPs. By agreement with the state of Hawaii, the U.S. Census Bureau does not show data separately for the city of Honolulu, which is coextensive with Honolulu County. In the Commonwealth of Puerto Rico (insular area), which also does not have incorporated places, the U.S. Census Bureau recognizes only CDPs and refers to them as comunidades or zonas urbanas. Guam (insular area) also has only CDPs.

A five-digit Federal Information Processing Series (FIPS) place code is assigned based on alphabetical sequence within a state. If place names are duplicated within a state and they represent distinctly different areas, a separate code is assigned to each place name alphabetically by the primary county in which each place is located, or if both places are in the same county, they are assigned alphabetically by their legal descriptions, such as "city" before "village".

Note that Dependent and Independent Places refers to the relationship of places to the county subdivisions. Depending on the state, incorporated places are either dependent within, or independent of, county subdivisions, or there is a mixture of dependent and independent places in the state and in a county. Dependent places are part of the county subdivision; the county subdivision code of the place is the same as that of the underlying county subdivision(s) but is different from the place code. Independent places are not part of any minor civil division (MCD) and serve as primary county subdivisions. The independent place FIPS code usually is the same as that used for the MCD for the place. The only exception is if the place is independent of the MCDs in a state (Iowa, Louisiana, Maryland, Nebraska, North Carolina, and Virginia) in which the FIPS MCD codes are in the 90000 range. Then the FIPS MCD and FIPS place codes will differ. CDPs always are dependent within county subdivisions and all places are dependent within statistical county subdivisions.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each place is identified by a common name and a translated legal/statistical area description.

- **PLACEFP** | Place FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | Place FIPS Code (pdGeoSupplement)
  Each place is identified by a five-character numeric Federal Information Processing Series (FIPS) code usually based on alphabetical sequence within states (see above for details).

- **ANSICODE** | Place ANSI Code (pdGeoSupplement)
  Each place is identified by an eight-character numeric National Standard (ANSI) code.

SPECIAL INDICATOR FIELDS

- **MEMIPCI** | *Metropolitan/Micropolitan Statistical Area Principal City Indicator* (pdGeoSupplement):
  Y = Yes; is a principal city
  N = No; is not a principal city

- **NECTAPCI** | *New England City and Town Area Principal City Indicator* (pdGeoSupplement):
  Y = Yes; is a principal city
  N = No; is not a principal city

CONSOLIDATED CITY

These are units of local government for which the functions of an incorporated place and its county or minor civil division (MCD) have merged. This results in both the primary incorporated place and the county or MCD continuing to exist as legal entities, even though the county or MCD performs few or no governmental functions and has few or no elected officials. Where this occurs—and where one or more other incorporated places in the county or MCD continue to function as separate governments, even though they have been included in the consolidated government—the primary incorporated place is referred to as a consolidated city. The U.S. Census Bureau classifies the separately incorporated places within the consolidated city as place entities and creates a separate place (balance) record for the portion of the consolidated city not within any other place.

Consolidated City (Balance) Portions refer to the areas of a consolidated city not included in another separately incorporated place. For example, Butte-Silver Bow, MT, is a consolidated city (former Butte city and Silver Bow County) that includes the separately incorporated municipality of Walkerville city. The area of the consolidated city that is not in Walkerville city is assigned to Butte-Silver Bow (balance). The place name always includes the "(balance)" identifier.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each consolidated city is identified by a common name and a translated legal/statistical area description.

- **CONCITFP** | Consolidated City FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | Consolidated City FIPS Code (pdGeoSupplement)
  Each consolidated city is identified by a five-character numeric Federal Information Processing Series (FIPS) code.

- **ANSICODE** | Consolidated City ANSI Code (pdGeoSupplement)
  Each consolidated city is identified by an eight-character numeric National Standard (ANSI) code.

ALASKA NATIVE REGIONAL CORPORATION (ANRC)

These were created pursuant to the *Alaska Native Claims Settlement Act (ANCSA) (Pub. L. 92–203, 85 Stat. 688 [1971]; 43 U.S.C. 1602 et seq. [2000]),* enacted in 1971 as a "Regional Corporation" and organized under the laws of the state of Alaska to conduct both the for-profit and non-profit affairs of Alaska Natives within a defined region of Alaska. For the U.S. Census Bureau, ANRCs are considered legal geographic entities. Twelve ANRCs cover the entire state of Alaska except for the area within the Annette Island Reserve (a federally recognized American Indian reservation under the governmental authority of the Metlakatla Indian Community). A thirteenth ANRC represents Alaska Natives who do not live in Alaska and do not identify with any of the twelve corporations. The U.S. Census Bureau does not provide data for this thirteenth ANRC because it has no defined geographic extent

and does not appear in the Census *TIGER/Line® Shapefiles*. The U.S. Census Bureau offers representatives of the 12 nonprofit ANRCs in Alaska the opportunity to review and update the ANRC boundaries before each decennial Census.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each ANRC is identified by a common name and a translated legal/statistical area description.

- **ANRCFP** | ANRC FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | ANRC FIPS Code (pdGeoSupplement)
  Each ANRC is identified by a five-character numeric Federal Information Processing Series (FIPS) code.

- **ANSICODE** | ANRC ANSI Code (pdGeoSupplement)
  Each ANRC is identified by an eight-character numeric National Standard (ANSI) code.

AMERICAN INDIAN AREA/ALASKA NATIVE AREA/NATIVE HAWAIIAN HOME LAND (AIANNH)

There include both legal and statistical American Indian Area, Alaska Native Area, and Native Hawaiian Home Land (AIANNH) entities. The boundaries of AIANNH areas may cross state and county lines. The legal entities consist of federally recognized American Indian reservations and off-reservation trust land areas, the tribal subdivisions that can divide these entities, state-recognized American Indian reservations, Alaska Native Regional Corporations, and Native Hawaiian home lands. The statistical entities are Alaska Native village statistical areas, Oklahoma tribal statistical areas, tribal designated statistical areas, and state designated tribal statistical areas. Statistical tribal subdivisions can exist within Oklahoma tribal statistical areas. In all cases, these areas are mutually exclusive in that no AIANNH area can overlap another tribal entity, except for tribal subdivisions, which by definition subdivide some American Indian entities, and Alaska Native village statistical areas, which exist within Alaska Native Regional Corporations. In cases where more than one tribe claims jurisdiction over an area, the U.S. Census Bureau creates a joint-use area as a separate entity to define this area of dual claims.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each ANNANH area is identified by a common name and a translated legal/statistical area description.

- **AIANNH** | AIANNH Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | AIANNH Census Code (pdGeoSupplement)
  Each ANNANH area is identified by a four-character numeric Census code based, if federal, on alphabetical sequence that is unique within the nation.

- **AIANNHFP** | AIANNH FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | AIANNH FIPS Code (pdGeoSupplement)
  Each ANNANH area is identified by a five-character numeric Federal Information Processing Series (FIPS) code.

- **ANSICODE** | AIANNH ANSI Code (pdGeoSupplement)
  Each ANNANH area is identified by an eight-character numeric National Standard (ANSI) code.

SPECIAL INDICATOR FIELDS

- **AIANNHLI** | *American Indian Area/Alaska Native Area/Native Hawaiian Home Land Reservation/Statistical Entity or Off-Reservation Trust Land/Native Hawaiian Home Land Indicator* (pdGeoTIGER, pdGeoSupplement):
  T = Off-Reservation Trust Land or Native Hawaiian Home Land
  R = Reservation or Statistical Entity
  M = Mixed

- **AIANNHR** | *American Indian Area/Alaska Native Area/Native Hawaiian Home Land Federal/State Recognition Indicator* (pdGeoSupplement):
  F = Federally recognized
  S = State recognized

AMERICAN INDIAN TRIBAL SUBDIVISION

These are additions, administrative areas, areas, chapters, county districts, communities, districts, and segments, which are legal administrative subdivisions of federally recognized American Indian reservations and off-reservation trust lands or are statistical subdivisions of Oklahoma tribal statistical areas (OTSA). These entities are internal units of self-government or administration that serve social, cultural, and economic purposes for the American Indians on the reservations, off-reservation trust lands, or OTSAs. The U.S. Census Bureau obtains the boundary and name information for tribal subdivisions from tribal governments and only has records for the 24 American Indian areas and two OTSAs that have actual tribal subdivisions. The boundaries of tribal subdivisions may cross state and county lines.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each American Indian tribal subdivision is identified by a common name and a translated legal/statistical area description.

- **AITSUB** | American Indian Tribal Subdivision Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | American Indian Tribal Subdivision Census Code (pdGeoSupplement)
  Each American Indian tribal subdivision is identified by a three-character numeric Census code based on alphabetical sequence that is unique within American Indian areas.

- **AITSUBFP** | American Indian Tribal Subdivision FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | American Indian Tribal Subdivision FIPS Code (pdGeoSupplement)
  Each American Indian tribal subdivision is identified by a five-digit Federal Information Processing Series (FIPS) code based on alphabetical sequence that is unique within states (the FIPS code will be different in each state for tribal subdivisions that include territory in more than one state).

- **ANSICODE** | American Indian Tribal Subdivision ANSI Code (pdGeoSupplement)
  Each American Indian tribal subdivision is identified by an eight-character numeric National Standard (ANSI) code.

TRIBAL CENSUS TRACT

These are small, relatively permanent statistical subdivision of a federally recognized American Indian reservation or off-reservation trust land, delineated by American Indian tribal participants or the U.S. Census Bureau for the purpose of presenting data. Designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions, Tribal Census Tracts average about 2,500 people. A Tribal Census Tract must consist of territory located on a reservation or trust land. The boundaries of Tribal Census Tracts may cross state and county lines, and normally follow visible features, but may follow governmental unit boundaries and other nonvisible features in some instances. Tribal Census Tracts may be completely different from the Census Tracts and Census Blocks defined by state and county.

The 2010 Tribal Census Tract concept and criteria are completely different from those used in 2000. Tribal Census Tracts (also known as tribal tracts) in 2000 were the standard state-county-Census Tract areas retabulated under an American Indian area hierarchy; that is, American Indian area-Tribal Census Tract. Federally recognized tribes with a reservation or off-reservation trust land delineated Tribal Census Tracts working with local Census Tract participants to produce a single Census Tract plan. Tribal Census Tracts were designed to be permanent statistical divisions of American Indian areas for the presentation of comparable data between censuses, particularly for those American Indian areas that crossed state or county boundaries where these boundaries were not meaningful for statistical purposes.

For 2010, Tribal Census Tracts are defined independently of the standard county-based Census Tract delineation. For federally recognized American Indian tribes with reservations or off-reservation trust land and a population less than 2,400, a single Tribal Census Tract is defined. Qualifying areas with a population greater than 2,400 could define additional Tribal Census Tracts within their area.

In 2000, the tract number range of 9400 through 9499 was reserved for Tribal Census Tracts and was required for those Tribal Census Tracts that crossed state or county boundaries. Not all Tribal Census Tracts in 2000, however, used this range. For 2010, Tribal Census Tract codes are six characters long with a leading “T” alphabetic character followed by five digits having an implied decimal between the fourth and fifth character; for example, T01000, which translates as Tribal Census Tract 10. Tribal Block Groups nest within Tribal Census Tracts. Since individual Census Blocks are defined within the standard state-county-Census Tract hierarchy, a Tribal Census Tract can contain seemingly duplicate block numbers, therefore, Tribal Census Tracts cannot be used to uniquely identify Census Blocks.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each Tribal Census Tract is identified by a common name and a translated legal/statistical area description.

- **TTRACT** | Tribal Tract Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | Tribal Tract Census Code (pdGeoSupplement)
  Each Tribal Census Tract is identified by a six-character alpha/numeric Census code with a leading "T" to differentiate from standard Census Tracts (see above for details).

TRIBAL BLOCK GROUP

These are subdivisions of Tribal Census Tracts and the smallest geographic area for which the U.S. Census Bureau tabulates data. Tribal Block Groups are delineated by American Indian tribal participants or the U.S. Census Bureau, and average about 1,000 people.

The 2010 Tribal Block Group concept and criteria are completely different from those used in 2000. For the 2000 Census, Tribal Block Groups were the standard state-county-Census Tract-Census Block Group areas retabulated under an American Indian area hierarchy; that is, American Indian area-Tribal Census Tract-Tribal Block Group. Tribal Block Groups only were applicable to legal federally recognized American Indian reservation and off-reservation trust land areas. Tribal Block Groups were defined to provide statistically significant sample data for small areas within American Indian areas, particularly those American Indian areas that crossed state or county boundaries where these boundaries were not meaningful for statistical purposes. The 2000 Tribal Block Groups used the Census Block Group numbers and comprised all blocks beginning with the same number.

The 2010 Tribal Block Groups are defined independently of the standard county-based Census Block Group delineation. For federally recognized American Indian tribes with reservations or off-reservation trust land and a population less than 1,200, a single Tribal Block Group is defined. Tribal participants in qualifying areas with a population greater than 1,200 could define additional Tribal Block Groups within their reservation or off-reservation trust land without regard to the standard Census Block Group configuration.

Tribal Block Groups contain blocks beginning with the same number as the standard county-based Census Block Groups and could contain seemingly duplicate block numbers. To better identify and differentiate Tribal Block Groups from county-based Census Block Groups, Tribal Block Groups use the letter range A through K (except "I", which could be confused with the number "1") to identify and code the Tribal Block Groups. Tribal Block Groups nest within Tribal Census Tracts. The boundaries of Tribal Block Groups may cross state and county lines.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each Tribal Block Group is identified by a common name and a translated legal/statistical area description.

- **TBLKGRP** | Tribal Block Group Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | Tribal Block Group Census Code (pdGeoSupplement)
  Each Tribal Block Group is identified by a one-character alphabetic Census code; "A" through "K", except "I", to differentiate from standard Census Block Groups (see above for details).

COMBINED STATISTICAL AREA (CSA)

These consist of two or more adjacent Metropolitan/Micropolitan Statistical Areas (CBSA) that have substantial employment interchange. The CBSAs that combine to create a CSA retain separate identities within the larger CSA. Because CSAs represent groupings of metropolitan and/or micropolitan statistical areas, they should not be ranked or compared with individual metropolitan and micropolitan statistical areas.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each CSA is identified by a common name and a translated legal/statistical area description.

- **CSAFP** | CSA FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | CSA FIPS Code (pdGeoSupplement)
  Each CSA is identified by a three-character numeric Federal Information Processing Series (FIPS) code.

METROPOLITAN/MICROPOLITAN STATISTICAL AREA (CBSA)

These metro and micro areas are geographic entities delineated by the Office of Management and Budget (OMB) for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. The term "Core Based Statistical Area" (CBSA) is a collective term for both metro and micro areas. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000, but less than 50,000 population. Each metro or micro area consists of the central county or counties or equivalent entities containing the core of the urban area, as well as any adjacent counties that have a high degree of social and economic integration with the urban core as measured through commuting to work.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each CBSA is identified by a common name and a translated legal/statistical area description.

- **METMICFP** | CBSA FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | CBSA FIPS Code (pdGeoSupplement)
  Each CBSA is identified by a five-character numeric Federal Information Processing Series (FIPS) code.

SPECIAL INDICATOR FIELDS

- **MEMI** | *Metropolitan/Micropolitan Statistical Area Status Indicator* (pdGeoSupplement):
  1 = Metropolitan
  2 = Micropolitan
  9 = Neither

METROPOLITAN DIVISION

These are smaller groupings of counties or equivalent entities defined within a metropolitan statistical area containing a single core with a population of at least 2.5 million. Not all metropolitan statistical areas with urbanized areas of this size will contain metropolitan divisions. A metropolitan division consists of one or more main or secondary counties that represent an employment center or centers, plus adjacent counties associated with the main or secondary county or counties through commuting ties. Because metropolitan divisions represent subdivisions of larger metropolitan statistical areas, it is not appropriate to rank or compare metropolitan divisions with metropolitan and micropolitan statistical areas. It would be appropriate to rank and compare metropolitan divisions. The concept of metropolitan divisions was introduced in 2003.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each metropolitan division is identified by a common name and a translated legal/statistical area description.

- **METDVFP** | Metropolitan Division FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | Metropolitan Division FIPS Code (pdGeoSupplement)
  Each metropolitan division is identified by a five-character numeric Federal Information Processing Series (FIPS) code.

COMBINED NEW ENGLAND CITY AND TOWN AREA

These consist of two or more adjacent New England city and town areas (NECTA) that have substantial employment interchange. The NECTAs that combine to create a combined NECTA retain separate identities within the larger combined NECTA. Because combined NECTAs represent groupings of NECTAs, they should not be ranked or compared with individual NECTAs.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each combined NECTA is identified by a common name and a translated legal/statistical area description.

- **CNECTAFP** | Combined NECTA FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | Combined NECTA FIPS Code (pdGeoSupplement)
  Each combined NECTA is identified by a three-character numeric Federal Information Processing Series (FIPS) code.

NEW ENGLAND CITY AND TOWN AREA (NECTA)

These are an alternative set of geographic entities, similar in concept to the county-based CBSAs defined nationwide, that OMB defines in New England based on county subdivisions—usually cities and towns. NECTAs are defined using the same criteria as county-based CBSAs, and, similar to CBSAs, NECTAs are categorized as metropolitan or micropolitan.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each NECTA is identified by a common name and a translated legal/statistical area description.

- **NECTAFP** | NECTA FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | NECTA FIPS Code (pdGeoSupplement)
  Each NECTA is identified by a five-character numeric Federal Information Processing Series (FIPS) code.

SPECIAL INDICATOR FIELDS

- **NMEMI** | *New England City and Town Area Status Indicator* (pdGeoSupplement):
  1 = Metropolitan
  2 = Micropolitan
  9 = Neither

NEW ENGLAND CITY AND TOWN AREA DIVISION

These are smaller groupings of cities and towns defined within a New England city and town area (NECTA) containing a single core with a population of at least 2.5 million. A NECTA division consists of a main city or town that represents an employment center, plus adjacent cities and towns associated with the main city or town through commuting ties. Each NECTA division must contain a total population of 100,000 or more. Because NECTA divisions represent subdivisions of larger NECTAs, it is not appropriate to rank or compare NECTA divisions with NECTAs. It would be appropriate to rank and compare NECTA divisions.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each NECTA division is identified by a common name and a translated legal/statistical area description.

- **NECTDVFP** | NECTA Division FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | NECTA Division FIPS Code (pdGeoSupplement)
  Each NECTA division is identified by a five-character numeric Federal Information Processing Series (FIPS) code.

URBAN AREA

These include both urbanized areas (UA) and urban clusters (UC). An urbanized area consists of densely developed territory that contains 50,000 or more people. The U.S. Census Bureau delineates UAs to provide a better separation of urban and rural territory, population, and housing in the vicinity of large places. An urban cluster consists of densely developed territory that has at least 2,500 people but fewer than 50,000 people. The U.S. Census Bureau first introduced the UC concept for the 2000 Census to provide a more consistent and accurate measure of urban population, housing, and territory throughout the United States, the Commonwealth of Puerto Rico, and other insular areas.

The name of each UA and UC may contain up to three incorporated place or Census designated place (CDP) names and will include the two-letter U.S. Postal Service abbreviation for each state or statistically equivalent entity into which the UA or UC extends. However, if the UA or UC does not contain an incorporated place or CDP, the urban area name will include the single name of a minor civil division or populated place recognized by the U.S. Geological Survey *Geographic Names Information System*. A flag is available to differentiate between UAs and UCs. This differentiation is included in the name.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each urban area is identified by a common name and a translated legal/statistical area description.

- **UA** | Urban Area Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | Urban Area Census Code (pdGeoSupplement)
  Each urban area is identified by a five-character numeric Census code based on alphabetical sequence within the nation.

SPECIAL INDICATOR FIELDS

- **UATYPE** | *Urban Area Type Indicator* (pdGeoSupplement):
  U = Urbanized Area
  C = Urban Cluster

URBAN GROWTH AREA (UGA)

These are legally defined entities in Oregon and Washington that the U.S. Census Bureau includes in the MAF/TIGER database in agreement with the states. Urban Growth Areas (UGA), which are defined around incorporated places, are used to regulate urban growth. UGA boundaries, which need not follow visible features, are delineated cooperatively by state and local officials and then confirmed in state law. UGAs are a pilot project first defined only in Oregon for the 2000 Census.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each UGA is identified by a common name and a translated legal/statistical area description.

- **UGA** | UGA Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | UGA Census Code (pdGeoSupplement)
  Each UGA is identified by a five-character numeric Census code; usually the same as the five-character numeric Federal Information Processing Series (FIPS) code associated with the incorporated place for which the UGA is named.

SPECIAL INDICATOR FIELDS

- **UGATYPE** | *Urban Growth Area Type Indicator* (pdGeoSupplement):
  C = Consolidated Urban Growth Area
  P = Primary Urban Growth Area

CONGRESSIONAL DISTRICT

These are the 435 areas from which people are elected to the U.S. House of Representatives. After the apportionment of congressional seats among the states based on decennial Census population counts, each state with multiple seats is responsible for establishing Congressional Districts for the purpose of electing representatives. Each Congressional District is to be as equal in population to all other Congressional Districts in a state as practicable.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each Congressional District is identified by a common name and a translated legal/statistical area description.

- **CD** | Congressional District FIPS Code (pdGeoTIGER, pdGeoSupplement)
- **FIPSCODE** | Congressional District FIPS Code (pdGeoSupplement)
  Each Congressional District is identified by a two-character numeric Federal Information Processing Series (FIPS) code:
  01 to 53 = Congressional district codes
  00 = At large (single district for state)
  98 = Nonvoting delegate; District of Columbia (federal district), the Commonwealth of Puerto Rico, and other insular areas

SPECIAL INDICATOR FIELDS

- **CDSESSN** | *Congressional Session* (pdGeoSupplement):
  Three-character numeric flag indicating the congressional session (example, “113”).

STATE LEGISLATIVE DISTRICT (UPPER CHAMBER AND LOWER CHAMBER) (SLD)

These are the areas from which members are elected to state legislatures. The U.S. Census Bureau first reported data for State Legislative Districts (SLD) as part of the *2000 Public Law (P.L.) 94-171 Redistricting Data File*.

States participating in *Phase 1* of the *2010 Census Redistricting Data Program* voluntarily provided the U.S. Census Bureau with the 2006 election cycle boundaries, codes, and, in some cases, names for their SLDs. All 50 states, plus the District of Columbia (federal district), and the Commonwealth of Puerto Rico (insular area), participated in *Phase 1, State Legislative District Project (SLDP)* of the *2010 Census Redistricting Data Program*. States subsequently provided legal changes to those plans through the Redistricting Data Office and corrections as part of *Phase 2* of the *2010 Census Redistricting Data Program*.

The SLDs embody the upper (Senate) and lower (House) chambers of the state legislature. Nebraska has a unicameral legislature and the District of Columbia (federal district) has a single council, both of which the U.S. Census Bureau treats as upper-chamber legislative areas for the purpose of data presentation. A unique three-character Census code, identified by state participants, is assigned to each SLD within a state. In Connecticut, Hawaii, Illinois, Louisiana, Maine, Massachusetts, New Jersey, Ohio, and the Commonwealth of Puerto Rico (insular area), state officials did not define the SLDs to cover all of the state or state equivalent area (usually bodies of water). In these areas with no SLDs defined, the code "ZZZ" has been assigned, which is treated within a state as a single SLD. Maryland also has areas with no SLDs defined; in Maryland, these areas are coded with an initial "Z" by county or equivalent entity and treated as unique SLDs by county or equivalent entity. In Nebraska and the District of Columbia (federal district), the U.S. Census Bureau assigned the code "999" to represent a single SLD (Lower Chamber) where legally none exist.

The U.S. Census Bureau first reported names for SLDs as part of Phase 1 of the 2010 Census Redistricting Data Program. The SLD names with their translated legal/statistical area description are associated only with the current SLDs. Not all states provided names for their SLDs, therefore the code (or number) also serves as the name.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each SLD is identified by a common name and a translated legal/statistical area description.

- **SLDUPR** | SLD (Upper Chamber) Census Code (pdGeoTIGER, pdGeoSupplement)
- **SLDLWR** | SLD (Lower Chamber) Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | SLD Census Code (pdGeoSupplement)
  Each SLD is identified by a three-character alpha/numeric Census code determined by state participants and unique within states (see above for details).

SPECIAL INDICATOR FIELDS

- **SLDYR** | *State Legislative Year* (pdGeoSupplement):
  Four-character numeric flag indicating the SLD session year (example, "2013").

VOTING DISTRICT (VTD)

These are the generic names for geographic entities, such as precincts, wards, and election districts, established by state governments for the purpose of conducting elections. States voluntarily participating in *Phase 2* of the *2010 Census Redistricting Data Program* provided the U.S. Census Bureau with boundaries, codes, and names for their Voting Districts (VTD). Each VTD is identified by a one-to-six-character alpha/numeric Census code that is unique within counties and equivalent entities. The code "ZZZZZZ" identifies a portion of counties (usually bodies of water) for which no VTDs were identified. For the 2010 Census, only Rhode Island did not participate in *Phase 2* (the *Voting District/Block Boundary Suggestion Project*) of the *2010 Census Redistricting Data Program*. Kentucky chose not to provide VTDs as part of their participation in *Phase 2*, and the states of Montana and Oregon provided VTDs for only some counties. Therefore, for the 2010 Census, no VTDs exist in select counties in Montana and Oregon or for the states of Rhode Island and Kentucky in their entirety. Participating states often submitted VTDs conforming to the feature network in the MAF/TIGER database rather than the complete legal boundary of the VTD. If requested by the participating state, the U.S. Census Bureau identified the VTDs that represent an actual voting district with an "A" in the Voting District Indicator field. Where a participating state indicated that the VTD has been modified to follow existing features, the VTD is a pseudo-VTD, and the Voting District Indicator contains "P".

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each VTD is identified by a common name and a translated legal/statistical area description.

- **VTD** | VTD Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | VTD Census Code (pdGeoSupplement)
  Each VTD is identified by a one-to-six-character alpha/numeric Census code determined by state participants and unique within counties and equivalent entities (see above for details).

SPECIAL INDICATOR FIELDS

- **VTDI** | *Voting District Indicator* (pdGeoSupplement):
  A = Represents an actual voting district
  P = Represents a pseudo-VTD (modified to follow existing Census features)

SCHOOL DISTRICT (ELEMENTARY, SECONDARY, AND UNIFIED)

These are geographic entities within which state, county, local officials, the Bureau of Indian Affairs, and the U.S. Department of Defense provide public educational services for the area residents. The U.S. Census Bureau obtains the boundaries, names, local education agency codes, and school district levels for school districts from state and local school officials for the primary purpose of providing the U.S. Department of Education with estimates of the number of children "at risk" within each school district, county, and state. This information serves as the basis for the Department of Education to determine the annual allocation of Title I funding to states and school districts.

The U.S. Census Bureau tabulates data for three types of school districts: elementary, secondary, and unified. The elementary school districts provide education to the lower grade and age levels and the secondary school districts

provide education to the upper grade and age levels. Unified school districts provide education to children of all school ages in their service areas. In general, where there is a unified school district, no elementary or secondary school district exists; and where there is an elementary school district, the secondary school district may or may not exist.

The U.S. Census Bureau representation of school districts is based both on the grade range that a school district operates and also the grade range for which the school district is financially responsible. For example, a school district is defined as an elementary school district if its operational grade range is less than full kindergarten through 12 or prekindergarten through 12 grade range (for example, K–6 or pre-K–8). These elementary school districts do not provide direct educational services for grades 7–12, 9–12, or similar ranges. Some elementary school districts are financially responsible for the education of all school-aged children within their service areas and rely on other school districts to provide service for those grade ranges that are not operated by these elementary school districts. In these situations, in order to allocate all school-aged children to these school districts, the secondary school district code field is blank. For elementary school districts where the operational grade range and financially responsible grade range are the same, the secondary school district code field will contain a secondary school district code. There are no situations where an elementary school district does not exist and a secondary school district exists in U.S. Census Bureau records.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each school district is identified by a common name and a translated legal/statistical area description.

- **SDELM** | School District (Elementary) Census Code (pdGeoTIGER, pdGeoSupplement)
- **SDSEC** | School District (Secondary) Census Code (pdGeoTIGER, pdGeoSupplement)
- **SDUNI** | School District (Unified) Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | SLD Census Code (pdGeoSupplement)
  Each school district is identified by a five-character numeric Census code unique within states; codes are the local education agency numbers assigned by the Department of Education and not necessarily in alphabetical order by school district name.

SPECIAL INDICATOR FIELDS

- **SDTYPE** | *School District Type Indicator* (pdGeoSupplement):
  A = Pseudo
  B = Department of Defense
  C = Interstate
  D = Bureau of Indian Affairs
  E = Same Name

- **SDLO** | *School District Low Grade Indicator* (pdGeoSupplement):
  PK–12

- **SDHI** | *School District High Grade Indicator* (pdGeoSupplement):
  PK–12

PUBLIC USE MICRODATA AREA (PUMA)

These are geographic areas for which the U.S. Census Bureau provides selected extracts of raw data from a small sample of Census records that are screened to protect confidentiality. These extracts are referred to as public use microdata sample (PUMS) files.

For the 2010 Census, each state, the District of Columbia (federal district), the Commonwealth of Puerto Rico, and some other insular area participants delineated Public Use Microdata Areas (PUMA) for use in presenting PUMS data based on a 5 percent sample of decennial Census or American Community Survey data. These areas are required to contain at least 100,000 people. This is different from the 2000 Census when two types of PUMAs were defined: a 5 percent PUMA as for 2010 and an additional super-PUMA designed to provide a 1 percent sample.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each PUMA is identified by a common name and a translated legal/statistical area description.

- **PUMA** | PUMA Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | PUMA Census Code (pdGeoSupplement)
  Each PUMA is identified by a five-character numeric Census code unique within states.

CENSUS 5-DIGIT ZIP CODE TABULATION AREA (ZCTA)

These are approximate area representations of U.S. Postal Service (USPS) five-digit ZIP Code service areas that the U.S. Census Bureau creates using whole Census Blocks to present statistical data from censuses and surveys. The U.S. Census Bureau defines ZIP Code Tabulation Areas (ZCTA) by allocating each block that contains addresses to a single ZCTA, usually to the ZCTA that reflects the most frequently occurring ZIP Code for the addresses within that Census Block. Census Blocks that do not contain addresses but are completely surrounded by a single ZCTA (enclaves) are assigned to the surrounding ZCTA; those surrounded by multiple ZCTAs are added to a single ZCTA based on limited buffering performed between multiple ZCTAs. The U.S. Census Bureau identifies five-digit ZCTAs using a five-character numeric code that represents the most frequently occurring USPS 5-digit ZIP Code within that ZCTA, and this code may contain leading zeros.

There are significant changes to the Census 2010 ZCTA delineation from that used in the 2000 Census. Coverage was extended to include the Island Areas for 2010 so that the 50 states, the District of Columbia (federal District), the Commonwealth of Puerto Rico, and other insular area have ZCTAs. Unlike the 2000 Census, when areas that could not be assigned to a ZCTA were given a generic code ending in “XX” (land area) or “HH” (water area), for the 2010 Census there is no universal coverage by ZCTAs, and only legitimate five-digit areas are defined. The 2010 ZCTAs better represent the actual ZIP Code service areas because the U.S. Census Bureau initiated a process before

the creation of 2010 Census Blocks to add Census Block boundaries that split polygons with large numbers of addresses using different ZIP Codes.

Users should not employ ZCTAs to identify the official USPS 5-digit ZIP Codes for mail delivery. The USPS makes periodic changes to ZIP Codes to support more efficient mail delivery. The ZCTA process used primarily residential addresses and was biased towards ZIP Codes used for city-style mail delivery, so there can be ZIP Codes that are primarily nonresidential or boxes only that may not have a corresponding ZCTA.

IDENTIFICATION FIELDS

- **NAME** | Common Name (pdGeoSupplement)
- **NAMELSAD** | Translated LSAD (pdGeoSupplement)
  Each ZCTA is identified by a common name and a translated legal/statistical area description.

- **ZCTA5** | ZCTA Census Code (pdGeoTIGER, pdGeoSupplement)
- **USCCODE** | ZCTA Census Code (pdGeoSupplement)
  Each ZCTA is identified by a five-character numeric Census code based on the most frequently occurring USPS 5-digit ZIP Code within Census Blocks (see above for details).

CD112, CD111, AND CD108 FIELDS

These fields hold historical Federal Information Processing Series (FIPS) codes for Congressional Districts. The congressional session is represented in the field name:

- CD112: 112th Congressional Session; the first Congress using 2010 Census-based lines
- CD111: 111th Congressional Session; the last Congress using 2000 Census-based lines
- CD108: 108th Congressional Session; the first Congress using 2000 Census-based lines

Historical Congressional District FIPS codes are only provided for the 111th and 108th congressional sessions in situations where the Address Range information did not change between the 2000 and 2010 censuses. In situations where the Address Range information has changed, the fields are left blank. Many of the codes presented are the same as those in the current information, but a significant percentage has changed and may need to be accounted for by users.

Note that Congressional District FIPS codes for the 113th Congress are entered in the CD field.

IDENTIFICATION FIELDS

- **CD112** | 112th Congress Congressional District FIPS Code (pdGeoTIGER)
- **CD111** | 111th Congress Congressional District FIPS Code (pdGeoTIGER)
- **CD108** | 108th Congress Congressional District FIPS Code (pdGeoTIGER)
  Each Congressional District is identified by a two-character numeric Federal Information Processing Series (FIPS) code:
  01 to 53 = Congressional district codes
  00 = At large (single district for state)
  98 = Nonvoting delegate (District of Columbia [federal district], the Commonwealth of Puerto Rico, and other insular areas)

STATEFP10, COUNTYFP10, TRACT10, BLOCKGRP10, AND BLOCK10 FIELDS

These fields hold base historical coding from the initial release of 2010 Census data, the year being represented in the field name. Most of the codes presented are the same as those in the current information, but a small percentage has changed and may need to be accounted for by users. The 2010 state and county Federal Information Processing Series (FIPS) codes are provided along with Census codes from 2010 for Census Tract, Census Block Group, and Census Block.

IDENTIFICATION FIELDS

- **STATEFP10** | State FIPS Code from the first 2010 Census release (pdGeoTIGER)
  Each state or statistically equivalent entity is identified by a two-character numeric Federal Information Processing Series (FIPS) code.

- **COUNTYFP10** | County FIPS Code from the first 2010 Census release (pdGeoTIGER)
  Each county or statistically equivalent entity is identified by a three-character numeric Federal Information Processing Series (FIPS) code based on alphabetical sequence that is unique within states.

- **TRACT10** | Tract Census Code from the first 2010 Census release (pdGeoTIGER)
  Each Census Tract is identified by a six-character numeric Census code that is unique within counties and equivalent entities with an implied decimal between the fourth and fifth digit to accommodate an optional suffix (see above for details).

- **BLOCKGRP10** | Block Group Census Code from the first 2010 Census release (pdGeoTIGER)
  Each Census Block Group is identified by a one-character numeric Census code ("0" though "9") based on the first digit of the Census Block (see above for details).

- **BLOCK10** | Block Census Code from the first 2010 Census release (pdGeoTIGER)
  Each Census Block is identified by a four-character numeric Census code that is unique within Census Tracts (see above for details).

STATEFP00, COUNTYFP00, TRACT00, BLOCKGRP00, AND BLOCK00 FIELDS

These fields hold base historical coding from 2000 Census data, the year being represented in the field name, in situations where the Address Range information did not change between the 2000 and 2010 censuses. In situations where the Address Range information has changed, the fields are left blank. Many of the codes presented are the same as those in the current information, but a significant percentage has changed and may need to be accounted for by users. The 2000 state and county Federal Information Processing Series (FIPS) codes are provided along with Census codes from 2000 for Census Tract, Census Block Group, and Census Block.

IDENTIFICATION FIELDS

- **STATEFP00** | State FIPS Code from the 2000 Census (pdGeoTIGER)
  Each state or statistically equivalent entity is identified by a two-character numeric Federal Information Processing Series (FIPS) code.

- **COUNTYFP00** | County FIPS Code from the 2000 Census (pdGeoTIGER)
  Each county or statistically equivalent entity is identified by a three-character numeric Federal Information Processing Series (FIPS) code based on alphabetical sequence that is unique within states.

- **TRACT00** | Tract Census Code from the 2000 Census (pdGeoTIGER)
  Each Census Tract is identified by a six-character numeric Census code that is unique within counties and equivalent entities with an implied decimal between the fourth and fifth digit to accommodate an optional suffix (see above for details).

- **BLOCKGRP00** | Block Group Census Code from the 2000 Census (pdGeoTIGER)
  Each Census Block Group is identified by a one-character numeric Census code ("0" though "9") based on the first digit of the Census Block (see above for details).

- **BLOCK00** | Block Census Code from the 2000 Census (pdGeoTIGER)
  Each Census Block is identified by a four-character numeric Census code that is unique within Census Tracts (see above for details).

COMPATIBILITY

pdGeoTIGER utilizes U.S. Census Bureau coding conventions. It is fully compatible with all other Peacock Data GeoCoding, U.S. Census 2010, and American Community Survey (ACS) database products, including *pdCensus2010, pdACS2013, and pdGeoSupplement*.

This database is also fully compatible with raw U.S. Census Bureau data and other databases and applications that make use of their coding conventions.

USING *PDGEOTIGER* WITH *PDGEOSUPPLEMENT*

Projects frequently require determining GeoCoding and U.S. Census Bureau information that is not in *pdGeoTIGER*. In these cases, *pdGeoSupplement* makes an excellent partner. The supplement was designed as a lookup table for Census identification codes and special indicators. *pdGeoSupplement* is included with the *pdGeoTIGER* download.

Most U.S. Census Bureau codes not in *pdGeoTIGER* are available in the supplement. These include:

- American National Standards Institute (ANSI) identification codes

And the following special indicators:

- Metropolitan/Micropolitan Statistical Area Principal City Indicator
- New England City and Town Area Principal City Indicator
- American Indian Area/Alaska Native Area/Native Hawaiian Home Land Federal/State Recognition Indicator
- Metropolitan/Micropolitan Statistical Area Status Indicator
- New England City and Town Area Status Indicator
- Urban Area Type Indicator
- Urban Growth Area Type Indicator
- Congressional Session
- State Legislative Year
- Voting District Indicator
- School District Type Indicator
- School District Low Grade Indicator
- School District High Grade Indicator

Because both products utilize the same U.S. Census Bureau coding conventions, once the main legal and statistical area designations are appended to data files, it is a straightforward process to then apply the supplemental information.

Review the *pdGeoSupplement* documentation that came with the product download for more information.

USING *PDGEOTIGER* WITH *PDCENSUS2010* AND *PDACS2013*

Projects frequently require determining U.S. Census Bureau tabulation and estimate information in addition to running data files against *pdGeoTIGER*. In these cases, *pdCensus2010* and *pdACS2013* make excellent partners.

- *pdCensus2010*: U.S. Census 2010 population and housing tabulations
- *pdACS2013*: U.S. Census American Community Survey (ACS) economic estimates

Because these products all utilize the same U.S. Census Bureau coding conventions as *pdGeoTIGER*, once the necessary legal and statistical area designations are appended to data files, it is a straightforward process to then apply the U.S. Census Bureau tabulation and estimate information.

Review the pdCensus2010 and pdACS2013 user documentation for more information.

PDGEOTIGER STANDARD TO PRO UPGRADE PACK

Those licensing the *Standard* edition of *pdGeoTIGER 2.x* can purchase a *pdGeoTIGER Standard to Pro Upgrade Pack* which includes all the address range records from the *Pro* edition. Once a *Standard* version is upgraded, it will be the same as the *Pro* edition.

Review the documentation provided with the upgrade for further instructions.

USER GUIDE UPDATES

User guides are updated based on information gained from user experience. It is suggested that users regularly check the Support section of the Peacock Data website for updates. Look for a date newer than the date below:

The publication date of this guide is: June 1, 2014.

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