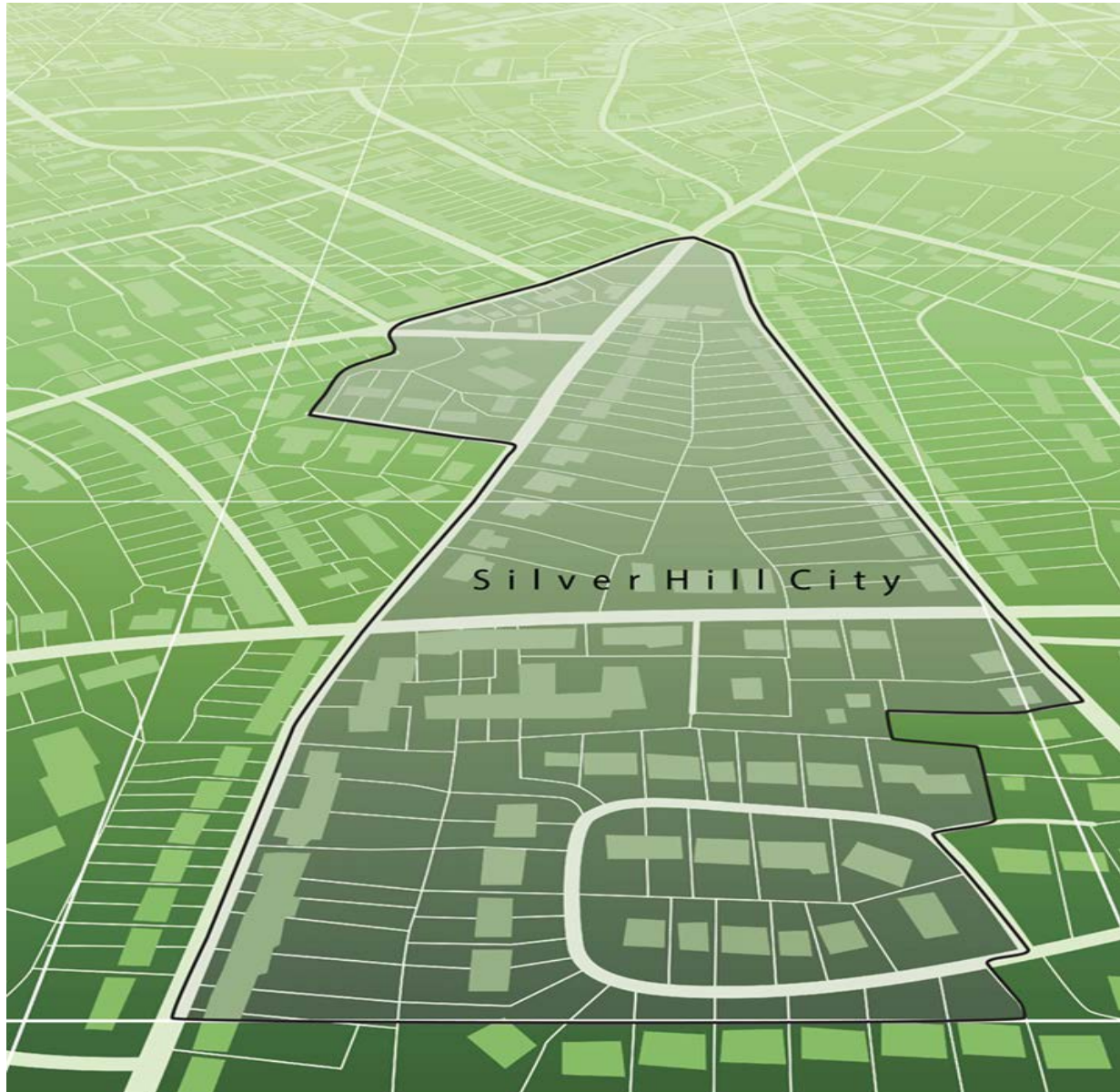# Boundary and Annexation Survey Respondent Guide: GUPS

Instructions for Using the Geographic Update Partnership Software (GUPS)

DRAFT— Last Revised October 30, 2015

S i l v e r H i l l C i t y

United States Census Bureau

Contents

Introduction

Purpose of the Boundary and Annexation Survey

The Census Bureau conducts the annual Boundary and Annexation Survey (BAS) to collect information about selected legally defined geographic areas. The BAS collects data on counties (or equivalent areas), incorporated places, minor civil divisions such as parishes or townships (known as MCDs), and federally recognized American Indian Areas (AIAs), including reservations, off-reservation trust lands, and tribal subdivisions. Section 6 of Title 13 of the United States Code authorizes the BAS. Participation in the BAS is voluntary.

The BAS benefits both federal and local governments. Each year, Census partners update the names, legal boundaries, and boundary-to-feature relationships of geographic areas for which their local governmental unit (GU) has jurisdiction. These updates are incorporated into the Census Bureau's Master Address File / Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) database. Partner-provided updates to this database help ensure that the Census Bureau assigns the correct population to each GU and that it supplies accurate boundary data to Census and other federal programs.

In particular, data collected through the BAS are used to update the results of the decennial census of the U.S. population (on which legislative districts and representation are based), and the decennial economic census. The BAS also serves as a central source of data for the Census Bureau's American Community Survey (ACS) and Population Estimates Program (PEP). Many state and federal entities employ the decennial population and economic censuses, the ACS, and the PEP and to allocate funds for services to GUs.

In compliance with Office of Management and Budget Circular A-16, the BAS also helps fulfill the Census Bureau's spatial data steward responsibilities toward the Federal Geographic Data Committee and the Geospatial One-Stop, both interagency initiatives aimed at integrating and standardizing federal data sources. In addition, the BAS provides information on boundaries, codes, and names for the U.S. Geological Survey's The National Map Program and the Geographic Names Information System.

Respondent Guide Organization

For the BAS, three methods are available to provide updates:

1. **GUPS** (Geographic Update Partnership Software) – The GUPS, based on an open-source platform known as *QGIS*, is a customized geographic information system (GIS) provided by the Census Bureau. The GUPS is tailored to meet the needs of those without extensive GIS experience and replaces the MAF/TIGER Partnership Software (MTPS) previously used in BAS. (**Note**: If you would like more information on the *QGIS* open-source platform, go to: http://www.qgis.org/en/site/)

2. **Digital BAS** – Expert GIS users may employ their own GIS to make updates.

3. **Paper BAS** – For those who do not wish to complete their work on the computer, updates may also be made using paper maps.

This guide has been created for those who choose to participate in the survey using the GUPS. Those using their own GIS should consult the *Boundary and Annexation Survey Respondent Guide: Digital BAS* or the *Boundary and Annexation Survey Tribal Respondent Guide: Digital*. Both are available on the BAS website at https://www.census.gov/geo/partnerships/bas/bas_response.html

Those using paper maps should consult *Boundary and Annexation Survey: Paper* at the same location.

This guide contains two parts:

- **Part 1** – Provides an overview of the BAS. It specifies the:
    - Guidelines and requirements for the BAS
    - Overall BAS workflow
    - Information specific to the review and update of each type of geographic entity
    - Methods available to validate and submit your changes.

- **Part 2** – Describes the GUPS and gives step-by-step instructions for how to:
    - Obtain and install the GUPS application
    - Load Census shapefiles into the GUPS
    - Import your own data files into the GUPS
    - Correct and update the Census shapefiles using GUPS tools
    - Validate your changes and create output files in the GUPS
    - Submit your output files using the Secure Web Incoming Module (SWIM).

Hyperlinks are included in Parts 1 and 2, where appropriate, to connect to the information in the other part (that is, you may click a hyperlink to view the GUPS step-by-step instructions for a topic if you are in Part 1, or go to the procedural overview for the topic if you are in Part 2).

PART 1: BOUNDARY ANNEXATION SURVEY OVERVIEW

Figure 1 below displays the three phases of the work to be completed for the BAS. The first section in the diagram includes initial steps. The second section indicates the types of geographic data that should be reviewed and updated. The final section lists the methods available to validate and submit changes.

Chapters 1, 2, and 3 are organized around the topical areas in the diagram and provide needed program information and procedures, as well as relevant deadlines. (See **Appendix A** of this document for a list of contacts and helpful program links.) LINK

Figure 1 BAS Workflow
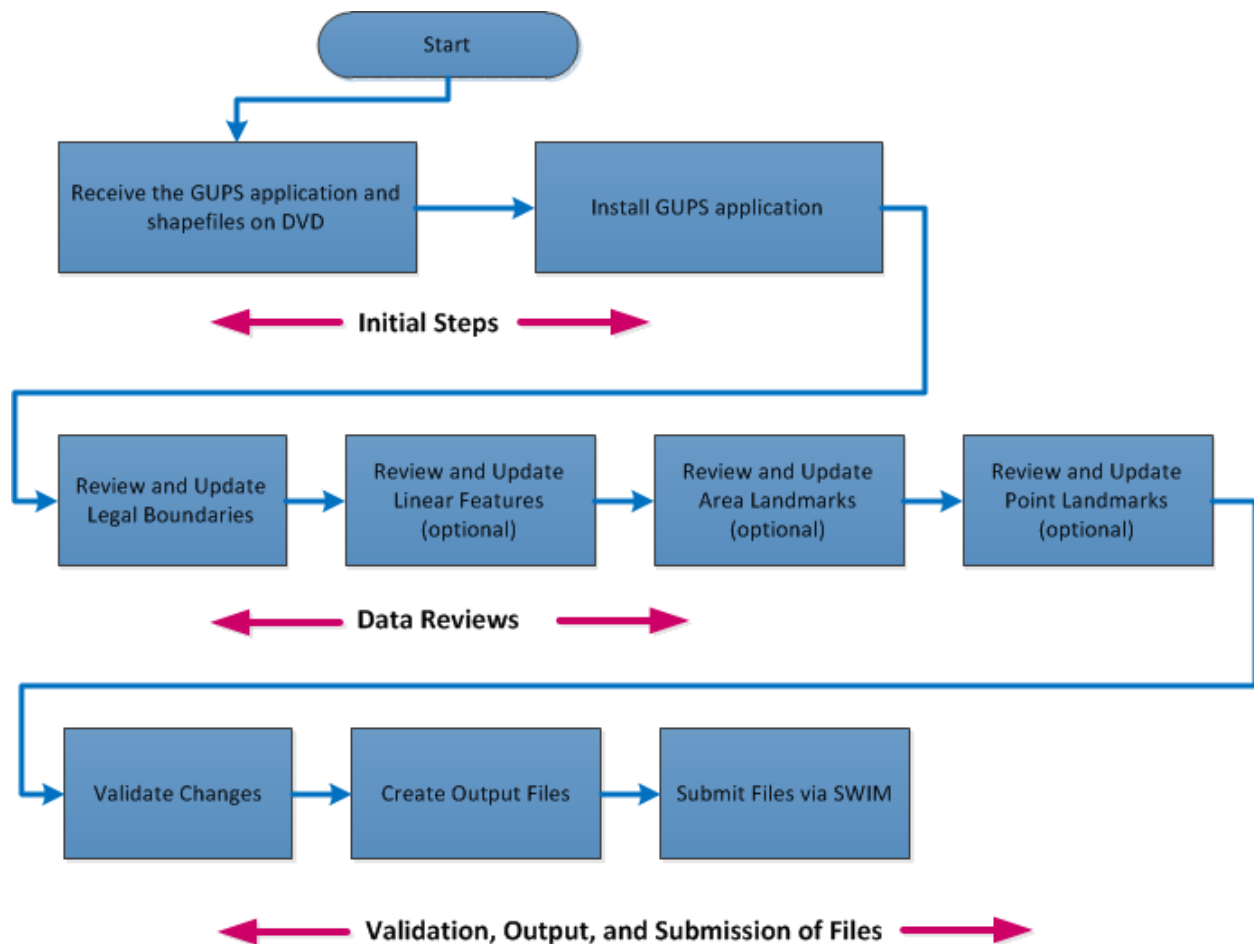
1 Initial Steps

1.1 Obtaining the GUPS

If you note on your Annual Response Form, or by other means, that you have boundary changes to report, the Census Bureau will mail you the GUPS software on DVD.

1.2 Obtaining Census Shapefiles

When you receive the GUPS on DVD, you will receive a second DVD in the package containing the shapefiles for your area. If for some reason a shapefile is missing or corrupted, the shapefiles are also available for download from the Geography Partnership website: https://www.census.gov/geo/partnerships/bas/bas_download.html

Click here to review step-by-step instructions for how to copy Census shapefiles from the DVD to your computer. LINK

1.3 Knowing BAS Requirements

1.3.1 Deadlines

Deadlines for the current BAS year are:

- **January 1** – All boundary changes must be legally in effect on or before this date to be reported under the current BAS year.

Changes with Effective Dates After January 1	The Census Bureau will accept changes legally effective after January 1 for inclusion in the shapefiles for the next BAS year. However, these changes will not appear in this year's American Community Survey (ACS) or Population Estimates Program (PEP) data. Any changes you submit that become effective after January 1 will be reflected in the following year's ACS and PEP data.

- **March 1** – You must submit changes by this date if you wish them to be included in this year's ACS and PEP data. Changes reported by March 1 will also be included in the BAS shapefiles for the next BAS year.

- **May 31** – This is the deadline for changes to be submitted for the current BAS year. Changes received between March 2 and May 31 will be reflected in the shapefiles for the next BAS year. However, they will not appear in this year's ACS or PEP data.

1.3.2 Legal Disputes

If an area of land is in dispute between two or more jurisdictions, the Census Bureau will not make either annexation or boundary corrections until the parties come to a written agreement, or until there is a documented final court decision regarding the matter/dispute. If you have questions concerning this, please contact the Census Bureau Legal Office at 301-763-9844.

For disputes involving tribal areas, the Census Bureau must defer to the Office of the Solicitor at the Department of the Interior for a legal opinion. Often, complicated land issues require an extended period of time for resolution, and in those cases, the Census Bureau will retain the current boundary in the database until a legal opinion is issued by the Solicitor's office.

1.3.3 Specific State Arrangements and Agreements

The Census Bureau has established a number of arrangements and agreements with states for reporting boundary changes. If your state is interested in establishing a BAS state agreement, please consult the Census Bureau's Geography Partnership website at http://www.census.gov/geo/partnerships/bas/bas_sa.html. You may also call the Geography Division's Legal Areas Team at 301-763-1099 or send an email to geo.bas@census.gov.

State Agreement Requirement	Please note that the Census Bureau can only establish BAS state agreements for states that require local governments to report boundary changes to a state agency.

1.4 Getting Help

1.4.1 GUPS Help

As noted in the Introduction, instructions for how to use the GUPS are contained in Part 2 of this guide. The guide is available under the Help function in the GUPS application, and can be accessed at any time, allowing you to see step-by-step instructions as you complete your work. The GUPS also includes short (3- to 7-minute) training videos that explain specific update activities, the validation process, and the submission of files through SWIM. These videos may also be accessed at any time while you are working in the application. They are also available under the Help function within the GUPS. LINK

For questions concerning technical problems with the GUPS application, user support is available via telephone (1-800-972-5651) and email (geo.bas@census.gov). Questions can also be faxed to 1-800-972-5652, attention BAS Partnership.

1.4.2 BAS Help

GUPS users may find the *Boundary and Annexation Survey Respondent Guide: Digital BAS* helpful. Although designed for experienced GIS users, it provides important information on geocoding, topological relationships, and spatial accuracy relevant to Census shapefiles. This guide can be downloaded at http://www.census.gov/geo/partnerships/bas/bas_response.html#dig

The Census Bureau has also created a video on the subject of topology and why topology is important to the BAS. For more information, please go to http://www.census.gov/geo/partnerships/bas/videos/digitalproctopo.html to view this video.

2 BAS Data Reviews

In the BAS, the Census Bureau requests that you review and update the boundaries and / or attributes of four types of geographic entities:

- Legal entities
- Linear features
- Area landmarks and hydrographic areas
- Point landmarks.

To help you conduct your review, the GUPS application will allow you to import and overlay data layers of your own with the Census shapefiles. You can import your own image files or files from web mapping services or geodatabases, as well as other file types. Step-by-step directions for importing user-provided geospatial data are discussed in **Section 5.3**. LINK

2.1 Reviewing Legal Boundaries

In reviewing legal boundaries, please examine the Census shapefiles for all legal entities in your jurisdiction. These include:

- Incorporated places
- Minor Civil Divisions (MCDs) such as unincorporated towns, parishes, and townships
- Counties

Table 1 below shows the specific changes allowed for each legal entity type.

Table 1 Available Change Types by Legal Entity

Legal Entity	Available Change Types
Incorporated Place	- New Entity - Deleted Entity (Disincorporation) - Addition or Annexation - Deletion or Deannexation - Boundary Correction (add) - Boundary Correction (remove) - Geographic Corridor - Geographic Offset
County Subdivision (MCD)	- New Entity - Deleted Entity - Addition or Annexation - Deletion or Deannexation - Boundary Correction (add) - Boundary Correction (remove) - Geographic Offset
County	- Addition or Annexation - Deletion or Deannexation - Boundary Correction (add) - Boundary Correction (remove)

For a detailed discussion of geographic corridors and geographic offsets, see **Appendix B**. LINK

Requirements for Legal Boundary Changes	Boundary Changes to Legal Entities
	For a boundary change to an existing legal entity (or the addition or deletion of a legal entity) to be processed as a Legal Change, you are not required to submit paperwork documenting the change. You must, however, provide the effective date, authorization type, and ordinance number.
	Note: Although additional documentation is not required, we do strongly encourage you to attach supporting paperwork to your submission (you may do this directly in GUPS). The paperwork will expedite our ability to reconcile and process any legal updates.
	Boundary Changes to Legal Entities in Georgia and Indiana
	Georgia: Any legal boundary change made to an incorporated place in the state of Georgia must include: (1) the effective date, and (2) the acreage of the new entity. In addition, before entering the change, you must ensure that all annexation / deannexation information has been reported to the Department of Community Affairs. The Department provides the Census Bureau a list of the entities that reported boundary changes each year. Any legal boundary changes to incorporated places not on this list will not be placed in MAF/TIGER. For additional information, see: http://www.census.gov/geo/partnerships/bas/bas_sa.html
	Indiana: Per Indiana state law, counties must provide the legal boundary updates for townships. For more information, refer to Indiana Code 36-6 Government of Townships at: http://www.in.gov/legislative/ic/code/title36/ar6/ch1.html.
	If you have questions about required documentation for your particular jurisdiction, contact the Geography Division by phone at 1-800-972-5651 or by email at geo.bas@census.gov.

2.2 Reviewing Linear Features

It is important that Census Bureau data reflect the most recent linear features to ensure that new or previously missed housing units located along these features are identified and located. When reviewing linear features (all edges layer) on the Census shapefiles, first determine whether any features are missing or need to be deleted. Pay particular attention to areas that have experienced recent population growth or construction activities, as these are the most likely to possess new or altered linear features (e.g., new streets in subdivisions, traffic circles converted to straight ways, or privately maintained roads that serve as public streets but exclude private driveways).

You may also add attribute updates (e.g., name, classification code, and address ranges) for selected features. For a complete list of MAF/TIGER Feature Class Codes (MTFCCs), see **Appendix C**. LINK

To aid in the review of linear features, the GUPS allows you to import street centerline, hydrographic, imagery, and other user-provided geospatial data for reference and comparison against the Census Bureau shapefile data.

In your review, please note:

S1100 & S1200	If you add road features with an MTFCC of S1100 (Primary Road) or S1200 (Secondary Road), you must supply a feature name. As for all road features, the feature name should be a proper name or route number.
Handling Spatial Inaccuracies	The Census Bureau will not process the wholesale spatial realignment of features to enhance spatial accuracy. If a feature is in the incorrect location, delete the feature and add it in the correct location. Take this action, however, only if the feature is exceedingly incorrect spatially and/or the current location (with respect to other features and boundaries) affects the assignment of housing units to the correct geography, such as legal entities, census tracts, and census blocks.
Address Range Changes	The Census Bureau accepts address range data as part of the linear feature update layer. As with other linear feature updates, you must supply the required attributes and corresponding change type for the update. In addition, because existing address ranges are not shown in our outgoing shapefiles, we recommend that participants generally only add address ranges to new features.

2.3 Reviewing Area Landmarks and Hydrographic Areas

The Census Bureau accepts updates to area landmarks and hydrographic areas in a similar manner to legal boundary changes. However, area landmarks and hydro areas are not legal entities, so no documentation or effective dates are required.

Allowable updates for area landmarks and hydrographic areas are:

- Add new area landmark or hydrographic area
- Remove area landmark or hydrographic area
- Change or add landmark name
- Boundary corrections (add and remove area)

If you ***add*** a new area landmark or hydrographic area, please add only:

- Water bodies
- Glaciers
- Airports
- Cemeteries
- Golf courses
- Parks

The Census Bureau cannot add other types of area landmark / hydrographic areas to the MAF/TIGER database at this time (even though others may already exist in the database).

Table 2 below shows the acceptable MTFCC codes for new area landmarks or hydro areas.

Table 2 Acceptable MTFCC Codes for New Area Landmarks / Hydrographic Areas

MTFCC	Description
H2030	Lake/Pond
H2040	Reservoir
H2041	Treatment Pond
H2051	Bay/Estuary/Gulf/Sound
H2081	Glacier
K1231	Hospital/Hospice/Urgent Care Facility
K2131	Hospital
K1235	Juvenile Institution
K1236	Local Jail or Detention Center
K1237	Federal Penitentiary, State Prison, or Prison Farm
K2110	Military Installation
K2180	Park
K2181	National Park Service Land
K2182	National Forest or Other Federal Land
K2183	Tribal Park, Forest, or Recreation Area
K2184	State Park, Forest, or Recreation Area
K2185	Regional Park, Forest, or Recreation Area
K2186	County Park, Forest, or Recreation Area
K2187	County Subdivision Park, Forest, or Recreation Area
K2188	Incorporated Place Park, Forest, or Recreation Area
K2189	Private Park, Forest, or Recreation Area
K2190	Other Park, Forest, or Recreation Area (quasi-public, independent park, commission, etc.)
K2424	Marina
K2540	University or College
K2457	Airport – Area Representation
K2561	Golf Course
K2582	Cemetery

Note: If adding an MTFCC K2457 (Airport – Area Representation) area landmark, please limit the updates to major airports (major regional and international airports). The feature should show the full extent of the airport facility, that is, do not limit the addition to simply the landing strips.

Area Landmark / Hydro Area Changes May Be Delayed	The Census Bureau prioritizes boundary changes to legal areas in order to meet ACS, PEP, and BAS deadlines. Therefore, there may be delays in incorporating area landmark and hydrographic area changes to the MAF/TIGER database. Please do not resubmit any changes that were sent during the previous year's BAS. We are working on incorporating those changes, and they will be reflected in the next year's BAS materials.

2.4 Reviewing Point Landmarks

Because many of the point landmarks contained in the Census Bureau's MAF/TIGER database originate from the U.S. Geological Survey's Geographic Names Information System (GNIS), which is the official gazetteer of point landmark names for the Federal Government, point landmark updates are limited in the BAS. The Census Bureau cannot modify any point landmark imported from the GNIS database. Thus, be aware that name changes or deletions submitted for the following types of landmarks may be left unchanged:

- K2451 (Airport or Airfield)
- K2582 (Cemetery)
- C3022 (Summit or Pillar)
- C3081 (Locale or Populated Place)

Also, due to Title 13 privacy concerns, any landmark with an MTFCC shown in **Table 3** below cannot be added to the MAF/TIGER database as a point landmark. The MAF/TIGER database no longer maintains any point landmarks with these MTFCCs. Landmarks with these codes could identify a residence or private business. Thus, it is also important not to add any of the point landmark types shown in the table using alternative MTFCCs.

Table 3 Restricted Point Landmark MTFCCs

MTFCC	Description
K1100	Housing Unit Location
K1121	Apartment Building or Complex
K1122	Rooming or Boarding House
K1223	Trailer Court or Mobile Home Park
K1226	Housing Facility/Dormitory for Workers
K1227	Hotel, Motel, Resort, Spa, Hostel, YMCA, or YWCA
K1228	Campground
K1229	Shelter or Mission
K1232	Halfway House/Group Home
K1233	Nursing Home, Retirement Home, or Home for the Aged
K1234	County Home or Poor Farm
K1235	Juvenile Institution
K1241	Sorority, Fraternity, or College Dormitory
K1251	Military Group Quarters

MTFCC	Description
K1299	Other Group Quarters Location
K2100	Governmental
K2197	Mixed Use/Other Non-residential
K2300	Commercial Workplace
K2361	Shopping Center or Major Retail Center
K2362	Industrial Building or Industrial Park
K2363	Office Building or Office Park
K2364	Farm/Vineyard/Winery/Orchard
K2366	Other Employment Center
K2424	Marina
K2500	Other Workplace
K2564	Amusement Center

Note that, just as for area landmark changes, point landmark changes may be delayed as a result of the heavy workloads for boundary changes to legal areas. Thus, it may take two BAS cycles for Census shapefiles to reflect your changes.

3 Quality Control and File Submission

3.1 Validating Updates

Once you have completed your BAS updates, you must complete a review of your change polygons to ensure that:

1. The polygons have no holes (e.g., you annexed an MCD but missed a traffic circle).
2. All boundary corrections meet a size threshold (very small corrections cannot be processed).

Validate as You Go	Validation tools in the GUPS can be accessed at any time while you are working in the application. We suggest you utilize them as you go to identify errors early and avoid extensive rework.

Click here to review step-by-step instructions for a discussion of GUPS validation tools. LINK

3.2 Submitting Files Through SWIM

Prompt submission of updates is appreciated. It benefits the *Census Bureau*—allowing us to review the files early, provide feedback, and avoid backups in file processing—*and you*—guaranteeing your updates are recorded accurately and are reflected in the latest releases of Census and other federal data products.

All BAS data submissions must be made via the Secure Web Incoming Module (SWIM). For data security reasons, we cannot accept files sent via email or through our former ftp site. If you do not have Internet access, you may copy your file(s) to DVD and mail the DVD to:

> Send to: US Census Bureau
> National Processing Center
> ATTN: BAS Returns, Bldg 63A
> 1201 East 10th Street
> Jeffersonville, IN 47132

If you indicated on your Annual Response Form that you have changes to report, you will receive the URL for SWIM and a registration token via email. The email should arrive approximately 5 business days after the Annual Response Form has been completed online (or 5 business days after the Census Bureau receives the paper form).

The registration token will allow you to establish a personal SWIM account. If you do not receive a SWIM token after allowing the specified amount of time, email geo.bas@census.gov or call 1-800-972-5651.

Once registered, you will no longer need the token to log into the system.

Current SWIM Users	If you are a participant in another Census Bureau partnership program and already have a SWIM account, you may use your current account to submit files for the BAS. You do not need to set up a new account.

For step-by-step instructions to submit files through the SWIM, see LINK

PART 2 HOW TO USE THE GUPS

4 Getting Started

As stated earlier, you will receive the GUPS application and the shapefiles needed to make updates on DVD. One DVD will contain the installer, a .pdf of the *BAS GUPS Respondent Guide,* and helpful training videos. The other DVD will contain your BAS shapefiles.

4.1 System and Hardware Requirements

The Geographic Update Partnership Software (GUPS) was developed for use in a desktop PC or a network environment. **Table 4** lists the hardware and software requirements for the GUPS, and for the submission of files through the SWIM website.

Table 4 GUPS Hardware and Software Requirements

Hardware	Operating System	Browser	Video Player Software

Disk Space: The GUPS application will occupy ~1.27 GB of disk space. Consider this (along with the size of your shapefiles if you plan to copy them to your computer) to determine how much disk space you will need. The average shapefile is 32 MB, but some are much larger depending on population density.
 	
 RAM:
 	
 4 GB recommended
 	
 1 GB suggested minimum
	Windows:
	
	 To run the GUPS, users will need one of the following Windows operating systems:
	
	 • Windows XP
	 • Windows Vista
	 • Windows 7
	 • Windows 8
	 • Windows 10
	
	 Apple iOS:
	
	 iOS users can run the GUPS using a Windows bridge. Suggested bridge software is Red Hat, downloadable free at: http://www.redhat.com/download/
		Minimum Browser Versions for SWIM:
		
		 • Internet Explorer 8
		 • Google Chrome 3
		 • Mozilla Firefox 3.5
		 • Apple Safari 4.1.3
			The training videos in GUPs require MP4 video playback software. When you double click a training video, your PC's default video player (e.g., Windows Media Player, VLC, QuickTime, etc.) should open and play the video.
			
			 If your player cannot open MP4 files, you may need to install an MPEG-4 codec. An MPEG-4 codec is a small piece of software that allows your computer to recognize MP4 files and play them regardless of what player is installed.
			
			 Recommended Codec:
			
			 • X Codec Pack – free download: http://www.xpcodecpack.com/
			
			 • Compatible with:
			
			   – Windows XP
			   – Windows Vista
			   – Windows 7
			   – Windows 8
			   – Windows 10

4.2 How to Install the GUPS

To install the GUPS application you must have System Administrator privileges for your computer. To complete the installation, follow the steps in **Table 5**.

Table 5 Steps to Install the GUPS Application

Step	Action / *Result*
Step 1	Place the installation DVD into your computer's DVD drive. *A **Windows protected your PC** pop-up box appears.* SCREEN CAPTURE PLACEHOLDER
Step 2	To continue, click 'More info' and select 'Run anyway' at the bottom. *Your computer may automatically run the installer.* Note: You may also see a pop-up box requesting confirmation that you want to "allow the following program from an unknown publisher to make changes to your computer." Click **Yes**. SCREEN CAPTURE PLACEHOLDER
Step 3	If the software does not run automatically, open Windows Explorer, navigate to your DVD drive, and double-click on **QGIS-OSGeo4W-0.3.13-25-Setup-x86_64.exe**. *The Welcome to the **QGIS GUPS Setup Wizard** screen appears*: SCREEN CAPTURE PLACEHOLDER
Step 4	Initiate the Setup Wizard installation steps. First click the **Next** button. *The **License Agreement** screen appears.* SCREEN CAPTURE PLACEHOLDER **Note**: If the software does not run, please contact your system administrator for assistance.
Step 5	Read the License Agreement and click the **I Agree** button to continue. *The **Choose Components** screen opens.* SCREEN CAPTURE PLACEHOLDER
Step 6	Click the **Install** button at the bottom of the **Choose Components** screen. The software should take between 5 to 10 minutes to install. When it is finished, the **Completing the QGIS GUPS Setup** screen opens. SCREEN CAPTURE PLACEHOLDER
Step 7	To complete the installation, click the **Finish** button at the bottom of the *Completing the* **QGIS GUPS Setup** screen. *The application is installed and a blue GUPS icon appears on your desktop.* ICON CAPTURE PLACEHOLDER

4.3 How to Copy Shapefiles from the DVD to Your Computer

When you work within the GUPS, it will automatically load files into the application for you from the DVD. To avoid having to insert the shapefile DVD each time you want to work in the application, however, you may want to save the shapefiles to your computer. (Before doing this, check your computer to ensure it has sufficient disk space.)

To copy the files, follow the steps in **Table 6** below.

Table 6 Steps to Copy Shapefiles from the DVD to Your Computer

Step	Action / *Result*
Step 1	Navigate to the home directory on your computer. **Note**: In Windows, the home directory is almost always located at C:\Users\<username> (with the <username> portion displaying your specific username). C: is the home directory location assumed by this guide. If you cannot find your home directory, contact your system administrator to ask its location.
Step 2	Insert the shapefile DVD into your DVD drive and locate the folder on the DVD that is named 'shape'. SCREEN CAPTURE PLACEHOLDER
Step 3	Copy all of the contents of D:\shape\ (assuming D: is your DVD reader drive) to your home directory. You may copy the files to any location you wish.
Note	Once you have placed the shapefiles on your home directory, the GUPS application will manage them. *You do not need to do anything else.* When you select your geography in the GUPS, the application will ask you to specify the location ('CD/DVD', 'My Computer', or 'Census Web') of your files. When you select 'My Computer', the GUPS locates the files where you saved them, unzips and loads them into the application, and moves them to a pre-established folder on your directory created during the installation process.
ADD ICON	Do not change any folder or shapefile name. For the GUPS to recognize a folder or shapefile, it must have the exact name given.

4.4 How to Download Shapefiles from the Geography Partnership Website

If you need additional shapefiles, or need to replace a corrupted file, you may download shapefiles from the Geography Partnership website. This can be done easily from within the GUPS application. For the steps to download files within GUPS, see **Table 8** in the next section. **Steps 19** through **21** describe how to complete the download. LINK

4.5 How to Download Shapefiles from the ftp2 Site

State-level users may download files for their entire state at once. To do this, follow the steps in **Table 7**.

Table 7 Steps for State Users to Download Shapefiles from ftp2 Site

Step	Action / *Result*
Step 1	Using Internet Explorer (IE) or a web browser of your choice navigate to ftp://ftp2.census.gov/. *The* **FTP root at ftp2.census.gov** *main page opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	To download multiple datasets, open the Census Bureau FTP site in Windows Explorer (sometimes called File Explorer). On your browser menu, select **View**, then click **Open FTP Site in File Explorer**. SCREEN CAPTURE PLACEHOLDER
Step 3	After the Census Bureau FTP site has been opened in File Explorer, double click the geo folder. SCREEN CAPTURE PLACEHOLDER
Step 4	Within the **geo** folder, double-click the **pvs** folder. SCREEN CAPTURE PLACEHOLDER
Step 5	Select the state folder that contains the county(ies) for which you are downloading data. The state folders are represented using two-digital state FIPS codes. SCREEN CAPTURE PLACEHOLDER
Step 6	There are several sets of shapefiles within each state directory. You will want to download the most recent partnership shapefiles. These shapefiles are contained within a zip file with the prefix **partnership_shapefiles_15v2.** Each zip file ends with a five-digit state-county FIPS code (e.g., 08051) which represents the county for which you are downloading data. SCREEN CAPTURE PLACEHOLDER
Step 7	Select the county or counties that you intend to download and copy to your local or network drive. You may copy the files to any location you wish. Once you have placed the shapefiles on your home directory, the GUPS application will manage them. You do not need to do anything else. When you select your geography in the GUPS, the application will ask you to specify the location ('CD/DVD', 'My Computer', or 'Census Web') of your files. When you select 'My Computer', the GUPS locates the files where you saved them, unzips and loads them into the application, and moves them to a pre-established folder on your directory created during the installation process.
Note	**Users With FTP Client Software** If you have an FTP client software such as WinSCP or FileZilla (or other) you may connect to ftp2.census.gov without a password. Enter 'anonymous' as your user name and enter your email address in place of a password.

5 Using GUPS (GUPS Basics and Map Management)

After successfully installing the GUPS, you are ready to start your Boundary and Annexation Survey updates.

5.1 How to Open the GUPS and Start a New Project

The GUPS considers each session in which you work on a Census shapefile a separate project, and it allows you to work on only one project at a time. If you exit the GUPS before completing a project, be sure to save it. You can come back later and reopen the project to continue work.

To begin your first project, follow the steps in **Table 8**.

Table 8 Steps to Open the GUPS and Start a New Project

Step	Action and *Result*
Step 1	Double-click the GUPS icon [ICON PLACEHOLDER] on your desktop. *The GUPS splash screen appears*. SCREEN CAPTURE PLACEHOLDER
Step 2	Wait until the application loads (If you have an older computer, this may require a few minutes). *When the GUPS application has loaded, the GUPS main page opens and the QGIS Tips! box appears*. SCREEN CAPTURE PLACEHOLDER **Note**: Since GUPS was built on the QGIS open-source platform, you may see references to QGIS in several locations within the GUPS application.
Step 3	If you wish to become a QGIS translator, click on the link within the box for the 'translator's page' to obtain more information on this program. If you wish to view tips on the QGIS system, click the **Next** button to read your first tip. Thereafter use the **Previous** and **Next** buttons to navigate within the tips available. If you do not wish to see the **QGIS Tips!** box again, click the checkbox in the bottom left-hand corner that reads 'I've had enough tips, don't show this on start up any more!'
Step 4	To begin a GUPS project, click the *Close* button [ICON PLACEHOLDER] in the upper right-hand corner of the **QGIS Tips!** box, or click the **OK** button. *Either action closes the tip box and opens the **Map Management** dialog box, as shown below.* SCREEN CAPTURE PLACEHOLDER
Step 5	In the **Map Management** box, use the down arrow next to the **Program** field to open the drop-down menu and select 'Boundary and Annexation Survey 2016'. '*Boundary and Annexation 2016' populates the field*. SCREEN CAPTURE PLACEHOLDER
Step 6	In the **State** field, use the drop-down menu to select your state. SCREEN CAPTURE PLACEHOLDER

Step	Action and *Result*
	This example uses Indiana.
Step 7	In the **Working County** field, use the drop-down menu to select the county for which you wish to make updates. SCREEN CAPTURE PLACEHOLDER This example uses Jefferson County, Indiana.
Step 8	After you select the working county, the GUPS asks you to specify the location from which you want to pull the county's shapefile. *The **Select Data Folder, Directory or Location** box appears.* SCREEN CAPTURE PLACEHOLDER
Note	The GUPS will only ask you to specify a location for a shapefile **the first time you open it**. If you come back to work on the same county's shapefile again, the shapefile will automatically load.
Step 9	Use the down arrow in the *Select Data Folder, Directory or Location box* to open the drop-down menu and select the location. The options are the Census-provided DVD ('CD/DVD'), your computer's home directory ('My Computer'), and the Geography Partnership website ('Census Web'). SCREEN CAPTURE PLACEHOLDER
Step 10	This example assumes the user has copied the shapefiles to their computer's home directory, so 'My Computer' is selected. *The **Select directory** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 11	From the **Look in:** pane in the upper left-hand corner, click on **My Computer**, navigate to the directory location where you saved the files, and click on the **parent folder**. For example, if you saved the files to the location C:/GUPS/BAS, select the folder named 'BAS'. Do not select the individual shapefile subfolders contained within the BAS folder (e.g., subfolders with names such as 55 or 55025). The GUPS application, once directed to the parent folder, will select the correct subfolder(s) and will pull the file(s) you requested. SCREEN CAPTURE PLACEHOLDER
Step 12	Once you have selected the correct folder, click the **Select** button in the bottom right-hand corner of the **Select directory** dialog box. [ICON PLACEHOLDER]
Step 13	In this example, we requested the shapefile for Jefferson County, Indiana. The GUPS loads the Jefferson County shapefile and returns to the **Map Management** box, which now includes a new **Entity Type** field. SCREEN CAPTURE PLACEHOLDER

Step	Action and *Result*
Step 14	In the **Entity Type** field drop-down menu, select the entity type you represent. The options are 'County', 'Minor Civil Division (MCD)', 'Place', and 'State'. Note that the options you see may vary, depending on the entity types your state contains. SCREEN CAPTURE PLACEHOLDER This example assumes a 'County' user.
Step 15	After the entity type is selected, a list of adjacent counties appears at the bottom of the **Map Management** box, with the closest counties highlighted in yellow and checked. SCREEN CAPTURE PLACEHOLDER
Step 16	All checked counties will display in the **Map View**. Uncheck the box for any county you do not wish to see. To select additional counties (you may choose **up to 10**), check the checkboxes next to them. Scroll down using the scroll bar to see the full list of adjacent counties.
Note	Adjacent counties with a check appear in the **Map View**, allowing you to view their boundaries and features. You cannot, however, make changes to an adjacent county's shapefile at this time, except in special circumstances (e.g., you represent an incorporated place that crosses a county line). Otherwise, a county must be selected as the "working county" before changes can be made to its shapefile.
Step 17	After you make your adjacent county selections, click the **Open** button at the bottom of the **Map Management** dialog box. ICON PLACEHOLDER Since you have not yet loaded the shapefiles for any of the adjacent counties, the ***Select Data Folder, Directory or Location*** *dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 18	To load the shapefiles for the adjacent counties, follow the instructions given above in **Steps 8-12** (if you wish to load the files from your computer's home directory). For the sake of example, here we will load the shapefiles instead from the Geographic Partnership website. In this example, we will select neighboring Clark and Jennings Counties by checking the checkboxes next to them and clicking **Open**.
Step 19	When the **Select directory** dialog box opens, use the down arrow to open the drop-down menu and select 'Census Web'. The files for Clark and Jennings Counties begin to download and progress is displayed by a blue bar, with the progress percentage noted to the far right. SCREEN CAPTURE PLACEHOLDER
Step 20	When the download is complete, the GUPS copies the file(s) to the correct location on your home directory, then loads the selected shapefile(s) into GUPS. *The data layers appear in the **Table of Contents** and the selected adjacent counties appear next to the working county in **Map View**.*

Step	Action and *Result*
	SCREEN CAPTURE PLACEHOLDER
Step 21	Alternately, you may load the adjacent county files from the shapefile DVD. Insert the DVD into your computer's drive, click 'CD/DVD' in the **Select directory** drop-down menu, navigate to D:/GUPSGIS/gupsdata/BAS/shape folder, then click the **Select** button in the bottom right-hand corner of the **Select directory** dialog box. The maps will be copied to your home directory and will display in the GUPS as described above.
Step 22	If for some reason, shapefiles are missing from the location you choose, or are corrupted, you will receive an error message such as the one shown below: SCREEN CAPTURE PLACEHOLDER
Step 23	Click **OK**. The **Map Management** dialog box reopens, with your previous geography still selected. You may now try to load the file(s) from another location.
Step 24	Simply click the **Open** button at the bottom of the **Map Management** box. ICON PLACEHOLDER The **Select Data Folder, Directory or Location** dialog box reopens, providing you all three drop-down options. SCREEN CAPTURE PLACEHOLDER
Note	If you have difficulty loading the shapefiles from all of the locations provided, contact the Geography Division at 1-800-972-5651.
Step 25	After working on a project, be sure to save it before exiting. Otherwise your edits will be lost. To save, click the **Save** icon on the **Standard toolbar**. ICON PLACEHOLDER The **Current edits** pop-up box asks if you want to save the current changes for all layers. SCREEN CAPTURE PLACEHOLDER
Step 26	Click **OK**. *The changes are saved.*
Step 27	If you attempt to close the application without saving, you will receive a **Save?** pop-up warning asking whether you want to save the project. SCREEN CAPTURE PLACEHOLDER
Step 28	If you want to save your project, click the **Save** button. If you decide not to save your changes, click the **Discard** button.
Step 29	If you click **Cancel**, a **Stop editing** pop-up box opens and asks if you want to save the edits to a single layer. SCREEN CAPTURE PLACEHOLDER

Step	Action and *Result*
	Since you have no reason to do this, click **Discard**. *The project is discarded.*
Note	You may save at any point during your session (including waiting until the end). Be aware, however, that any changes you make during the session that have not been saved will not display in the attribute tables or review tool windows. So, if you need to view changes made previously in the session, you need to save first.
Step 30	To reopen a saved project, click the **Open Recent** button in the **Map Management** dialog box and click on the project in the drop-down menu.
	SCREEN CAPTURE PLACEHOLDER
	The shapefile for the project automatically loads. The drop-down list will include all the files on which you have previously worked, with the most recent appearing at the top of the list.
Note	Census Bureau-defined default layers and view settings are loaded each time you start a new project in the GUPS. If you change these settings for a project, when you save the project your new settings are also saved. Thus, when you reopen the project, the **Table of Contents** and **Map View** display according to the settings you were last using rather than returning to the Census Bureau default settings.
Step 31	When you reopen a project, also note that previously selected counties appear in cyan blue and remain checked, the closest adjacent counties appear in yellow and are checked, and all other counties have no color and are unchecked.
	SCREEN CAPTURE PLACEHOLDER

5.2 How to Use the GUPS Interface

5.2.1 GUPS Main Page

Figure 2 shows the main GUPS page. This page contains all the tools needed for making shapefile updates. All work is completed from this page.

Figure 2 GUPS Main Page

SCREEN CAPTURE PLACEHOLDER

The general purpose for each element on the main GUPS page is explained in **Table 9** on the next page.

The sections that follow (Sections 5.2.1 through 5.2.3) describe the individual components and functions of each page element listed in the table in detail.

Table 9 GUPS Main Page Elements

Page Element	General Function
Table of Contents	The **Table of Contents** shows the layers on the map for the county you selected. The **Table of Contents toolbar** allows you to add or remove layers (or groups), manage layer visibility, and filter the legend by map content. SCREEN CAPTURE PLACEHOLDER
Map View	The **Map View** displays the county shapefile for the program and county you selected in the **Map Management** dialog box. SCREEN CAPTURE PLACEHOLDER
Menu	Offers basic features such as Settings and Help, tools to manage the map view and import user-provided data, important calculation, measurement, and geoprocessing tools, and tools needed to make shapefile updates. Note that almost all of the functions available from the Menu are also available in the application's more conveniently located toolbars. SCREEN CAPTURE PLACEHOLDER
Standard Toolbar	Provides the navigation and other tools needed to interact with the map and layers' attribute tables. SCREEN CAPTURE PLACEHOLDER
BAS Toolbar	Gives the specific tools needed to make BAS updates, view attribute tables, review and validate changes, and import, export, and print ZIP files. SCREEN CAPTURE PLACEHOLDER
Add Data Toolbar	Offers tools to import your own data. You may superimpose map layers in GUPS to compare the features on your own maps with those on the Census shapefiles.

Page Element	General Function
	SCREEN CAPTURE PLACEHOLDER
Status Bar	Displays information on the map scale, projection, and coordinates and allows you to adjust the display.
	SCREEN CAPTURE PLACEHOLDER

5.2.2 Table of Contents and Map View

When you choose your program and geography in the **Map Management** dialog box, the GUPS automatically loads a set of default data layers (and default layer groups) defined by the Census Bureau for the county and program you selected. As the map opens in **Map View**, the list of the preset layers (already grouped) simultaneously appears in the **Table of Contents**.

You will use the **Table of Contents** and the small **toolbar** appearing at its top to manage your map view. Note that the **Table of Contents** and the **Map View** windows are interdependent. Thus, selections you make in the **Table of Contents** are immediately reflected on the map display.

5.2.2.1 Managing the Map View from Within the Table of Contents

Within the **Table of Contents**, you can manage layer visibility (i.e., determine what layers display on the map), reorder data layers, and set new layer symbology.

Manage Layer Visibility

To add or remove layers from the map view:

- Click the checkbox next to a layer to add it to the map view.

  SCREEN CAPTURE PLACEHOLDER

- Uncheck the checkbox next to a layer to remove it from the view.

   SCREEN CAPTURE PLACEHOLDER

- **OR**, Right-click the name of the layer and select 'Remove' in the drop-down menu.

  SCREEN CAPTURE PLACEHOLDER

Reorder Data Layers

In the **Table of Contents**, the order in which the layers are listed determines how the layers display on the map. The layers at the top display on top of those below them. To change the display order:

- Left-click on the layer name.
- Hold down the mouse button and drag the layer to the desired position in the list.
- Release the mouse button to place the layer in its new position. The map display will then reflect the new layer order in the **Table of Contents**.

Expand/Contract Table of Contents Menus

To expand or contract the menu for a layer or layer group:

- Click on the '+' sign to expand the group.
- When you click the '+' sign next to the layer name [SCREEN CAPTURE PLACEHOLDER], *the layer's submenu opens*:

  SCREEN CAPTURE PLACEHOLDER

- When you click the '-' sign next to the layer name, *the submenu retracts*:

  SCREEN CAPTURE PLACEHOLDER

Set Layer Symbology

The GUPS loads a default layer symbology established for each Census Bureau geographic partnership program. You can change the default symbology to suit your preferences. To change the default symbology for a layer in GUPS, follow the instructions in **Table 10** below:

Table 10 Steps to Reset Layer Symbology

Step	Action / *Result*
Step 1	Right-click on the layer in the **Table of Contents** (in this example, we selected the Edges layer). *The **Layers** drop-down menu opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	In the drop-down menu, choose 'Properties'. *The **Layer Properties** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 3	At the top of the far left-hand pane, click on **Style**, then double-click the symbol you want to edit in the layers list. In this example, we will double-click on 'Roads, substr ("MTFCC, 1,1) = S1100' to choose it. SCREEN CAPTURE PLACEHOLDER *The **Rule Properties** dialog box opens and the **Label** field shows the layer chosen. The **Symbol** window shows the current symbol (yellow line), as shown below.* SCREEN CAPTURE PLACEHOLDER
Step 4	Choose a different color for the symbol from the Color drop-down menu, or choose a different symbol for the layer altogether by double-clicking any symbol in the **Symbols in Group** field. Then click **OK**. We have chosen blue. *The color is applied to the layer, S1100 roads display as blue lines on the map, and the symbology is changed in the **Table of Contents** view.* SCREEN CAPTURE PLACEHOLDER

Change Label Display

You can change the default GUPS labeling display (you can also restore it). To change the default labeling for a layer, follow the steps in **Table 11**.

Table 11 Steps to Change Labeling Default

Step	Action / *Result* [Update]
Step 1	Right click on the layer (we have selected the edges layer) in the **Table of Contents**. *The Layers drop-down menu opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	In the drop-down menu, choose 'Properties'. *The **Layer Properties** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 3	In the far left-hand pane, click **Labels**. The options to change the label display properties open in the main window. SCREEN CAPTURE PLACEHOLDER
Step 4	To change the attribute field, click on drop-down menu for the 'Label this layer with' field, and select the desired option. From the drop-down menus in the **Text style** pane, you can change the Font, Style, Size, Color, Transparency, Type Case, and Spacing of the layer labels.

Restore Label Display Default Settings

To restore the default labeling for a layer, follow the steps in **Table 12**.

Table 12 Steps to Restore Default Labeling

Step	Action / *Result*
Step 1	Right click on the layer you changed in the **Table of Contents**. The **Layers** drop-down menu opens.
Step 2	In the **Layers** drop-down menu, click on the arrow to the right of 'GUPS Layer'. Four options appear: 'Load default style', 'Load all default style', 'Load BBSP Edges style', and Load low profile Edges style'. SCREEN CAPTURE PLACEHOLDER
Step 3	Select 'Load default style' to restore the layer's original properties OR select 'Load all default style' to reset *ALL* the layers to their original settings.

5.2.2.2 Using the Table of Contents Toolbar to Manage Layers

Using the buttons on the toolbar located at the top of the **Table of Contents**, you can add and remove layers or groups, manage layer visibility, filter the legend by map content, expand or contract all sections of the **Table of Contents** list at once, and group layers.

The **Table of Contents toolbar** contains the items shown below.

SCREEN CAPTURE PLACEHOLDER

Table 13 describes the function of each of the buttons on the **Table of Contents** toolbar.

Table 13 Table of Content Toolbar Buttons

Button	Name	Function / Description
ICON	Add New Group	Allows you to organize layers in the **Table of Contents** into groups
ICON	Manage Layer Visibility	Allows you to preset views in the **Table of Contents**.
ICON	Filter Legend by Map Content	Removes from the **Table of Contents** display any layers that are not currently in the **Map View** extent. This feature ensures that the **Table of Contents** does not contain entries for items not currently in the map view.
ICON	Expand All Menus (+)	Expands the **Table of Contents** to display all layers under each group's menu.
ICON	Collapse All Menus (-)	Collapses the **Table of Contents** to show only groups.
ICON	Remove Layer or Group	Allows you to remove a layer or group from the Table of Contents.

The use of the **Add New Group** button is discussed at the end of this section.

Preset Views in the Table of Contents   ICON PLACEHOLDER

You can add preset views in the **Table of Contents** by clicking on the [ICON PLACEHOLDER] button on the **Table of Contents toolbar**. You can choose to display a layer with specific categorization and add this view to the Presets list.

To add a preset view:

- Click on the [ICON PLACEHOLDER] button and choose 'Add Preset…' from the drop-down menu.

    SCREEN CAPTURE PLACEHOLDER

- When the **Visibility Presets** pop-up appears, enter the name of the new preset and click **OK**.

  SCREEN CAPTURE PLACEHOLDER

Note: By clicking on the [ICON PLACEHOLDER] button, you can view the list of all preset views that you have established and from which you can choose.

Add a Layer

GUPS automatically loads a default set of data layers specified by the Census Bureau for each geographic partnership program. You can add other data layers from the Census Bureau's partnership shapefile that are not in the default data layer set.

Remove a Layer / Group   ICON PLACEHOLDER

To remove a layer or a group in the **Table of Contents**:

- Left-click on the layer/group you want to remove, hold down the **CTRL** key, and click the [ICON PLACEHOLDER] button. *The layer/group is removed.*   **OR**
- Right-click on the layer name and select 'Remove' in the drop-down menu.

Create and Manage Groups   ICON PLACEHOLDER

To organize layers in the **Table of Contents** into groups and manage the group contents, follow the steps in **Table 14** below.

Table 14 Steps to Organize Layers in the Table of Contents

Step	Action / *Result*
Step 1	Click on the [ICON PLACEHOLDER] button on the **Table of Contents** toolbar. A new group appears automatically in the **Table of Contents**.
Step 2	Type in a name for the group and press the **Enter** key. Then, click on an existing layer and drag it into the group you just created. (**OR** Select one or more layers in the **Table of Contents**, right-click in the **Table of Contents** window, and choose '*Add Group'. The selected layers are automatically placed in a new group*. Name the group.)
ADD ICON	You may now **show or hide all the layers in the group** with a single click in the group's checkbox. ICON PLACEHOLDER
Step 3	**To remove a layer** from a group, click on the layer and drag it out of the group or right-click on the layer and choose Move to Top Level. Then drag the layer where you want it in the **Table of Contents** list. SCREEN CAPTURE PLACEHOLDER
Step 4	**To select more than one layer or group at the same time**, hold down the **CTRL** key while selecting the layers with the left mouse button.

Step	Action / *Result*
Step 5	**To delete a group**, right-click on the group and select 'Remove' in the drop-down menu. Then click **OK** when prompted.
	SCREEN CAPTURE PLACEHOLDER

Note: Some of the same functions handled by the **Table of Contents toolbar** can also be carried out using the **Layer tab** on the **Menu**, located at the top of the main GUPS page.

5.2.3 Menu & Toolbars

The main **Menu** and the **Standard** and **Add Data toolbars** are located stacked at the top of the GUPS page. These toolbars offer general GIS and system tools and allow the import of user-provided data. The **BAS toolbar**, located below the **Add Data toolbar** provides the specific tools needed to make BAS updates.

Note: Although the Menu is always located at the top of the page, the exact location of the other toolbars may vary. In some views, the **Add Data toolbar** appears stacked vertically along the side of the **Table of Contents**. In other views, it may appear on the same line with the **Standard** toolbar. As stated earlier, you may move the toolbars to the location most convenient for you. For example, if the **Add Data toolbar** appears on the side of the page, you may want to move it to the top to allow expansion of the **Table of Contents** and **Map View**.

SCREEN CAPTURE PLACEHOLDER

As you work with the toolbars, note that you can hover your mouse over any toolbar button to see the name of the tool it represents. You can also resize the toolbars.

Each item on the **Menu**, the **Standard toolbar**, and the **BAS toolbar** is described in the section below. The **Add Data toolbar**, which provides options for importing your own data into the application, is discussed in **Section 5.3**, How to Import User-Provided Data into the GUPS. LINK

5.2.3.1 Menu Tabs

Table 15 below defines each of the tabs on the **Menu** and its function.

<div align="center">

Table 15 Menu Tabs and Their Functions

</div>

Tab	Drop-down Menu	Function / Description
Project	SCREEN CAPTURE PLACEHOLDER	From the **Project** tab, you may save a project, create a Print Screen image, or exit the application.
Edit	SCREEN CAPTURE PLACEHOLDER	From the **Edit** tab, you may Undo or Redo your last action.

Tab	Drop-down Menu	Function / Description
View	SCREEN CAPTURE PLACEHOLDER	The **View tab** allows you to navigate the map in **Map View**, see the attributes for specific features, measure distances on the map, and create spatial bookmarks to return to the same map view at a later time. You can also refresh the map to restore it to the original map extent.
Layer	SCREEN CAPTURE PLACEHOLDER	The **Layer tab** allows you to add layers to and remove layers from the map, open the layer attribute table, set the map projection, or Coordinate Reference System (CRS), and display or hide layers. Many of these same functions are more conveniently located on the **Table of Contents toolbar** and the **Add Data toolbar**.
Settings	SCREEN CAPTURE PLACEHOLDER	The **Settings tab** allows you to customize the CRS and map display options and set snapping tolerances.
Vector	SCREEN CAPTURE PLACEHOLDER	The **Vector tab** provides access to several Geoprocessing Tools, which allow you to create buffers around features, overlay areas so that you can create an intersection, union, or symmetrical difference, merge features, and perform other common geoprocessing actions.
Raster	SCREEN CAPTURE PLACEHOLDER	The **Raster tab** provides access to a Calculator, which allows you to perform calculations on the basis of existing raster pixel values. It also provides a Georeferencer tool, which allows you to assign coordinates to the raster.
Processing	SCREEN CAPTURE PLACEHOLDER	Although available to GUPS users, the options under the **Processing tab** are not needed for Census Bureau geographic program participation. The items under this tab pertain to algorithms, creating models, viewing the results of algorithms executed, and history.

Tab	Drop-down Menu	Function / Description
Help	SCREEN CAPTURE PLACEHOLDER	The **Help** tab provides helpful tools for understanding QGIS (the open-source platform in which GUPS was developed) and the GUPS application itself. It also contains links to the *BAS GUPS User Guide*, training videos, and contact information.
GUPS	SCREEN CAPTURE PLACEHOLDER	The **GUPS** tab provides another way to access the tools for making BAS updates, reviewing and validating your work, and importing and exporting maps.

Note on Snapping Tolerances: Snapping tolerances in the GUPS are pre-defined by layer (e.g., the default tolerance for edges is set to 15 pixels). When making boundary corrections, you may want to adjust the snapping tolerances for a layer or layers.

To do this, follow the steps in **Table 16**.

Table 16 Steps to Adjust Snapping Tolerances

Step	Action / *Result*
Step 1	In the **Settings tab** drop-down menu, click on 'Snapping options'. *The Snapping options dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	From the **Snapping mode** drop-down menu, select whether you want the tolerance adjustment to apply only to the current layer or to all layers. SCREEN CAPTURE PLACEHOLDER
Step 3	From the **Snap to** drop-down menu, choose the snapping method. SCREEN CAPTURE PLACEHOLDER
Step 4	From the **Tolerance** drop-down menu, use the up and down arrows to select the value you want and then select your units (map units or pixels) in the drop-down to the right. SCREEN CAPTURE PLACEHOLDER
Step 5	If you want to enable topological editing and/or snapping on an intersection, use the checkboxes next to each. SCREEN CAPTURE PLACEHOLDER
Step 6	Click **OK**. *The new snapping tolerances are set.*

Step	Action / *Result*
ADD ICON	Note that the Census Bureau often cannot make small boundary adjustments because MAF/TIGER is a fully integrated topological database.

5.2.3.2 Standard Toolbar Buttons

The **Standard toolbar** provides the navigation tools needed to interact with the map and layers' attribute tables.

SCREEN CAPTURE PLACEHOLDER

The **Standard toolbar** actually comprises several smaller toolbars strung together. Each sub-toolbar is identified by the hashed grouping bars that precede it. The first sub-toolbar contains the **Save** button, **Map Management** button (opens the **Map Management** dialog box), and the **Search** button. The second sub-toolbar provides tools for viewing and navigating the map in **Map View**, and the third sub-toolbar allows you to identify, select, and deselect features on the map, make measurements, create spatial bookmarks, and work with the layers' attribute tables.

You can move the location of the sub-toolbars if you prefer. Simply left-click the hash mark preceding the sub-toolbar and while holding down the mouse, drag the sub-toolbar to the location you want.

Each button on the composite **Standard toolbar** and its purpose is defined in **Table 17** below.

Table 17 Standard Toolbar Buttons

Button	Name	Function / Description
ICON	Save	Saves the current GUPS county project, including any user changes to layer properties, projection, last viewed extent, and layers added.
ICON	Map Management	Choose your geographic participant program in GUPS and access the automatically loaded default map display layers based on the program chosen.
ICON	Search	Search the map by census tract, block, landmark, or street name and zoom automatically to the feature.
ICON	Touch Zoom and Pan	Designed for touchscreen computers. Allows you to zoom and pan the map displayed in **Map View** using finger gestures to increase or decrease the map scale.
ICON	Pan Map	Shifts the map in **Map View** without changing the map scale. Click the button, then click a location on the map to re-center the map to the clicked location.
ICON	Pan Map to Selection	Shifts the map in **Map View** to the rows selected in the attribute table for a selected feature. After selecting a feature(s), click the

Button	Name	Function / Description
		button to re-center the map based on the selected feature(s).
ICON	Zoom In	Displays the map in **Map View** at a larger scale. Click the button, then click on the map at the location to which you want to zoom.
ICON	Zoom Out	Displays the map in Map View at a smaller scale.
ICON	Zoom Full	Displays the map in **Map View** at a smaller scale and zooms the map view to the full extent of the county.
ICON	Zoom to Selection	Zooms the map view to the rows selected by query in the attribute table for a feature(s). After selecting a feature(s) on the map, click the button to view the feature(s) at a greater map scale.
ICON	Zoom to Layer	Zooms the map view to the layer selected in the Table of Contents. After selecting the layer, click the button to zoom to the layer's extent.
ICON	Zoom Last	Zooms the map view to the previous map extent.
ICON	Zoom Next	Zooms the map view forward to the next map extent.
ICON	Refresh	Displays map view to initial full display.
ICON	Identify Features	Identifies geographic features. Click the button, then click on a feature on the map to identify the feature at the location.
ICON	Select Features	Enables user to select layer features in the map window with a single click, dragging a box, or drawing graphics on the screen.
ICON	Deselect Features	Deselects selected features from all layers.
ICON	Select Features Using an Expression	Initiates an attribute table record request by querying the table based on table fields and/or values in the fields.
ICON	Open Attribute Table	Opens the attribute table for the active layer displayed in Map View.
ICON	Measure	Provides options to measure linear distance, area, and angles on the map.
ICON	New Bookmark	Creates and names a spatial bookmark of the current map view.

Button	Name	Function / Description
ICON	Show Bookmarks	Display all bookmarks created by the user.

Most of the sub-toolbar buttons defined above are straight-forward. Those related to features, however, require further explanation. You will need these buttons to identify and select/deselect features on the map that you wish to update and to view feature attributes. You will also need them to make measurements and create spatial bookmarks.

Identify a Feature Using the Identify Features Button   ICON PLACEHOLDER

To identify a feature on the map, click the Identify button [ICON PLACEHOLDER], then click on the feature. The results will display in the **Identify** dialog box:

SCREEN CAPTURE PLACEHOLDER

Select Features Using the Select Features Button   ICON PLACEHOLDER

To select/deselect a feature automatically, use the steps in **Table 18**.

Table 18 Steps to Identify Features

Step	Action / *Result*
Step 1	Click on the **Select Features** button [ICON PLACEHOLDER]. *A **Select Features** drop-down menu display*s. SCREEN CAPTURE PLACEHOLDER
Step 2	To select a single feature, click on **Select Feature(s)** in the drop-down menu, then click on the desired feature on the map. SCREEN CAPTURE PLACEHOLDER
ADD ICON	To select multiple features, hold down the **CTRL** key while clicking on the features you wish to select. To remove one or more features from a selection of multiple features, hold down the SHIFT key and click the feature(s) again. You can also select multiple features by dragging a box around them.

To select a feature by creating a polygon, follow the steps in **Table 19**.

Table 19 Steps to Select a Feature by Creating a Polygon

Step	Action / *Result*
Step 1	In the **Select Features** button drop-down menu, select 'Select Features by Polygon'. SCREEN CAPTURE PLACEHOLDER
Step 2	Left-click on the map where you want to begin the polygon.
Step 3	Drag your cursor to extend the line to the point you want, then left-click and extend the line in the new direction.
Step 4	Continue until you have a closed polygon, then right-click. (A right click tells the system you have finished drawing). *The outline of the polygon you drew is highlighted in cyan blue.* SCREEN CAPTURE PLACEHOLDER

To select a feature by drawing freehand, follow the steps in **Table 20**.

Table 20 Steps to Select a Feature by Drawing Freehand

Step	Action / *Result*
Step 1	In the **Select Features** button drop-down menu, select 'Select Features by Freehand'. SCREEN CAPTURE PLACEHOLDER
Step 2	Click on the map and use your cursor to draw a polygon around the feature you wish to select.
Step 3	Right-click when you are done. *The outline of the polygon you drew will be highlighted in cyan blue.* SCREEN CAPTURE PLACEHOLDER

To select a feature by radius, follow the steps in **Table 21**.

Table 21 Steps to Select a Feature by Radius

Step	Action / *Result*
Step 1	In the **Select Features** button drop-down menu, select 'Select Features by Radius'. SCREEN CAPTURE PLACEHOLDER
Step 2	Left-click on the map where you want to begin, then make a circular motion with your mouse to draw a circle around the feature. To enlarge the circle, drag your mouse outward.

Step	Action / *Result*
Step 3	Right-click when you are done. *The polygon(s) selected is(are) highlighted in cyan blue.* SCREEN CAPTURE PLACEHOLDER

Deselect Features Using the Deselect Features Button   ICON PLACEHOLDER

To deselect a feature(s) automatically:

- Click the **Deselect Features** [ICON PLACEHOLDER] button. *The selected features in all layers are deselected.*

Select Features by Querying the Attribute Table   ICON PLACEHOLDER

To select features by querying the attribute table, follow the steps in **Table 22** below. In this example, we will query the attribute table for the edges layer to locate and select all edges in the layer that have been assigned the MTFCC S1100.

Table 22 Steps to Select Features by Querying the Attribute Table

Step	Action / *Result* [Under Construction]
Step 1	Click the **Select Features by Expression button** on the [ICON PLACEHOLDER] Standard toolbar. The **Select by Expression** window opens. The window has two tabs: *Expression* and *Function Editor*. SCREEN CAPTURE PLACEHOLDER
Step 2	Under the **Expression** tab, click the '+' signs next to the items in the **Functions** field to display their submenus.
Step 3	To build a query, click the 'Fields and Values' plus sign to open the full list of choices. Then double-click on your choice. In this example, we will select 'MTFCC' because we want to search for a road with the MTFCC S1100. *Once selected, "MTFCC" appears in the expression pane.* SCREEN CAPTURE PLACEHOLDER
Step 4	You may select your operators here or commonly used ones from the small toolbar on the tab. To do so, click the plus sign next to operators. *A full list of operators opens.* SCREEN CAPTURE PLACEHOLDER
Step 5	Double-click the '=' operator. *The expression in the Expression pane now reads "MTFCC" =. Also an **Load all** button and a **Select by Expression** button are added to the **Fields** pane (far right) at the bottom.* SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result* [Under Construction]
Step 6	Click the **Load all** button to see a full list of MTFCCs, then double-click the one for which you are searching. Then in the drop-down for the ***Select by Expression*** button, select 'Add to Selection'. In this example, double-click S1100, then add it. *The expression in the Expression pane now reads "MTFCC" = "S1100" and the map zooms to the location.*

View an Attribute Table for a Layer on the Map and Edit Attributes ICON PLACEHOLDER

To view an attribute table for a map layer and edit attributes, follow the steps in **Table 23**.

Table 23 Steps to View and Edit Layer Attributes Using the Attributes Table

Step	Action / *Result*
Step 1	Click the layer in the **Table of Contents** to make it active. SCREEN CAPTURE PLACEHOLDER
Step 2	Click the **Open Attribute Table** button [ICON PLACEHOLDER] on the **Standard toolbar**. The **Attribute table** opens showing all features in the layer and their attributes (e.g., name, classification codes). Each row represents an individual feature. SCREEN CAPTURE PLACEHOLDER
Step 3	To select a feature to edit, click on the number on the far left next to the row. To select multiple features, click on the number of the row for the first feature you want to select, then press the **CTRL** key. While holding the **CTRL** key down, click on the numbers for the other individual rows you want to select. To select a range of features, click on the number for the row showing the first feature you want to select, then press the **SHIFT** key. While holding down the **SHIFT** key, click on the number for the last row you want to select. SCREEN CAPTURE PLACEHOLDER
Step 4	Edit features. *Note*: The buttons on the **Attribute Table toolbar** at the top of the Attribute table work similarly as the same buttons on the Standard toolbar and allow you to view, query, and edit the attributes for the features in the table.

Determine Distances on the Map Using the Measure Button   ICON PLACEHOLDER

To determine the distance between two or more points on a map displayed in **Map View**, follow the steps in Table **24.**

Table 24 Steps to Determine Distances on a Map

Step	Action / *Result*
Step 1	Click the layer in which you wish to make the measurement in the **Table of Contents** to activate it. SCREEN CAPTURE PLACEHOLDER
Step 2	Zoom to the map location where you want to make the measurement. SCREEN CAPTURE PLACEHOLDER
Step 3	Click on the beginning point on the map and then continue clicking on points until you reach the final point. *The length of each segment of the line you drew, as well as the total length* of the line between the beginning point and the ending point, appear in the **Measure** window. SCREEN CAPTURE PLACEHOLDER

Save Locations on a Map Using the Bookmark Button   ICON PLACEHOLDER

To save geographic locations on your map and view them later, follow the steps in **Table 25**.

Table 25 Steps to Bookmark Locations on a Map

Step	Action / *Result*
Step 1	Create a bookmark. Zoom to the location on the map in **Map View** that you wish to bookmark and click on the **New Bookmark** button [ICON PLACEHOLDER]. SCREEN CAPTURE PLACEHOLDER
Step 2	Click on the row that has "New Bookmark" as the name. Then backspace over "New Bookmark" and type in a descriptive name for the bookmark (255 character limit). SCREEN CAPTURE PLACEHOLDER
Step 3	Click the **Close** button. *The bookmark is added*.
Step 4	To view a bookmark, click the **Show Bookmarks** button [ICON PLACEHOLDER]. The **Geospatial Bookmarks** dialog box opens. SCREEN CAPTURE PLACEHOLDER
Step 5	In the list of bookmarks, click on the name of the one you want to view, then click the **Zoom to** button. *The map zooms to the location of the bookmark*.
Step 6	To delete a bookmark, in the list of bookmarks, click on the name of the one you want to delete, then click the **Delete** button.
ADD ICON	Bookmark names and coordinates cannot be edited from the **Geospatial Bookmarks** dialog box.

5.2.3.3 BAS Toolbar Buttons

The **BAS toolbar** provides the BAS-specific functions needed to complete your review and update activities.

SCREEN CAPTURE PLACEHOLDER

Each toolbar button is described in **Table 26** below. How to use the buttons is explained in **Section 6**.

Table 26 BAS Toolbar Buttons

Button	Name	Function / Description
ICON	Add Line	Add a linear feature to the Census Bureau shapefile.
ICON	Delete Line	Delete a linear feature.
ICON	Display All Names	Display the primary name of a feature and its alternate name(s).
ICON	Modify Linear Feature Attributes	Edit attribute fields for a selected linear feature.
ICON	Modify Area Feature	Edit an area feature.
ICON	Add Point Landmark	Add a point landmark.
ICON	Edit Point Landmark	Edit a point landmark.
ICON	Delete Point Landmark	Delete a point landmark.
ICON	Geography Review Tool	Review the attribute table for a layer.
ICON	Review Change Polygons	Review the attribute table for change polygons in a layer and edit the attributes where incorrect (reviews change polygons for holes and minimum size).
ICON	Import County .zip	Import a zipped Census shapefile shared by another GUPS user.
ICON	Export to .zip	Create the .zip file containing all required data and shapefiles to be submitted to the Census Bureau.

Button	Name	Function / Description
ICON	Export Map to Print	Export a printable map in .pdf, .png, .tif, or jpeg format.

5.2.4 Status Bar

The **Status bar** at the bottom of the GUPS main page displays information about the map. It allows you to adjust the map scale and see the mouse cursor's coordinates on the map.

SCREEN CAPTURE PLACEHOLDER

Toggle	Allows you to toggle between the mouse's coordinate position or the map view extents as you pan and zoom in and out on the map.
Coordinate Display	Shows your current position in map coordinates (default is decimal degrees for GUPS) as your map cursor is moved across the map.
Map Scale	Shows your current position in map coordinates (default is decimal degrees for GUPS) as your map cursor is moved across the map.
Rotation	Shows the map rotation.
Map Render (Draw)	Allows you to temporarily prevent layers from drawing by clicking the checkbox immediately to the left of "Render."
Projection Properties	Clicking on the icon will open the projection properties for the current map.

5.3 How to Import User-Provided Data into the GUPS

5.3.1 The Add Data Toolbar

To import your own image, geodatabase, web mapping service, or other data layers into the GUPS you will use the **Add Data toolbar**, shown below.

SCREEN CAPTURE PLACEHOLDER

The buttons on the **Add Data toolbar** are described in **Table 27**.

Table 27 Add Data Toolbar Buttons

Button	Name	Function / Description
ICON	Add Vector Layer	Allows you to add shapefile and geodatabase files to your GUPS project.
ICON	Add Raster Layer	Allows you to add raster datasets such as imagery.
ICON	Add PostGIS Layer	Add PostGIS layer.
ICON	Add SpatialLite Layer	Add data from a SpatialLite database.
ICON	Add MS SQL Layer	Add MS SQL 2008 Spatial data.
ICON	Add Oracle Spatial Layer	Add a spatial layer from an Oracle database.
ICON	Add Oracle GeoRaster Layer	Add raster imagery from an Oracle database.
ICON	Add WMS/WM(T)S Layer	Add Web Mapping Services and Web Mapping Tile Services. Publicly accessible and secured WMS services are supported.
ICON	Add WCS Layer	Add Web Coverage Services, which provide access to raster data useful for client-side map rendering.
ICON	Add WFS Layer	Add Web Feature Services.

5.3.2 How to Upload User-Provided Data Layers

The GUPS supports vector data in a number of formats, including those supported by the OGR library data provider plugin, such as ESRI shape files, MapInfo MIF (interchange format), and MapInfo TAB (native format). It also supports PostGIS layers in a PostgreSQL database and SpatiaLite layers. Support for additional data types (e.g., delimited text) is provided by additional data provider plugins.

ADD ICON	If you have multiple maps that you wish to upload, note that the GUPS will only allow you to upload one file at a time.

Below are the steps to import each of the supported data formats.

5.3.2.1 Add Shapefile/Geodatabase Data Layers

To upload shapefile or geodatabase data layers, follow the steps in **Table 28**.

Table 28 Steps to Load Shapefiles/Geodatabase Layers

Step	Action / *Result*
Step 1	Begin the upload. Click the **Add Vector Layer** ![icon] button on the **Add Data toolbar**. The **Add Vector Layer** dialog box opens. SCREEN CAPTURE PLACEHOLDER
Step 2	In the **Encoding** drop-down menu, the default value is 'System'. If you receive an error message when opening your file, use the drop-down to select UTF-8. *UTF-8 populates the **Encoding** field.*
Step 3	Click the **Browse** button and navigate to the folder where the shapefile or geodatabase is saved on your computer. SCREEN CAPTURE PLACEHOLDER
Step 4	Left-click the file you want to upload, then click the **Open** button. The shapefile /geodatabase is added to the **Table of Contents** and to the **Map View** window. SCREEN CAPTURE PLACEHOLDER

5.3.2.2 Add Web Mapping Service Data Layers

To load data from a web mapping service, follow the steps in **Table 29**.

Table 29 Steps to Load Data from a Web Mapping Service

Step	Action / *Result*
Step 1	Begin the upload. Click the **Add WM(T)S Layer** [ICON PLACEHOLDER] button on the **Add Data toolbar**. The **Add Layers from a WM(T)S Server** dialog box opens
Step 2	Select the web mapping service. Click the **Layers** tab, then click the **New** button under the tab. The **Create a new WMS Connection** dialog box opens. SCREEN CAPTURE PLACEHOLDER
Step 3	In the **Name** field, type a name for the web mapping imagery service. In the **URL** field, type the URL for the service. If the service requires a user name and password, type them in the fields provided. Click **OK**. *The service will be added to the drop-down menu for web mapping services appearing just below the **Labels** tab.* Note: If you are working inside a firewall, you may be prompted to enter a user name and password to obtain resources from outside the firewall. SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 4	Select the imagery service you added in the drop-down menu. *The available layers appear in the* ***ID/Name/Title/Abstract*** *box.* SCREEN CAPTURE PLACEHOLDER
Step 5	Click on the layer you want to display, then click the **Add** button. The WMS is added to the map showing in **Map View** and to the **Table of Contents**. SCREEN CAPTURE PLACEHOLDER
ADD ICON	When the WMS is added, it displays over the top of the other layers you have selected for **Map View**. To make it display below these layers, click on the WMS layer and, while holding down the mouse button, drag it to the bottom of the **Table of Contents**.

5.3.2.3 Add Imagery Data Layers

If you do not have access to a web mapping service, have a poor Internet connection, or are working under a restrictive firewall, you can still add other types of imagery files to the GUPS (e.g., a county or state imagery dataset). County imagery is available from the U.S. Geological Survey, USGS). LINK

To add non imagery files, follow the steps in **Table 30**.

Table 30 Steps to Add Imagery Files

Step	Action / *Result*
Step 1	Click the **Add Raster Layer** [ICON PLACEHOLDER] button on the **Add Data toolbar**. The **Open a GDAL Supported Raster Data Source** dialog box opens
Step 2	Navigate to the folder on your computer where the imagery file is stored.
Step 3	Select the .zip file, then click Open. *The file loads into GUPS.*

5.3.2.4 Add a Census Shapefile Shared by Another User

If you want to import a Census shapefile already updated by another user, you may use the **Import Project .zip File** button on the **Map Management** dialog box. To import a file using this method, see the steps in **Table 31**.

Table 31 Steps to Import a Zip File Shared by Another User

Step	Action / *Result*
Step 1	Click the **Import .zip File** button in the upper left-hand corner of the **Map Management** dialog box. SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 2	Navigate to the folder on your computer where the imagery file is stored
Step 3	Click on the first name in the window and then click **Open**. *The file loads into GUPS.*

6 Making BAS Updates in the GUPS

6.1 How to Update Legal Boundaries

6.1.1 Add a New Legal Entity (Incorporated Place)

Follow the steps in **Table 32** to add a new legal entity.

Table 32 Steps to Add a New Legal Entity

Step	Action / Result
Step 1	Zoom to the location on the map that contains the area where you want to add a new entity.
Step 2	Click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. The **Modify Area Feature** dialog box opens. SCREEN CAPTURE PLACEHOLDER
Step 3	Click the drop-down arrow next to the **Geography** field, and select the entity you wish to add. SCREEN CAPTURE PLACEHOLDER
Step 4	*Add the new entity*. In this example, we add a place. Select 'Place' in the **Geography** drop-down menu. *Place appears in the **Geography** field and a list of all incorporated places in the county appears in the **Info** list below the dialog box toolbar.* SCREEN CAPTURE PLACEHOLDER Left-click *once* on the **Select Features** button [ICON PLACEHOLDER] on the dialog box toolbar. Then click on the map where the new entity will be located and hold down the **CTRL** key. While holding down **CTRL**, left-click on each face on the map that the new entity should include. *Each face clicked turns cyan blue (colors may vary).* When you have selected all the faces that will make up the new entity, click the **Add Entity** button. *The **Add New Entity** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 5	Document the new entity. In the **Add New Entity** dialog box, enter the new entity name, select the 'Legal/Statistical Area Description (LSAD)' from the drop-down list, enter the effective date, add the authorization type (state law, statute, etc.) for the new legal entity, and upload documentation for the change. Note: The **Add New Entity** dialog box changes based on geography type. SCREEN CAPTURE PLACEHOLDER To upload documentation, click the folder icon next to the **DOCU** field and navigate to the document on your computer. Then double-click the document to upload it. *The name of the document appears in the **DOCU** field.*

Step	Action / Result
Step 6	Click **OK**. The **Info** list now shows the new entity. SCREEN CAPTURE PLACEHOLDER
ADD ICON	Once the Census Bureau verifies the new entity, it will assign it a FIPS code. The code preceding the new entity name in the **Info** list is *not* a FIPS code, and ***should not be used for any official purpose***. It is only a placeholder until the official FIPS code can be assigned.

6.1.2 Delete an Entity (Disincorporation)

Follow the steps in **Table 33** to record a disincorporation.

Table 33 Steps to Record a Disincorporation

Step	Action / *Result*
Step 1	Zoom to the area on the map containing the entity you wish to delete.
Step 2	Click the **Modify Area Features** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The **Modify Area Features** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 3	In the **Geography** field drop-down menu, select the entity type you want to delete (for this example, select 'Place'). Place populates the **Geography** field and the Info list displays all *incorporated places in the county*. SCREEN CAPTURE PLACEHOLDER
Step 4	Click the entity in the list you want to delete, then click the **Delete** button [ICON PLACEHOLDER] on the **Modify Area Feature dialog** box's internal toolbar. SCREEN CAPTURE PLACEHOLDER
Step 5	*A pop-up asks you 'Are you sure you Want to Delete this Area Feature?'* SCREEN CAPTURE PLACEHOLDER
Step 6	Click **OK**. The entity is removed from the map and from the **Info** list.

6.1.3 Record an Annexation (MCD)

Follow the steps in **Table 34** to record an annexation. The fictitious example in the table looks at the MCD named Marshall Village in Dane County, WI. The MCD has annexed three faces and it wants to show the annexed faces.

Table 34 Steps to Record an Annexation

Step	Action / *Result*
Step 1	To define the area annexed, Navigate to Marshall Village on the county shapefile and zoom to the portion of the MCD where the annexation has occurred.
Step 2	Click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The Modify Area Feature dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 3	Using the drop-down menu for the **Geography** field, select the entity type (here MCD), from the drop-down menu. *A list of all MCDs in the county appears in the area at the bottom of the dialog box.* SCREEN CAPTURE PLACEHOLDER
Step 4	Click on the MCD (Marshall Village) in the list, then locate the **Select Feature(s)** tool [ICON PLACEHOLDER] on the small toolbar just below the **Geography** field. SCREEN CAPTURE PLACEHOLDER
Step 5	In the drop-down menu, choose the method for selecting the annexed area. See **Section 5.2.3.2** for instructions on how to use the **Select Feature(s)** tool. LINK. For this example, use the **Select Features by Radius** option in the drop-down.
Step 6	Click on this option, then go to the map and draw a small circle with your cursor near the center of the three blocks. Be sure to include in the circle the edges that separate the blocks from one another (here Karem Dr and Merrick Rd). *The three selected faces turn cyan blue.* SCREEN CAPTURE PLACEHOLDER
ADD ICON	Note: If you accidentally select a face you do not wish to include, you can use the **Deselect Features from All Layers** option [ICON PLACEHOLDER] in the **Select Feature(s)** drop-down menu to clear the selected faces from your screen and start over.
Step 7	Click the **Add Area** button [ICON PLACEHOLDER] on the dialog box toolbar. The **Select Output** pop-up box appears, and asks you to choose your change type. SCREEN CAPTURE PLACEHOLDER
Step 8	Since this is a legal annexation, click the 'Legal Change' radio button, then click **OK**. The **Create Change Polygon** dialog box opens with the **CHNG_TYPE** (change type) field already populated. SCREEN CAPTURE PLACEHOLDER
Step 9	In the **Create Change Polygon** dialog box, enter the effective date in the **EFF_DATE** field, and use the arrows for the **AUTHTYPE** field to select the authorization type (L – Local Law, etc.) from the drop-down menu.

Step	Action / *Result*
	SCREEN CAPTURE PLACEHOLDER
Step 10	Add legal documentation by clicking the folder icon [ICON PLACEHOLDER] next to the **DOCU** field, navigating to the file on your drive, and double-clicking on the file. *The GUPS automatically uploads the file and its name populates the **DOCU** field.*
Step 11	When you are finished, click **OK**. *The change polygon is added to the map.* SCREEN CAPTURE PLACEHOLDER

6.1.4 Record a Deannexation

Follow the steps in **Table 35** to record a deannexation. The fictitious example in the table uses Edgerton City, an incorporated place in Rock County, WI. Edgerton City officials, in discussion with Rock County planners, agreed to give a tract of land to the county for the development of a future riverside park.

Table 35 Steps to Record a Deannexation

Step	Action / *Result*
Step 1	Click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The **Modify Area** Feature dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	Using the arrows for the **Geography** field, select the entity type (here Place), from the drop-down menu. *A list of all incorporated places in the county appears in the area at the bottom of the dialog box.* SCREEN CAPTURE PLACEHOLDER
Step 3	Click on the place name (Edgerton City) in the list. *The map zooms to Edgerton City.* SCREEN CAPTURE PLACEHOLDER
Step 4	Locate the **Select Feature(s)** tool [ICON PLACEHOLDER] (on the small toolbar just below the **Geography** field in the **Modify Area Feature** dialog box). SCREEN CAPTURE PLACEHOLDER
Step 5	In the drop-down menu, choose the method for selecting the area deannexed. For this example, we will use the **Select Feature(s)** option in the drop-down menu.
Step 6	Click on the **Select Feature(s)** option, then go to location on the map where the deannexation occurred and press the **CTRL** key. While holding the key down, left-click the face you want to select. ***Note**: If there is more than one face, continue holding down CTRL while clicking each face. *The selected face(s) turn cyan blue (colors may vary).* SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 7	Click the **Remove Area** button [ICON PLACEHOLDER] on the dialog box toolbar. *The Select Output pop-up box appears, and asks you to choose your change type.* SCREEN CAPTURE PLACEHOLDER
Step 8	Since this is a legal deannexation, click the 'Legal Change' radio button, then click **OK**. *The Create Change Polygon dialog box opens with the CHNG_TYPE (change type) field already populated.* SCREEN CAPTURE PLACEHOLDER
Step 9	In the **Create Change Polygon** dialog box, enter the effective date in the **EFF_DATE** field, and use the arrows for the **AUTHTYPE** field to select the authorization type (L – Local Law, etc.) from the drop-down menu. SCREEN CAPTURE PLACEHOLDER
Step 11	Add legal documentation by clicking the folder icon [ICON PLACEHOLDER] next to the **DOCU** field, navigating to the file on your drive, and double-clicking on the file. *The GUPS automatically uploads the file and its name populates the DOCU field.*
Step 12	When finished, click **OK**. *The change polygon is added to the map.* SCREEN CAPTURE PLACEHOLDER
ADD ICON	Red asterisks indicate required fields. If you fail to complete a required field, the GUPS will prompt you do so before you can go forward. Any required field not completed will highlight in red, as shown below (colors may vary). SCREEN CAPTURE PLACEHOLDER

6.1.5 Make a Boundary Update on a County Line

Note: The GUPS does not allow legal changes to be made for county boundaries. Any user who wishes to make a legal change to a county boundary must contact the Census Bureau directly. Call 1-800-972-5651 or email bas@geo.gov.

Incorporated places, however, may use the GUPS to record annexations and deannexations that cross county boundaries. To do so follow the steps described in **Table 36** below. The fictitious example in the table uses Edgerton City, an incorporated place in Rock County, Wisconsin. It has annexed land in neighboring Rock County.

Table 36 Steps to Record an Annexation in an Adjacent County

Step	Action / *Result*
Step 1	To show an annexation across a county boundary (an option limited to incorporated places), you must change your working county to the county in which the annexed faces are located. To switch the working county to Rock County: From the main GUPS page, click the **Map Management** button [ICON PLACEHOLDER] on the **BAS toolbar**. The **Map Management** dialog box opens showing the program, state, working county, entity type, and entity name you selected when you created the project. *A list of counties adjacent to the working county, with the closest highlighted in yellow, displays in the list at the bottom of the dialog box.* SCREEN CAPTURE PLACEHOLDER
Step 2	To change the working county, click the down arrow in the **Working County** field and select Rock County from the drop-down menu. SCREEN CAPTURE PLACEHOLDER
Step 3	The list of adjacent counties repopulates to show the counties adjacent to Rock County. *Your previous working county (Dane County) now appears highlighted in cyan blue with the other adjacent counties highlighted in yellow.* SCREEN CAPTURE PLACEHOLDER
Step 4	Unclick the checkbox for any county(ies) you do not wish to see on the map, but leave the checkbox for Dane County clicked. Then click the **Open** button. A **Save Current Project** pop-up box asks if you would like to save your current project. SCREEN CAPTURE PLACEHOLDER
Step 5	Click **Save** in order not to lose any changes you previously made to the Dane County shapefile. The **Map View** displays both Dane and Rock Counties and the **Table of Contents** displays the layers for the new working county (Rock County). SCREEN CAPTURE PLACEHOLDER
Step 6	To select the features annexed, click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar.** *The **Modify Area Feature** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 7	In the **Geography** field drop-down menu, select the entity type to which the annexed land should be assigned. Because Edgerton City is an incorporated place, select 'Place'. *A list of all incorporated places in both Rock and Dane County appears in the **Info** list at the bottom of the dialog box.* SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 8	Scroll down the list and click the row for 'Edgerton'. Note that two entries appear for Edgerton. The first entry represents the portion of Edgerton City that already exists within Rock County (the current working county), and the second for the portion of Edgerton City that is located in Dane County. Since you want to add the new faces to Dane County, click the row for the second entry. *The map pans to the portion of the map along the county boundary where Edgerton City is located.* SCREEN CAPTURE PLACEHOLDER
Step 9	Click the arrow next to the **Select Features** button [ICON PLACEHOLDER] on the dialog box toolbar and choose the method by which you want to select the annexed faces. In this example, we will use the **Select Feature(s)** option. Click **Select Feature(s)** in the drop-down menu, then click the face on the map to be added, if there is only one. If you want to add additional faces, hold down the CRTL key and continue to click on faces until you are done. In this instance, we selected two faces. *The selected face polygons turn cyan blue (color may vary).* SCREEN CAPTURE PLACEHOLDER
Step 10	Add the faces to Dane County. Click the **Add** button [ICON PLACEHOLDER] on the dialog box toolbar. The **Choose the Change Type** dialog box opens. SCREEN CAPTURE PLACEHOLDER
Step 11	Click the radio button next to 'Legal Change' to indicate that this is a legal annexation. SCREEN CAPTURE PLACEHOLDER
Step 12	Then click **OK**. *The selected faces turn green and the **Create Change Polygon** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 13	Enter the effective date for the change in the **EFF_DATE** field, select an authority type in the **AUTHTYPE** drop-down menu, and enter a change type in the **CHNG_TYPE** field.
Step 14	Then upload legal documentation of the change by clicking on the folder icon, navigating to your directory where the documentation is stored, and double-clicking the file. *The file uploads to GUPS and the name of the file appears in the **DOCU** field.* SCREEN CAPTURE PLACEHOLDER
Step 15	Click **OK**.

Step	Action / *Result*
Step 16	Click the **Save** button on the **Standard toolbar**. The **Current edits** pop-up box asks if you would like to save the changes to all layers. Click **OK**. *The changes are saved. The selected faces turn brown, and they have been added to Edgerton City in Dane County.* SCREEN CAPTURE PLACEHOLDER
ADD ICON	**Independent Cities**: Users reporting for independent cities (i.e., cities independent of any county and treated by the Census Bureau as county equivalents) should follow the steps described above to show annexations / deannexations between the city and surrounding counties.

6.1.6 Add a Geographic Corridor

To add a geographic corridor, follow the steps in Table 37. The fictitious example in the table uses Hanover Town, located in Jefferson County, IN. The user wants to show that the city has annexed the road right-of-way for Gray Street, a street within the city limits.

Table 37 Steps to Add a Geographic Corridor

Step	Action / *Result*
Step 1	Click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The **Modify Area Feature** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	In the **Geography** field drop-down menu, select the entity type (in this case, 'Place'). *A list of incorporated places in Jefferson County populates the **Info** list of the dialog box.* SCREEN CAPTURE PLACEHOLDER
Step 3	Click on the row for 'Hanover' in the list. The map zooms to the incorporated place of Hanover Town. SCREEN CAPTURE PLACEHOLDER
Step 4	To create the corridor, pan to the road for which you wish to add the corridor (here Gray Street), then click on the arrow next to the **Select Features** button. The **Select Features** drop-down menu opens.
Step 5	In the menu, select 'Select Features by Freehand'. SCREEN CAPTURE PLACEHOLDER
Step 6	On the map, use the cursor to draw a corridor around the road. Left-click to start, then holding down the mouse, trace a corridor polygon around the road. When you are done drawing, right-click. *The face polygons on both sides of the road turn cyan blue (color may vary).* SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 7	To add the corridor, click the **Add** button [ICON PLACEHOLDER] in the **Modify Area Feature** dialog box toolbar. *The **Choose the Change Type** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 8	Click the radio button next to **Corridor**. *A box opens giving an explanation of what a geographic corridor is and asking if you want to proceed.* SCREEN CAPTURE PLACEHOLDER
Step 9	If yes, click the **Yes** button. *You are returned to the **Choose the Change Type** dialog box with Corridor still selected.* SCREEN CAPTURE PLACEHOLDER
Step 10	Click **OK**. *A pop-up box asks if the Corridor is a legal change.* SCREEN CAPTURE PLACEHOLDER
Step 11	If the user clicks **Yes**, the **Create Change Polygon** dialog box opens. SCREEN CAPTURE PLACEHOLDER
Step 12	Enter the effective date for the change in the **EFF_DATE** field, select an authority type in the **AUTHTYPE** drop-down menu, and enter a change type in the **CHNG_TYPE** field. Then upload legal documentation of the change by clicking on the folder icon, navigating to your directory where the documentation is stored, and double-clicking the file. The file uploads to GUPS and the name of the file appears in the **DOCU** field.
Step 13	Click **OK**. Then click the **Save** button on the **Standard toolbar**. *The Current edits pop-up box asks if you would like to save the changes to all layers.* SCREEN CAPTURE PLACEHOLDER
Step 14	Click OK. *The changes are saved.*

6.1.7 Add a Geographic Offset

To create a geographic offset, follow the same steps as for a corridor (see **Table 37** LINK). The only difference is that you select a face for only one side of the road.

6.1.8 Make a Legal Boundary Change for a Consolidated City

Users who represent consolidated cities (i.e., cities that share a consolidated government with a county or minor civil division) should follow the steps described in **Table 36** LINK in **Section 6.1.5** (change across a county boundary) to show annexations / deannexations between the city and any county adjacent to it.

To show annexations or deannexations between the consolidated city itself and the entity or entities with which it shares a government, proceed as any incorporated place user would. That

is, if you wish to annex land from another entity within the consolidated government area, treat it as you would any annexation within a county.

6.1.9 Make a Boundary Correction (Add Area / Remove Area)

To make a boundary correction that involves either adding or removing area, follow the steps in **Table 38**.

Table 38 Steps to Make Boundary Correction

Step	Action / *Result*
Step 1	To select the entity to which you want to add/remove area to a boundary, first click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The Modify Area Feature dialog box opens*.
Step 2	In the **Geography** drop-down menu, select the type of entity you want to update: Area Landmark/Area Hydrology, Consolidated City, County, MCD, or Place. In this example, we will use 'Place'. *The **Info** list populates with all incorporated places in the county for the geography chosen*. SCREEN CAPTURE PLACEHOLDER
Step 3	Click on a row in the list to select the place. *The map zooms to the place selected and highlights it in cyan blue (colors may vary)*. SCREEN CAPTURE PLACEHOLDER
Step 4	Click on the **Select Feature(s)** button to select the face to add to/remove from the entity. Using one of the four methods available in the drop-down menu, select the polygon on the map. *The selected polygon turns cyan blue*. SCREEN CAPTURE PLACEHOLDER
Step 5	On the **Modify Area Feature** toolbar, click on the **Add** button [ICON PLACEHOLDER] (to add area to the entity) or on the **Remove** button (to remove area from the entity). *The **Select Output** pop-up box appears, and asks you to choose your change type*. SCREEN CAPTURE PLACEHOLDER
Step 6	Click the radio button next to 'Boundary Correction'. *The face (polygon) is added to the legal entity*.

6.2 How to Update Linear Features

6.2.1 Add a Linear Feature

Follow the steps in **Table 39** to add a linear feature.

Table 39 Steps to Add a Linear Feature

Step	Action / *Result* [Update]
Step 1	Zoom to the location on the map where you want to add the linear feature.
Step 2	Click on the **Add Line** button [ICON PLACEHOLDER] on the **BAS toolbar**. SCREEN CAPTURE PLACEHOLDER
Step 3	Left-click the mouse at the starting point of the line (A) and continue to left-click the mouse at each vertex (shape) point of the line. When you have completed the new line, right-click the mouse (B). The right click tells the GUPS you are finished drawing. SCREEN CAPTURE PLACEHOLDER *The **Add Linear Feature** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 4	Type the name of the new linear feature in the **Name** field if the feature is named; otherwise, leave blank. Be sure when entering the feature name either to spell out the feature type (e.g., street, road, avenue), or to select an approved abbreviation from the list provided in **Appendix D**. LINK SCREEN CAPTURE PLACEHOLDER
Step 5	In the **MTFCC** field drop-down menu, choose the appropriate code for the feature. SCREEN CAPTURE PLACEHOLDER
Step 6	Click the **OK** button [ICON PLACEHOLDER]. The added linear feature and the name you assigned appear on the map. SCREEN CAPTURE PLACEHOLDER
Note	**Adding a linear feature coincident with a boundary** – The GUPS will not allow one linear feature to be placed over another. For example, if you attempt to add a road overlaying a legal boundary line, a popup box will warn you 'Added Line Overlays an Existing line'. If you are adding a linear feature coincident with a boundary, follow the instructions for updating linear feature attributes instead (see Table 42 in Section 6.2.4). LINK Once you select the boundary edge that you want to add a street on top of, update the MTFCC in the Update Attributes popup to one of the "S" class feature codes (e.g., S1400) and add a name in the **FULLNAME** field.

6.2.2 Delete a Linear Feature

To delete a linear feature, follow the steps in **Table 40**.

Table 40 Steps to Delete a Linear Feature

Step	Action / *Result* [Update]
Step 1	Zoom to the location on the map where you want to delete the linear feature.
Step 2	Click on the **Delete Line** button [ICON PLACEHOLDER] on the **BAS toolbar**. SCREEN CAPTURE PLACEHOLDER
Step 3	Left-click the linear feature on the map you want to delete. In the example below, we clicked on Macoby Drive. *The clicked feature turns cyan blue and the **Delete Linear Feature** box pops up.* SCREEN CAPTURE PLACEHOLDER
Step 4	Click **OK** to delete the linear feature.
Note	When you delete a linear feature, it is not actually removed from the Census shapefile. The GUPS assigns a Delete Line flag to the feature in the attribute table, and the feature is later processed for deletion when the Census Bureau receives the BAS file.
Note	If you have multiple linear features to delete, you may click the **Delete Linear Feature** button on the toolbar once, then press **CTRL** and click each of the features you want deleted. The GUPS will delete all of the linear features selected and each will display the dashed line.

6.2.3 Restore a Deleted Linear Feature

To restore a deleted linear feature, follow the steps in **Table 41** below.

Table 41 Steps to Restore a Deleted Linear Feature

Step	Action / *Result*
Step 1	Zoom to the deleted feature on the map.
Step 2	Left-click on the deleted feature. The deleted feature turns cyan blue and the **Delete Linear Feature** dialog box opens. *The box asks you to confirm that you want to Restore the line*. SCREEN CAPTURE PLACEHOLDER
Step 3	To restore the linear feature, click the **OK** button. The **Delete Line flag** is removed from the attribute table and the line is restored. SCREEN CAPTURE PLACEHOLDER

6.2.4 Change the Attributes of a Linear Feature

Follow the steps in **Table 42** to change the attributes (e.g., the name, MTFCC, or address range) of a linear feature.

Table 42 Steps to Change the Attributes of a Linear Feature

Step	Action / *Result*
Step 1	If you plan to change the name of a linear feature, check first to see if it has an alternative name in the Census shapefile. To do this, follow the steps below.
Step 2	Click the **Select Features** button [ICON PLACEHOLDER] on the **Standard toolbar** and choose 'Select Feature(s)' in the drop-down menu.
Step 3	Click the linear feature on the map and click the **Display All Names** button [ICON PLACEHOLDER] on the **BAS toolbar**. The **Display All Names** dialog box opens, displaying the primary name of the feature and the alternate name for the feature, if one is present. SCREEN CAPTURE PLACEHOLDER
Step 4	To see if the linear feature has an additional alternate name, click the down arrow next to the **Alt. Name** field. *Any additional alternate name will be listed in the drop-down menu.* SCREEN CAPTURE PLACEHOLDER
Step 5	If you plan to provide an address range for a linear feature, check the checkbox next to **> direction** in the **Edges** field in the **Table of Contents**. *This activates the arrows that indicate the FROM and TO nodes for line segments.* SCREEN CAPTURE PLACEHOLDER
Step 6	Click on the **Edit Attributes** [ICON PLACEHOLDER] button on the **BAS toolbar**. SCREEN CAPTURE PLACEHOLDER
Step 7	Click the linear feature on the map whose attributes you want to edit. The **Update Edge Attribute** dialog box opens with the TIGER Line Feature ID (TLID) of the feature selected. *The **FULLNAME** field populates if the feature is named. If the feature is not named, the field is blank. The **MTFCC** field shows the assigned MTFCC.* SCREEN CAPTURE PLACEHOLDER
Step 8	Update the **FULLNAME** field. If the field is blank, type in the new name. If the field is already populated, highlight the existing name and hit the Delete key (or backspace over the name to clear the field). Then type in the new name.
Step 9	Click on the MTFCC drop-down menu and select the correct MTFCC.

Step	Action / *Result*
Step 10	Change the address range for the linear feature, if necessary. Type in potential address ranges in the **LTOADD** (left to address); **RTOADD** (right to address); **LFROMADD** (left from address); **RFROMADD** (right from address) fields based on the directional arrows. *The directional arrows show the origin node (FROM) and the end node (TO).* SCREEN CAPTURE PLACEHOLDER
Step 11	Click **OK**.
ADD ICON	The address ranges for all features are blank in the TIGER partnership shapefiles because the ranges are stored in tables separate from the shapefiles. You can provide address ranges in these fields, but be aware that we may already have address ranges. It is important to note which node is the FROM node and which is the TO node (based on the red directional arrows) so that the address ranges are associated with the correct side of the street and the correct census block. **Note**: Provide potential address ranges for blocksides, such as 0-98, 100-198, etc., for even parity and 1-99, 101-199, etc., for odd parity address ranges. Do not provide actual address ranges.

6.3 How to Update Area Landmarks and Hydrographic Areas

6.3.1 Create a New Area Landmark / Hydrographic Area

To create a new landmark of hydrographic area, follow the steps in **Table 43**.

Table 43 Steps to Create a New Area Landmark/Hydrographic Area

Step	Action / *Result*
Step 1	Zoom to the area on the map where you want to add the new area landmark/hydro area.
Step 2	Click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The **Modify Area Feature** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 3	In the **Geography** field drop-down menu, select 'Area Landmark/Area Hydrology'. *'Area Landmark/Area Hydrology' populates the **Geography** field and a list of area landmarks and hydrological features in the county appears in the **Info** list.* SCREEN CAPTURE PLACEHOLDER
Step 4	Click on the **Add Entity** button [ICON PLACEHOLDER] on the **Modify Area Feature** dialog box's internal toolbar. *The **Select Faces to Add** pop-up opens.*

Step	Action / *Result*
	SCREEN CAPTURE PLACEHOLDER
Step 5	Click **OK**. Then go to the zoomed portion of your map and use the **Select Feature(s) function** to define the boundaries of the new area landmark/hydro area. (See **Section 5.3** for instructions on selecting features.) LINK *After you add the faces, the change polygon in which your new landmark is located turns cyan blue (colors may vary by user system).* SCREEN CAPTURE PLACEHOLDER
Step 6	Click the **New Entity** button [ICON PLACEHOLDER] again. The **Add New Entity** dialog box opens. SCREEN CAPTURE PLACEHOLDER
Step 7	Enter the name of the new area landmark in the **Full name** field, then select the appropriate code in the **MTFCC** field drop-down list.
Step 8	Click **OK**. *The change polygon changes color, the name of the added landmark/hydro area appears in the middle of the change polygon, and the name of the new entity appears in the list of landmarks/hydro areas in the **Info** list (in this case we gave the new entity the name Tiny Pond).* SCREEN CAPTURE PLACEHOLDER **Note**: In many systems the change polygon will change color to purple, but this may vary by system.
ADD ICON	Because all areal features consist of faces (polygons), you may need to "split" a face to accurately reflect an entity's boundary. To split a face, digitize a new line that represents the boundary's location and assign it the appropriate MTFCC. This splits the original face into two faces. You can now select the face (polygon) you need to add to the new entity. Click here for more information on adding a linear feature. LINK

6.3.2 Delete an Area Landmark / Hydrographic Area

To delete an area landmark of hydrographic area, follow the steps in **Table 44**.

Table 44 Steps to Delete an Area Landmark/Hydrographic Area

Step	Action / *Result*
Step 1	On the map, zoom to the area landmark/hydrographic area you want to delete.
Step 2	Click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The **Modify Area Feature** dialog box opens.* SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 3	In the **Geography** field drop-down menu, select 'Area Landmark/Area Hydrology'. *'Area Landmark/Area Hydrology' populates the **Geography** field and a list of area landmarks and hydrological features in the county appears in the **Info** list.* SCREEN CAPTURE PLACEHOLDER
Step 4	In the **Info** list, click on the area landmark/hydro area you want to delete. *The selected entry is highlighted in blue in the **Info** list and the map zooms directly to the selected feature.* SCREEN CAPTURE PLACEHOLDER
Step 5	Click the **Remove Entity** button [ICON PLACEHOLDER] on the **Modify Area Feature** dialog box's internal toolbar. *The **Delete this Area Feature**? pop-up box opens.* SCREEN CAPTURE PLACEHOLDER
Step 6	To delete the area landmark/hydro area, click **OK**. *Its name will disappear from the **Info** list. You may now save your work and exit the application, or choose another update to make.*
Step 7	Not ready to delete yet? If you change your mind about deleting the area landmark/hydro area, click **Cancel**. SCREEN CAPTURE PLACEHOLDER
Step 8	*You will be returned to the Modify Area Feature dialog box with the Remove Entity button grayed out* [ICON PLACEHOLDER]. SCREEN CAPTURE PLACEHOLDER
Step 9	If you now decide to delete the area landmark/hydro feature, click on the feature name in the **Info** list. The buttons will reactivate and you may click the **Remove Entity** button again.

6.3.3 Add Area to an Area Landmark / Hydrographic Area

Follow the steps in **Table 45** to add area to an area landmark or hydrographic area.

Table 45 Steps to Add Area to an Area Landmark/Hydrographic Area

Step	Action / *Result*
Step 1	Click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The **Modify Area Feature** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	In the **Geography** field drop-down menu, select 'Area Landmark/Area Hydrology'. *'Area Landmark/Area Hydrology' populates the **Geography** field and a list of area landmarks and hydrological features in the county appears in the **Info** list.*

Step	Action / *Result*
	SCREEN CAPTURE PLACEHOLDER
Step 3	Select the area landmark/hydro area to which you want to add area. The selected entity turns blue in the **Info** list and the map zooms to its location.
	SCREEN CAPTURE PLACEHOLDER
Step 4	***To select the face(s) you want to add to the area landmark, cl*ick the **Select Feature(s)** button [ICON PLACEHOLDER] on the **Modify Area Feature** dialog box's internal toolbar and select the method by which you want to add area. For this example, left-click the **Select Feature(s)** button once, then press **CTRL** and left-click the face polygon you want to add. *The added polygon turns cyan blue (color may appear different on your screen).*
	SCREEN CAPTURE PLACEHOLDER
Step 5	To add the face(s) selected, click the **Add Area** button [ICON PLACEHOLDER] on the **Modify Area Feature** dialog box's internal toolbar. *The selected polygon is added to the area landmark and turns color on the map. The map also now shows the full extent of the area landmark*.
	SCREEN CAPTURE PLACEHOLDER

6.3.4 Remove Area from an Area Landmark / Hydrographic Area

Follow the steps in **Table 46** to remove area from an area landmark or hydrographic area.

Table 46 Steps to Remove Area from an Area Landmark / Hydrographic Area

Step	Action / *Result*
Step 1	Select the area landmark/hydrographic area from which you want to remove area.
Step 2	Click the **Modify Area Feature** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The **Modify Area Feature** dialog box opens.*
	SCREEN CAPTURE PLACEHOLDER
Step 3	In the **Geography** field drop-down menu, select 'Area Landmark/Area Hydrology'. *'Area Landmark/Area Hydrology' populates the **Geography** field and a list of area landmarks and hydrological features in the county appears in the **Info** list.*
	SCREEN CAPTURE PLACEHOLDER
Step 4	Select the area landmark/hydro area from which you want to remove area. *The selected entity turns blue in the **Info** list and the map zooms to its location*. In this example, we have chosen Indian Lake County Park.
	SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 5	To select the face(s) you want to remove from the area landmark, click the **Select Feature(s)** button [ICON PLACEHOLDER] on the **Modify Area Feature** dialog box's internal toolbar and select the method by which you want to remove area. For this example, left-click the **Select Feature(s)** button once, then press **CTRL** and left-click the faces polygon you want to remove. *The removed polygon changes color.* SCREEN CAPTURE PLACEHOLDER
Step 6	To remove the face(s) selected, click the **Remove Area** button [ICON PLACEHOLDER] on the **Modify Area Feature** dialog box's internal toolbar. The selected polygon is removed from the area landmark and turns color on the map. SCREEN CAPTURE PLACEHOLDER

6.4 How to Update Point Landmarks

6.4.1 Add a Point Landmark

To add a point landmark, follow the steps in **Table 47**.

Table 47 Steps to Add a Point Landmark

Step	Action / *Result*
Step 1	Zoom to the area on the map where you want to add the new point landmark.
Step 2	Click the Add Point Landmark button [ICON PLACEHOLDER] on the BAS toolbar. SCREEN CAPTURE PLACEHOLDER
Step 3	Click on the map where you want to add the point landmark. *The Add Point Landmark dialog box opens and a red X marks the location you selected.* SCREEN CAPTURE PLACEHOLDER
Step 4	Type in the name for the new point landmark in the **FULLNAME** field. Then click the down arrow next to the **MTFCC** field to open the drop-down menu. Select the MTFCC code. SCREEN CAPTURE PLACEHOLDER
Step 5	Click the **OK** button at the bottom of the box. [ICON PLACEHOLDER] *The map updates to show the added point landmark.* In this case we added a traffic circle and named it Buchanan Circle. SCREEN CAPTURE PLACEHOLDER

6.4.2 Delete a Point Landmark

To delete a point landmark, follow the steps in **Table 48**.

Table 48 Steps to Delete a Point Landmark

Step	Action / *Result*
Step 1	Zoom to the area on the map where you want to delete the new point landmark. In this example, we will delete the traffic circle named Buchanan Circle.
Step 2	Click the **Delete Point Landmark** button [ICON PLACEHOLDER] on the BAS toolbar. SCREEN CAPTURE PLACEHOLDER
Step 3	On the map, click on the point landmark you want to delete (Buchanan Circle). The **Delete Point Landmark** dialog box opens, and asks if you are sure you want to delete the point landmark. SCREEN CAPTURE PLACEHOLDER
Step 4	Click **OK**. *The point landmark disappears from the map and from the attribute table.*

6.4.3 Change the Attributes of a Point Landmark

To change the attributes of a point landmark (e.g., its name, MTFCC), follow the steps in **Table 49**.

Table 49 Steps to Change the Attributes of a Point Landmark

Step	Action / *Result*
Step 1	Zoom to the area on the map where the point landmark is located and click on the landmark. In this example, we will change the name of Buchanan Traffic Circle.
Step 2	Click on the **Modify Point Landmark** [ICON PLACEHOLDER] button on the **BAS toolbar**. SCREEN CAPTURE PLACEHOLDER
Step 3	On the map, click on Buchanan Circle. *The **Edit Point Landmark** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 4	To change the name, backspace over the name appearing in the **FULLNAME** field, then type in the new name. In this example, we will change the name to Marley Circle. SCREEN CAPTURE PLACEHOLDER
Step 5	Click **OK**. *The new name of the point landmark appears on the map.* SCREEN CAPTURE PLACEHOLDER

6.5 How to Use the GUPS Review Tools

The GUPS provides two tools – the **Geography Review** tool and the **Review Change Polygons** tool that allow you to review the updates you have made.

The **Geography Review** tool gives you the ability to review all shapefile layers. You can use the tool to filter the layer based on field values in the attribute table. Please be aware, however, that the **Geography Review** tool is for your convenience only. It cannot be used to make edits to your changes. To use the **Geography Review** tool, follow the steps in **Table 50**.

The **Review Change Polygons** tool allows you to view the transactions created from the edits you made to area landmarks, including area hydrography, and legal entities, including consolidated cities, MCDs, and incorporated places. You can review the transaction polygons that represent boundary changes, new entities you added, or entities you deleted. The tool also provides the ability to make further changes to your updates as you review your original updates.

The **Review Change Polygons** tool must be used before you can export a file from the GUPS to submit to the Census Bureau. This tool will alert you to any change polygons you created that contain holes or that do not meet a minimum size requirement for a change. To conduct a Review Change Polygons check, follow the steps in **Table 51**.

Table 50 Steps to Conduct a Geography Review

Step	Action / *Result*
Step 1	Click on the **Geography Review** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The **Geography Review Tool** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	Select the layers you want to review. In the **Layer Name** drop-down menu, click on the name of the layer you want to review. In this example, we selected bas15_25502500000_55025_changes_alndk. SCREEN CAPTURE PLACEHOLDER *The attribute table for the area landmarks layer opens.* SCREEN CAPTURE PLACEHOLDER
ADD ICON	Layers that include "_changes_" in the name are the files you most likely want to review. These layers are the transaction data output files for the type of geography included in the name, where you have made changes to the layer.
ADD ICON	To see all columns in the attribute table, left-click the mouse on the edge of the dialog box and, while holding the mouse down, drag to widen the view. You may also move the dialog box itself to another location by clicking on the box and, holding down the mouse, dragging it to a new location.

Step	Action / *Result*
Step 3	Review the attributes to ensure they are correct. (Note: Although you can review your changes in the attribute table using the **Geographic Review Tool**, you cannot edit them).

Table 51 Steps to Review Change Polygons

Step	Action / *Result*
Step 1	Click on the **Review Change Polygons** button [ICON PLACEHOLDER] on the BAS toolbar. SCREEN CAPTURE PLACEHOLDER
Step 2	The **Review Change Polygons** dialog box opens just below the **Table of Contents**. SCREEN CAPTURE PLACEHOLDER
Step 3	Choose the geography you want to review from the **Geography** drop-down menu in the dialog box. Then click on the type of review you want to run by clicking on either the **Small Area** or the **Holes** button. SCREEN CAPTURE PLACEHOLDER
Step 4	If you click the **Small Area** button a list of any change polygons that areas too small to be considered boundary changes (and their acreage) appears in the **Info** pane. SCREEN CAPTURE PLACEHOLDER
Step 5	To see all change polygons and their acreage, click the **Display All Changes** button. SCREEN CAPTURE PLACEHOLDER
Step 6	Click on the name of the change polygon in the list and click the **Delete Change Polygon** button to delete it.
Step 7	If a small area change polygon represents a legal change, and thus should be retained, click the **Legal Entity Change** button at the bottom of the dialog box. *The* **Create Change Polygons** *dialog box opens for the entity chosen. The fields in this box are populated with the changes you made.* SCREEN CAPTURE PLACEHOLDER
Step 8	Add the effective date in the **EFF** field and the authority type in the **AUTHTYPE** field and attach any documentation. To attach documentation, click the folder next to the **DOC** field, navigate to the documents location on your computer, and double-click the document file.
Step 9	Click **OK**.

Step	Action / *Result*
Step 10	To review change polygons for missing areas, in the **Review Change Polygons** dialog box, click the **Holes** button. *A list of any change polygons containing holes appears in the **Info** pane, with the columns PLACEFP, Entity Type, and Hole Face ID.* SCREEN CAPTURE PLACEHOLDER
Step 11	Click on the name of a polygon in the list to see it on the map. *The map zooms to the change polygon, which is highlighted in cyan blue.* SCREEN CAPTURE PLACEHOLDER
Step 12	Correct the polygon.

6.6 How to Export Map to Print

GUPS allows you to generate printable maps in four formats (.pdf, .png., .tif, and .jpeg). The maps can be created in portrait or landscape view, on letter or ledger (legal) size paper, and at various scales. Printable maps can also be customized to enhance their resolution.

To export a printable map from GUPS, follow the steps in **Table 52**.

Table 52 Steps to Export a Printable Map

Step	Action / *Result*
Step 1	Click on the **Export to Print** button [ICON PLACEHOLDER] on the **BAS toolbar**. *The MapExport dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	In the fields provided, type in a map title and subtitle. Select the map orientation by clicking the radio button next to 'Portrait' or 'Landscape' under **Page Orientation**. *The map orientation in the preview pane to the right changes to reflect your selection.* SCREEN CAPTURE PLACEHOLDER
Step 3	Click the appropriate radio button in the **Map Scale** area to select a map scale (you may use your current map extent or set a fixed scale). To select a fixed scale, click the radio button next to 'Fixed Scale', then click the down arrow to open the drop-down menu. In the drop-down list, click on the scale that you want to select it. SCREEN CAPTURE PLACEHOLDER
Step 4	Select the paper size for the map by clicking the radio button next to 'Letter' for 8.5 by 11 inch paper or the 'Ledger' button for 11 by 17 inch paper.
Step 5	When you are ready to export the file from GUPS to your directory, click the radio button next to the desired file format under **Export File Format**. SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 6	Click the **Save** button. You are prompted to save the file to a directory on your computer. Name the file, select the directory where you want to save the file, then click **Save**.

6.7 How to Export a .zip File to Share or Submit

When creating export .zip files containing your updates, you have two options. You may choose to export the file to share with another user or you may choose to export the file for submission to the Census Bureau.

In either case, the GUPS automatically names the output .zip file for you. It also packages into the .zip all the files required by the Census Bureau (including any documentation you uploaded into the GUPS).

Important Note: If you make changes to more than one county, you must export a separate .zip file for each.

To begin, to share files with another user, follow the steps in **Table 53**. To export files for final submission to the Census Bureau, follow the steps in **Table 54**.

Table 53 Steps to Export Files to Share with Another User

Step	Action / *Result*
Step 1	Click on the **Export to Zip** button [ICON PLACEHOLDER] on the **BAS toolbar**. SCREEN CAPTURE PLACEHOLDER *The **Select Output Type** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	Click the **Share with Another Participant** radio button. SCREEN CAPTURE PLACEHOLDER Then click **OK**.
Step 3	If you have not yet validated your changes using the **Change Polygon Review** tool (located on the BAS toolbar), a popup will remind you to do so. You cannot export a file until the check has been run. For instructions on how to run the change polygon check, see **Table 51**.
Step 4	*If all your files have successfully passed the Review Change Polygons check, the **Zip File Output** dialog box opens.* SCREEN CAPTURE PLACEHOLDER
Step 5	The **Zip File Output** box informs you that the .zip file was created and displays the folder location where the GUPS placed the file. It also asks if you want to view the folder. *If you click **Yes**, the directory opens to the folder's location.*

Step	Action / *Result*
	SCREEN CAPTURE PLACEHOLDER
	You may now share the file with another user.

Table 54 Steps to Export Files for Submission to the Census Bureau

Step	Action / *Result*
Step 1	Click on the **Export to Zip** button [ICON PLACEHOLDER] on the **BAS toolbar**.
	SCREEN CAPTURE PLACEHOLDER
	*The **Select Output Type** dialog box opens.*
	SCREEN CAPTURE PLACEHOLDER
Step 2	Click the **Export for Census** radio button.
	SCREEN CAPTURE PLACEHOLDER
Step 3	*If you have not yet validated your changes using the **Change Polygon Review** tool (located on the BAS toolbar), a popup will remind you to do so.*
	SCREEN CAPTURE PLACEHOLDER
	You cannot export a file until the check has been run.
Step 4	Click **OK**. *If all your files have successfully passed the Review Change Polygons check, the **Zip File Output** dialog box opens.*
	SCREEN CAPTURE PLACEHOLDER
Step 5	The **Zip File Output** box informs you that the .zip file was created and displays the folder location where the GUPS placed the file. It also asks if you want to view the folder. *If you click **Yes**, the directory opens to the folder's location.*
	SCREEN CAPTURE PLACEHOLDER
Step 6	You are now ready to upload your file to the Census Bureau through the SWIM. See **Section 7** on the next page.

7 Submitting Your Files Through SWIM

To upload and transmit your update files to the Census Bureau, you must access your account in the SWIM, as shown in **Table 55** below.

Note: If you **already have a SWIM account**, have your user name (email address) and password ready. If you **do not have a SWIM account**, have the 12-digit registration token provided by the Census Bureau ready.

Table 55 Steps to Transmit Files to the Census Bureau Using SWIM

Step	Action / *Result*
Step 1	Open a new browser window and enter the URL: <u>https://respond.census.gov/swim/</u> *The SWIM login screen opens.* SCREEN CAPTURE PLACEHOLDER
Step 2	If you already have a SWIM Account, enter your Email address and Password. Then click the **Login** button. The **Welcome** screen opens.
Step 3	If you do not yet have a SWIM Account, you must register. *Click the **Register Account** button. The **Account Registration** screen opens.* SCREEN CAPTURE PLACEHOLDER
ADD ICON	All fields on the **Account Registration** screen are required. You will not be able to move to the next screen until you have completed all fields.
Step 4	On the **Account Registration** screen, first, enter the 12-digit token provided by the Census Bureau. Then enter your name, agency, and email in the appropriate fields.
Step 5	Next, create a password. The passwords must meet the five criteria below: 1. It must be 8 characters in length 2. It must have at least one upper case character 3. It must have at least one lower case character 4. It must have at least one number 5. It must have at least one special character (valid special characters are: #, !, $, *, &, ?, ~). *Note*: commas in the special characters list are for spacing purposes only; the comma is not a valid character for the password.
Step 6	Set up a security question (click the arrow on the right of the **Security Question** box and select a question in the drop-down list, then enter an answer in the **Answer** box). When you have finished, click the **Submit** button. *A screen opens to confirm that you have successfully registered.* SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 7	On the confirmation screen, click 'Login' in the phrase 'Go to Login'. You are returned to the login screen. SCREEN CAPTURE PLACEHOLDER
Step 8	On the login screen, enter your email and password, then click the green **Login** button. *The **Welcome** screen opens.* SCREEN CAPTURE PLACEHOLDER
Step 9	To begin an upload, click the **Start New Upload** button. *A screen opens asking which program for which you are reporting data.* On this screen, click the **Boundary Annexation Survey** radio button, then click **Next** at the bottom of the screen. SCREEN CAPTURE PLACEHOLDER
Step 10	*A screen opens asking which type of BAS data you are reporting.* Click the radio button next to the governmental unit for which you are reporting data, then click the **Next** button. In this example, we will select **County**. SCREEN CAPTURE PLACEHOLDER
Step 11	*A screen opens that allows you to select your state and the entity (in this case county) for which you are reporting data.* For the example, select North Carolina in the State field drop-down menu and the county in the **County** field drop-down menu. Then click the **Next** button. SCREEN CAPTURE PLACEHOLDER
Step 12	The Select a .zip file to upload screen opens. SCREEN CAPTURE PLACEHOLDER
Step 13	To upload a file, click the **+ Add File** button [ICON PLACEHOLDER] on the screen. The **Choose File to Upload** box opens and allows you to navigate on your computer to the .zip file's location. SCREEN CAPTURE PLACEHOLDER
Step 14	Locate the .zip file you want to upload, then double-click it. *The **Progress** field on the **Select a .zip file to upload** screen shows the progress of the upload. Once the upload is complete, the **Status** field shows 'Success', and the name of the file appears in the **File(s)** field.* SCREEN CAPTURE PLACEHOLDER
Step 15	After you have uploaded the file, type any comments (including pertinent information about data projection or supporting documentation) in the **Comments** field. Then click the **Next** button. The "Thank You" page confirms the receipt of your submission. SCREEN CAPTURE PLACEHOLDER

Step	Action / *Result*
Step 16	***To add additional files***, click on the 'upload form' link in the phrase "You may Log Out or return to the upload form, to submit more files." *This choice returns you to the Welcome screen.* SCREEN CAPTURE PLACEHOLDER Otherwise, to log out, click on 'Log Out'. The Census Bureau will acknowledge the receipt of the uploaded file.
ADD ICON	Be aware that after 15 minutes of inactivity, SWIM sessions are deactivated.
HELP	While working in SWIM, you may obtain help by clicking on the **Help** button on any screen. *When you click the button, a screen opens with links to help resources.* SCREEN CAPTURE PLACEHOLDER

APPENDIX A: CONTACT INFORMATION AND RESOURCES

Action/Question	Resource	Contact
Report you are making updates (if you do not complete Annual Response Form)	Geography Division	Call: 1-800-972-5651 Email: geo.bas@census.gov FAX: 1-800-972-5652
BAS materials questions	Geography Division	Call: 1-800-972-5651 Email: geo.bas@census.gov FAX: 1-800-972-5652
SWIM token questions	Geography Division	Call: 1-800-972-5651 Email: geo.bas@census.gov FAX: 1-800-972-5652
SWIM technical questions	Geography Division	geo.swim@census.gov
Shapefile downloads	BAS Website	https://www.census.gov/geo/partnerships/bas/bas_download.html
GUPS technical support	Geography Division	Call: 1-800-972-5651 Email: geo.bas@census.gov FAX: 1-800-972-5652
Legal boundary questions	Geography Division Legal Areas Team	Call: 1-301-763-1099 Email: geo.bas@census.gov
Ask guidance on areas under legal dispute	Census Bureau Legal Office	Call: 1-301-763-9844
Submit output files on DVD (if you do not have Internet access)	National Processing Center	Send to: US Census Bureau National Processing Center ATTN: BAS Returns, Bldg 63A 1201 East 10th Street Jeffersonville, IN 47132

APPENDIX B: GEOGRAPHIC CORRIDORS AND GEOGRAPHIC OFFSETS

Geographic Corridors

A geographic corridor is an area that includes only a road (or other feature's) right-of-way and does not contain any structures. **Exhibit A3.1** shows a corridor that has been created where an incorporated place annexed the road right-of-way, but not the housing units assigned to either side of the road (these belong instead to an unincorporated area). If it is important to the incorporated place that its ownership and/or maintenance of the road and/or its right-of-way be displayed on Census Bureau's maps, a geographic corridor should be created. However, the Census Bureau does not require places to report rights-of-way: maintaining geographic corridors in a nationwide database is difficult and impractical, and the right-of-way should only be included if it is crucial to the place, or if state or local laws require it. The Census Bureau would actually prefer that the area simply not be assigned to the place at all.

Exhibit A3.2 shows an example where the right-of-way belongs in an unincorporated area, while the housing units along it are included in an incorporated place (shown in color). While depicting this corridor may be important for local purposes, it is not relevant for Census Bureau tabulations and is not easy to depict in the Census nationwide database. This type of corridor should not be included in a BAS response.

Please note that the Census Bureau does not require places to display rights-of-way or road maintenance corridors that do not contain or potentially contain housing or population. If local or state law does not require depiction of these geographic features, the Census Bureau prefers that they be left off BAS submissions. However, if it is necessary for the place to depict them, then they must be submitted as a geographic corridor.

SCREEN CAPTURE PLACEHOLDER   SCREEN CAPTURE PLACEHOLDER

Exhibit A3.1   **Exhibit A3.2**

To recap, when a participant has a case where a road right-of-way is legally included in the boundary, but the adjacent parcels/houses are not, there are two options. You should either not include the area in the place at all (Scenario A in **Exhibit A3.3** below), or include it in the place and flag it as a corridor (Scenario C below). What you should never do is include such areas within the place boundary without flagging them as corridors (Scenario B).

SCREEN CAPTURE PLACEHOLDER

Exhibit A3.3 – (A): The respondent did not include place ownership of the road or the right-of-way, allowing houses along the road to be geocoded correctly. (B): The respondent chose to show place ownership of the road, but did not flag it as a corridor, causing houses along the road to be incorrectly geocoded. (C): The respondent chose to show place ownership of the road, and flagged that ownership as a corridor, allowing the houses to be geocoded correctly. Both A and C are acceptable.

Geographic Offsets

A geographic offset is an area (either within or outside of a geographic entity) that is only on one side of a road (unlike corridors, which involve both sides of the road) and does not include structures addressed to that side of the road. Much of the same guidelines regarding corridors also holds true for offsets.

The Census Bureau is aware that many governments base their legal boundaries on cadastral (parcel-based) right-of-way mapping. Census Bureau maps are based on spatial data that is topologically integrated which makes maintenance of geographic offsets inefficient. Using the road centerline wherever possible will help to establish more accurate population counts. If a boundary follows a front lot line, the Census Bureau strongly prefers that the road centerline be used as the boundary. If a boundary is at the rear of a lot, then it should be depicted as such. If it is unclear whether a particular line is a front lot line or something else, please contact the BAS team for assistance. As a rule, if a house or building could not conceivably be built in the area between the potential line and the centerline of the road, then the line can be considered a front lot line.

Exhibit A3.4 depicts a cadastral (parcel-based) boundary map and **Exhibit A3.5** shows how the boundary should be represented when it is sent to the Census Bureau.

SCREEN CAPTURE PLACEHOLDER   SCREEN CAPTURE PLACEHOLDER

Exhibit A3.4   **Exhibit A3.5**

Exhibit A3.6 below shows a situation in which the place boundary is along the front lot line. In this example, the respondent must either use the road centerline as the boundary (preferred), or create an offset. In **Exhibit A3.7**, the place boundary is on the rear lot line, so the respondent should of course not use the road centerline or create an offset, but should rather digitize in a new boundary following the rear lot line.

SCREEN CAPTURE PLACEHOLDER   SCREEN CAPTURE PLACEHOLDER

Exhibit A3.6   **Exhibit A3.7**

The Census Bureau has included an "offset" shapefile in the BAS materials (bas_2016_offset_<ssccc>.shp), so that your jurisdiction can be checked for any existing corridors or offsets. While the Census Bureau prefers that new offsets are not created (see above), this information can be helpful in determining if current boundaries are correct.

APPENDIX C: MTFCC DESCRIPTIONS – COMPLETE LIST

The MAF/TIGER Feature Classification Code (MTFCC) is a 5-digit code assigned by the Census Bureau to classify and describe geographic objects or features in Census Bureau MAF/TIGER products.

MTFCC	Feature Class	Feature Class Description
C3022	Mountain Peak or Summit	A prominent elevation rising above the surrounding level of the Earth's surface.
C3023	Island	An area of dry or relatively dry land surrounded by water or low wetland. [including archipelago, atoll, cay, hammock, hummock, isla, isle, key, moku and rock]
C3024	Levee	An embankment flanking a stream or other flowing water feature to prevent overflow.
C3026	Quarry (not water-filled), Open Pit Mine or Mine	An area from which commercial minerals are or were removed from the Earth; not including an oilfield or gas field.
C3027	Dam	A barrier built across the course of a stream to impound water and/or control water flow.
C3061	Cul-de-sac	An expanded paved area at the end of a street used by vehicles for turning around. For mapping purposes, the U.S. Census Bureau maps it only as a point feature.
C3062	Traffic Circle	A circular intersection allowing for continuous movement of traffic at the meeting of roadways.
C3066	Gate	A movable barrier across a road.
C3067	Toll Booth	A structure or barrier where a fee is collected for using a road.
C3071	Lookout Tower	A manmade structure, higher than its diameter, used for observation.
C3074	Lighthouse Beacon	A manmade structure, higher than its diameter, used for transmission of light and possibly sound generally to aid in navigation.
C3075	Tank/Tank Farm	One or more manmade structures, each higher than its diameter, used for liquid (other than water) or gas storage or for distribution activities.
C3076	Windmill Farm	One or more manmade structures used to generate power from the wind.
C3077	Solar Farm	One or more manmade structures used to generate power from the sun.
C3078	Monument or Memorial	A manmade structure to educate, commemorate, or memorialize an event, person, or feature.
C3079	Boundary Monument Point	A material object placed on or near a boundary line to preserve and identify the location of the boundary line on the ground.
C3080	Survey Control Point	A point on the ground whose position (horizontal or vertical) is known and can be used as a base for additional survey work.
C3081	Locality Point	A point that identifies the location and name of an unbounded locality (e.g., crossroad, community, populated place or locale).
C3085	Alaska Native Village Official Point	A point that serves as the core of an Alaska Native village and is used in defining Alaska Native village statistical areas.

MTFCC	Feature Class	Feature Class Description
G2100	American Indian Area	A legally defined state- or federally recognized reservation and/or off-reservation trust land (excludes statistical American Indian areas).
G2120	Hawaiian Home Land	A legal area held in trust for the benefit of Native Hawaiians.
G2130	Alaska Native Village Statistical Area	A statistical geographic entity that represents the residences, permanent and/or seasonal, for Alaska Natives who are members of or receiving governmental services from the defining legal Alaska Native Village corporation.
G2140	Oklahoma Tribal Statistical Area	A statistical entity identified and delineated by the Census Bureau in consultation with federally recognized American Indian tribes that have no current reservation, but had a former reservation in Oklahoma.
G2150	State-designated Tribal Statistical Area	A statistical geographic entity identified and delineated for the Census Bureau by a state-appointed liaison for a state-recognized American Indian tribe that does not currently have a reservation and/or lands in trust.
G2160	Tribal Designated Statistical Area	A statistical geographic entity identified and delineated for the Census Bureau by a federally recognized American Indian tribe that does not currently have a reservation and/or off-reservation trust land.
G2170	American Indian Joint Use Area	An area administered jointly and/or claimed by two or more American Indian tribes.
G2200	Alaska Native Regional Corporation	Corporate entities established to conduct both business and nonprofit affairs of Alaska Natives pursuant to the Alaska Native Claims Settlement Act of 1972 (Public Law 92-203). There are twelve geographically defined ANRCs and they are all within and cover most of the State of Alaska (the Annette Island Reserve-an American Indian reservation-is excluded from any ANRC). The boundaries of ANRCs have been legally established.
G2300	Tribal Subdivision	Administrative subdivisions of federally recognized American Indian reservations, off-reservation trust lands, or Oklahoma tribal statistical areas (OTSAs). These entities are internal units of self-government or administration that serve social, cultural, and/or economic purposes for the American Indians on the reservations, off-reservation trust lands, or OTSAs.
G2400	Tribal Census Tract	A relatively small and permanent statistical subdivision of a federally recognized American Indian reservation and/or off-reservation trust land, delineated by American Indian tribal participants or the Census Bureau for the purpose of presenting demographic data.
G2410	Tribal Block Group	A cluster of census blocks within a single tribal census tract delineated by American Indian tribal participants or the Census Bureau for the purpose of presenting demographic data
G3100	Combined Statistical Area	A grouping of adjacent metropolitan and/or micropolitan statistical areas that have a degree of economic and social integration, as measured by commuting.
G3110	Metropolitan and Micropolitan Statistical Area	An area containing a substantial population nucleus together with adjacent communities having a high degree of economic and social integration with that core, as measured by commuting. Defined using whole counties and equivalents.

MTFCC	Feature Class	Feature Class Description
G3120	Metropolitan Division	A county or grouping of counties that is a subdivision of a Metropolitan Statistical Area containing an urbanized area with a population of 2.5 million or more.
G3200	Combined New England City and Town Area	A grouping of adjacent New England city and town areas that have a degree of economic and social integration, as measured by commuting.
G3210	New England City and Town Metropolitan and Micropolitan Statistical Area	An area containing a substantial population nucleus together with adjacent communities having a high degree of economic and social integration with that core, as measured by commuting. Defined using Minor Civil Divisions (MCDs) in New England.
G3220	New England City and Town Division	A grouping of cities and towns in New England that is a subdivision of a New England City and Town Area containing an urbanized area with a population of 2.5 million or more.
G3500	Urban Area	Densely settled territory that contains at least 2,500 people. The subtypes of this feature are Urbanized Area (UA), which consists of 50,000 + people and Urban Cluster, which ranges between 2,500 and 49,999 people.
G4000	State or Equivalent Feature	The primary governmental divisions of the United States. The District of Columbia is treated as a statistical equivalent of a state for census purposes, as is Puerto Rico.
G4020	County or Equivalent Feature	The primary division of a state or state equivalent area. The primary divisions of 48 states are termed County, but other terms are used such as Borough in Alaska, Parish in Louisiana, and Municipio in Puerto Rico. This feature includes independent cities, which are incorporated places that are not part of any county.
G4040	County Subdivision	The primary divisions of counties and equivalent features for the reporting of Census Bureau data. The subtypes of this feature are Minor Civil Division, Census County Division/Census Subarea, and Unorganized Territory. This feature includes independent places, which are incorporated places that are not part of any county subdivision.
G4050	Estate	Estates are subdivisions of the three major islands in the United States Virgin Islands (USVI).
G4060	Subbarrio (Subminor Civil Division)	Legally defined divisions (subbarrios) of minor civil divisions (barrios-pueblo and barrios) in Puerto Rico.
G4110	Incorporated Place	A legal entity incorporated under state law to provide general-purpose governmental services to a concentration of population. Incorporated places are generally designated as a city, borough, municipality, town, village, or, in a few instances, have no legal description.
G4120	Consolidated City	An incorporated place that has merged governmentally with a county or minor civil division, but one or more of the incorporated places continues to function within the consolidation. It is a place that contains additional separately incorporated places.
G4210	Census Designated Place	A statistical area defined for a named concentration of population and the statistical counterpart of an incorporated place.
G4300	Economic Census Place	The lowest level of geographic area for presentation of some types of Economic Census data. It includes incorporated places, consolidated cities, census designated places (CDPs), minor civil divisions (MCDs) in selected states, and balances of MCDs or counties. An incorporated place, CDP, MCD, or balance of MCD

MTFCC	Feature Class	Feature Class Description
		qualifies as an economic census place if it contains 5,000 or more residents, or 5,000 or more jobs, according to the most current data available.
G5020	Census Tract	Relatively permanent statistical subdivisions of a County or equivalent feature delineated by local participants as part of the Census Bureau's Participant Statistical Areas Program.
G5030	Block Group	A cluster of census blocks having the same first digit of their four-digit identifying numbers within a Census Tract. For example, block group 3 (BG 3) within a Census Tract includes all blocks numbered from 3000 to 3999.
G5035	Block Area Grouping	A user-defined group of islands forming a single census tabulation block. A BAG must: (1) consist of two or more islands, (2) have a perimeter entirely over water, (3) not overlap, and (4) not cross the boundary of other tabulation geographies, such as county or incorporated place boundaries.
G5040	Tabulation Block	The lowest-order census defined statistical area. It is an area, such as a city block, bounded primarily by physical features but sometimes by invisible city or property boundaries. A tabulation block boundary does not cross the boundary of any other geographic area for which the Census Bureau tabulates data. The subtypes of this feature are Count Question Resolution (CQR), current, and census.
G5200	Congressional District	The 435 areas from which people are elected to the U.S. House of Representatives. Additional equivalent features exist for state equivalents with nonvoting delegates or no representative. The subtypes of this feature are 106th, 107th, 108th, 109th, and 111th Congressional Districts, plus subsequent Congresses.
G5210	State Legislative District (Upper Chamber	Areas established by a state or equivalent government from which members are elected to the upper or unicameral chamber of a state governing body. The upper chamber is the senate in a bicameral legislature, and the unicameral case is a single house legislature (Nebraska).
G5220	State Legislative District (Lower Chamber)	Areas established by a state or equivalent government from which members are elected to the lower chamber of a state governing body. The lower chamber is the House of Representatives in a bicameral legislature.
G5240	Voting District	The generic name for the geographic features, such as precincts, wards, and election districts, established by state, local, and tribal governments for the purpose of conducting elections.
G5400	Elementary School District	A geographic area within which officials provide public elementary grade-level educational services for residents.
G5410	Secondary School District	A geographic area within which officials provide public secondary grade-level educational services for residents.
G5420	Unified School District	A geographic area within which officials provide public educational services for all grade levels for residents.
G6120	Public-Use Microdata Area	A decennial census area with a population of at least 100,000 or more persons for which the Census Bureau provides selected extracts of household-level data that are screened to protect confidentiality

MTFCC	Feature Class	Feature Class Description
G6300	Traffic Analysis District	An area delineated by Metropolitan Planning Organizations (MPOs) and state Departments of Transportation (DOTs) for tabulating journey-to-work and place-of-work data. A Traffic Analysis District (TAD) consists of one or more Traffic Analysis Zones (TAZs).
G6320	Traffic Analysis Zone	An area delineated by Metropolitan Planning Organizations (MPOs) and state Departments of Transportation (DOTs) for tabulating journey-to-work and place-of-work data.
G6330	Urban Growth Area	An area defined under state authority to manage urbanization that the U.S. Census Bureau includes in the MAF/TIGER® Database in agreement with the state.
G6350	Zip Code Tabulation Area (Five-Digit)	An approximate statistical-area representation of a U.S. Postal Service (USPS) 5-digit ZIP Code service area.
G6400	Commercial Region	For the purpose of presenting economic statistical data, municipios in Puerto Rico are grouped into commercial regions.
H1100	Connector	A known, but nonspecific, hydrographic connection between two nonadjacent water features.
H2025	Swamp/Marsh	A poorly drained wetland, fresh or saltwater, wooded or grassy, possibly covered with open water. [includes bog, cienega, marais and pocosin]
H2030	Lake/Pond	A standing body of water that is surrounded by land.
H2040	Reservoir	An artificially impounded body of water.
H2041	Treatment Pond	An artificial body of water built to treat fouled water.
H2051	Bay/Estuary/Gulf/Sound	A body of water partly surrounded by land. [includes arm, bight, cove and inlet]
H2053	Ocean/Sea	The great body of salt water that covers much of the earth.
H2060	Gravel Pit/Quarry filled with water	A body of water in a place or area from which commercial minerals were removed from the Earth.
H2081	Glacier	A body of ice moving outward and down slope from an area of accumulation; an area of relatively permanent snow or ice on the top or side of a mountain or mountainous area. [includes ice field and ice patch]
H3010	Stream/River	A natural flowing waterway. [includes anabranch, awawa, branch, brook, creek, distributary, fork, kill, pup, rio, and run]
H3013	Braided Stream	A natural flowing waterway with an intricate network of interlacing channels.
H3020	Canal, Ditch or Aqueduct	An artificial waterway constructed to transport water, to irrigate or drain land, to connect two or more bodies of water, or to serve as a waterway for watercraft. [includes lateral]
K1225	Crew-of-Vessel Location	A point or area in which the population of military or merchant marine vessels at sea are assigned, usually being at or near the home port pier.
K1231	Hospital/Hospice/Urgent Care Facility	One or more structures where the sick or injured may receive medical or surgical attention. [including infirmary]
K1235	Juvenile Institution	A facility (correctional and non-correctional) where groups of juveniles reside; this includes training schools, detention centers, residential treatment centers and orphanages.
K1236	Local Jail or Detention Center	One or more structures that serve as a place for the confinement of adult persons in lawful detention, administered by a local (county, municipal, etc.) government.

MTFCC	Feature Class	Feature Class Description
K1237	Federal Penitentiary, State Prison, or Prison Farm	An institution that serves as a place for the confinement of adult persons in lawful detention, administered by the federal government or a state government.
K1238	Other Correctional Institution	One or more structures that serve as a place for the confinement of adult persons in lawful detention, not elsewhere classified or administered by a government of unknown jurisdiction.
K1239	Convent, Monastery, Rectory, Other Religious Group Quarters	One or more structures intended for use as a residence for those having a religious vocation.
K1246	Community Center	Community Center.
K2110	Military Installation	An area owned and/or occupied by the Department of Defense for use by a branch of the armed forces (such as the Army, Navy, Air Force, Marines, or Coast Guard), or a state owned area for the use of the National Guard.
K2131	Hospital/Hospice/Urgent Care Facility	One or more structures where the sick or injured may receive medical or surgical attention. [including infirmary]
K2165	Government Center	A place used by members of government (either federal, state, local, or tribal) for administration and public business.
K2167	Convention Center	An exhibition hall or conference center with enough open space to host public and private business and social events.
K2180	Park	Parkland defined and administered by federal, state, and local governments.
K2181	National Park Service Land	Area—National parks, National Monuments, and so forth—under the jurisdiction of the National Park Service.
K2182	National Forest or Other Federal Land	Land under the management and jurisdiction of the federal government, specifically including areas designated as National Forest, and excluding areas under the jurisdiction of the National Park Service.
K2183	Tribal Park, Forest, or Recreation Area	A place or area set aside for recreation or preservation of a cultural or natural resource and under the administration of an American Indian tribe.
K2184	State Park, Forest, or Recreation Area	A place or area set aside for recreation or preservation of a cultural or natural resource and under the administration of a state government.
K2185	Regional Park, Forest, or Recreation Area	A place or area set aside for recreation or preservation of a cultural or natural resource and under the administration of a regional government.
K2186	County Park, Forest, or Recreation Area	A place or area set aside for recreation or preservation of a cultural or natural resource and under the administration of a county government.
K2187	County Subdivision Park, Forest, or Recreation Area	A place or area set aside for recreation or preservation of a cultural or natural resource and under the administration of a minor civil division (town/township) government.
K2188	Incorporated Place Park, Forest, or Recreation Area	A place or area set aside for recreation or preservation of a cultural or natural resource and under the administration of a municipal government.
K2189	Private Park, Forest, or Recreation Area	A privately owned place or area set aside for recreation or preservation of a cultural or natural resource.

MTFCC	Feature Class	Feature Class Description
K2190	Other Park, Forest, or Recreation Area (quasi-public, independent park, commission, etc.)	A place or area set aside for recreation or preservation of a cultural or natural resource and under the administration of some other type of government or agency such as an independent park authority or commission.
K2191	Post Office	An official facility of the U.S. Postal Service used for processing and distributing mail and other postal material.
K2193	Fire Department	Fire Department.
K2194	Police Station	Police Station.
K2195	Library	Library.
K2196	City/Town Hall	City/Town Hall.
K2400	Transportation Terminal	A facility where one or more modes of transportation can be accessed by people or for the shipment of goods; examples of such a facility include marine terminal, bus station, train station, airport and truck warehouse.
K2424	Marina	A place where privately owned, light-craft are moored.
K2432	Pier/Dock	A platform built out from the shore into the water and supported by piles. This platform may provide access to ships and boats, or it may be used for recreational purposes.
K2451	Airport or Airfield	A manmade facility maintained for the use of aircraft. [including airstrip, landing field and landing strip]
K2452	Train Station, Trolley or Mass Transit Rail Station	A place where travelers can board and exit rail transit lines, including associated ticketing, freight, and other commercial offices.
K2453	Bus Terminal	A place where travelers can board and exit mass motor vehicle transit, including associated ticketing, freight, and other commercial offices.
K2454	Marine Terminal	A place where travelers can board and exit water transit or where cargo is handled, including associated ticketing, freight, and other commercial offices.
K2455	Seaplane Anchorage	A place where an airplane equipped with floats for landing on or taking off from a body of water can debark and load.
K2456	Airport—Intermodal Transportation Hub/Terminal	A major air transportation facility where travelers can board and exit airplanes and connect with other (i.e. non-air) modes of transportation.
K2457	Airport—Statistical Representation	The area of an airport adjusted to include whole 2000 census blocks used for the delineation of urban areas
K2458	Park and Ride Facility/Parking Lot	A place where motorists can park their cars and transfer to other modes of transportation.
K2459	Runway/Taxiway	A fairly level and usually paved expanse used by airplanes for taking off and landing at an airport.
K2460	Helicopter Landing Pad	A fairly level and usually paved expanse used by helicopters for taking off and landing.
K2540	University or College	A building or group of buildings used as an institution for post-secondary study, teaching, and learning. [including seminary]
K2543	School or Academy	A building or group of buildings used as an institution for preschool, elementary or secondary study, teaching, and learning. [including elementary school and high school]
K2545	Museum, Visitor Center, Cultural Center, or Tourist Attraction	An attraction of historical, cultural, educational or other interest that provides information or displays artifacts.

MTFCC	Feature Class	Feature Class Description
K2561	Golf Course	A place designed for playing golf.
K2582	Cemetery	A place or area for burying the dead. [including burying ground and memorial garden]
K2586	Zoo	A facility in which terrestrial and/or marine animals are confined within enclosures and displayed to the public for educational, preservation, and research purposes.
K3544	Place of Worship	A sanctified place or structure where people gather for religious worship; examples include church, synagogue, temple, and mosque.
L4010	Pipeline	A long tubular conduit or series of pipes, often underground, with pumps and valves for flow control, used to transport fluid (e.g., crude oil, natural gas), especially over great distances.
L4020	Powerline	One or more wires, often on elevated towers, used for conducting high-voltage electric power.
L4031	Aerial Tramway/Ski Lift	A conveyance that transports passengers or freight in carriers suspended from cables and supported by a series of towers.
L4110	Fence Line	A man-made barrier enclosing or bordering a field, yard, etc., usually made of posts and wire or wood, used to prevent entrance, to confine, or to mark a boundary.
L4121	Ridge Line	The line of highest elevation along a ridge.
L4125	Cliff/Escarpment	A very steep or vertical slope. [including bluff, crag, head, headland, nose, palisades, precipice, promontory, rim and rimrock]
L4130	Point-to-Point Line	A line defined as beginning at one location point and ending at another, both of which are in sight.
L4140	Property/Parcel Line (Including PLSS)	This feature class may denote a nonvisible boundary of either public or private lands (e.g., a park boundary) or it may denote a Public Land Survey System or equivalent survey line.
L4150	Coastline	The line that separates either land or Inland water from Coastal, Territorial or Great Lakes water. Where land directly borders Coastal, Territorial or Great Lakes water, the shoreline represents the Coastline. Where Inland water (such as a river) flows into Coastal, Territorial or Great Lakes water, the closure line separating the Inland water from the other class of water represents the Coastline.
L4165	Ferry Crossing	The route used to carry or convey people or cargo back and forth over a waterbody in a boat.
P0001	Nonvisible Linear Legal/Statistical Boundary	A legal/statistical boundary line that does not correspond to a shoreline or other visible feature on the ground.
P0002	Perennial Shoreline	The more-or-less permanent boundary between land and water for a water feature that exists year-round.
P0003	Intermittent Shoreline	The boundary between land and water (when water is present) for a water feature that does not exist year-round.
P0004	Other non-visible bounding Edge (e.g., Census water boundary, boundary of an areal feature)	A bounding Edge that does not represent a legal/statistical boundary, and does not correspond to a shoreline or other visible feature on the ground. Many such Edges bound area landmarks, while many others separate water features from each other (e.g., where a bay meets the ocean).
R1011	Railroad Feature (Main, Spur, or Yard)	A line of fixed rails or tracks that carries mainstream railroad traffic. Such a rail line can be a main line or spur line, or part of a rail yard.

MTFCC	Feature Class	Feature Class Description
R1051	Carline, Streetcar Track, Monorail, Other Mass Transit	Mass transit rail lines (including lines for rapid transit, monorails, streetcars, light rail, etc.) that are typically inaccessible to mainstream railroad traffic and whose tracks are not part of a road right-of-way.
R1052	Cog Rail Line, Incline Rail Line, Tram	A special purpose rail line for climbing steep grades that is typically inaccessible to mainstream railroad traffic. Note that aerial tramways and streetcars (which may also be called "trams") are accounted for by other MTFCCs and do not belong in R1052
S1100	Primary Road	Primary roads are generally divided, limited-access highways within the interstate highway system or under state management, and are distinguished by the presence of interchanges. These highways are accessible by ramps and may include some toll highways.
S1200	Secondary Road	Secondary roads are main arteries, usually in the U.S. Highway, State Highway or County Highway system. These roads have one or more lanes of traffic in each direction, may or may not be divided, and usually have at-grade intersections with many other roads and driveways. They often have both a local name and a route number.
S1400	Local Neighborhood Road, Rural Road, City Street	Generally a paved non-arterial street, road, or byway that usually has a single lane of traffic in each direction. Roads in this feature class may be privately or publicly maintained. Scenic park roads would be included in this feature class, as would (depending on the region of the country) some unpaved roads.
S1500	Vehicular Trail (4WD)	An unpaved dirt trail where a four-wheel drive vehicle is required. These vehicular trails are found almost exclusively in very rural areas. Minor, unpaved roads usable by ordinary cars and trucks belong in the S1400 category.
S1630	Ramp	A road that allows controlled access from adjacent roads onto a limited access highway, often in the form of a cloverleaf interchange. These roads are unaddressable and do not carry a name in MAF/TIGER.
S1640	Service Drive usually along a limited access highway	A road, usually paralleling a limited access highway, that provides access to structures along the highway. These roads can be named and may intersect with other roads.
S1710	Walkway/Pedestrian Trail	A path that is used for walking, being either too narrow for or legally restricted from vehicular traffic.
S1720	Stairway	A pedestrian passageway from one level to another by a series of steps.
S1730	Alley	A service road that does not generally have associated addressed structures and is usually unnamed. It is located at the rear of buildings and properties and is used for deliveries.
S1740	Private Road for service vehicles (logging, oil fields, ranches, etc.)	A road within private property that is privately maintained for service, extractive, or other purposes. These roads are often unnamed.
S1750	Internal U.S. Census Bureau use	Internal U.S. Census Bureau use.
S1780	Parking Lot Road	The main travel route for vehicles through a paved parking area.
S1820	Bike Path or Trail	A path that is used for manual or small, motorized bicycles, being either too narrow for or legally restricted from vehicular traffic.
S1830	Bridle Path	A path that is used for horses, being either too narrow for or legally restricted from vehicular traffic.

MTFCC	Feature Class	Feature Class Description
S2000	Road Median	The unpaved area or barrier between the carriageways of a divided road.
Note: The information in this table was last updated in October 2015.		

APPENDIX D: ACCEPTED STREET TYPE ABBREVIATIONS

Street Name Type	Standard Abbreviation
ALLEY	ALY
ANEX	ANX
ARCADE	ARC
AVENUE	AVE
BAYOU	BYU
BEACH	BCH
BEND	BND
BLUFF	BLF
BLUFFS	BLFS
BOTTOM	BTM
BOULEVARD	BLVD
BRANCH	BR
BRIDGE	BRG
BROOK	BRK
BROOKS	BRKS
BURG	BG
BURGS	BGS
BYPASS	BYP
CAMP	CP
CANYON	CYN
CAPE	CPE
CAUSEWAY	CSWY
CENTER	CTR
CENTERS	CTRS
CIRCLE	CIR
CIRCLES	CIRS
CLIFF	CLF
CLIFFS	CLFS
CLUB	CLB
COMMON	CMN
COMMONS	CMNS
CORNER	COR
CORNERS	CORS
COURSE	CRSE
COURT	CT
COURTS	CTS
COVE	CV
COVES	CVS
CREEK	CRK
CRESCENT	CRES
CREST	CRST
CROSSING	XING
CROSSROAD	XRD

Street Name Type	Standard Abbreviation
CROSSROADS	XRDS
CURVE	CURV
DALE	DL
DAM	DM
DIVIDE	DV
DRIVE	DR
DRIVES	DRS
ESTATE	EST
ESTATES	ESTS
EXPRESSWAY	EXPY
EXTENSION	EXT
EXTENSIONS	EXTS
FALL	FALL
FALLS	FLS
FERRY	FRY
FIELD	FLD
FIELDS	FLDS
FLAT	FLT
FLATS	FLTS
FORD	FRD
FORDS	FRDS
FOREST	FRST
FORGE	FRG
FORGES	FRGS
FORK	FRK
FORKS	FRKS
FORT	FT
FREEWAY	FWY
GARDEN	GDN
GARDENS	GDNS
GATEWAY	GTWY
GLEN	GLN
GLENS	GLNS
GREEN	GRN
GREENS	GRNS
GROVE	GRV
GROVES	GRVS
HARBOR	HBR
HARBORS	HBRS
HAVEN	HVN
HEIGHTS	HTS
HIGHWAY	HWY
HILL	HL
HILLS	HLS
HOLLOW	HOLW
INLET	INLT
ISLAND	IS

Street Name Type	Standard Abbreviation
ISLANDS	ISS
ISLE	ISLE
JUNCTION	JCT
JUNCTIONS	JCTS
KEY	KY
KEYS	KYS
KNOLL	KNL
KNOLLS	KNLS
LAKE	LK
LAKES	LKS
LAND	LAND
LANDING	LNDG
LANE	LN
LIGHT	LGT
LIGHTS	LGTS
LOAF	LF
LOCK	LCK
LOCKS	LCKS
LODGE	LDG
LOOP	LOOP
MALL	MALL
MANOR	MNR
MANORS	MNRS
MEADOW	MDW
MEADOWS	MDWS
MEWS	MEWS
MILL	ML
MILLS	MLS
MISSION	MSN
MOTORWAY	MTWY
MOUNT	MT
MOUNTAIN	MTN
MOUNTAINS	MTNS
NECK	NCK
ORCHARD	ORCH
OVAL	OVAL
OVERPASS	OPAS
PARK	PARK
PARKS	PARK
PARKWAY	PKWY
PARKWAYS	PKWY
PASS	PASS
PASSAGE	PSGE
PATH	PATH
PIKE	PIKE
PINE	PNE
PINES	PNES

Street Name Type	Standard Abbreviation
PLACE	PL
PLAIN	PLN
PLAINS	PLNS
PLAZA	PLZ
POINT	PT
POINTS	PTS
PORT	PRT
PORTS	PRTS
PRAIRIE	PR
RADIAL	RADL
RAMP	RAMP
RANCH	RNCH
RAPID	RPD
RAPIDS	RPDS
REST	RST
RIDGE	RDG
RIDGES	RDGS
RIVER	RIV
ROAD	RD
ROADS	RDS
ROUTE	RTE
ROW	ROW
RUE	RUE
RUN	RUN
SHOAL	SHL
SHOALS	SHLS
SHORE	SHR
SHORES	SHRS
SKYWAY	SKWY
SPRING	SPG
SPRINGS	SPGS
SPUR	SPUR
SPURS	SPUR
SQUARE	SQ
SQUARES	SQS
STATION	STA
STRAVENUE	STRA
STREAM	STRM
STREET	ST
STREETS	STS
SUMMIT	SMT
TERRACE	TER
THROUGHWAY	TRWY
TRACE	TRCE
TRACK	TRAK
TRAFFICWAY	TRFY
TRAIL	TRL

Street Name Type	Standard Abbreviation
TRAILER	TRLR
TUNNEL	TUNL
TURNPIKE	TPKE
UNDERPASS	UPAS
UNION	UN
UNIONS	UNS
VALLEY	VLY
VALLEYS	VLYS
VIADUCT	VIA
VIEW	VW
VIEWS	VWS
VILLAGE	VLG
VILLAGES	VLGS
VILLE	VL
VISTA	VIS
WALK	WALK
WALKS	WALK
WALL	WALL
WAY	WAY
WAYS	WAYS
WELL	WL
WELLS	WLS