American Factfinder Spatial Files Specification – 2005 American Community Survey

- Version 2 -

1. Introduction

This document provides Geography Division (GEO) with specifications for the creation of spatial files to be used within American FactFinder (AFF) to support the dissemination of 2005 American Community Survey (ACS) data. Spatial files store coordinates that describe the location and shape of geographic features, thereby allowing for their depiction in map form. Specific AFF functionality potentially making use of spatial files for 2005 ACS geographies includes:

- map-based selection of one or more geographies as part of a data query,
- the creation of reference maps for identification of tabulation geographies, and
- the creation of thematic maps to aid data visualization.

The 2005 data year marks the movement of ACS from its demonstration phase to full implementation, and is accompanied by some significant changes in geographic universe as compared with 2004 ACS, including:

- the addition of several geographic types such as those based on the post-Census 2000 Core Based Statistical Area concepts,
- the addition of geographic components,
- the inclusion of Puerto Rico as part of the geographic coverage,
- the dropping of the ACS Test Site as a geographic type

Where appropriate, DADS staff will make use of previously delivered spatial files so as to avoid duplicative work for GEO. This document provides specifications for the entire 2005 ACS geographic content, and then indicates the portion for which delivery is expected by GEO.

While the spatial files support data and product dissemination, the files themselves will not be disseminated through AFF. That is, a user will be able to print or download a map created within AFF, but the user will not be able to download the spatial files containing the coordinate detail.

This specification only applies to spatial files for 2005 ACS geographies. Consult other AFF specifications for details on spatial files a) for geographies used by other censuses and surveys (e.g., Census 2000) or b) for general purpose orienting features such as roads and railroads.

2. File Universe

The file universe is largely dictated by the geographic content of data products and by the design of the AFF user interface, particularly the mapping component. Files within the universe can be categorized based on the following key characteristics:

- **Coordinate Precision** – A detailed spatial file offers the greatest coordinate precision within AFF, describing shapes with the same resolution as the TIGER file. A generalized spatial file describes shapes with fewer coordinates than a TIGER file so as to produce a more compact, faster drawing file. A generalized file is more appropriate for a regional or large-area view where the difference in precision between a generalized and a detailed file is not visually noticeable. Typically, generalized files should only be used for cartographic purposes, whereas detailed files can also be used for spatial analysis.
- **Coordinate Projection** – A projected spatial file depicts geographies using a mathematical projection, so as to minimize the distortions inherent in representing the three dimensional earth in a

two dimensional medium (i.e., the computer screen, or the printed page). Projected spatial files are only needed for the smallest map scales used within AFF.

- **Shape Type** – The boundaries of tabulation geographies can be stored as polygon shapes or line shapes. Polygon shapes are useful for area shading and names placement within an area. Line shapes are useful for display of complex line symbols (e.g., a dash-dot line) whose pattern would be obliterated if rendered twice on a shared line segment between two polygons.
- **Partitioning Unit** – For boundary files and boundary networks, the partitioning unit is based on the natural hierarchy of the geographic entity being stored, along with its relative density. Low-density geographic entities (e.g., states) are delivered in a single, national file. High-density geographic entities (e.g., county subdivisions) are delivered by the largest practical unit, typically a state.
- **Summary Level** – the AFF data warehouse organizes geographic data using a decennial tabulation concept called the summary level. Within a summary file (e.g., the Hundred Percent Summary File), a summary level exists for each geography entity type for which data have been tabulated. A summary level can exist for a "whole" geographic entity type (e.g., county), or for a combination of entity types that can result in partial geographic entities (e.g., county parts of places). Within one summary level, there is no overlap in geographic coverage (e.g., county A can contain no portion of county B).

See Table 1 for a summary of the file universe. For greater detail, see Table 2 for the file universe organized by summary level. For a complete file universe listing, see Table 3.

The file universe will cover the potential universe of 2005 ACS tabulation geographies. After American Community Survey Office (ACSO) staff review preliminary ACS tabulations, some geographies may be eliminated from the final publication universe. No redelivery of the spatial files is needed to reflect this change from a potential universe to a final publication universe.

A note on Corrective Redeliveries

After initial delivery, unplanned redeliveries may be needed to correct errors. For some files, the redelivery may be made using a smaller partitioning unit than was used for the initial delivery. For example, initial delivery for generalized counties will be in a national file, but redelivery may be by state-based file. See Table 3 for supported redelivery partitioning units per file.

When errors to be corrected affect attributes only (e.g., the geographic name), and GEO has already made a related corrective geobucket redelivery, DADS may opt to transfer the corrected attribute from the geobucket redelivery, rather than require a separate spatial redelivery. GEO and DADS will need to agree on the method for correction on a case-by-case basis.

Please note that any subsequent spatial redelivery should incorporate all past attribute corrections, whether received directly via a spatial redelivery or received indirectly via a geobucket redelivery.

A note on Additional Summary Levels in the Future

With the 2005 data year, ACS moves from its demonstration phase to full implementation. After five years of full implementation, the survey will have built a sufficient sample for estimates to be produced for many more geographies. Therefore, it is anticipated that beginning with the 2009 ACS, the inventory of layers that DADS requests will expand to include additional summary levels, similar to the Census 2000 inventory.

3. File Format

The file format is shapefile, a simple, non-topological format for storing the geometric location and attribute information of geographic features, and the native file format of ArcView. The shapefile format defines the geometry and attributes in as many as five files of which only three are needed by AFF. They are:

- .shp - the file that stores the feature geometry.
- .shx - the file that stores the index of the feature geometry.
- .dbf - the dBASE file that stores the attribute information of features.

4. File Name

The file name convention for initial delivery is:

GEO_2005_<coord>_ACS_<partition>_<sumlevel>_<shape>_<scale>.<ext>

where:

<coord> = 1-character code. Use "D" for detailed, unprojected implied, "G" for generalized, unprojected implied, and "P" for projected, generalized implied.

<partition> = 5-character code. For state-based files, use "ss000" where ss = the state FIPS code (e.g., "01000"). For nation-wide files, use "00000".

<sumlevel> = 3-digit summary level code (e.g., "040").

<shape> = 2-character code. Use "PY" for polygons, "LN" for lines.

<scale> = 2-character code indicating degree of generalization. For detailed files, use "Z1". For generalized files, use "Z6". For projected files, use "Z9".

<ext> = 3-character. Use standard file extensions for shape files: "SHP", "SHX", "DBF".

Sample file names for initial delivery:

GEO_2005_D_ACS_48000_050_PY_Z1.SHP (detailed county polygons for Texas)
GEO_2005_G_ACS_00000_050_PY_Z6.SHP (nationwide generalized county polygons)
GEO_2005_P_ACS_00000_500_LN_Z9.SHP (nationwide projected CD linework)

For any redeliveries to correct errors in the initial production delivery, the file name convention is the same as above, with the addition of "_RR" before the file extension. That is:

GEO_2005_<coord>_ACS_<partition>_<sumlevel>_<shape>_<scale>_RR.<ext>

Sample file name for redeliveries:

GEO_2005_D_ACS_48000_050_PY_Z1_RR.SHP (detailed county polygons for Texas)

See Table 1 for a summarized list of file names for initial delivery. File names are not case-sensitive.

5. File Transfer

A separate document entitled "AFF2000 Data Warehouse Delivery Specifications " provides guidance on the transfer of files via FTP from GEO to DADS. This general-purpose document is written for all AFF data providers, not just for GEO.

6. Geographic Coverage

The area of coverage is the United States (the 50 states and the District of Columbia) and Puerto Rico.

7. Geographic Vintage

In general, the vintage of the geographies is the year 2005. More specifically:

- Legal entities (e.g., counties, incorporated places, county subdivisions) are as of January 1, 2005 as determined in the Boundary and Annexation Survey. Some geographies may include new incorporations that occurred after January 1 but before TIGER benchmarking for 2005 ACS.
- Metropolitan and micropolitan statistical areas and related statistical areas are as of the November 2004 OMB definition (i.e., current as of January 1, 2005);
- Congressional Districts are as of the 109th Congress (effective 2005-2006);
- School Districts are as of the delineation in support of the 2003-04 School District Review Program;
- 5% Public User Microdata Areas are as of the official delineation in support of Census 2000 with no boundary adjustments made to accommodate related 2005 legal boundary changes;
- All other statistical entities are as of the official delineation in support of Census 2000, with boundary adjustments possible to accommodate related 2005 legal boundary changes. For example, a region is defined as a collection of states. If the precise location of the Illinois-Kentucky boundary changed between 2000 and 2005, this would not effect the definition of the Midwest or South Region, but it would effect the exact placement of the boundary between those two regions.

A note on Congressional District

Congressional district boundaries are stored in TIGER using two different representations: one that depicts districts based on whole Census 2000 blocks, and a second that depicts districts splitting Census 2000 blocks (where applicable) to form new current blocks. The geobucket should reflect the current block representation, which parallels the network used by ACSO for its estimates.

8. Source

The primary source is GEO's TIGER database, including any ancillary files within the TIGER System (e.g., GEOCAT). The TIGER benchmark that contains the correct vintage of ACS geographies is GUSSIE05_BENCH.

9. Record Universe and Chaining Requirements

The record universe within any particular shapefile is related to the number of geographic entities that occur for a given summary level, and to the coordinate chaining requirements for the spatial file.

For polygon files, the boundaries of <u>each</u> geographic entity for a given summary level should be chained into closed polygons. Where a single geographic entity consists of multiple, discontinuous polygons, these polygons should be stored as multi-part polygons. (That is, one attribute record in the dbase file is linked to multiple geometries, with the GEO_ID field serving as the key in forming the relationship.) For discontinuous, non-nationwide geographic networks like place (i.e., 160), polygons should not be included for "remainder of" areas, traditionally coded as "9" filled fields in public data products. For example, within a "place" spatial file, polygons are expected for legitimate incorporated places or Census Designated Places (CDP), but polygons are not expected for land areas where no such place exists.

For line files, the boundaries of <u>all</u> geographic entities for a given summary level with the same field values should be chained to their maximum linear extent. That is, the chain should not stop at the junction of 3 or more line segments if at least 2 of those segments share the same field values. Where more than 2 line segments at a junction share the same field values, the chain should be continued along the line segment that will cause the chain to deflect the least from a horizontal line. Where multiple chains result due to discontinuous geographic entities or to the vagaries of chaining, multi-part lines

should not be created. For generalized line files only, line segments coincident with the outer limits of the United States (i.e., international boundary, national coastline) should be excluded from files storing geographies that are continuous across the nation (e.g., state.). In Table 2, the "Drop Outline" column indicates the relevant summary levels for dropping the outer limit.

GEO has advised DADS that the "maximum linear extent" chaining requirement for line files may not be easily met. At a minimum, DADS requires chaining that eliminates the junction of 2 line segments, also known as pseudo nodes.

The special case of Partition Edges

The line segments contained within line files for a single summary level are conceptually a single network. Therefore, a single line segment should not be contained by more than one file for the same summary level, even if the line segment is the edge of the partition. For example, detailed county subdivision line files will be partitioned by state for initial delivery. Each line segment representing the Vermont-New Hampshire state border should appear in either the Vermont file or the New Hampshire file, but not both. Rule-based logic should be used in determining which edge line segment goes to which file, so that re-deliveries by a smaller geographic unit (e.g., the county), can re-fresh the correct lines.

A note on the Record Universe for Summary Level 060

For summary level 060, the universe of valid entities is limited due to program requirements. That is, a given county subdivision should be included if:

- its functional status equals "A", "B" or "C", or
- it is contained within a county with at least one county subdivision with a functional status of "A", "B" or "C".

However, the county subdivision should be excluded, even if the above test is met, if

- its COUSUBFP value is "00000".

This limited universe is identical to that used by the Population Estimates program

A note on Region and Division and Puerto Rico

Regions and Divisions only exist within the 50 states and the District of Columbia; they are absent from Puerto Rico. However, within TIGER, Region and Division are coded with dummy values in Puerto Rico rather than the more typical "blank" value. No Region or Division records should be generated for these dummy values, since they do not represent publication geographies.

The special case of the Empty File

Sometimes a summary level will have no occurrences within a given file partition. For example, there are no valid county subdivisions in Texas, yet detailed polygons for summary level 060 are delivered by state-based partition. In such cases, an empty file should be delivered.

10. Record Layout

There are a number of record layouts, with all line files sharing a single layout, and polygon files having unique layouts per summary level. In Table 3, the "Record Layout" column contains a 3-digit code to indicate which record layout type should be used for each spatial file. Table 5 associates each code with an actual record layout.

11. Field Definitions

Table 7 contains a definition for each field found in the record layouts of Table 5. The field names were chosen to correspond to fields in the existing AFF data warehouse. These field names must be used for the AFF data warehouse loading scripts to work correctly.

In most all cases, a field equates to a single geographic code or attribute field in GEO's TIGER File or its ancillary files (e.g., GEOCAT). These code fields should be filled with whatever value is stored in TIGER. Some fields do not have a single corresponding field in the TIGER System. Following are more detailed instructions on how to fill those fields.

- ***GEO_ID*** – a field created by DADS for AFF purposes only. Table 6 provides specifications for determining the value of the GEO_ID based on the summary level code. In general, the GEO_ID is formed by appending the following components: summary level code + 00US + applicable geocodes. Any blanks in the resulting string are replaced with zeros.
- ***NAME*** – See Table 8 for name rules for a few special cases, mainly covering entities that are numbered rather than named. Only populate the NAME field if the "Fill Name" column in Table 3 is "Y".
- ***LSAD*** – the standard abbreviation for the Legal/Statistical Area Description of the geographic entity, as used on census maps. Only populate if the "Fill Name" column in Table 3 is "Y". For all-zero county subdivisions, tracts and block groups, leave the LSAD field blank.
- ***BDY_TYPE*** – populate with the summary level code from Table 3 that is associated with the line file.
- ***COVER_UNIT*** – this field records the geographic entity type by which the file is internally partitioned. This value controls the minimum geographic unit for redeliveries. Populate with the value from the "Redelivery Unit" column in Table 3. If more than one value is listed, use the smaller geographic unit (in **boldface**) as the value to store.
- ***COVER_ID*** – the value of this field will depend on the COVER_UNIT value. Populate with the geocode of the geographic entity by which the file is internally partitioned. For example, if COVER_UNIT is "S", populate with the State FIPS code.

12. Coordinate System

Detailed and generalized spatial file coordinates should be in latitude, longitude form. As in TIGER, coordinates should reference the 1983 North American Datum (NAD83) except in the case of Hawaii, which references a local datum.

Projected spatial file coordinates should be in earth feet using an Albers Equal Area projection. The Albers projection should be applied independently to each major landmass of the United States. Coordinates for Alaska and Hawaii are also scaled and offset from their true earth positions to a new position relative to the contiguous United States. See Figure 1 for an illustration of the resulting map layout. See Table 9 for projected file parameter values used in these coordination manipulations.

13. Generalization Requirements

Generalized files should be created based on the target display map scale of 1:500,000 to 1:5 million, using standard cartographic practices such as:

- elimination of coordinates along a line segment that are visually redundant, using the Douglas-Peucker algorithm or similar,
- elimination of small polygons,
- the retention of at least one polygon per geographic entity per summary level,

- retention of positional coincidence for boundaries shared between geographic entities across summary level. Where these related entity types nest (e.g., counties nest within state), it is highly desirable for the coordinates of the higher-level geography to be directly derived from the lower-level geography. Where related entity types do not nest (e.g., a county subdivision abutting a place) the visual illusion of coincidence is sufficient.

All generalized files should be clipped against a general representation of the United States coastline. GEO should use the same coastal representation that has been used for the most recent previous AFF spatial deliveries (or a reasonably close match). If during 2005 ACS processing, GEO discovers that the existing coastal representation does not include any area for a particular 2005 ACS geography, then the existing coastal spatial file should be edited to add the missing area, and a new coastal spatial file should be delivered to DADS. (This is an extremely unlikely but not impossible event.)

14. Change Log

	Action	Version
1.	In Table 3, changed sum level 795 from a state-based delivery to a nation-based delivery to avoid "sliver" records due to difference in state vintage for PUMAs (2000) and other 2005 ACS geographies. That is, 795 layer moved from B to A, from D to C, and from G to F. In Table 1, revised counts, as appropriate. (Change is per GEO feedback.)	2
2.	In Table 8, added special name rule for sum level 400 and 500, to match Decennial practice. Inadvertently omitted.	2
3.	In Table 3, added projected layer under Section K for summary level 795 (PUMA), and made corresponding updates to Table 1 and 2 for section K.	2

Table 1. File Universe Summary

	Coordinate Type	Shape Type	File Partition Unit	# of Partitions	# of Sum Levels (est.)	File Name Format
A.	Detailed	Line	Nation	1	5	GEO_2005_D_ACS_00000_xxx_LN_Z1.ext
B.	Detailed	Line	State	52	2	GEO_2005_D_ACS_ss000_xxx_LN_Z1.ext
C.	Detailed	Poly	Nation	1	14	GEO_2005_D_ACS_00000_xxx_PY_Z1.ext
D.	Detailed	Poly	State	52	7	GEO_2005_D_ACS_ss000_xxx_PY_Z1.ext
E.	General	Line	Nation	1	4	GEO_2005_G_ACS_00000_xxx_LN_Z6.ext
F.	General	Poly	Nation	1	16	GEO_2005_G_ACS_00000_xxx_PY_Z6.ext
G.	General	Poly	State	52	5	GEO_2005_G_ACS_ss000_xxx_PY_Z6.ext
H.	General	Line	Nation	1	5	GEO_2005_G_ACS_00000_xxx_LN_Z8.ext
I.	General	Poly	Nation	1	7	GEO_2005_G_ACS_00000_xxx_PY_Z8.ext
J.	Projected	Line	Nation	1	4	GEO_2005_P_ACS_00000_xxx_LN_Z9.ext
K.	Projected	Poly	Nation	1	12	GEO_2005_P_ACS_00000_xxx_PY_Z9.ext

Table 2. File Universe by Summary Level

Sum Level	Summary Level Name	Det Line (A, B)[1]	Det Poly (C, D)[1]	Gen hi Line (E,)[1]	Gen hi Poly (F, G)[1]	Gen lo Line (H)[1]	Gen lo Poly (I)[1]	Proj Line (J)[1]	Proj Poly (K)[1]	Drop Outline (gen)[2]	Need from GEO?
010	United States	-	-	-		-	X	-	X	-	N
020	Region	X	X	X	X	X	X	X	X	X	N
030	Division	X	X	X	X	X	X	X	X	X	N
040	State	X	X	X	X	X	X	X	X	X	N
050	State-County	X	X	X	X	X	X	-	X	X	N
060	State-County-County Subdivision [limited universe]	X	X	-	X	-	-	-	-	-	N
160	State-Place	-	X	-	X	-	-	-	-	-	Y
250	American Indian Area/Alaska Native Area/Hawaiian Home Land	-	X	-	X	-	-	-	-	-	Y
310	Metropolitan Statistical Area/Micropolitan Statistical Area	-	X	-	X	-	-	-	X	-	Y
312	Metropolitan Statistical Area/Micropolitan Statistical Area-State-Principal City	-	X	-	X	-	-	-	-		Y
314	Metropolitan Statistical Area-Metropolitan Division	-	X	-	X	-	-	-	-	-	Y
330	Combined Statistical Area	-	X	-	X	-	-	-	X	-	Y
335	Combined New England City and Town Area	-	X	-	X	-	-	-	X	-	Y
350	New England City and Town Area	-	X	-	X	-	-	-	X	-	Y
352	New England City and Town Area-State-Principal City	-	X	-	X	-	-	-	-	-	Y
355	New England City and Town Area (NECTA)-NECTA Division	-	X	-	X	-	-	-	-	-	Y
400	Urban Area	-	X	-	X	-	X	-	X	-	Y
500	State-Congressional District (109th)	X	X	-	X	X	X	X	X	X	Y
795	State-Public Use Microdata Area (5%)	X	X	-	X	-	-	-	X	X	Y
950	State-School District (Elementary)	-	X	-	X	-	-	-	-	-	Y
960	State-School District (Secondary)	-	X	-	X	-	-	-	-	-	Y
970	State-School District (Unified)	-	X	-	X	-	-	-	-	-	Y

([1]) – Letters in parentheses (e.g., A, B) correspond to the rows in Table 1.
([2]) – The outer limits of the US should be dropped from the generalized line layer for these summary levels representing national continuous geographies.
Need from GEO?: Y indicates that DADS needs the summary level from GEO in the 2005 ACS delivery. N indicates that DADS will re-use existing 2005 PEP layer to meet 2005 ACS need. (Aside to DADS staff: ACS AXL will refer directly to PEP layer.)

Table 3. File Universe

Sum Level	Summary Level Name	Record Layout	Redelivery Unit	Fill Name?	Need from GEO?
	A. GEO_2005_D_ACS_00000_xxx_LN_Z1 (Detailed Lines, Partition by Nation)				
020	Region	000	U	-	N
030	Division	000	U	-	N
040	State	000	U	-	N
060	State-County-County Subdivision [limited universe]	000	U	-	N
795	State-Public Use Microdata Area (5%)	000	U	-	Y
	B. GEO_2005_D_ACS_ss000_xxx_LN_Z1 (Detailed Lines, Partition by State)				
050	State-County	000	S	-	N
500	State-Congressional District (109th)	000	S	-	Y
	C. GEO_2005_D_ACS_00000_xxx_PY_Z1 (Detailed Polygons, Partition by Nation)				
020	Region	020	U	Y	N
030	Division	030	U	Y	N
040	State	040	U	Y	N
250	American Indian Area/Alaska Native Area/Hawaiian Home Land	250	U	Y	Y
310	Metropolitan Statistical Area/Micropolitan Statistical Area	310	U	Y	Y
312	Metropolitan Statistical Area/Micropolitan Statistical Area-State-Principal City	312	U, **S**	Y	Y
314	Metropolitan Statistical Area-Metropolitan Division	314	U	Y	Y
330	Combined Statistical Area	330	U	Y	Y
335	Combined New England City and Town Area	335	U	Y	Y
350	New England City and Town Area	350	U	Y	Y
352	New England City and Town Area-State-Principal City	352	U, **S**	Y	Y
355	New England City and Town Area (NECTA)-NECTA Division	355	U	Y	Y
400	Urban Area	400	U	Y	Y
795	State-Public Use Microdata Area (5%)	795	U	Y	Y
	D. GEO_2005_D_ACS_ss000_xxx_PY_Z1 (Detailed Polygons, Partition by State)				
050	State-County	050	S	Y	N
060	State-County-County Subdivision [limited universe]	060	S	Y	N
160	State-Place	160	S	Y	Y
500	State-Congressional District (109th)	500	S	Y	Y
950	State-School District (Elementary)	950	S	Y	Y
960	State-School District (Secondary)	960	S	Y	Y
970	State-School District (Unified)	970	S	Y	Y
	E. GEO_2005_G_ACS_00000_xxx_LN_Z6 (General High Res Lines, Partition by Nation)				
020	Region	000	U	-	N
030	Division	000	U	-	N
040	State	000	U	-	N
050	State-County	000	U, **S**	-	N
	F. GEO_2005_G_ACS_00000_xxx_PY_Z6 (General High Res Poly, Partition by Nation)				
020	Region	020	U	Y	N
030	Division	030	U	Y	N
040	State	040	U	Y	N
050	State-County	050	U, **S**	Y	N
060	State-County-County Subdivision [limited universe]	060	U, **S**	Y	N

Sum Level	Summary Level Name	Record Layout	Redelivery Unit	Fill Name?	Need from GEO?
250	American Indian Area/Alaska Native Area/Hawaiian Home Land	250	U	Y	Y
310	Metropolitan Statistical Area/Micropolitan Statistical Area	310	U	Y	Y
312	Metropolitan Statistical Area/Micropolitan Statistical Area-State-Principal City	312	U, **S**	Y	Y
314	Metropolitan Statistical Area-Metropolitan Division	314	U	Y	Y
330	Combined Statistical Area	330	U	Y	Y
335	Combined New England City and Town Area	335	U	Y	Y
350	New England City and Town Area	350	U	Y	Y
352	New England City and Town Area-State-Principal City	352	U, **S**	Y	Y
355	New England City and Town Area (NECTA)-NECTA Division	355	U	Y	Y
400	Urban Area	400	U	Y	Y
795	State-Public Use Microdata Area (5%)	795	U	Y	Y
	G. GEO_2005_G_ACS_ss000_xx_PY_Z6 (General High Res Poly, Partition by State)				
160	State-Place	160	U, **S**	Y	Y
500	State-Congressional District (109th)	500	U, **S**	Y	Y
950	State-School District (Elementary)	950	S	Y	Y
960	State-School District (Secondary)	960	S	Y	Y
970	State-School District (Unified)	970	S	Y	Y
	H. GEO_2005_G_ACS_00000_xxx_LN_Z8 (General Low Res Lines, Partition by Nation)				
020	Region	020	U	Y	N
030	Division	030	U	Y	N
040	State	000	U	-	N
050	State-County	000	U, **S**	-	N
500	State-Congressional District (109th)	500	U	-	Y
	I. GEO_2005_G_ACS_00000_xxx_PY_Z8 (General Low Res Poly, Partition by Nation)				
010	United States	010	U	Y	N
020	Region	020	U	Y	N
030	Division	030	U	Y	N
040	State	040	U	Y	N
050	State-County	050	U, **S**	Y	N
400	Urban Area	400	U	Y	Y
500	State-Congressional District (109th)	500	U	Y	Y
	J. GEO_2005_P_ACS_00000_xxx_LN_Z9 (Projected Lines, Partition by Nation)				
020	Region	000	U	-	N
030	Division	000	U	-	N
040	State	000	U	-	N
500	State-Congressional District (109th)	000	U	-	Y
	K. GEO_2005_P_ACS_00000_xxx_PY_Z9 (Projected Poly, Partition by Nation)				
010	United States	010	U	Y	N
020	Region	020	U	Y	N
030	Division	030	U	Y	N
040	State	040	U	Y	N
050	State-County	050	U	Y	N
310	Metropolitan Statistical Area/Micropolitan Statistical Area	310	U	Y	Y
330	Combined Statistical Area	330	U	Y	Y
335	Combined New England City and Town Area	335	U	Y	Y

Sum Level	Summary Level Name	Record Layout	Redelivery Unit	Fill Name?	Need from GEO?
350	New England City and Town Area	350	U	Y	Y
400	Urban Area	400	U	Y	Y
500	State-Congressional District (109th)	500	U	Y	Y
795	State-Public Use Microdata Area (5%)	795	U	Y	Y

Table 5. Record Layout by Summary Level

Sum Level	Record Layout
000	<BDY_TYPE> <COVER_UNIT> <COVER_ID>
010	<GEO_ID> <NAME> <LSAD>
020	<GEO_ID> <REGION> <NAME> <LSAD>
030	<GEO_ID> <DIVISION> <NAME> <LSAD>
040	<GEO_ID> <STATE> <NAME> <LSAD>
050	<GEO_ID> <STATE> <COUNTY> <NAME> <LSAD>
060	<GEO_ID> <STATE> <COUNTY> <COUSUBFP> <NAME> <LSAD>
160	<GEO_ID> <STATE> <PLACEFP> <NAME> <LSAD>
250	<GEO_ID> <AIANACE> <NAME> <LSAD>
310	<GEO_ID> <CBSA> <NAME> <LSAD>
312	<GEO_ID> <CBSA> <STATE> <PLACEFP> <NAME> <LSAD>
314	<GEO_ID> <CBSA> <METDIV> <NAME> <LSAD>
330	<GEO_ID> <CSA> <NAME> <LSAD>
335	<GEO_ID> <CNECTA> <NAME> <LSAD>
350	<GEO_ID> <NECTA> <NAME> <LSAD>
352	<GEO_ID> <NECTA> <STATE> <PLACEFP> <NAME> <LSAD>
355	<GEO_ID> <NECTA> <NECTADIV> <NAME> <LSAD>
400	<GEO_ID> <UA> <NAME> <LSAD>
500	<GEO_ID> <STATE> <CD> <NAME> <LSAD>
795	<GEO_ID> <STATE> <PUMA5> <NAME> <LSAD>
950	<GEO_ID> <STATE> <SD_E> <NAME> <LSAD>
960	<GEO_ID> <STATE> <SD_S> <NAME> <LSAD>
970	<GEO_ID> <STATE> <SD_U> <NAME> <LSAD>

Table 6. GEO_IDs by Summary Level

Sum Level	Summary Level Name	Applicable Geocodes by Field Name [A]	Sample GEO_ID [B]
010	United States	[none]	010.00.US
020	Region	REGION	020.00.US.2
030	Division	DIVISION	030.00.US.8
040	State	STATE	040.00.US.23 040.01.US.23
050	State-County	STATE, COUNTY	050.00.US.23.001
060	State-County-County subdivision [limited universe]	STATE, COUNTY, COUSUBFP	060.00.US.23.001.00510
160	State-Place	STATE, PLACEFP	160.00.US.23.00210
250	American Indian Area/Alaska Native Area/Hawaiian Home Land	AIANACE	250.00.US.4989
310	Metropolitan Statistical Area/Micropolitan Statistical Area	CBSA	310.00.US.19100
312	Metropolitan Statistical Area/Micropolitan Statistical Area-State-Principal City	CBSA, STATE, PLACEFP	312.00.US.19100.48.19000
314	Metropolitan Statistical Area-Metropolitan Division	CBSA, METDIV	314.00.US.19100.19124
330	Combined Statistical Area	CSA	330.00.US.206
335	Combined New England City and Town Area	CNECTA	335.00.US.715
350	New England City and Town Area	NECTA	350.00.US.71650 350.97.US.71650
352	New England City and Town Area-State-Principal City	NECTA, STATE, PLACEFP	352.00.US.71650.25.07000
355	New England City and Town Area (NECTA)-NECTA Division	NECTA, NECTADIV	355.00.US.71650.72104
400	Urban Area	UA	400.00.US.02788
500	State-Congressional District (109th)	STATE, CD	500.00.US01.01
795	State-Public Use Microdata Area (5%)	STATE, PUMA5	795.00.US.38.00050
950	State-School District (Elementary)	STATE, SD_E	950.00.US.51.56180
960	State-School District (Secondary)	STATE, SD_S	960.00.US.51.05291
970	State-School District (Unified)	STATE, SD_U	970.00.US.51.00012

([A]) Append geocodes in order specified in this column to create the GEO_ID.
([B]) Dots (.) included in sample GEO_ID for readability only. Dots should not be included in actual values.

Table 7. Field Definitions

Field	Max Len	Format	Values *	Description and Notes
AIANACE	4	Char	0001-9970	American Indian Reservation (Census). Includes AIR, TJSA, TDSA, ANVSA, SDAISA, Hawaiian Home Lands.
BDY_TYPE	3	Char	See Table 3	Summary Level Code of line network
CBSA	5	Char	10000-59999	Core Based Statistical Area (Metropolitan or Micropolitan)
CD	2	Char	00-53; 98	Congressional District 00 = "At Large" district, a single district for entire state
CNECTA	3	Char	700-799	Combined New England City and Town Area
COUNTY	3	Char	000-840	County (FIPS)
COUSUBFP	5	Char	00001-98999	County Subdivision (FIPS)
COVER_ID	5	Char	<blank>, 01-78,	Geocode of geographic entity by which the file is internally partitioned. Value depends on cover_unit value.
COVER_UNIT	1	Char	U, S	Geographic entity type by which the file is internally partitioned. U = Nation, S = State. Populate with value from "Redelivery Unit" column in Table 3. If more than one value listed, use value for smallest unit (in **boldface**).
CSA	3	Char	100-599	Combined Statistical Area
DIVISION	1	Char	0-9	Census Division
GEO_ID	60	Char	See Table 6	A unique identifier for a geographic entity. The GEO_ID is formed by: 1) appending the following components: Summary Level Code + 00US + Applicable Geocodes, 2) replacing any blanks in the resulting string with zeros.
LSAD	7	Char	alpha	Standard abbreviation of Legal/Statistical Area Description as used on census maps. Abbreviations are defined & maintained by GEO. Only populate if "Fill Name" column in Table 3 is "Y".
METDIV	5	Char	10004-59994	Metropolitan Division
NAME	90	Char	alphanumeric	Name without LSAD. Only populate if "Fill Name" column in Table 3 is "Y".
NECTA	5	Char	70000-79999	New England City and Town Area
NECTADIV	5	Char	70004-79994	New England City and Town Area Division
PLACEFP	5	Char	nnnnn	Place (FIPS)
PUMA5	5	Char	nnnnn	Public Use Microdata Area – 5%
REGION	1	Char	1-4; 9	Census Region
SD_E	5	Char	00001-98542, 99997, 99998	School District, Elementary 99998=not defined in water; 99997=not defined on land/inland water
SD_S	5	Char	00002-99965, 99997, 99998	School District, Secondary 99998=not defined in water; 99997=not defined on land/inland water
SD_U	5	Char	00001-99998	School District, Unified 99998=not defined in water; 99997=not defined on land/inland water
STATE	2	Char	01-78	State (FIPS)
UA	5	Char	nnnnn	Urban Area (an urbanized area or an urban cluster)

* . "n" = a numeric digit, "c" = an alphanumeric character. For geocode fields "owned" by GEO, value information is intended to be descriptive, and is not authoritative.

Table 8. Special Name Rules

Sum Level	Summary Level Name	Rule	Sample Name
010	United States	"United States"	United States
310	Metropolitan Statistical Area/Micropolitan Statistical Area	CBSA name without State postal abbreviations	Savannah
314	Metropolitan Statistical Area-Metropolitan Division	METDIV name without State postal abbreviations	Newark
330	Combined Statistical Area	CSA name without State postal abbreviations	New York
335	Combined New England City and Town Area	CNECTA name without State postal abbreviations	Boston-Worcester-Manchester
350	New England City and Town Area	NECTA name without State postal abbreviations	Boston-Cambridge-Quincy
355	New England City and Town Area (NECTA)-NECTA Division	NECTADIV name without State postal abbreviations	Framingham
400	Urban Area	Urban Area name without State postal abbreviations	Boston
500	State-Congressional District	Code 00, 98: "At Large" Codes 01-53: District Number with leading zeros dropped	 At Large 1; 10

Table 9. Projected File Parameters

Albers Projection Parameters	US lower 48	Alaska	Hawaii	Puerto Rico
1st standard parallel	29 30 0.0	53 33 10.0	20 28 26.0	17 57 21
2nd standard parallel	45 30 0.0	68 3 30.0	26 54 31.0	18 26 45
central meridian	-96 0 0.0	-159 16 47.0	-166 35 58.0	-66 35 02
latitude of projection's origin	24 23 45.0	51 10 35.0	18 51 55.0	17 50 00
false easting	0	0	0	0
false northing	0	0	0	0
Scale Factor				
Approximate Map Scale	1: 45 million	1: 90 million	1:30 million	1:15 million
Scaling Factor, Relative to US lower 48	1 x	½ x	1 ½ x	3 x
Tic Shift, to achieve scaling effect	0	½ x	1 ½ x	3 x
Offset Factor (in projected, scaled earth feet)	**US lower 48**	**Alaska**	**Hawaii**	**Puerto Rico**
Approximate x axis shift	0	-4, 235,000	-15,350,000	?
Approximate y axis shift	0	10,720,000	206,500	?

Figures 1. Map Layout of Projected Spatial Files