Block Boundary Suggestion Project Verification GUPS User's Guide

Instructions for Using the

Geographic Update Partnership Software (GUPS)

U.S. Department of Commerce

Economic and Statistics Administration

U.S. CENSUS BUREAU

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Introduction

Public Law (P.L.) 94-171 stipulates that the U.S. Census Bureau work in a nonpartisan manner with the states to identify and provide the small-area population counts necessary for legislative redistricting. The Census Bureau is required to provide these counts within one year of Census Day, to the governor and the officers or public bodies responsible for redistricting in each state. For the 2020 Census, the Census Bureau must deliver the counts by April 1, 2021.

The Census Redistricting & Voting Rights Data Office (CRVRDO) implements the requirements of P.L. 94-171 through five phases of the Redistricting Data Program (RDP):

Phase 1: Block Boundary Suggestion Project (BBSP)

Phase 2: Voting District Project (VTDP)

Phase 3: Delivery of the 2020 P.L. 94-171 Redistricting Data Files

Phase 4: Collection of Post-2020 Redistricting Plans

Phase 5: Review of 2020 Census Redistricting Data Program and Recommendations for Census 2030

This document addresses Phase 1: Block Boundary Suggestion Project (BBSP) of the RDP. Through the BBSP program, liaisons designated by the legislative leadership in each state, the District of Columbia, and Puerto Rico, have the opportunity to influence the delineation of the 2020 Census tabulation blocks. States influence tabulation block delineation by suggesting linear features (e.g. roads, rivers, railroads, invisible boundaries, etc.) to be 'held' as 2020 block boundaries or 'not held' as block boundaries. The Census Bureau refers to this as 'suggesting' block boundaries, or 'setting' or 'flagging' 'Must Holds' or 'Do Not Holds' on the features. State participants can also influence block boundaries by adding and deleting linear features or edges, and updating boundaries for other census geographic entities, including incorporated places, minor civil divisions (MCDs), counties, area landmarks and area hydrography, all of which can be potential block boundaries.

This guide is intended for state participants using the Census Bureau's Geographic Update Partnership Software (GUPS) tool to participate in the program.

Part 1 of the document provides the conceptual overview of the 2020 BBSP, including a suggested workflow, update activities, quality control activities, and what is new or updated for 2020. Part 1 provides you a conceptual understanding of the 2020 BBSP prior to moving on to Part 2, the technical directions. There are also hyperlinks in Part 1 to the technical directions in Part 2 for each of topics.

Part 2 of the document contains the technical directions for using the GUPS to accomplish the updates outlined in Part 1. Part 2 walks you through using the GUPS tools, step-by-step, for each of the activities outlined in the *Suggested BBSP Workflow.*

Part 1. BBSP Overview

Section 1. Planned 2020 Census Tabulation Block Boundaries

Census tabulation block boundaries primarily follow visible features, such as roads and rivers, as well as any edges that bound legal or statistical geographic areas or selected area landmarks stored in the Master Address File (MAF) / Topologically Integrated Geographic Encoding and Referencing (TIGER®) database, hereafter referred to as the MAF/TIGER System. Census blocks nest within all other tabulated census geographic entities and are the basis for all data tabulated for the decennial census.

Table 1 lists the feature and boundary types currently planned as 2020 Census tabulation block boundaries. If state participants flag the features below as 'Do Not Holds' (i.e. request that the feature or boundary type not become a 2020 tabulation block boundary), the Census Bureau may not accept the 'Do Not Hold' suggestion.

Table 1 2020 Census Planned Tabulation Block Boundaries by MAF/TIGER Feature Classification Code

MTFCC	DESCRIPTION		MTFCC	DESCRIPTION
G2120	Hawaiian Home Land		G5200	Congressional District
G2130	Alaska Native Village Statistical Area		G5210	State Legislative District (Upper Chamber)
G2140	Oklahoma Tribal Statistical Area		G5220	State Legislative District (Lower Chamber)
G2150	State-designated Tribal Statistical Area		G5240	Voting District
G2160	Tribal Designated Statistical Area		G5400	Elementary School District
G2170	American Indian Joint Use Area		G5410	Secondary School District
G2200	Alaska Native Regional Corporation		G5420	Unified School District
G2300	Tribal Subdivision		G6330	Urban Growth Area
G2400	Tribal Census Tract		K2110	Military Installation
G2410	Tribal Block Group		K2181	National Park Service Land
G4000	State or State Equivalent		K2182	National Forest or Other Federal Land
G4020	County or State Equivalent		K2540	University or College
G4040	County Subdivision		K1235	Juvenile Institution
G4050	Estate		K1236	Local Jail or Detention Center
G4060	Sub-Minor Civil Division		K1237	Federal Penitentiary, State Prison, or Prison Farm
G4110	Incorporated Place		K1238	Other Correctional Institution
G4120	Consolidated City		S1100	Primary Road

G5020	Census Tract		S1200	Secondary Road
G5035	Block Area Grouping			

Primary and secondary roads (MAF/TIGER Feature Class Codes (MTFCCs) S1100 and S1200) are planned tabulation block boundaries. Other features, such as local roads, alleys, railroads, and perennial water, may or may not qualify as tabulation block boundaries based on the established criteria. These other features can be selected as 'Must Hold' or 'Do Not Hold' block boundaries.

You can determine whether a feature is a planned block boundary by the feature's value in the Census Block Boundary Flag (CBBFLG) field in the edge attribute table of the edge shapefile. A CBBFLG value of "4" indicates the feature is a planned 2020 block boundary, while a CBBFLG value of "9" indicates the feature is ineligible as a 2020 tabulation block boundary. A CBBFLG value of "1" indicates the feature was designated a "Must Hold" by the participant during the initial BBSP (December 2015 - May 2016), and a CBBFLG value of "2" indicates the feature was designated a "Do Not Hold" by the participant.

The technical details for reviewing features and assigning block boundary suggestion flags are contained in Part 2.

Note: *Appendix C: MTFCC Descriptions - Complete List* contains the list of MTFCC values in the partnership shapefiles and their descriptions.

Section 2. Suggested Workflow

Figure 1 depicts the suggested workflow for reviewing and updating Census Bureau data for the BBSP. The technical details for acquiring GUPS and spatial data for the BBSP are contained in Part 2, the technical section, of this document. There is a separate chapter outlining the activities associated with each of the workflow process (square) boxes. The BBSP participant is not required to perform all the update activities shown in the flowchart, with the exception of the quality control activities.

Work is performed at a county level and should be submitted to the Census Bureau on a flow basis, as each county is completed. Submitting work on flow basis permits the CRVRDO and the Census Bureau to review the files early in the process, provide feedback as necessary, and facilitates our file processing.

GUPS contains validation tools to ensure BBSP updates meet the established criteria and submission files meet Census Bureau processing requirements. Although the closed polygon quality control check is shown later in the BBSP workflow, we suggest that the check be utilized often at the beginning of update work to identify errors and to avoid potentially extensive re-work later on.

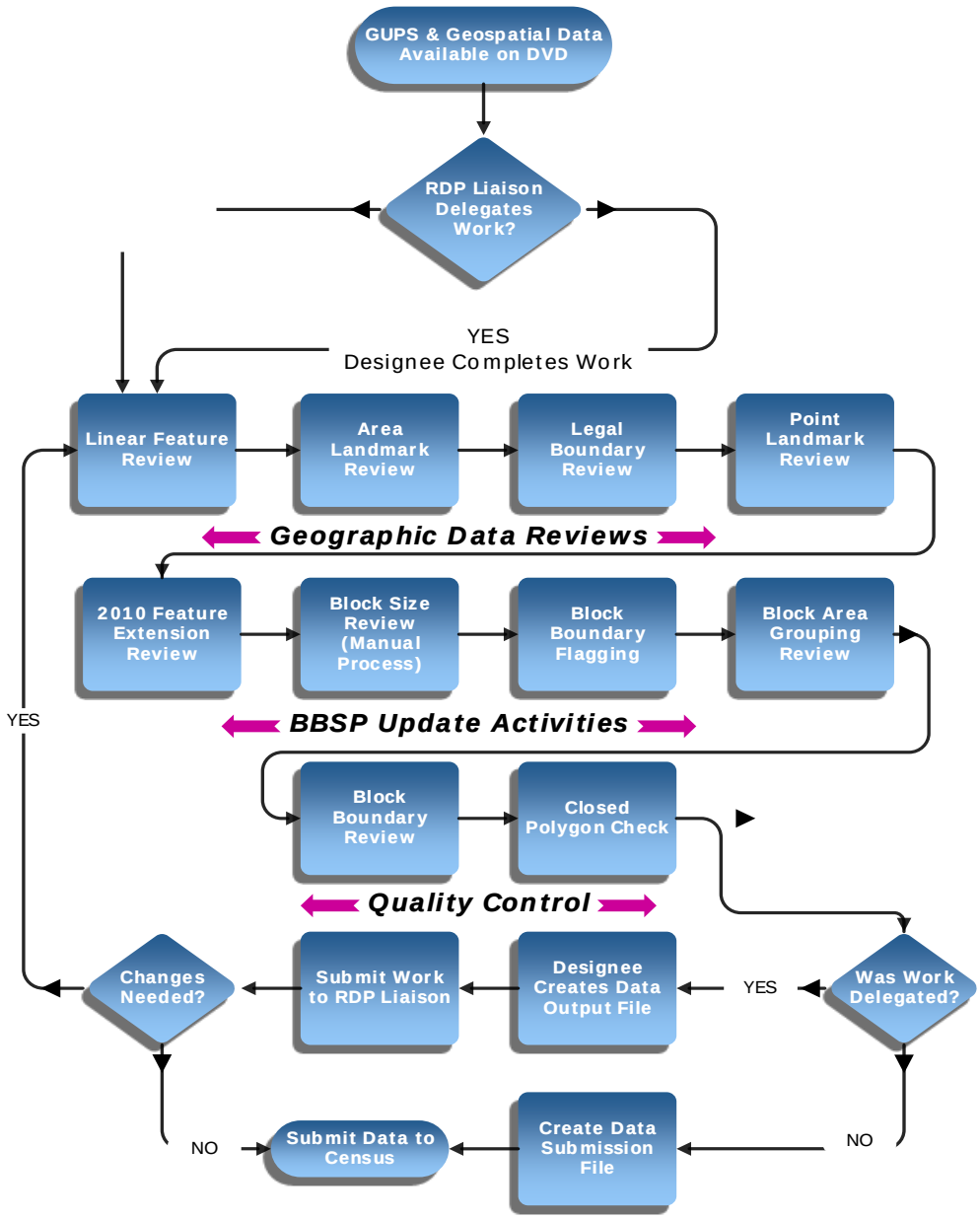


Figure 1 Suggested BBSP Workflow

2.1. Linear Feature Review

You may want to review the Census Bureau's linear features (all edges layer) to determine whether there are features to be added or deleted. Pay particular attention to any areas that have experienced population growth, where there may be new housing or subdivisions not reflected in the Census Bureau's geospatial data.

The Census Bureau will also accept attribute updates (name, classification code, and address ranges) for selected features. Added road features with MTFCC S1100-Primary Road, or S1200-Secondary Road, require a feature name.

The GUPS will allow you to import street centerline, hydrographic, imagery and other user-provided geospatial data for reference and comparison against the Census Bureau data.

Please be aware that the Census Bureau will not process the wholesale spatial realignment of features to enhance spatial accuracy. If a feature is in the incorrect location in the Census Bureau's feature network, delete the feature and add it in the correct location. Take this action only if the feature is over 7.6 meters off or interferes with relationships to other features.

Click here to review the GUPS technical instructions for Linear Feature Review.

Appendix A2: Linear Feature Updates Permitted lists the feature updates the Census Bureau will accept.

2.2. Area Landmark and Area Hydrography Review

The Census Bureau accepts updates to area landmarks and area hydrography as part of the BBSP.

Allowable updates include:

- Boundary corrections (adding and removing area);
- Creating a new area landmark or hydrographic area;
- Removing an area landmark or hydrographic area; and
- Changing or adding a name.

If your state plans to reallocate prisoners during redistricting, you may wish to review the existing area landmarks with MTFCCs K1235, K1236, K1237, and K1238, which represent areas with prison populations.

Click here to review the GUPS technical instructions for Area Landmark Review (including hydrographic areas).

Appendix A1: Area Landmark Updates Permitted lists the feature updates the Census Bureau will accept.

2.3. Legal Boundary Review and Update (New for 2020)

At the recommendation of many states, the Census Bureau is introducing a Boundary and Annexation Survey (BAS) review as part of Phase 1 (BBSP) and Phase 2 (VTD) of the Redistricting Data Program.

During the initial delineation phase and the subsequent verification phase of the BBSP, state redistricting liaisons may provide legal updates (annexations, deannexations, incorporations and disincorporations), including boundary corrections, and supporting documentation. The Census Bureau will assume the responsibility for reconciling the

updates with the appropriate local governments as part of our 2016 and 2017 Boundary and Annexation Surveys.

You may submit legal boundary updates for counties, county subdivisions, incorporated places, and consolidated cities. Although legal documentation (effective date, authority type, and documentation number) is not *required* for boundary updates submitted through the BBSP, we strongly encourage you to submit the documentation to expedite our ability to reconcile and process any legal updates reported. You should submit annexations, deannexations, incorporations and disincorporations without supporting documentation as boundary corrections.

Click here to review the GUPS technical instructions for Legal Boundary Updates.

2.4. Point Landmark Review

Point landmark review is an optional activity. Because many of the point landmarks contained in the Census Bureau's MAF/TIGER system originate from the Geographic Names Information System (GNIS), the official vehicle for names use by the Federal Government, permitted updates are very limited.

Click here to review the GUPS technical instructions for Point Landmark Review.

Appendix A3: Point Landmark Updates Permitted, lists the feature updates the Census Bureau will accept.

2.5. 2010 Linear Feature Extension Review

All block boundary suggestions are contingent upon the lines intersecting to form a closed polygon at the time the Census Bureau creates tabulation blocks. As a result, all block boundary "Must-Hold" suggestions, when combined with the features identified as planned holds, should form a closed polygon.

For Census 2010, BBSP participants could place a "Must-Hold" on an existing feature that did not form a closed a polygon. To do this, the participant also added a feature extension to close the polygon and create a new block. The 2010 feature extensions are included in the 2020 BBSP files for review and update.

The GUPS requires you to review the 2010 feature extensions. Please be aware that if you would like a 2010 feature extension held as 2020 block boundary, you must take an action on the 2010 feature extension.

During the 2010 feature extension review, you may:

- **Hold the 2010 feature extension for 2020.** The feature from which the extension originates is automatically flagged as a Must-Hold block boundary, along with the extension.

- **Delete the 2010 feature extension.** Marking 2010 feature extensions for deletion will help the Census Bureau remove features from the MAF/TIGER system that no longer serve a current data tabulation purpose.
- **Ignore the 2010 feature extension.** Be aware that the Census Bureau may not hold 2010 feature extensions, and the features with which they are associated, as 2020 tabulation block boundaries. If you take no action on a 2010 feature extension, the Census Bureau will determine whether to hold the extension and the feature associated with it as a 2020 block boundary.

Click *here* to review the GUPS technical instructions for 2010 Linear Feature Extension Review.

2.6. Block Size Review (New for 2020)

To facilitate your BBSP work, the Census Bureau created "planned" 2020 tabulation blocks based on the 2020 planned tabulation block boundaries, and estimated the number of housing units within each of these blocks. The Census Bureau assigned a block size indicator to each block, which is based on the range of the estimated number of housing units in the planned block.

Note: Although discrete numbers have been established in order to assign each block a size value, the actual number of housing units in a block is *approximate.*

Block size indicators range from "A" through "I," with "A" blocks having the most housing units and "I" having the least. Planned blocks estimated to contain no housing units are assigned an indicator letter of "Z."

There is no specific GUPS tool for block size review. However, Part 2 of the guide includes instructions for reviewing blocks by size category.

Click *here* to review the technical instructions for Block Size Review.

2.7. Block Boundary Suggestion Flagging (Must Hold and Do Not Hold)

The Census Bureau has identified features planned as 2020 tabulation block boundaries, as reflected in the provided BBSP data files. You can refer to Section 1, *Planned 2020 Tabulation Block Boundaries*, for the complete feature list. The planned tabulation block boundaries may change if the criteria change, or if a feature's attributes are updated through other Census programs.

The Census Bureau has also identified features that are ineligible as 2020 block boundaries. There are features with no block boundary status assigned. You are **not** required to assign a BBSP flag (Must Hold or Do Not Hold) to every feature, including street features, in the file.

2.7.1 Assigning a Must Hold Flag:

You may assign a Must Hold flag to features to suggest them as 2020 tabulation block boundaries. Candidates for assigning a Must Hold block boundary suggestion flag are:

- Newly added features;
- Features not currently planned as block boundaries; and
- Features already planned as 2020 block boundaries but you want held should their status change.

You may wish to assign a Must Hold flag to features that are planned 2020 block boundaries. If the block definition criteria or feature classification codes change between the time the Phase 1 BBSP occurs and when the Census Bureau creates 2020 census tabulation blocks, assigning a Must Hold to a planned block boundary feature may increase the likelihood that the feature will become a 2020 block boundary.

If you wish to hold a feature as a 2020 block boundary, but the feature does not form a closed polygon, you may add a feature extension to close the polygon. Feature extensions must meet the established criteria. (See Create 2020 Feature Extension)

Be aware that assigning a Must Hold flag to a feature that is ineligible to be a block boundary does not ensure that the Census Bureau will honor your request, but we will reevaluate the feature's status based on your suggestion.

All Must Hold block boundary suggestions are contingent upon the lines intersecting to form a closed polygon at the time the Census Bureau creates the 2020 tabulation blocks.

2.7.2 Assigning a Do Not Hold Flag:

You may assign Do Not Hold flags to features that you do not want to become 2020 tabulation block boundaries. Potential candidates for assigning a Do Not Hold block boundary suggestion flag may include:

- Private roads, trails, and unimproved roads;
- Hydrographic features with no area, shown as a single-line feature, such as streams or creeks;
- Any feature creating unnecessary blocks, such as highway ramps, traffic circles shown as open circles or "lollipops" in the Census geospatial files, and similar features.

Be aware that assigning a Do-Not-Hold flag to a feature that is a 2020 planned block boundary does not ensure that the Census Bureau will honor your request.

Click *here* to review the GUPS technical instructions for Block Boundary Suggestion Flagging.

2.8. Block Area Grouping Delineation (Updated for 2020)

During the 2020 Census tabulation block creation, the Census Bureau will automatically group islands to form a single tabulation block if they have no road features and the islands fall within a 5-kilometer radius.

You may also group specific islands to create a single 2020 Census tabulation block, called a Block Area Grouping (BAG). The criteria for creating a Block Area Grouping are:

- BAG must consist of two or more islands.
- BAG perimeter must be entirely over water.
- BAGs cannot overlap.
- BAGs cannot cross the boundary of other tabulation geographies, such as county or incorporated place boundaries.

Block Area Grouping delineation is optional, and probably most appropriate for states with hydrographic areas that contain a number of islands.

Click *here* to review the GUPS technical instructions for Block Area Grouping Delineation.

2.9. Block Boundary Review

You must review your block boundary suggestions at least once before submitting an updated county to the Census Bureau (if you are the designated State Redistricting Liaison) or to the State Liaison (if you have been delegated work by the state). The GUPS Block Boundary Review tool allows you to systematically traverse to features on the map by 2020 BBSP category (Must Hold and Do Not Hold) for review and further update if desired.

Click *here* to review the GUPS technical instructions for the Block Boundary Review.

2.10. Review Change Polygons and Geography Review

GUPS provides two sets of tools for reviewing your updated data layers.

The first tools are available under the Review Change Polygons button: *Small Area Check* and *Find Holes*. These checks ensure that you do not submit area changes that are too small to process or that there are no “holes” in areas due to potential delineation errors. The tools also provide the ability to make changes to legal boundary updates as you review your original updates.

The second set of tools for reviewing all shapefile layers is available under the Geography Review button. You can filter layers based on field values in the attribute table. However, be aware that you cannot make changes using the Geography Review tool.

Click *here* to review the GUPS technical instructions for the Review Change Polygons and Geography Review.

2.11. Closed Polygon Check

The GUPS contains a closed polygon check tool that will identify any non-closed polygons. A non-closed polygon exists where you have placed one or more Must Hold" block boundary flags on features but the features, when combined with the planned block boundaries, do not "close" to form a tabulation census block. The Closed Polygon Check tool provides the opportunity for you to refine your suggested block boundaries if non-closed polygons are present.

Click *here* to review the GUPS technical instructions for the Closed Polygon Check.

2.12. Work Delegated?

The Census Bureau works with the State Redistricting Data Program nonpartisan Liaison, designated by the governor and legislative leadership of the state. To maintain this nonpartisan relationship, the Census Bureau only accepts completed work from the designated State Restricting Data Program Liaison.

2.12.1 YES, State's designee performed the work (not the State RDP Liaison)

Any work performed on behalf of the State Redistricting Data Program Liaison, such as by a county or a contractor, must be submitted to the State Liaison(s) for review and approval. The State RDP Liaison will submit the work to the Census Bureau if they approve the work. If the State RDP Liaison determines that BBSP work completed by a designee requires changes or additional work, it is the State Liaison's responsibility to decide whether to make the changes or return the project to their designee for further updates.

2.12.2 NO, State RDP Liaison performed the work

The State RDP Liaison submits completed, county-level files on flow basis to the Census Bureau through the Secure Web Incoming Module (SWIM). Do not hold files to submit all at once. Submit files as you complete them, especially at the beginning of the update period, so that the Census Bureau can provide feedback if there are errors, omissions, or other concerns.

Click *here* to review the instructions for creating export files for submission to the RDP Liaison or to the Census Bureau.

Section 3. File Submission through Secure Web Incoming Module

The Secure Web Incoming Module (SWIM) is a tool for U.S. Census Bureau partners to send their geospatial data to a Census Bureau server. For security reasons, we cannot accept files sent via email or through our former ftp site.

The Census Bureau provides each State RDP Liaison a SWIM token to establish a personal SWIM account. Once registered, you no longer need the token to log into the system. You use your SWIM account to submit updates for all phases of the 2020 RDP. If you are a participant for other Census Bureau geographic programs, you may use your SWIM account to submit files for these other geographic programs, too.

Note: For the RDP, including the Phase 1 BBSP, the Census Bureau only accepts files submitted by the State RDP Liaison. If a county, agency, or contractor performs work on behalf of the state, the files must be sent to the state for review, approval, and submission.

Click *here* to review the technical instructions for submitting files through the Secure Web Incoming Module (SWIM).

Part 2. Participating in the Block Boundary Suggestion Project Using GUPS

Figure 1 in Part 1 depicts the Suggested BBSP Workflow for reviewing and updating Census Bureau data using GUPS. Part 2 (this part) of the User's Guide outlines in separate headings the step-by step instructions for performing the workflow activities.

A State Liaison participating in the BBSP may decide to perform the work in-house or delegate the work to staff members, their state's counties, or a contractor. In this document, these persons are collectively referred to as designees. State designees must return the completed work to the State Liaison for review, approval, and submission. Only the designated State Redistricting Liaison may submit completed work to the Census Bureau.

Section 4, Getting Started, explains how to install the GUPS and access the spatial data.

Section 5, GUPS Basics: Map Management, View and Tools, provides a general overview of the Geographic Update Partnership Software. Information on using the BBSP-specific updating activities, after the GUPS has been installed, starts in Section 6.

A BBSP participant is not required to perform all update activities shown in the workflow diagram. The area landmark, legal boundary, block area grouping, and point landmark reviews are all optional. We suggest, however, that you make the decision whether to perform each of these review/update activities based on your State redistricting requirements and available resources. States with laws that require the re-allocation of prison populations for the purposes of redistricting may wish to review the area landmarks with the MTFCCs that represent prisons (K1235, K1236, K1237, and K1238). Since legal boundaries are always tabulation block boundaries, all states may wish to review the legal boundaries, as reflected in the Census Bureau data, to ensure they are accurate as of the review date. States with numerous islands may wish to create block area groupings (BAGs) for 2020.

GUPS contains several required quality control checks to ensure that BBSP updates meet the established criteria and submission files meet Census Bureau processing requirements. Although the closed polygon check tool is included as a later step in the BBSP workflow, you can initiate this tool at any time during update work. We suggest that you utilize the closed polygon check tool early in the review and update process, and then periodically afterwards, to lessen the possibility of extensive rework later.

Section 4. Getting Started

4.1 System and Hardware Requirements

GUPS is based on QGIS (formerly known as Quantum GIS), a free and open-source desktop geographic information system application. You can learn more about QGIS at http://www.qgis.org/en/site/. Table 2 below lists the hardware and software requirements to install and run GUPS, and submit files through the SWIM website.

Table 2 GUPS Hardware and Software Requirements

Hardware	Operating System	Browser
Required Disk Space: ***For GUPS application:*** ~1.3 GB of disk space. Shapefiles: Vary by State/County ***RAM:*** 4 GB recommended 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 Mac OS X:*** Mac OS X users must secure a license for Microsoft Windows and use a Windows bridge. The suggested bridge software is Boot Camp, which comes pre-installed on all Mac computers. See instructions for using Boot Camp at: *https://www.apple.com/support/bootcamp/getstarted/* **Note:** Since Boot Camp requires you to restart your computer to set up the bridge, be sure to print the instructions provided at the URL above before you begin.	***Minimum Browser Versions for SWIM*:** Internet Explorer 8 Google Chrome 3 Mozilla Firefox 3.5 Apple Safari 4.1.3

Depending on the Windows OS version, the GUPS dialog boxes may have a different appearance than the screenshots contained in the user guide, although the content is the same.

4.2 Installing GUPS and Census Bureau Spatial Data

The Census Bureau provides two DVDs for utilizing the GUPS:

- One DVD contains the GUPS software installer and a readme file with installation instructions.
- The second DVD contains the respondent guides, a Quick Start Guide, partnership shapefiles, and block size shapefiles for the counties in your state.

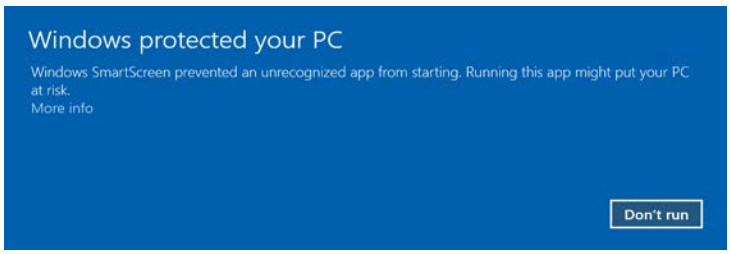
Please be aware that the GUPS software, shapefiles, and guides are also available for download from the 2020 Programs page at the CRVRDO's website at http://www.census.gov/rdo

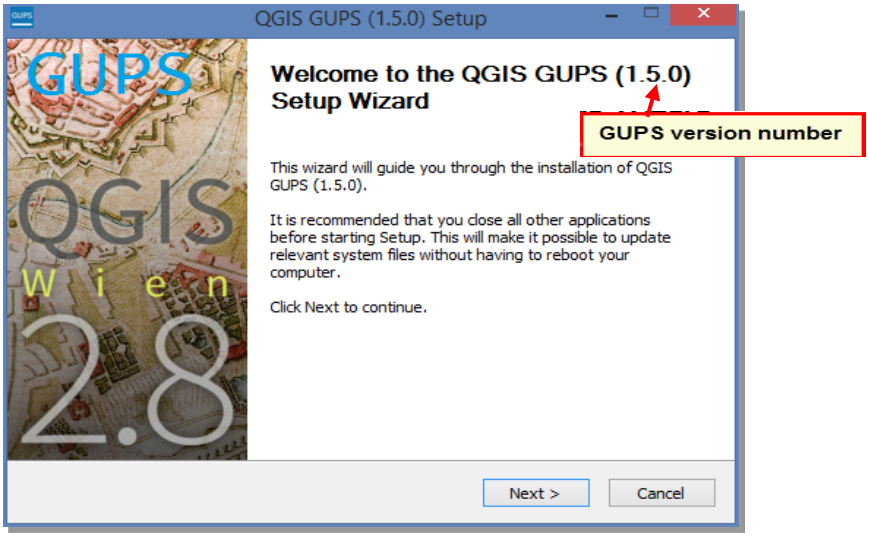
Note: The partnership shapefiles for BBSP are different from standard TIGER/Line shapefiles. GUPS will only run using the partnership shapefiles.

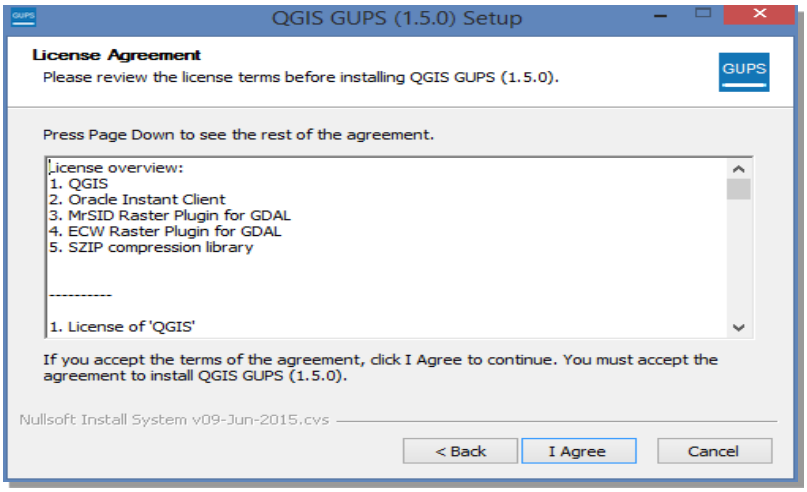
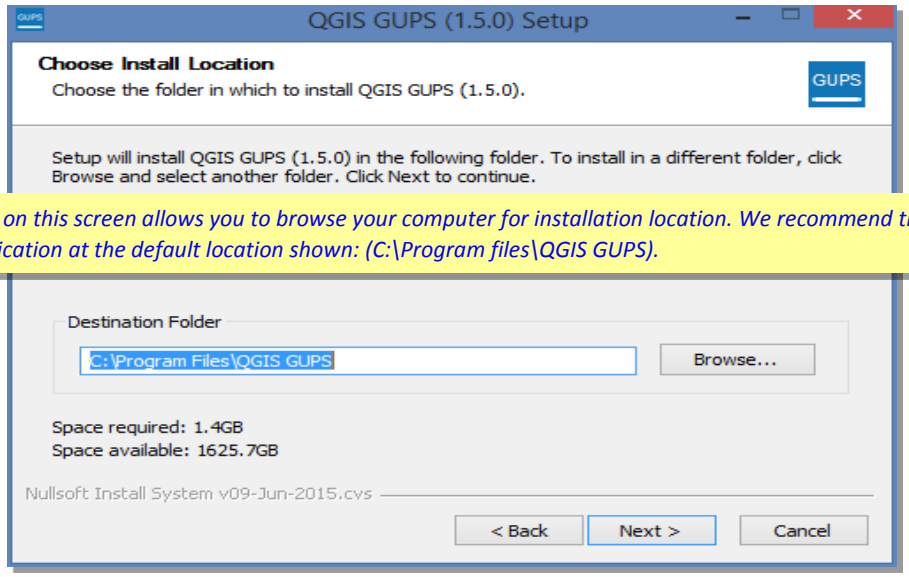
4.2.1 Installing the GUPS Application

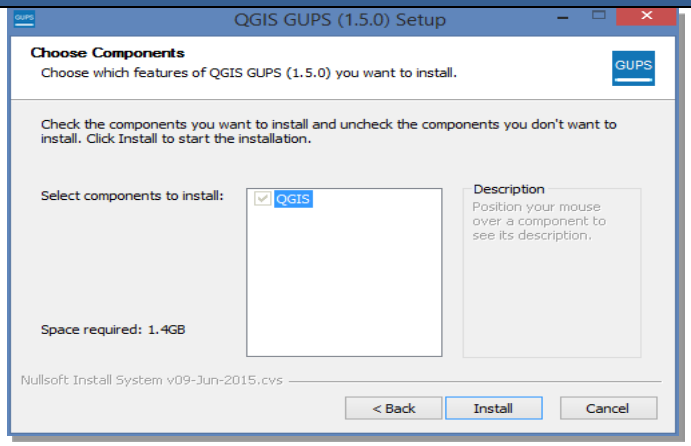
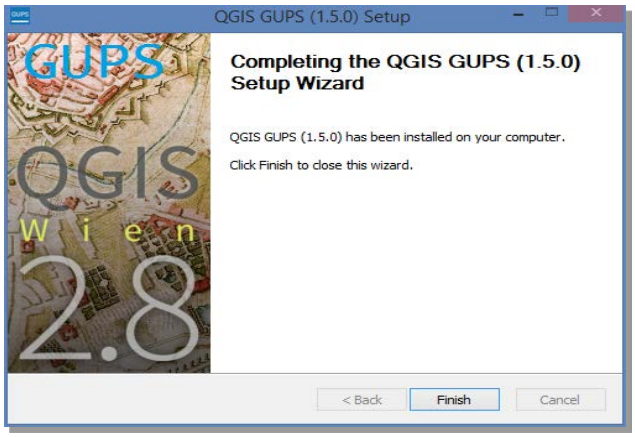
To install the GUPS application you must have Administrator privileges for your computer. If you already have GUPS loaded, please make sure you are using the most current version. Compare the version on your computer with the one provided on the Census Bureau's installation DVD to acquire the latest version. To complete the installation, follow the steps in **Table 3**.

Table 3 Install the GUPS Application

Step	Action and *Result*
Step 1	Place the installation DVD into your computer's DVD drive. *For some users, a **Windows protected your PC** pop-up box may appear.*  To continue, click 'More info', then select 'Run anyway?'.
Step 2	Other users may receive a user account control pop-up that asks, "Do you want to run this file?", "Do you want to allow the following program from an unknown publisher to make changes to this computer?", or a similar query. See an example below.

Step	Action and *Result*
	 If you receive such a pop-up, click 'Run', 'Yes', 'Allow', or an option that allows you to proceed. *The software should begin to run automatically.*
Step 3	If the software does not run automatically, open Windows Explorer, navigate to your DVD drive, and double-click on the file named ***Setup-2.0.0-x.bat***. **Note**: The name of this file may vary slightly, but it will be the only setup **.bat** file available. If the software still does not run properly, contact your System Administrator for assistance.
Step 4	*When the installer opens, the* ***Welcome to the QGIS GUPS Setup Wizard*** *screen appears.* **Note**: The number 1.5.0 in the screen title below is the version number. The version you see will be 2.0.0 or greater. 

Step	Action and *Result*
	Before proceeding, close all other programs or applications you have open. Once other programs and applications are closed, click the **Next** button.
Step 5	*The **License Agreement** screen appears.*  Read the **License Agreement** and click the **I Agree** button to continue.
Step 6	*The **Choose Install Location** screen opens.*  *The **Browse** button on this screen allows you to browse your computer for installation location. We recommend that you install the application at the default location shown: (C:\Program files\QGIS GUPS).* To begin the installation, click **Next** to continue.
Step 7	*The **Choose Components** screen opens.*

Step	Action and *Result*
	 '☑QGIS' in the **Select components to install** field is grayed out since it is the default. You do not need to select it, simply click **Install** Install to continue.
	If you want to review a previous screen or reread the license agreement, click the **Back** button (each screen contains this button). *This returns you to the previous screen*. < Back
Step 8	The software should take between 5 and 10 minutes to install. *When it is finished, the **Completing the QGIS GUPS Setup Wizard** screen opens.*  Click the Finish Finish button. If the 'Reboot now' appears, select it and then click Finish.

Step	Action and *Result*
Step 9	*A blue GUPS icon appears on your desktop*.

4.2.2 Accessing the Census Bureau Spatial Data

There are two different types of shapefiles available to support the BBSP update activities: partnership shapefiles and block size shapefiles. The easiest ways to add these shapefiles to your project are the “Census Web” and “CD/DVD” options in the drop-down menu selection in Map Management, which automatically opens each time you start GUPS. When you select “Census Web,” GUPS will download the shapefiles from the Census Bureau’s website into your home directory. When you select the “CD/DVD” option, GUPS will download the files to your home directory from the inserted DVD. In both cases, the shapefiles are copied into the home directory of your computer in a folder that was created during the GUPS installation process. GUPS unzips the files and displays them in the application, managing the files for you. *You do not need to take any further action.*

GUPS stores the files in your home directory at C:\Users\<username> (with the <username> displaying your specific username). For the purposes of this guide, we assume the home directory is C:\Users\<username>. If you cannot locate your home directory, contact your system administrator for assistance.

There is a third option for loading the shapefiles into your project, also available from the drop down menu, called “My Computer.” Using this option, GUPS will automatically load the shapefiles from a location on your computer into your project, but you must first manually download the shapefiles to that location from the Census Bureau’s FTP site. This option can be useful if you need to download the files for an entire state or multiple counties within your states, as the Census Web and CD/DVD methods will only download and load one county at a time. Sections 4.2.3 and 4.2.4 describe how to download the files manually.

Click *here* for the technical instructions on how to load the partnership shapefiles using Map Management in the GUPS.

Click *here* for the technical instructions on manually loading the block size shapefiles using the Add Vector Layer button on the Add Data toolbar.

Caution: Do not change any shapefile name or folder location. The shapefiles and folders must have the exact, given names and locations for the GUPS application to recognize them.

4.2.3 Obtaining Partnership Shapefiles and Block Size Shapefiles for an Entire State from the Census Bureau Web Site

Note: BBSP participants are **not required** to go to the Census Bureau's Web site to download the files because all data required to participate in the BBSP are available on the Census-provided DVDs or through an automatic download process. We are providing the information in this section as a courtesy, in the event a state or their designee may need to obtain the files from the sites directly.

State-level users may download partnership shapefiles and the block size shapefiles for all the counties in their state. Both sets of shapefiles are available from the Census Bureau's ftp2 site. The block size shapefiles are located in a different directory than the partnership shapefiles, so they require a separate download.

4.2.4 Download the Partnership Shapefiles from FTP2 Site:

Follow the steps in **Table 4** below to download the files from the ftp2 site to your hard drive.

Table 4 Download Shapefiles from ftp2 Site to a Hard Drive (State Users)

Step	Action and *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.*
Step 2	Open the Census Bureau FTP site in windows explorer (sometimes called file explorer). If using windows explorer, you do not need a username or password to access the ftp2 site.

FTP root at ftp2.census.gov

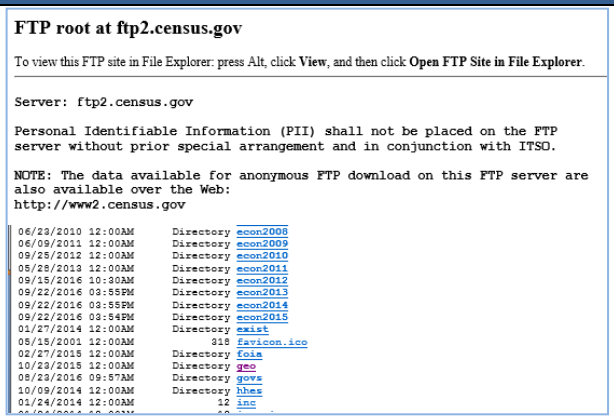
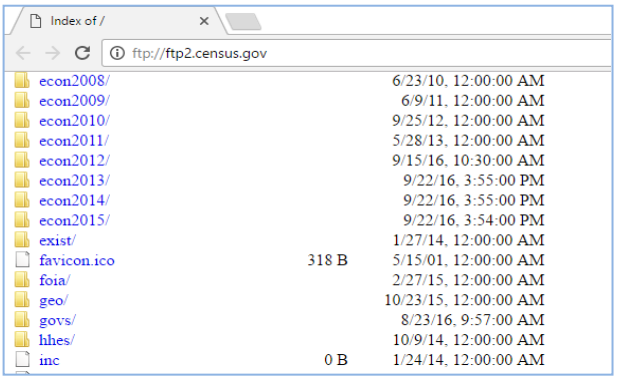
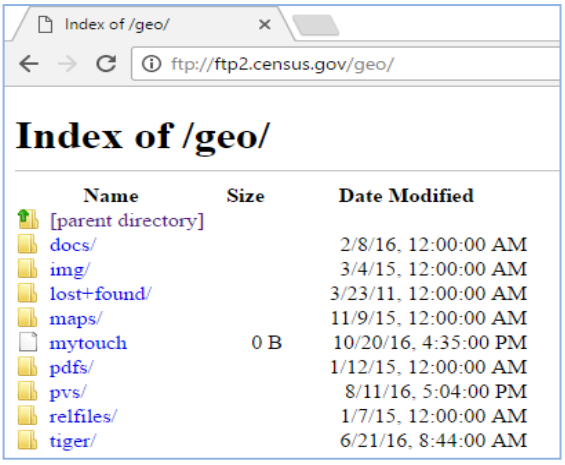
To view this FTP site in File Explorer: press Alt, click **View**, and then click **Open FTP Site in File Explorer**.

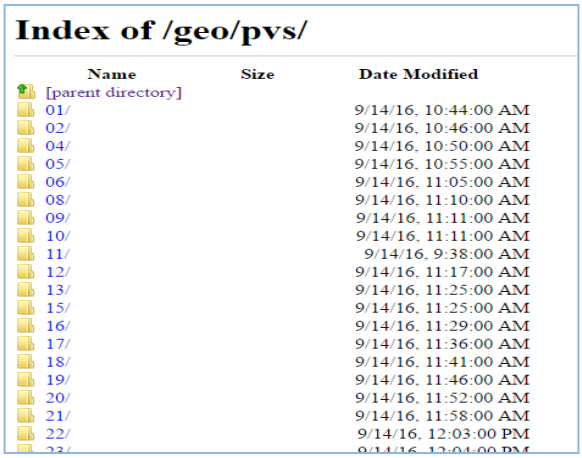
Server: ftp2.census.gov

Personal Identifiable Information (PII) shall not be placed on the FTP server without prior special arrangement and in conjunction with ITSO.

NOTE: The data available for anonymous FTP download on this FTP server are also available over the Web:
http://www2.census.gov

01/24/2014	12:00AM	17	AOA
01/24/2014	12:00AM	28	CTPP_2006_2010
06/06/2015	12:00AM	Directory	EEO_2006_2010
06/08/2015	12:00AM	Directory	EEO_Disability_2008-2010
04/27/2011	12:00AM	Directory	Econ2001_And_Earlier
01/24/2014	12:00AM	17	HUD
09/15/2016	01:16PM	Directory	about
05/24/2015	12:00AM	Directory	acs
09/23/2008	12:00AM	Directory	acs2002
10/06/2004	12:00AM	Directory	acs2003
02/02/2006	12:00AM	Directory	acs2004
08/25/2015	12:00AM	Directory	acs2005
01/24/2014	12:00AM	11	acs2005_2007_3yr
01/24/2014	12:00AM	11	acs2005_2009_5yr
08/25/2015	12:00AM	Directory	acs2006
01/24/2014	12:00AM	11	acs2006_2008_3yr
08/25/2015	12:00AM	Directory	acs2007_1yr
01/24/2014	12:00AM	12	acs2007_2009_3yr
08/25/2015	12:00AM	Directory	acs2007_3yr
08/25/2015	12:00AM	Directory	acs2008_1yr
08/25/2015	12:00AM	Directory	acs2008_3yr
08/25/2015	12:00AM	Directory	acs2009_1yr
08/25/2015	12:00AM	Directory	acs2009_3yr
08/25/2015	12:00AM	Directory	acs2009_5yr
05/23/2015	12:00AM	Directory	acs2010_1yr
05/23/2015	12:00AM	Directory	acs2010_3yr
05/23/2015	12:00AM	Directory	acs2010_5yr
04/04/2012	12:00AM	Directory	acs2010_SPT_AIAN
05/24/2015	12:00AM	Directory	acs2011_1yr
05/24/2015	12:00AM	Directory	acs2011_3yr
05/24/2015	12:00AM	Directory	acs2011_5yr

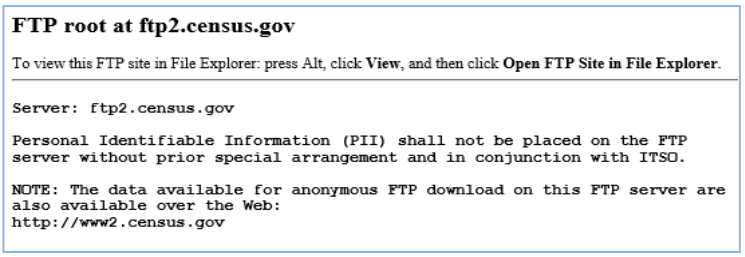
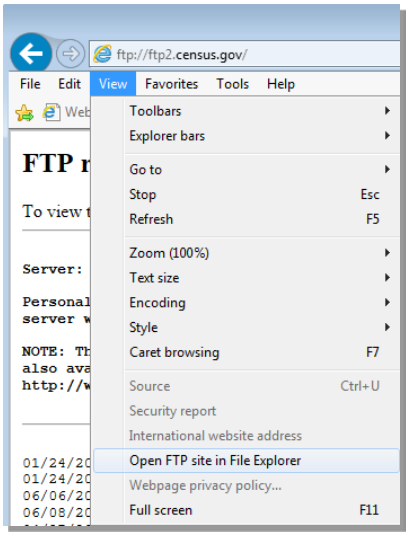
Step	Action and *Result*
	 On your browser menu, select **View**, then click **Open FTP Site in File Explorer**. 
	If you have an FTP client software such as WinSCP or FileZilla (or other) you may connect to ftp2.census.gov without a password. Enter 'anonymous' as your user name and enter your email address in place of a password.
Step 3	After the Census Bureau ftp site has been opened in file explorer, click the **geo** folder. 

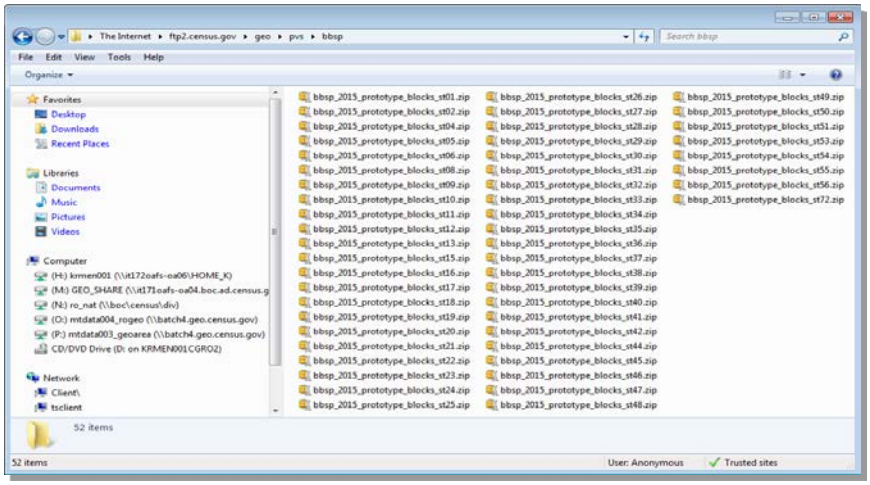
Step	Action and *Result*
Step 4	Within the **geo** folder, click the **pvs** folder.  Index of /geo/pvs/ Name Size Date Modified [parent directory] 01/ 9/14/16, 10:44:00 AM 02/ 9/14/16, 10:46:00 AM 04/ 9/14/16, 10:50:00 AM 05/ 9/14/16, 10:55:00 AM 06/ 9/14/16, 11:05:00 AM 08/ 9/14/16, 11:10:00 AM 09/ 9/14/16, 11:11:00 AM 10/ 9/14/16, 11:11:00 AM 11/ 9/14/16, 9:38:00 AM 12/ 9/14/16, 11:17:00 AM 13/ 9/14/16, 11:25:00 AM 15/ 9/14/16, 11:25:00 AM 16/ 9/14/16, 11:29:00 AM 17/ 9/14/16, 11:36:00 AM 18/ 9/14/16, 11:41:00 AM 19/ 9/14/16, 11:46:00 AM 20/ 9/14/16, 11:52:00 AM 21/ 9/14/16, 11:58:00 AM 22/ 9/14/16, 12:03:00 PM
Step 5	Select the state folder that contains the county(s) for which you are downloading data. The state folders are represented using two-digital state FIPS codes.
Step 6	There are several sets of shapefiles within each state directory. For the BBSP, you will want to download the most recent partnership shapefiles. These shapefiles are contained within a ZIP file with the prefix **partnership_shapefiles_16v2_ssccc.zip.** Where <ssccc> represents the FIPS state and county code (e.g., 55025). **Make sure to choose the filename with "16v2", because the "16v1" files are sometimes also available in the folders.**
Step 7	Right click on your county .zip file to download the data to a folder on your computer. Select the county or counties that you intend to download and copy to your local or network drive. You can download all counties at once if you prefer. You may copy the files to any location you wish. Once the files are copied to your home directory, the GUPS application manages them. You do not need to do anything else. When you select your state and county in Map Management, GUPS will ask you to specify the location (CD/DVD, My Computer, or Census Web) of your files. When you select "My Computer", GUPS locates the files where you saved them, unzips and loads them into the application, and moves them to a directory folder established during the GUPS installation.

4.2.5 Download the Blocksize Shapefiles from FTP2:

Follow the steps in Table 5 below to download the files from the ftp2 site to your hard drive.

Table 5 Download Blocksize Shapefiles from ftp2 Site to a Hard Drive (State Users)

Step	Action and 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.* 
	If you are using an FTP client software such as WinSCP or FileZilla (or other), you can connect to *ftp2.census.gov* without a password. Enter "anonymous" as your username and enter your email address in place of a password.
Step 2	To download multiple datasets, open the FTP site in Windows Explorer (sometimes called File Explorer). On the browser menu, Select **View**, then click **Open FTP Site in File Explorer.** *You do not need a username or password to access the ftp2 site using Windows Explorer.* 
Step 3	Double-click the geo folder, and then within the geo folder, double click the pvs folder, then the bbsp folder. The file directory is: *ftp://ftp2.census.gov/geo/pvs/bbsp/*. Within the bbsp folder, there is a .zip file with the 2020 prototype blocks with the naming convention *bbsp_2016_prototype_blocks_<ss>.zip*, where <ss> represents the FIPS state code (e.g., 55). Make sure you are using the files with **"2016"** in

Step	Action and Result
	the name, as older versions with “2015” in the file name are also in that folder.
Step 4	 Right-click on your state .zip file to copy the data to a folder on your computer. The states are identified by 2-digit FIPS codes (e.g. 55). For this example, state 55 is chosen.
Step 5	Unzip the county files into the GUPS-created directory *C:\users\>username>\GUPSGIS\gupsdata\BBSP\shape\<ssccc>*,where ssccc is the state and county code. Or, if you prefer, you can unzip all the county files to a single directory on your computer. Just remember where you place these files because GUPS does not automatically load the block size shapefiles. You will need to manually add them using the Add Data Toolbar.

Section 5. GUPS Basics: Map Management, View and Tools

5.1 Starting GUPS (Map Management)

After successfully installing the Geographic Update Partnership Software, you are ready to start your Block Boundary Suggestion Project.

If you have not yet started a GUPS project:

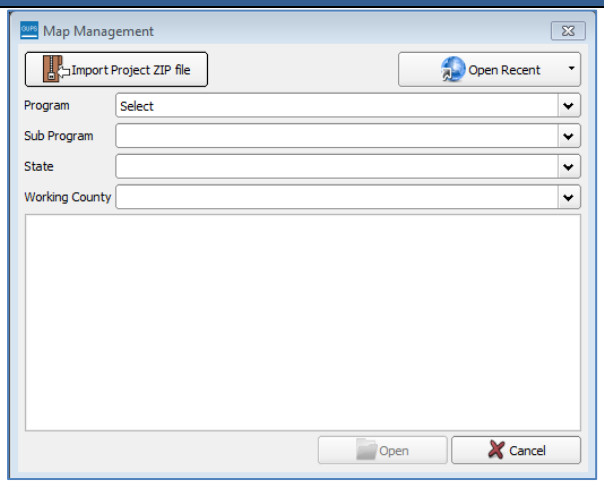
To open the GUPS application and begin, follow the steps in **Table 6** below. Before beginning, note that:

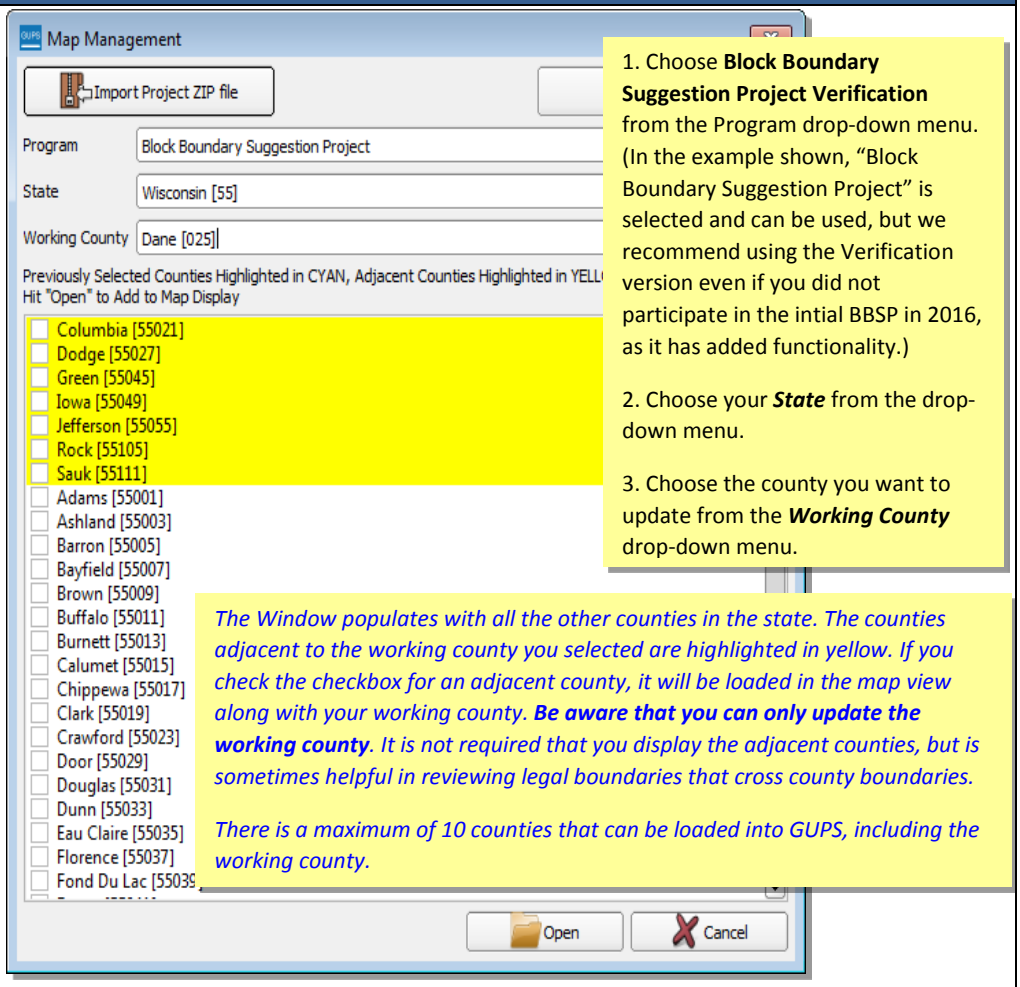
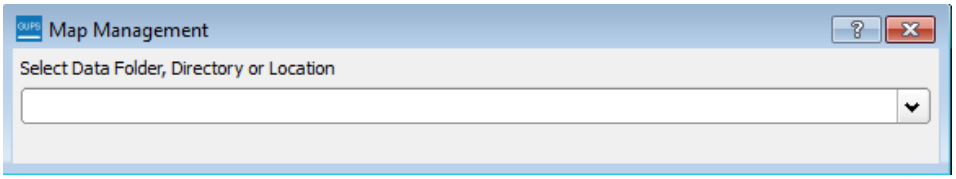
1. If you wish to practice using GUPS without committing the changes you make, simply exit the system without saving. Before the system closes, it will give you the option to discard the changes.
2. If you feel comfortable with the system, but you do not want to make all your changes in one session, simply save your changes, then close the system. When you open GUPS later, it will allow you to reopen the project and continue working.

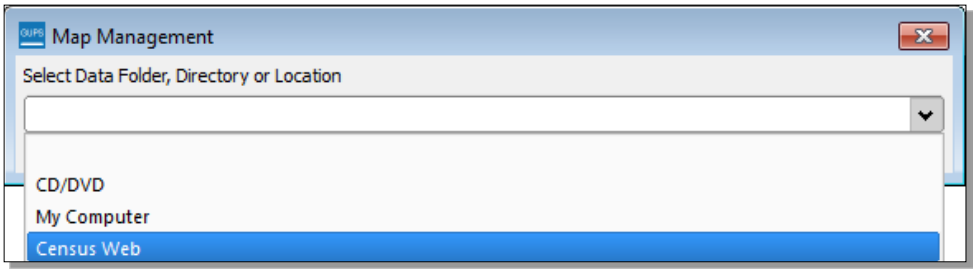
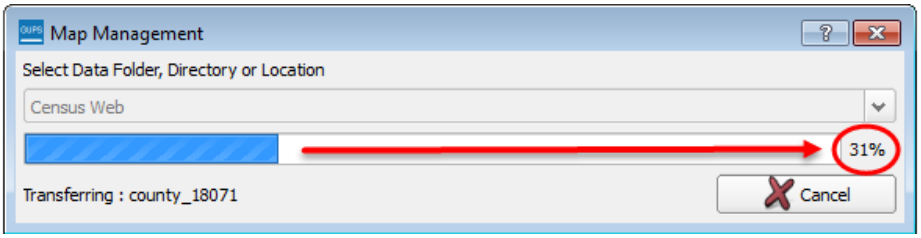
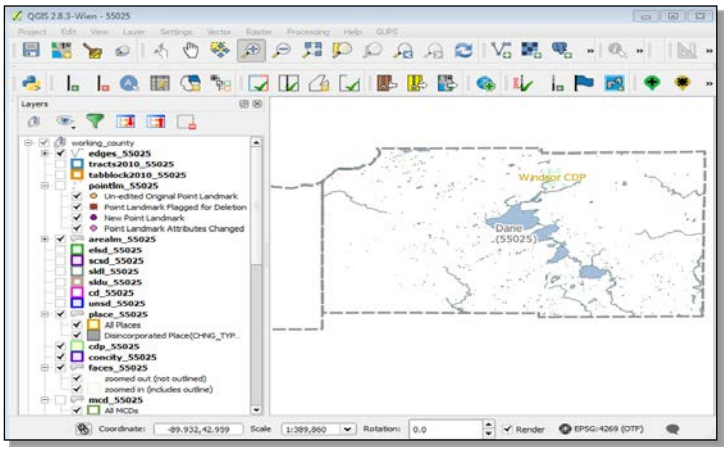
Table 6 Open the GUPS and Start a New Project

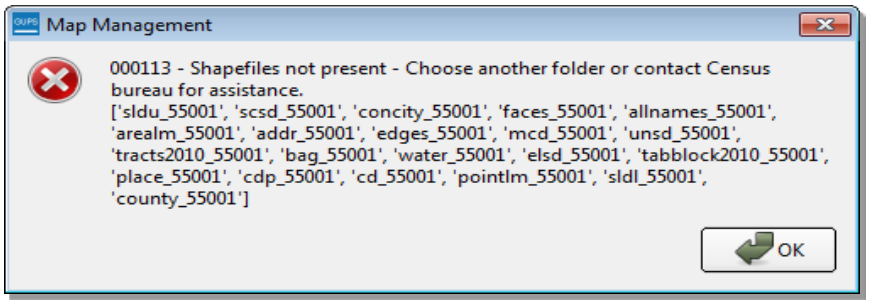
Step	Action and *Result*
Step 1	Double-click the GUPS icon on your desktop. *The QGIS splash screen appears*. (Note: QGIS is the open-source platform on which GUPS is built.)

Step	Action and *Result*
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. **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 view QGIS system tips, click the **Next** button to read the first tip. Thereafter use the **Previous** and **Next** buttons to navigate within tips. If you do not wish to see tips 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, close the **QGIS Tips! Box** by clicking the **OK** button. The box closes and the **Map Management** dialog box opens, as shown below.

Step	Action and *Result*
	
If you have not yet started a GUPS project:	
Step 5	In the **Map Management** dialog box, use the drop-down menu next to the **Program** field to select your program, '**Block Boundary Suggestion Project Verification**'. '*Block Boundary Suggestion Project Verification'* populates the field. In the **State** field, use the drop-down menu to select your state. The scroll bar to the right allows you to move up and down the list of states. Choose your State. Choose the **County** to update.

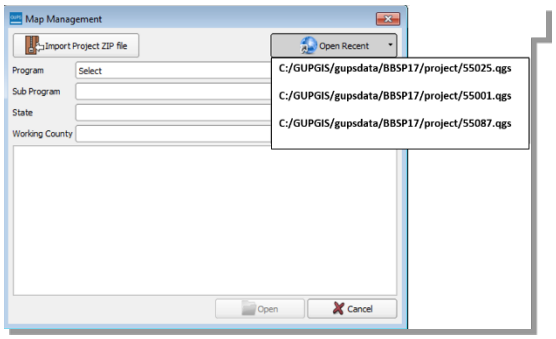
Step	Action and *Result*
	 Click the Open button.
Step 6	After you select the working county, GUPS asks you to specify the location from which you want to pull the county's (or county equivalent's) shapefile. The **Select Data Folder, Directory or Location** box opens. 
	GUPS will only ask you to specify a location ***the first time*** you open a county's shapefile. When you come back to work on the same county again, the shapefile will automatically load, even if you made no changes in your first session.
Step 7	In the **Select Data Folder, Directory or Location** box drop-down menu, select the location from which you wish to pull the file. This example assumes

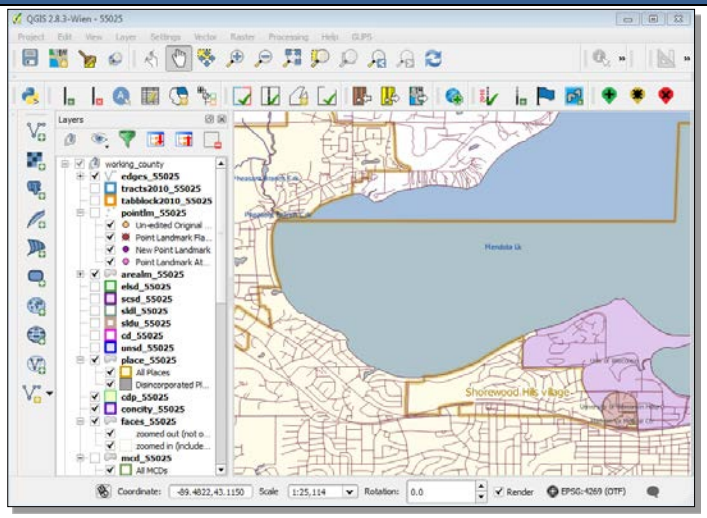
Step	Action and *Result*
	the user is pulling the data from the website, so click on 'Census Web' in the drop-down menu. 
Step 8	Once you click on '**Census Web**', the shapefile for the county begins to load and progress is displayed by a blue striped bar (color may vary), with the percentage of the upload completed displayed to the right. 
Step 9	As GUPS loads the data, it unzips and copies the files to a folder that was created on your computer's home directory during the installation process. It then pulls the file into the GUPS application.
Step 10	GUPS automatically loads the default layers for the BBSP and opens the map. This GUPS project is Dane County Wisconsin, the working county selected. 
Step 11	If the shapefiles are not in the location you selected from the **Select Data Folder, Directory, or Location drop down menu**, or the files are corrupted

Step	Action and *Result*
	and cannot be loaded, you will receive an error message. This example shows a load failure for 55001.  Click the **OK** button, which returns you to the **Map Management dialog box**. Try another method for loading the files, or contact the CRVRDO at 301-763-4039, or email rdo@census.gov.

If you have already started a project, on which you want to continue working **follow the steps in** Table 7 below.

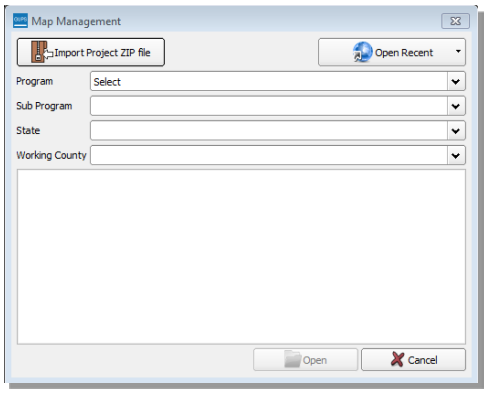
Table 7 Continuing a Project in GUPS

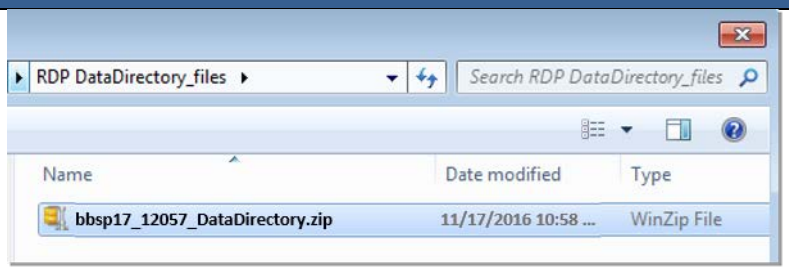
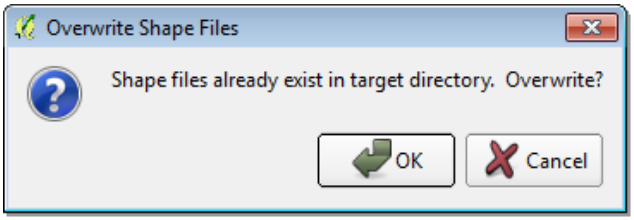
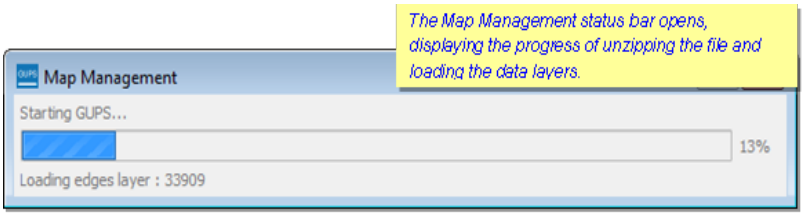
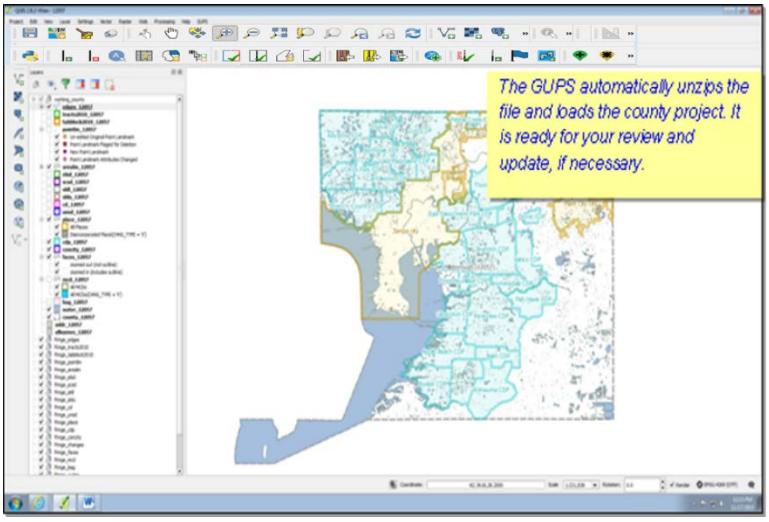
Step	Action and *Result*
Step 1	In the Map Management window, click on the **Open Recent** drop-down menu.  Choose the project from the list of projects in the directory. This example shows 3 projects. The drop-down list includes all previous projects, with the most recent one at the top of the list. GUPS automatically creates the project name as the State/County code each time you save a project file.
Step 2	GUPS automatically loads your previous project. The map view defaults to the view when you last saved your project, and displays any layer symbology changes you made in the project.

Step	Action and *Result*
	

If you are the State RDP Liaison and need to import a county from a designee for review **follow the steps in** Table 8.

Table 8 Importing a County for Review in GUPS

Step	Action and *Result*
Step 1	In the Map Management window, click on the **Import Project ZIP file** button. 
Step 2	Navigate to the folder directory where you have saved the DataDirectory.zip file from your designee. Click on the **bbspv17_<ssccc>_DataDirectory.zip** file name and click the ***Open*** button at the bottom of the Windows Explorer window.

Step	Action and *Result*
	
Step 3	When you import a file from a designee, you may receive a confirmation dialog box to overwrite existing shapefiles. This message appears if you have previously loaded the shapefiles for the same county.  Click the ***OK*** button to import your designee's file for review.
Step 4	
Step 5	

Step	Action and *Result*
	Do not save the .zip files you receive from your designees in the \shape folder in the directory *C:\Users\<username>\GUPSGIS\gupsdata\BBSP\shape*. You must save .zip files in a different directory on your computer for GUPS to recognize and import the .zip files.

If you need to start a project (county) completely anew (you want to discard all changes previously made to a county and start over), please contact the CRVRDO at 301-763-4039 or email rdo@census.gov.

5.2 Page Layout

Figure 2 below illustrates the GUPS page layout. The page components are labeled, including the Menu & Toolbars, the Map View, the Table of Contents, and the Add Data Toolbar.

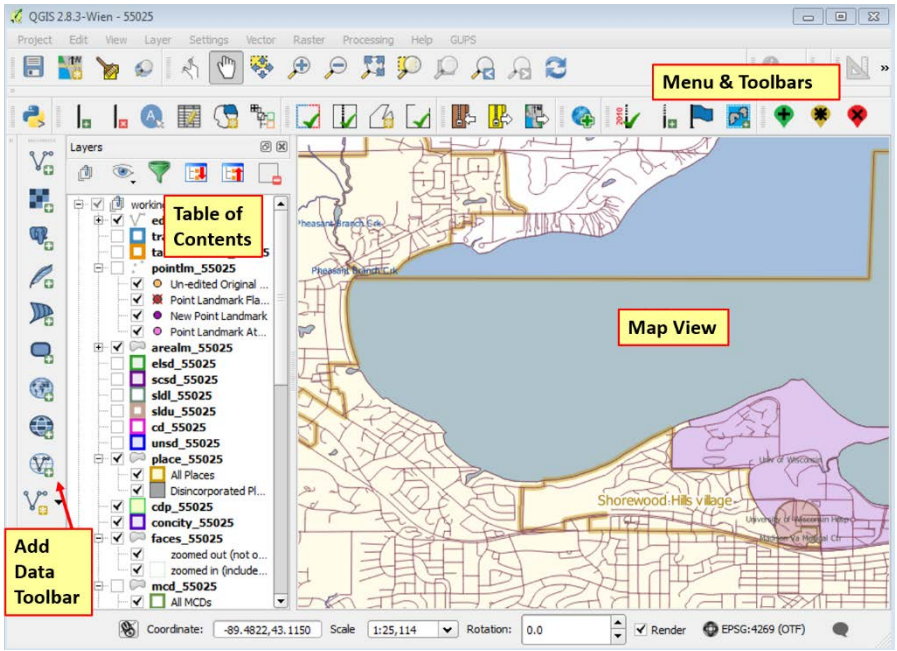


Figure 2. GUPS Page Layout

5.2.1 Map View

This area displays the map of the data layers automatically loaded by the GUPS for the program you selected in Map Management. You can turn layers on and off, adjust their symbology, pan around the map or zoom in and out. The map and the table of contents are interdependent: changes you make in the table of contents are reflected on the map.

5.2.2 Menu and Toolbars

The GUPS user interface includes a menu bar and toolbars at the top of the page window, as shown in Figure 3. The menu bar at the very top allows you to access GUPS features using a standard hierarchical menu. The Standard toolbar in the middle provides basic map navigation and data query and editing tools. The BBSP toolbar at the bottom provides software functions to support the Block Boundary Suggestion Project.

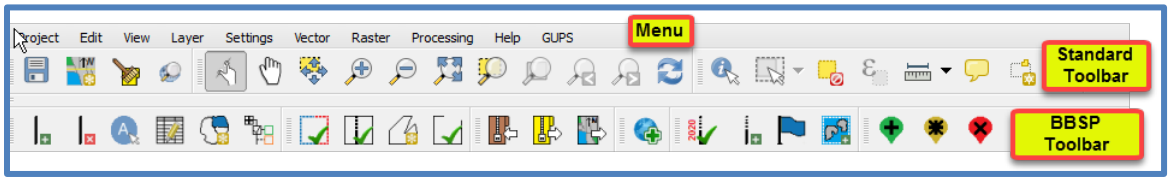
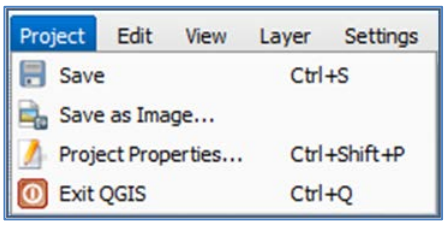
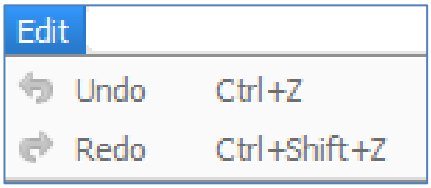


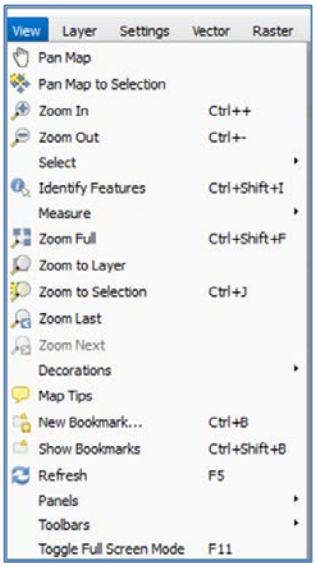
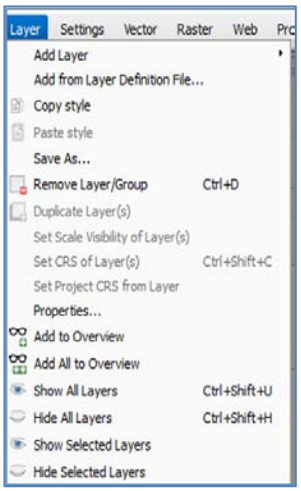
Figure 3 GUPS Menu and Toolbars

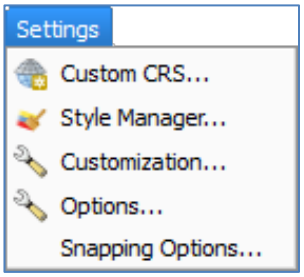
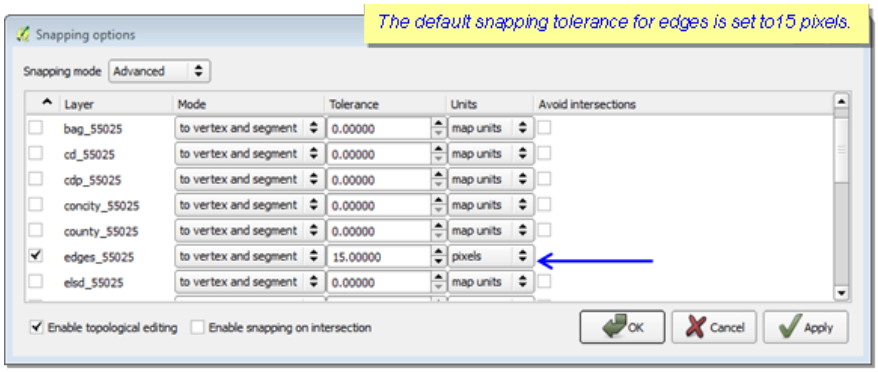
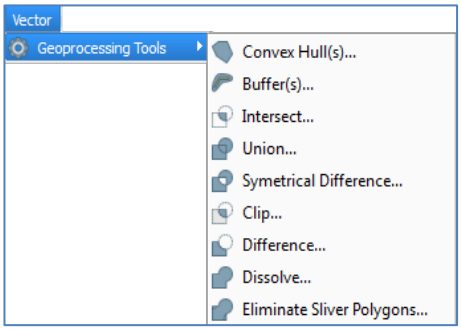
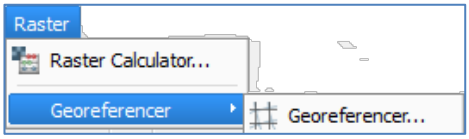
5.2.3 Menu Bar

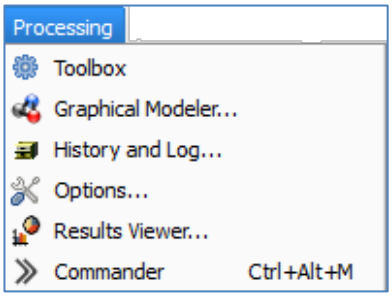
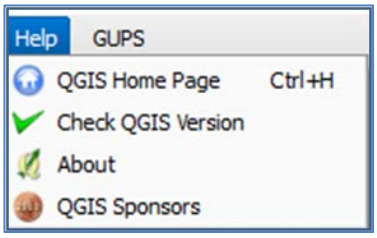
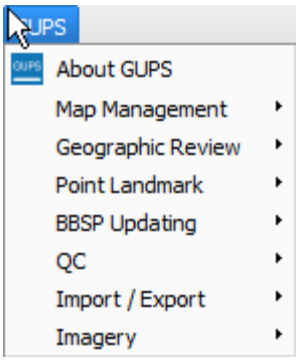
The menu bar allows you to access GUPS using a standard hierarchical menu. The top-level menu, drop-down menus, and menu functions are listed below.

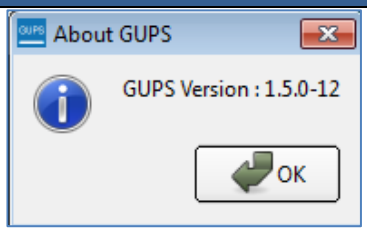
Table 9 GUPS Menu Bar

Tab	Drop-down Menu	Function / Description
Project		**Project** allows you to save a project, create a .png file of the image displayed in the *Map View,* or exit the GUPS application. If you choose *Save as Image*, the GUPS allows you to name the .png file created and save it to any location on your computer.
Edit		**Edit** allows you to *Undo* and *Redo* the last user actions, as long as you have not saved your project. **Note**: For *Undo* to work, the correct layer must be selected in the *Table of Contents*. For example, if you added a linear feature in the edges layer, then made updates in the area

Tab	Drop-down Menu	Function / Description
		landmarks layer, *Undo* will not allow you to delete the linear feature. You must make the edges layer the active layer again to undo the linear feature addition.
View		The **View** tab allows you to complete several actions also available on the **Standard toolbar**. Included are options for navigating the map, identifying feature attributes, measuring distance, and creating spatial bookmarks to return to the same map view at a later time. From this location you can also: • Set what toolbars display. • Restore the **Table of Contents** if you earlier closed it (click 'Panels' in the drop-down menu, click the right arrow, click 'Layers' in the Layers down-menu). • Refresh the map to restore it to the original map extent.
Layer		The **Layer** tab allows you to add and remove layers from the map, set the map projection or Coordinate Reference System (CRS), and display or hide layers. ***Note***: Many of these same functions are more conveniently located on the **Add Layers toolbar** and the small toolbar that sits at the top of the **Table of Contents.**

Tab	Drop-down Menu	Function / Description
Settings		**Settings** allows you to customize the Coordinate Reference System (CRS), customize map display options, and set snapping tolerances. The snapping tolerances in the GUPS are pre-defined by layer. The default snapping tolerance for edges is set to15 pixels, as shown in the Snapping Options dialog box below.
		
	You may wish reset the snapping tolerance for a layer to make boundary corrections. Please be aware that we often cannot make small boundary adjustments submitted by participants because the MAF/TIGER System is a fully integrated topological database.	
Vector		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		**Raster** has a Raster Calculator that allows you to perform calculations on the basis of existing raster pixel values. It also provides a Georeferencer

Tab	Drop-down Menu	Function / Description
		tool, which allows you to assign coordinates to the raster.
Processing		Although available to the GUPS user, the **Processing** menu options are not required for Census Bureau geographic program participation. The sub menus all pertain to algorithms, creating models, viewing the results of algorithms executed, and history.
Help		The **Help** tab provides tools for understanding QGIS (the open-source platform on which GUPS was developed) and the GUPS application itself. It also contains CRVRDO contact information, access to the online version of this guide, and other information.
GUPS		The **GUPS** tab provides quick access to the key tools also available on the **Standard** and **BBSP** toolbars, including those needed to manage maps, make linear changes, make area changes, create BBSP suggestions, review and validate work, import county ZIP files from other users, export work and submission files, export maps, and add imagery. Click the 'About GUPS' option in the drop-down menu to find the GUPS version number. If you call for technical support, you will need to supply this number Here the version number is 1.5.0-12. The number you see will be more recent.

Tab	Drop-down Menu	Function / Description
		

5.2.4 Toolbars

There are two toolbars for the Geographic Update Partnership Software, as shown in Figure 4. The top toolbar is the Standard toolbar, which provides map navigation and data query and manipulation tools. The BBSP toolbar on the bottom provides the functionality needed for the Block Boundary Suggestion Project.

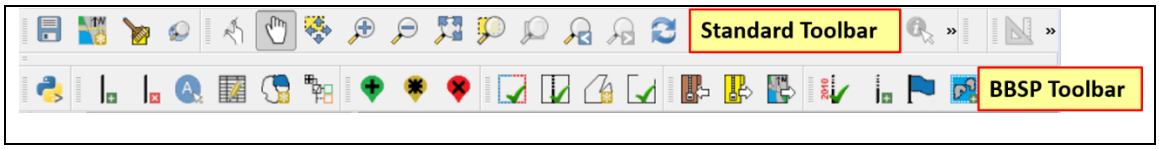


Figure 4 GUPS Toolbars

You can resize the toolbars and reposition them by dragging them to your desired location. They can float on the desktop or be docked along the outer edges of the GUPS page. The Standard toolbar and BBSP toolbar buttons, names, and functions are highlighted in separate sections below. Hover your mouse over a button when you are in the GUPS application to see the tool description.

5.2.4.1. Standard Toolbar Functions

The Standard toolbar, shown in Figure 5, provides the tools necessary to interact with the map and layers' attribute tables. It is comprised of 3 separate toolbars, identified by the grouping bars on the tool, as shown in Figure 5. The first toolbar contains the buttons for saving projects, changing map projects and conducting searches; the second contains the tool buttons for map navigation; the third provides tools for identifying features, selecting features, making measurements, and creating spatial bookmarks. The Standard toolbar buttons, names, and functions are shown in Table 10.

Figure 5 Toolbar Grouping Bars

Table 10 Standard Toolbar Grouping

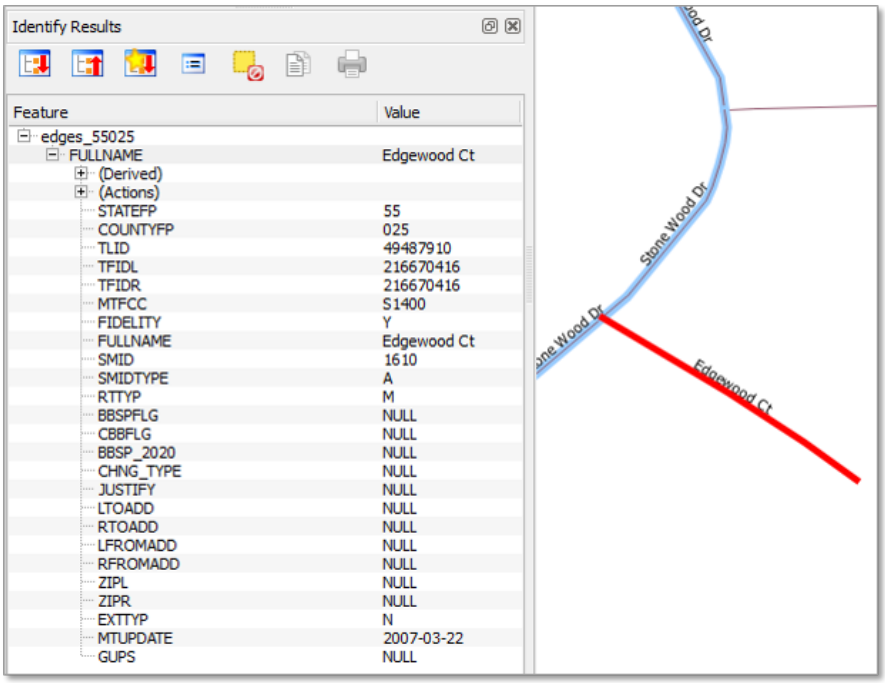
Button	Name	Function
	Save	Saves the current GUPS county project, including any user changes to layer properties, projection, last viewed extent, layers added.
	Map Management	Allows the user to choose the geographic participant program and working county in GUPS. Automatically loads the default map display layers based on program and county chosen.
	Clean GUPS Data	**Warning! This tool deletes files and folders permanently!** Allows the user to delete a single or multiple county project(s). The user can select the project to delete or choose to delete all the projects in a specific program. The active project in the current session is highlighted in red. Cleanups that include the current session will cause GUPS to shut down.
	Search	Enables user to search the map by census tract, block, landmark or street name and zoom to the feature.
	Touch Zoom and Pan	Designed for touchscreen computers. You can zoom in and out on the map to increase or decrease the map scale with finger gestures.
	Pan Map	Shifts the map in the display window without changing the map scale.
	Pan Map to Selection	Shifts the map in the display window to the rows selected in the attribute table.
	Zoom In	Displays the map in the window at a larger scale.
	Zoom Out	Displays the map in the window at a smaller scale.
	Zoom Full	Zooms the map view to the full extent of the county.
	Zoom to Selection	Zooms the map view to the rows selected by in the attribute table.
	Zoom to Layer	Zooms the map view to the extent of the active layer.
	Zoom Last	Zooms the map view to the previous map extent.
	Zoom Next	Zooms the map view forward to the next map extent.

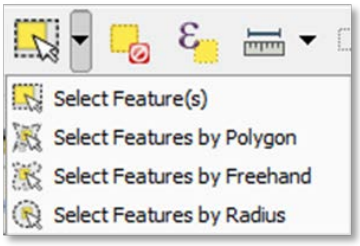
	Refresh	Displays map view to initial full display.
	Identify Features	Identifies the geographic feature on which the user clicks.
	Select Features by Area or Single Click	Enables user to select layer features in the map window with a single click, dragging a box, or drawing graphics on the screen. Referred to as the Select Features button in this guide.
	Deselect Features From All Layers	Deselects selected features from all layers.
	Select Features Using an Expression	Allows attribute table records request by querying the table based on table fields and/or values in the fields.
	Measure	Provides options to measure linear distance, area, and angles on the map.
	Map Tips	Shows information about a feature when the mouse is hovered over it.
	New Bookmark	Enables user to create and name a spatial bookmark of the current map view.
	Show Bookmarks	Displays all bookmarks created by the user.

5.2.4.2. Data Manipulation, Selection, Identification, Measurement and Bookmarking Toolbar Grouping

As shown in Table 11 the last toolbar grouping on the Standard toolbar allows you to identify features, select features several ways, deselect features selected, query the data, make measurements, and bookmark map views.

Table 11 Data Manipulation Toolbar Grouping

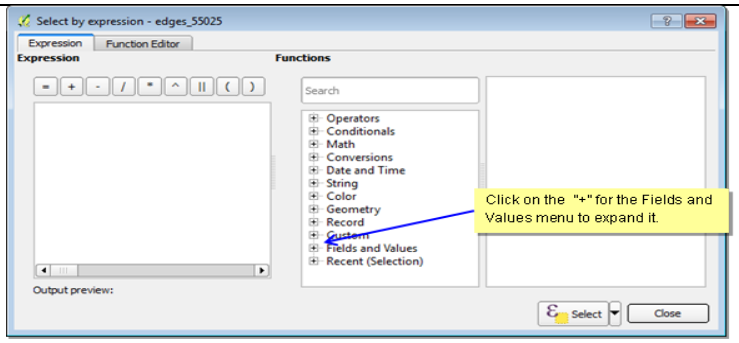
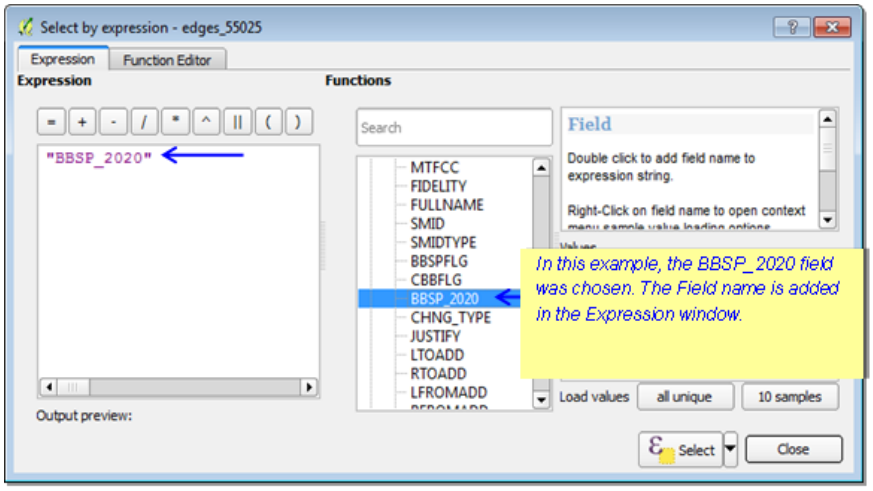
Data Manipulation Toolbar Grouping
A click on the **Identify Features** button, followed by a click on a feature on the map identifies the feature at the location. Results are displayed in the Identify Results window, including feature attributes.  Edgewood Ct is highlighted in red when you click first on the Identify button and then the Edgewood Ct feature on the map (the edges layer is the active layer). The Identify Results dialog box opens below the Table of Contents. It displays the feature's attributes.
A click on the **Select Features** button allows you to select features several ways.

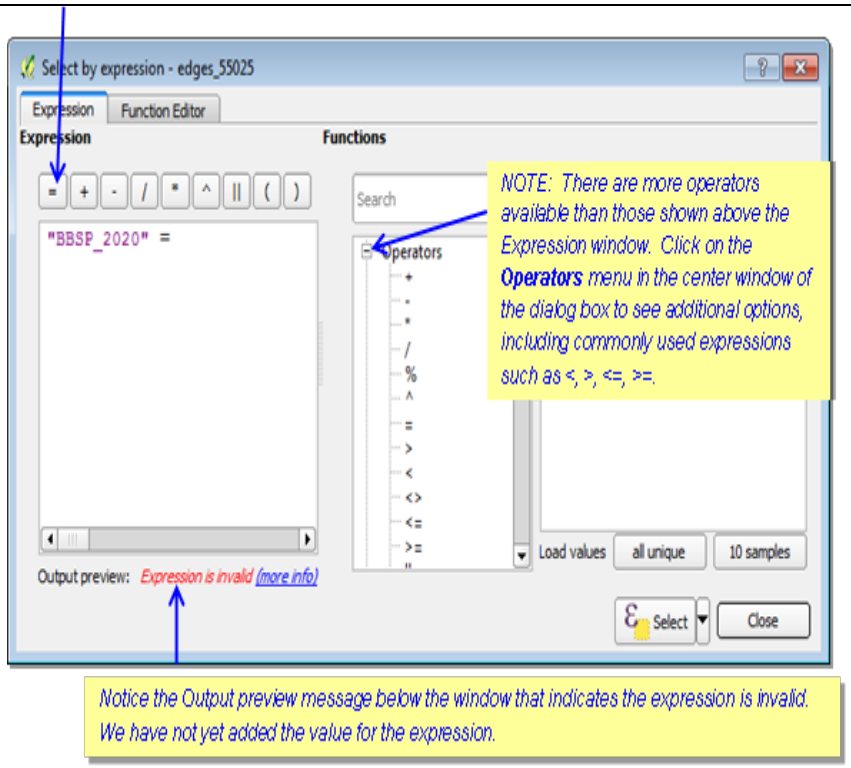

To select a single feature, click the **Select Features** button, choose **Select Feature(s)** from the drop-down menu, and click the feature on the map. To select multiple features, hold down the CTRL key as you select the features. To remove one or more features from a selection of multiple features, hold down the CTRL key and click the feature(s) again. You can also use Select Features by Polygon, Select Features by Freehand, and Select Features by Radius tools to select multiple features using graphics you draw on the screen.
A click on the **Deselect Features from all Layers** button deselects the selected features in all layers in a single action.
A click on the **Select Features Using an Expression** button allows you to select features by querying the attribute table. See Table 12 below for an example.

In the example shown in Table 12, we want to view the features to which we have assigned a *Must Hold* flag.

Table 12 Querying Features Assigned A Must Hold Flag

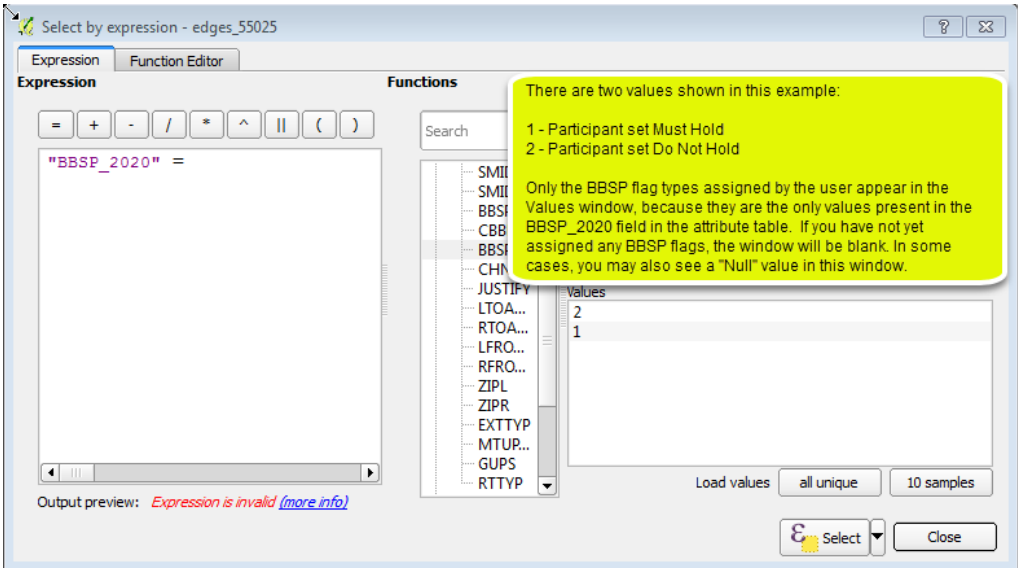
Step	Action and Result
Step 1	Click the ***Select Features by Expression*** button on the Standard toolbar.
Step 2	*The **Select by Expression** dialog box opens.*

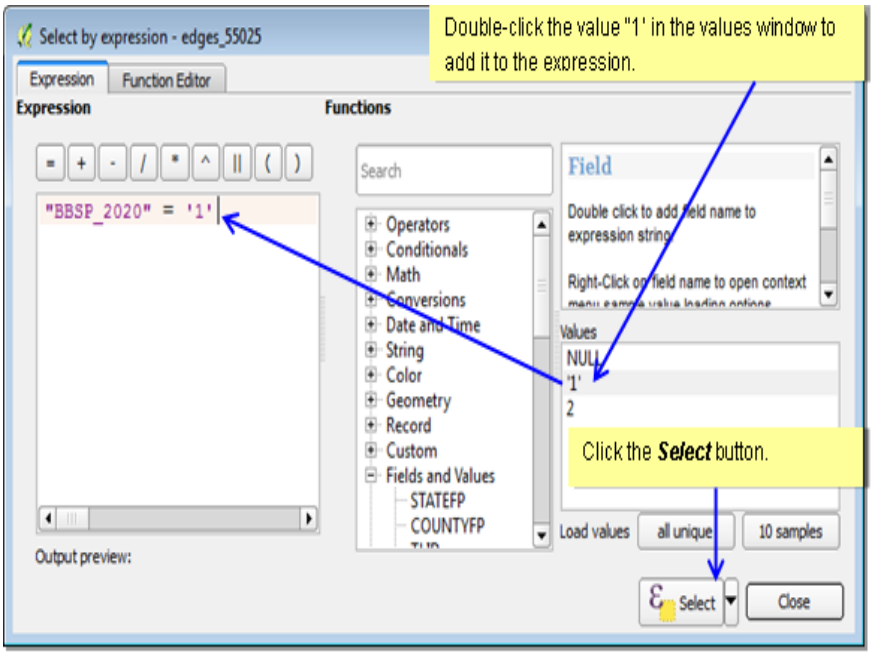
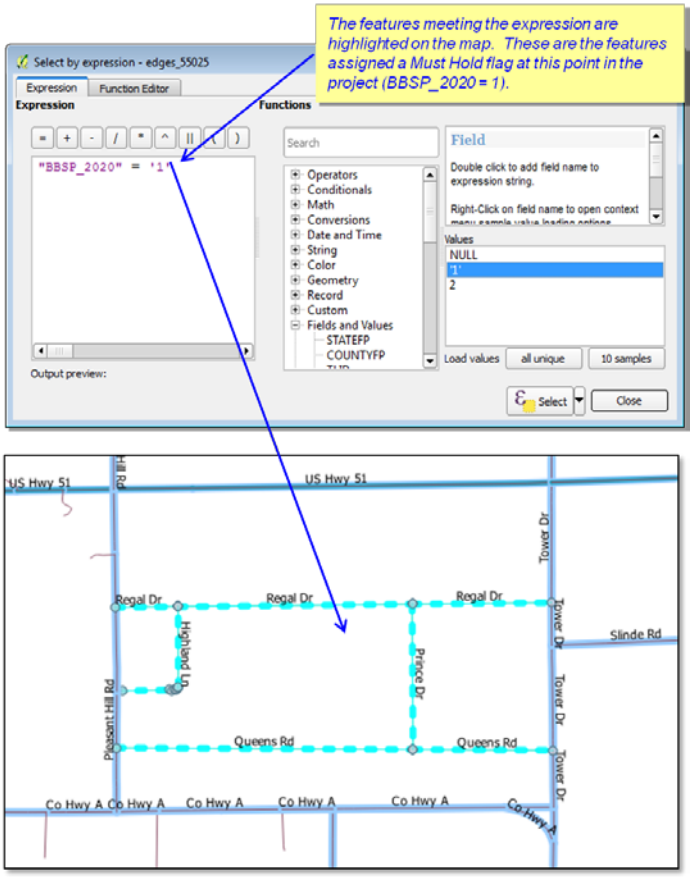
	
Step 3	Double-click on a field name to add it to the Expression window. 
Step 4	Single-click on an operator button to add it to the Expression window. In this example, the “=” was chosen.



Step 5

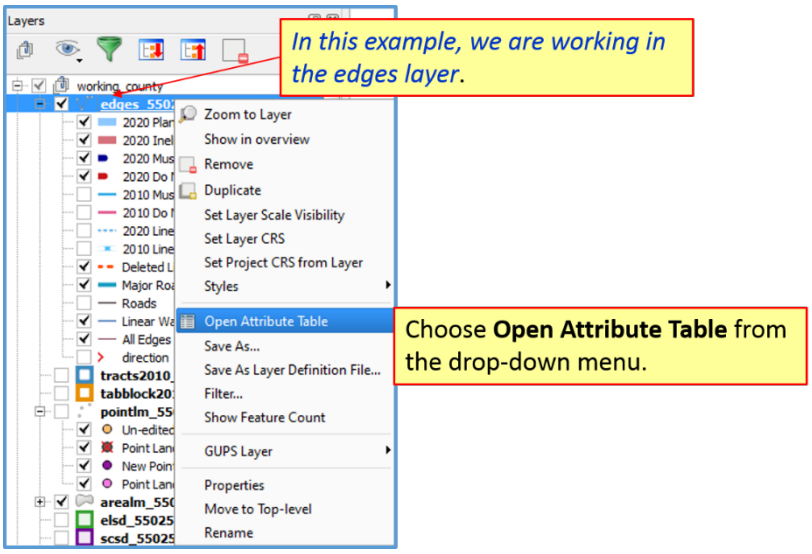
Click on the ***all unique*** button, which shows the values present for the chosen field name. Double-click a value to add it to the Expression window.

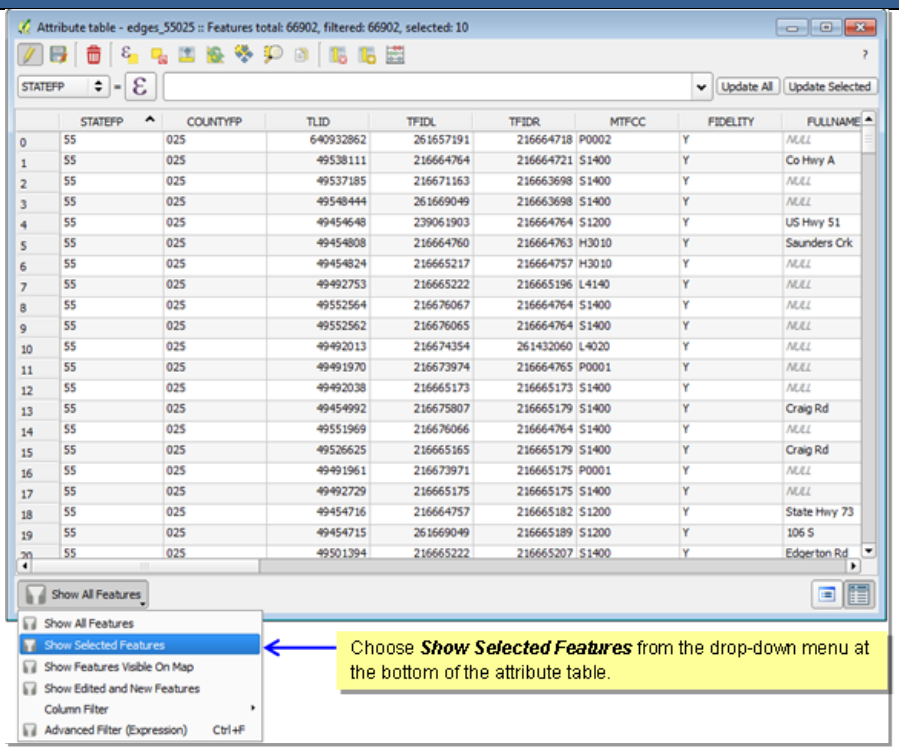
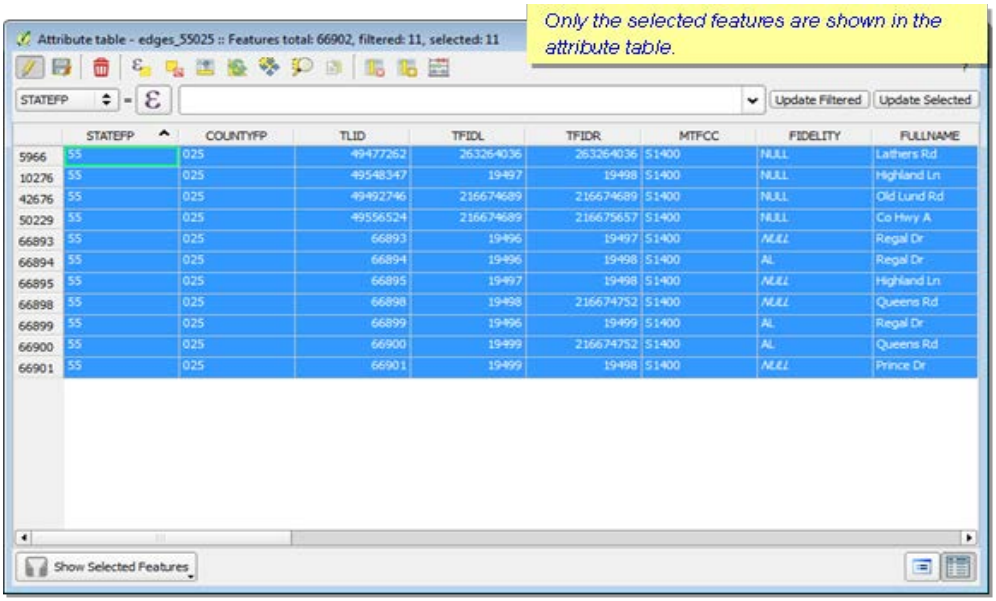


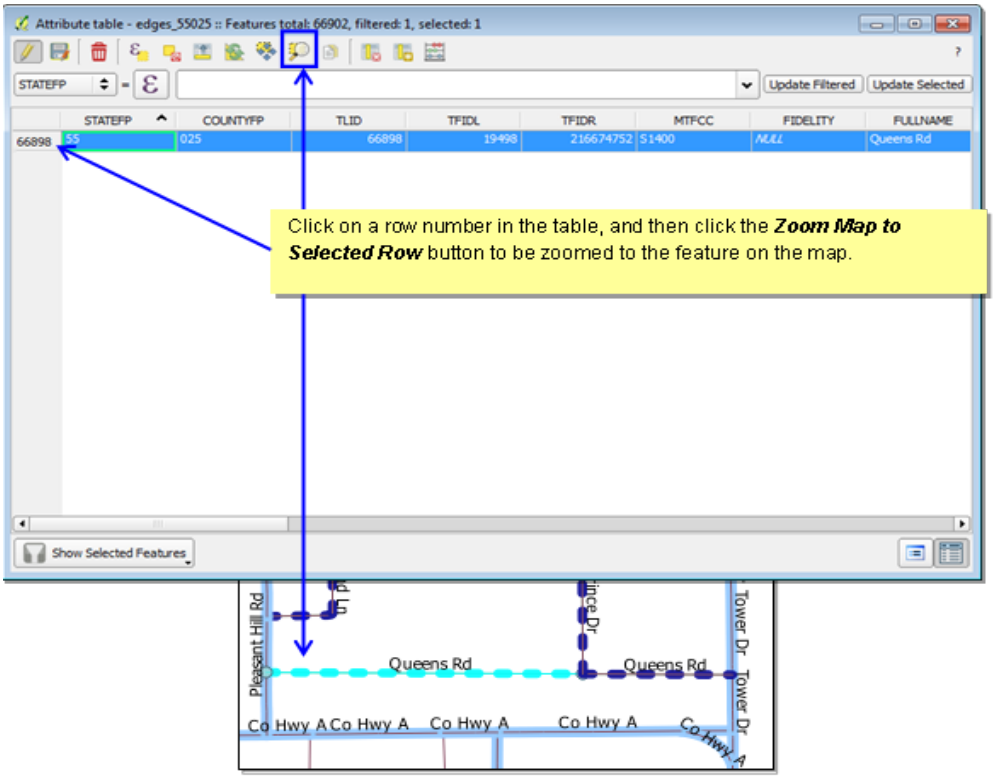
Step 6	 Select by expression - edges_55025 Expression Function Editor Expression Functions "BBSP_2020" = '1' Search Operators Conditionals Math Conversions Date and Time String Color Geometry Record Custom Fields and Values STATEFP COUNTYFP Field Double click to add field name to expression string Right-Click on field name to open context Values NULL '1' 2 Load values all unique 10 samples Output preview: Select Close Double-click the value "1' in the values window to add it to the expression. Click the **Select** button.
Step 7	 *The features meeting the expression are highlighted on the map. These are the features assigned a Must Hold flag at this point in the project (BBSP_2020 = 1).* Select by expression - edges_55025 "BBSP_2020" = '1' Output preview: Select Close US Hwy 51 Regal Dr Highland Ln Prince Dr Tower Dr Slinde Rd Pleasant Hill Rd Queens Rd Co Hwy A

If you would like to review the selected features individually, you can do that by opening the attribute table as seen in Table 13.

Table 13 Layers Attribute Table

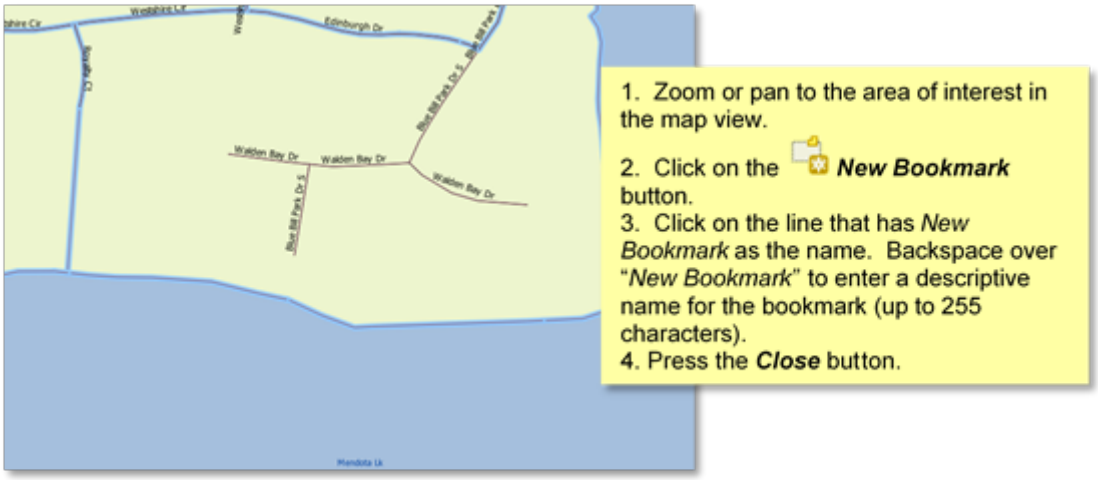
Step	Action and *Result*
Step 1	Right click on the layer name in the Table of Contents. 
Step 2	*The **Edges Attribute table** opens.*

Step	Action and *Result*
	
Step 3	

Step	Action and *Result*
Step 4	

A click on the **Measure** button allows you to determine distance between two or more points on the map. Select the layer in the Table of Contents on which you want to measure to make it the active layer. Click on the **Measure** button. Then click on the first point on your map and continue clicking on points until you reach the final point. Each segment length, as well as the total length, appears in the Measure window.

A click on the **New Bookmark** button allows you to create and save geographic locations in your map view and return to them later. To create a bookmark:



A click on the **Show Bookmarks** buttons allows you to view and manage your spatial bookmarks. You cannot edit the bookmark name or coordinates. To zoom to a bookmark, click on a bookmark name in the *Geospatial Bookmarks* dialog box and then click the **Zoom to** button. To delete a bookmark, click on the bookmark name, then press the Delete button.

5.2.4.3. BBSP Toolbar

The BBSP toolbar provides the software functionality to complete the activities outlined in the Suggested BBSP Workflow diagram. Detailed explanations for using the BBSP toolbar buttons to accomplish BBSP updates are contained in Section 6, with the exception of the Export Map for Printing function, which is outlined after Table 14.

Figure 6 BBSP Toolbar

Table 14 BBSP Toolbar Buttons, Names, and Functions

Button	Name	Function
	Add Linear Feature	Enables user to add a linear feature.
	Delete Linear Feature	Enables user to delete a linear feature.
	Display All Names	Displays all names for a street with multiple names assigned in the MAF/TIGER System.
	Modify Linear Feature Attributes	Enables user to edit attribute fields for a selected feature.

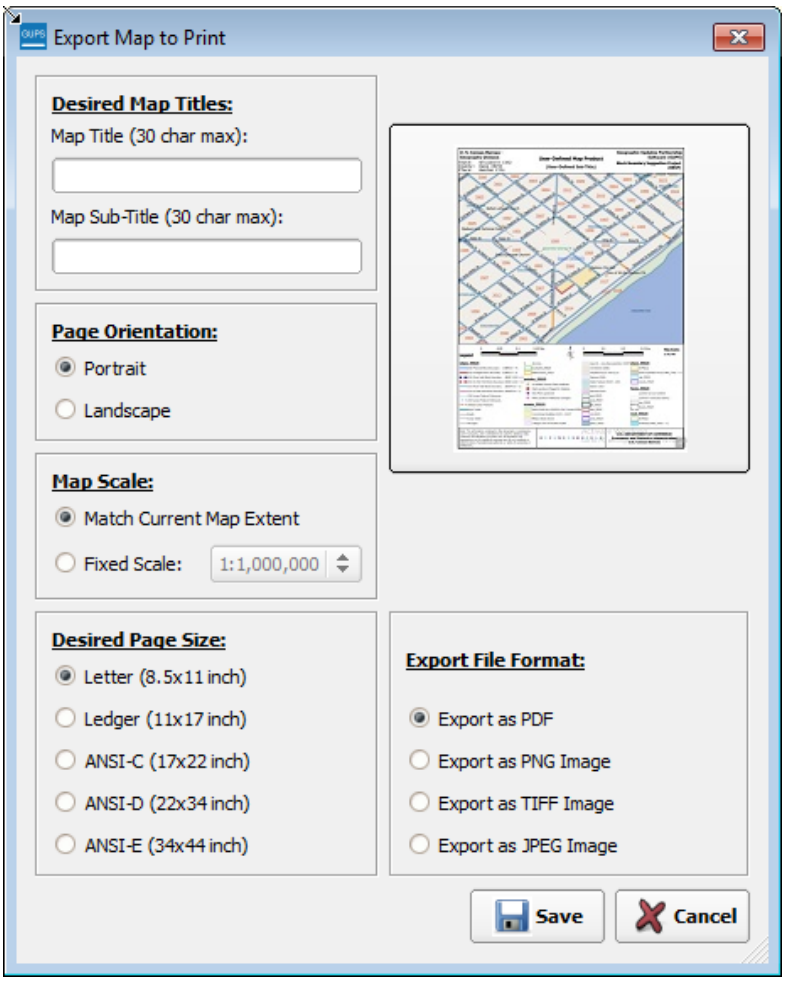
Button	Name	Function
	Modify Area Feature	Enables user to select faces (polygons) for adding and deleting area from area landmarks and legal entities, creating new entities or deleting existing ones.
	Show/Hide Legend	Shows or hides the legend.
	Add Point Landmark	Enables user to add a point landmark.
	Edit Point Landmark	Enables user to modify the attributes of a point landmark.
	Delete Point Landmark	Enables user to delete a point landmark.
	Review Block Boundary	Enables user to systematically review features by BBSP category (Hold, Do Not Hold, NULL) and to review suggestions made during the initial BBSP.
	Geography Review Tool	Enables user to review the attribute table by field values for all data layers.
	Review Change Polygons	Enables user to review the transaction polygons for area landmarks, area hydrography, and legal geography updates and make further updates
	Closed Polygon Check	Initiates a validation check to identify any non-closed polygons.
	Import County Zip	Enables the RDP Liaison to import a designee's data output .zip file into GUPS for review and update.
	Export to Zip	Creates the .zip file containing all required data and shapefiles for submission to the Census Bureau, or for sharing between the State RDP Liaison and their designees.
	Export Map to Print	Enables user to export a printable map in .pdf, png, .tif, or jpeg format.
	2020 Feature Extension Review	Enables user to systematically review 2010 linear feature extensions and take an action for 2020 (Hold, Delete, Ignore).
	Add Feature Extension	Enables user to add a 2020 linear feature extension to create a closed polygon for a suggested 2020 tabulation block.

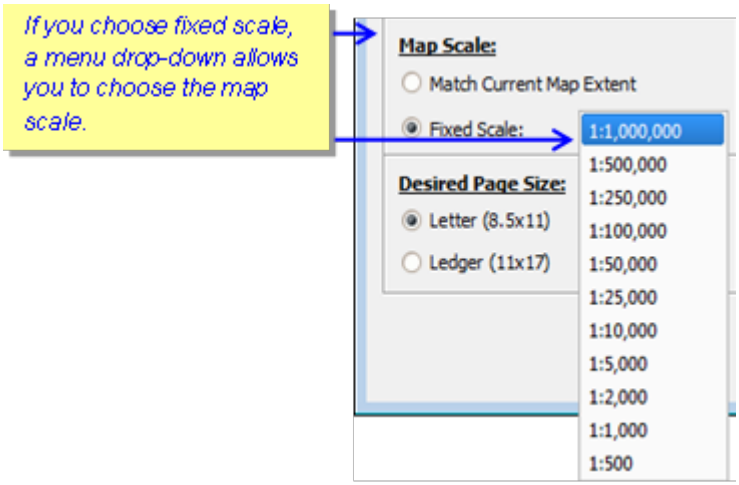
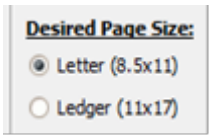
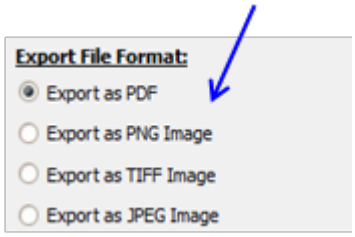
Button	Name	Function
	Feature Flagging Tool (Hold/Do Not Hold)	Enables user to assign a “Must Hold” or “Do Not Hold” flag to a linear feature selected in the map window.
	Add Block Area Grouping	Enables user to create a Block Area Grouping over water.

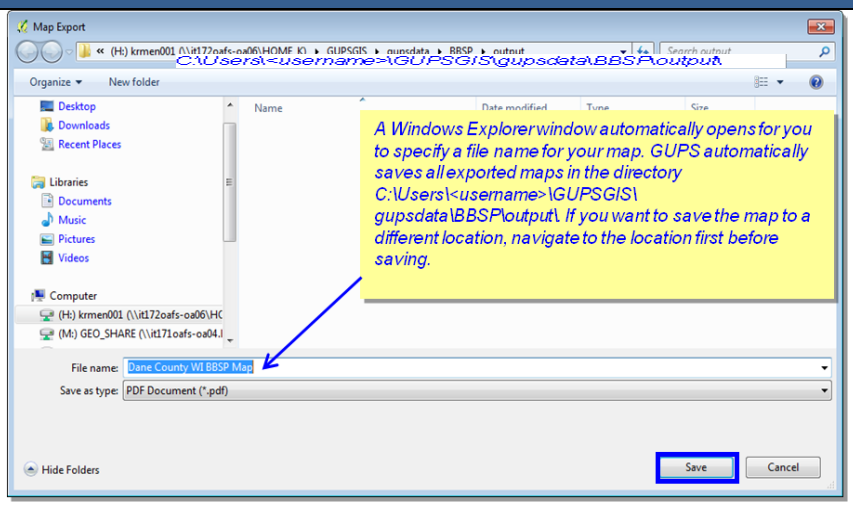
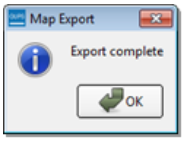
5.2.4.4. Exporting a Map for Printing

Follow the steps in Table 15 below to export a map for printing.

Table 15 Exporting a Map for Printing

Step	Action and *Result*
Step 1	Click the **Export Map to Print** button on the BBSP Toolbar.
Step 2	Type a **Map Title** and a **Map Subtitle**, if desired, in the fields provided.  Click the radio button for Portrait or Landscape under Page Orientation.

Step	Action and *Result*
Step 3	Click a radio button under Map Scale to select either the current view in the map (Match Current Map Extent) or a Fixed Scale.  Click the radio button for Letter or Ledger under Desired Page Size to select map output size.  Click the radio button under Export File Format to select how you want to save the map.  Click the Save button to create the map.
Step 4	Specify a name for your exported map file. The file type (.pdf) is preset based on your selection in the **Map Export** dialog box.

Step	Action and *Result*
	 Click the **Save** button.
Step 5	 *A dialog box opens indicating that the map file was created.*

5.2.4.5. Add Data Toolbar

The Add Data Toolbar allows you to add vector and raster data layers and import data tables. When you first open the GUPS, the default Add Data Toolbar position is on the left side of the GUPS page layout. You can click and drag the toolbar to one of the top toolbars if you like, which provides more screen space for the map view. Table 16 lists the Add Data Toolbar buttons, names and functions

Table 16 Add Data Toolbar Buttons, Names, and Functions

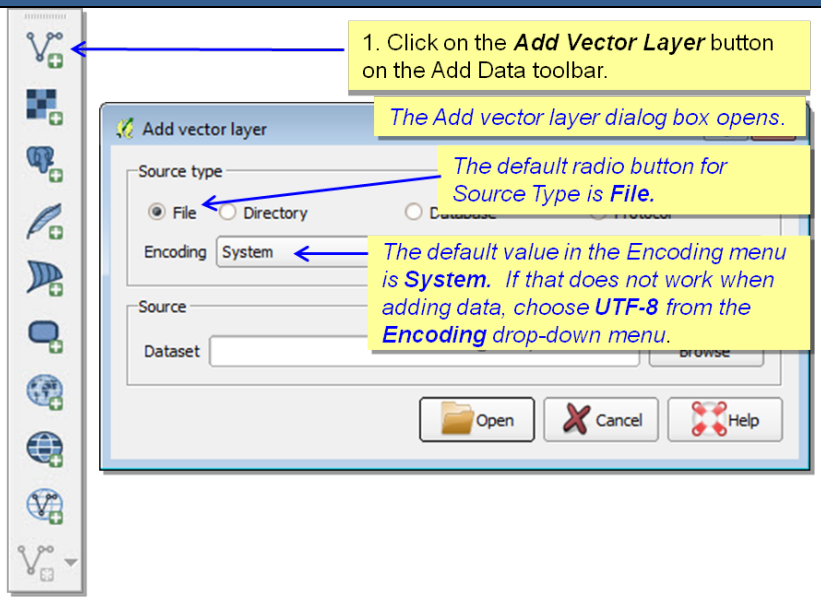
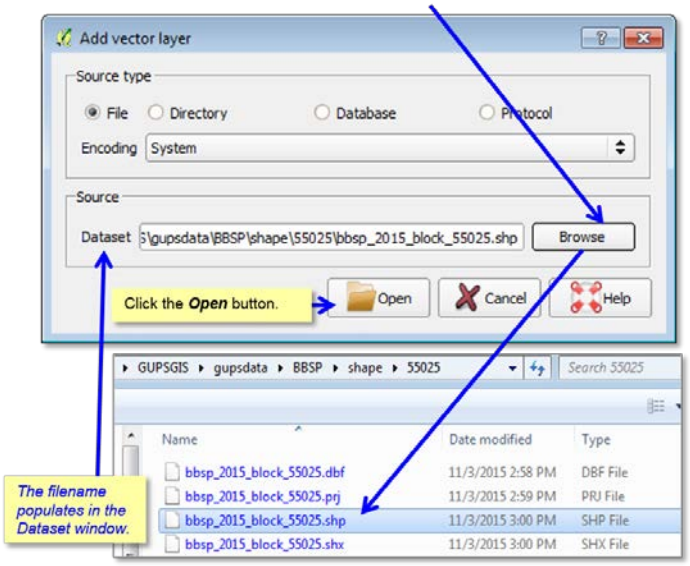
Button	Name	Function
	Add Vector Layer	Enables user to add shapefiles and geodatabase files to the GUPS project.
	Add Raster Layer	Enables user to add raster datasets such as imagery.
	Add PostGIS Layer	Enables user to add a PostGIS layer.
	Add SpatialLite Layer	Enables user to add data from a SpatialLite database.
	Add MSSQL Spatial Layer	Enables user to add MS SQL 2008 Spatial data.
	Add Oracle Spatial Layer	Enables user to add data from an Oracle Spatial database.
	Add WM(T)S Layer	Enables user to add Web Mapping Services and Web Mapping Tile Services. Publicly accessible and secured WMS services are supported.
	Add WCS Layer	Enables User to add Web Coverage Services, which provides access to raster data useful for client-side map rendering.
	Add WFS Layer	Enables user to add Web Feature Services.
	New Shapefile Layer	New Shapefile Layer... Ctrl+Shift+N New Temporary Scratch Layer... Enables user to add a new shapefile layer or new temporary scratch layer.

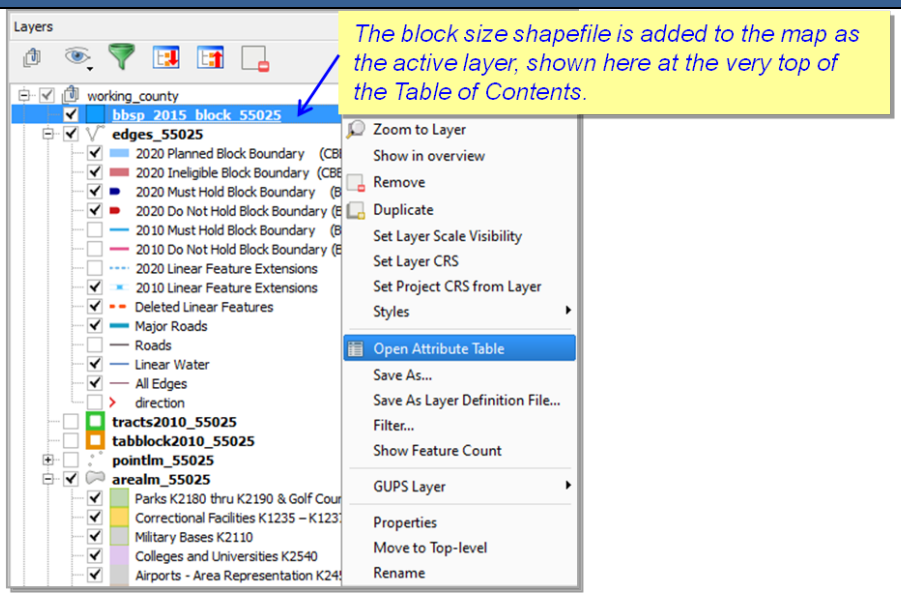
Some of the more commonly used tools from the Add Data Toolbar are discussed further below.

5.2.4.6. Adding Vector Data

A click on the **Add Vector Layer** button allows you to add shapefile and geodatabase files to your GUPS project.

Table 17 Adding Vector Data

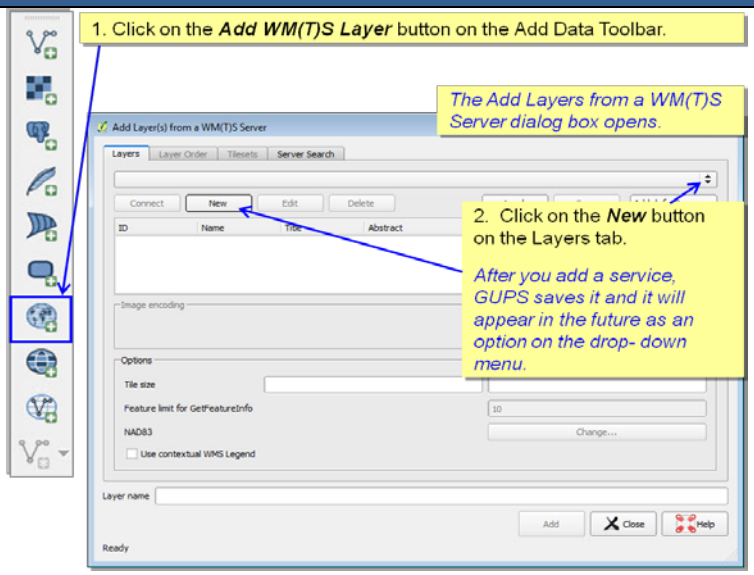
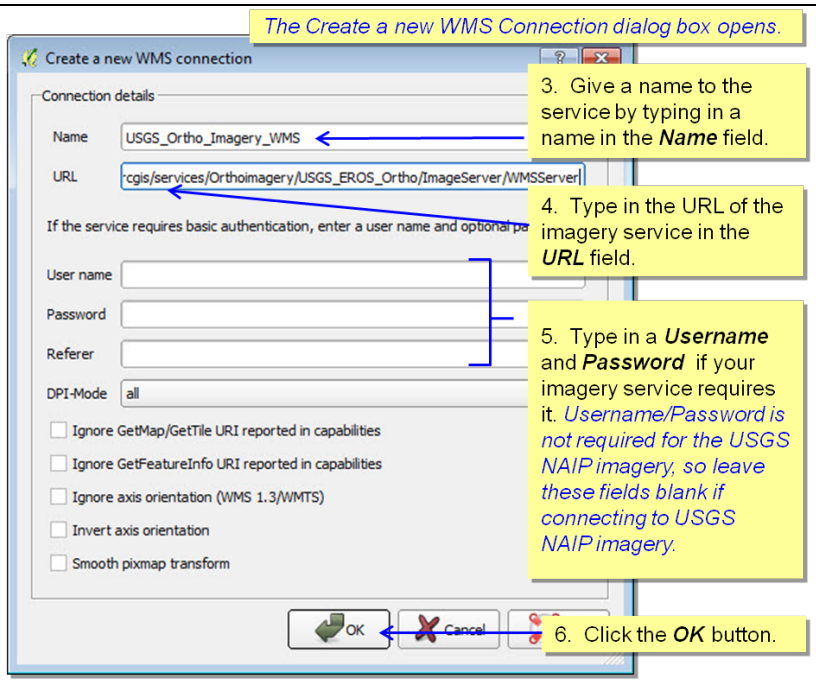
Step	Action and *Result*
Step 1	
Step 2	Click the ***Browse*** button. Navigate to the folder where the file you want to add is located. For this example, we'll add the block size shapefile, located at: C:\Users\<username>\GUPSGIS\gupsdata\BBSP\shape\ssccc\bbsp_2015_block_ssccc.shp, where ssccc is the State/County code. Choose the filename with **.shp** as the file extension. *(This example assumes you initially loaded the shapefiles from the Census-provided DVD, which automatically places the files this directory.)* 

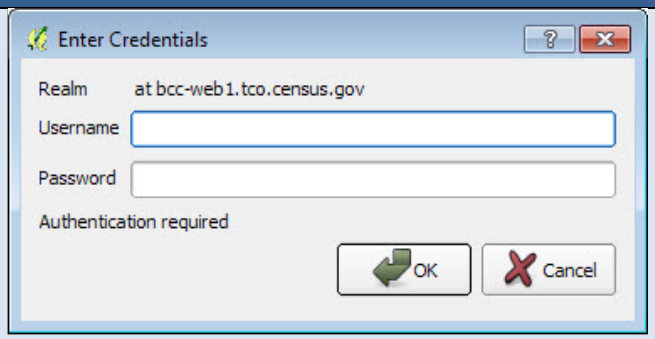
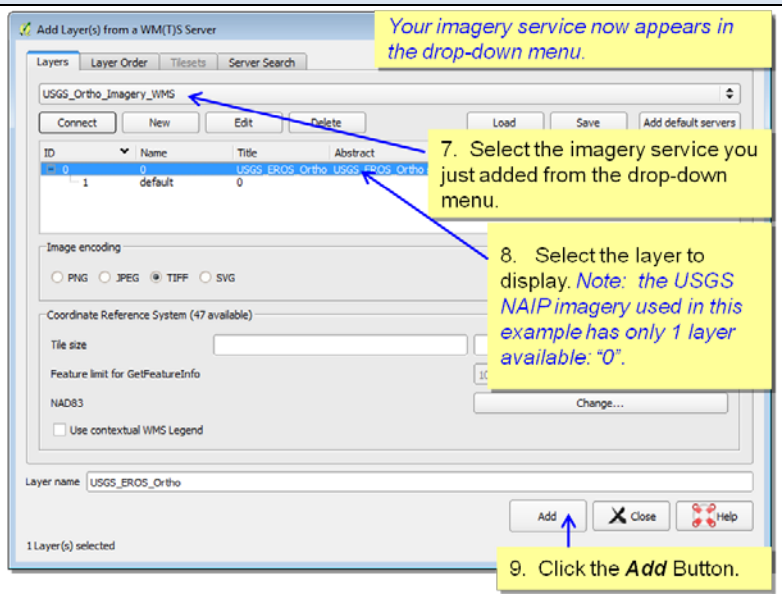
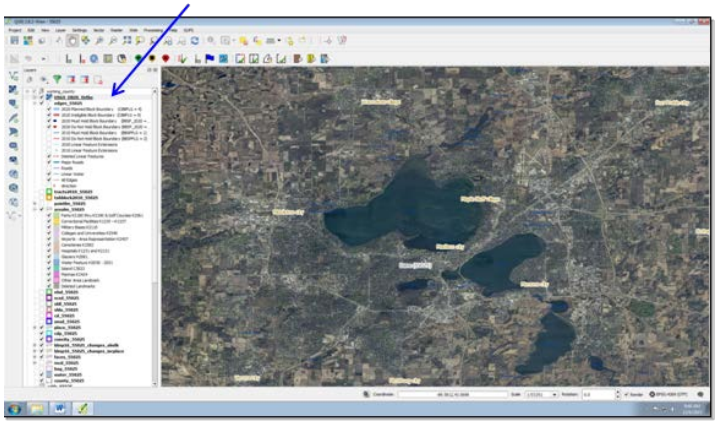
Step	Action and *Result*
Step 3	

5.2.4.7. Adding a Web Mapping Service:

A click on the **Add WM(T)S Layer** button allows you to add a Web Mapping Service to your GUPS project. If you do not have a statewide or county web mapping service, one option for adding imagery may be the National Agricultural Imagery Service (NAIP), supplied in web mapping service format by the U.S. Geological Survey. It is available at the URL: *http://raster.nationalmap.gov/arcgis/services/Orthoimagery/USGS_EROS_Ortho/ImageServer/WMSServer.* The instructions in Table 18 below outline the steps or adding a web mapping service to GUPS using the URL for the USGS NAIP imagery.

Table 18 Adding a Web Mapping Service

Step	Action and *Result*
Step 1 & **Step 2**	
Step 3 **through** **Step 6**	
	If your working environment is inside a firewall, you may be prompted for your Username and Password to obtain resources from outside the firewall.

Step	Action and *Result*
	
Step 7 through Step 9	
Step 10	The WMS is added to the map. It appears at the top of the Table of Contents, which means it displays over the top of the other layers. You may want to move it to the bottom of the Table of Contents by clicking on the layer name and dragging it to the bottom. 

A click on the **Add Raster Layer** button allows you to add imagery to your GUPS project if you do not have access to a web mapping service, if you have a poor Internet connection, or a restrictive firewall. If you do not have a county or state imagery dataset, you can download the U.S. Geological Service imagery on a county-per-county basis.

After clicking on the Add Raster layer button, the **Open a GDAL Supported Raster Data Source** dialog box opens. Navigate to the folder on your computer where the imagery file is stored. Click on the file name in the window and **Open.** The imagery loads into the GUPS.

5.2.5 Table of Contents

The Table of Contents, depicted in Figure 7, shows the layers on the map and the features represented by the layer. The GUPS will automatically load and display a set of default data layers defined by the Census Bureau for each geographic participant program. You can reorder the layers to change the map display; add and remove layers including user-provided data; display or hide layers; and change the layer symbology and labeling. As depicted in Figure 8, the expanded edges layer menu displays after the user clicks the (+) sign to change it to the (-) sign.

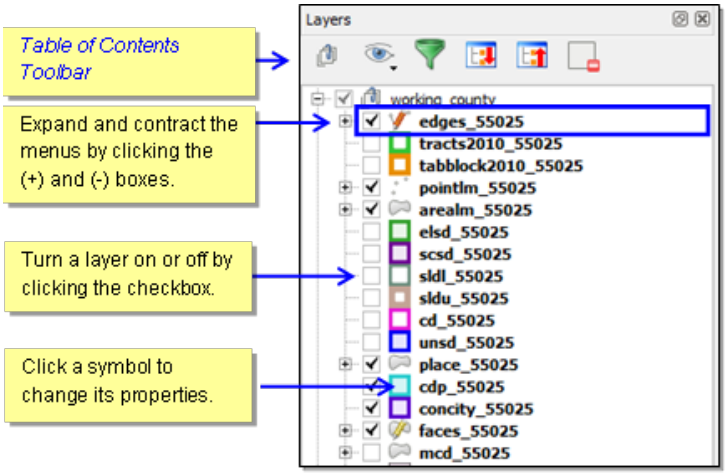


Figure 7 GUPS Table of Contents

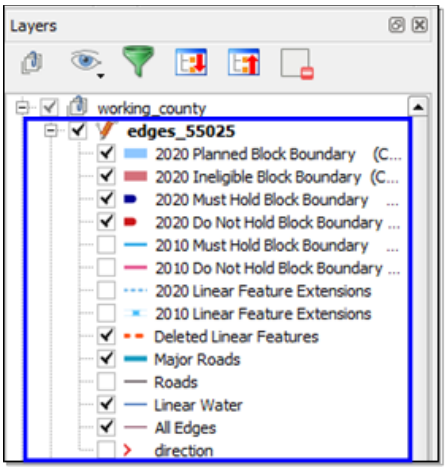


Figure 8 GUPS Table of Contents, Expanded Edges Layer Menu

The toolbar buttons at the top of the Table of Contents, shown in Figure 9, allow you to add and remove layers or groups, manage layer visibility, filter the legend by map content, and expand and contract the layers.

Figure 9 Table of Contents Toolbar

Table 19 below describes the functions of the tools on the Table of Contents Toolbar.

Table 19 Table of Contents Toolbar Buttons, Names and Functions

Button	Name	Function
	Add Group	Allows layers in the Table of Contents to be organized into groups in one of two ways: 1. Click on the button on the Table of Contents Toolbar to add a new group. Type in a name for the group and press the Enter key. Click on an existing layer and drag it into the group you just created; or 2. Select one or more layers in the Table of Contents, right click in the Table of Contents window, and choose *Group Selected*. The selected layers are automatically placed in a new group. 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. To remove a layer from a group, you can click on the layer and drag it out of the group or you can right click on the layer and choose *Make top level item.* Groups can also be nested inside other groups. You can show or hide all the layers in the group with a single click in the group's checkbox.
	Manage Layer Visibility (and Preset Views)	Allows preset layer views created by the user. You can add preset views in the Table of Contents by clicking on the 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 button, choose *Add Preset* from the drop-down menu, and assign a name to the preset view. By clicking on the button, you can view the list of all preset views that you have established and from which you can choose. A layer can be selected and dragged up or down in the Table of Contents to change the order in which layers are drawn. Layers are drawn in the reverse order in which they appear in the table contents. Layers that appear at the bottom of the table of contents are drawn first and the layers near the top are drawn "over" the layers near the bottom.
	Filter Legend by	Displays in the Table of Contents only the map layers in the current map view.

	Map Content	You can remove from the Table of Contents display any layers that are not currently in the map view extent by clicking on the button. This feature ensures that the Table of Contents does not contain entries for items not currently in the map view.
	Expand All (+)	Expands to show all menus. You can display all layers in a group by clicking on the button on the Table of Contents toolbar.
	Collapse All (-)	Collapses all menus. You can turn off the visibility of layers in a group by clicking on the button on the Table of Contents toolbar.
	Remove Layer/Group	Removes layer or group from the Table of Contents. You can remove a layer or a group in the Table of Contents clicking on the button. To remove a layer, click on the layer you want to remove, and while holding down the CTRL key, click the button. To remove a group, follow the same process, first selecting the group to be removed, and while holding down the CTRL key, click the button.

5.2.5.1. Re-ordering the Data Layers

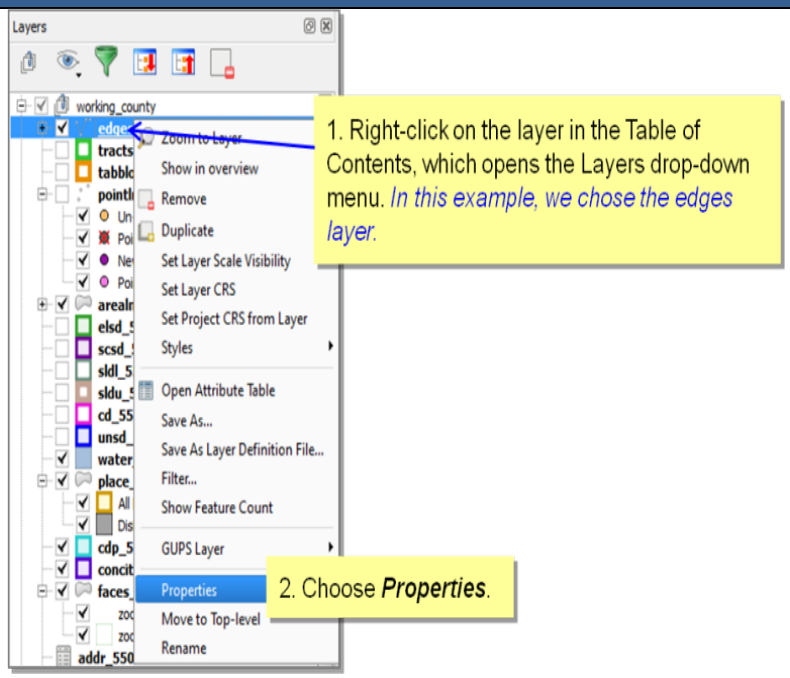
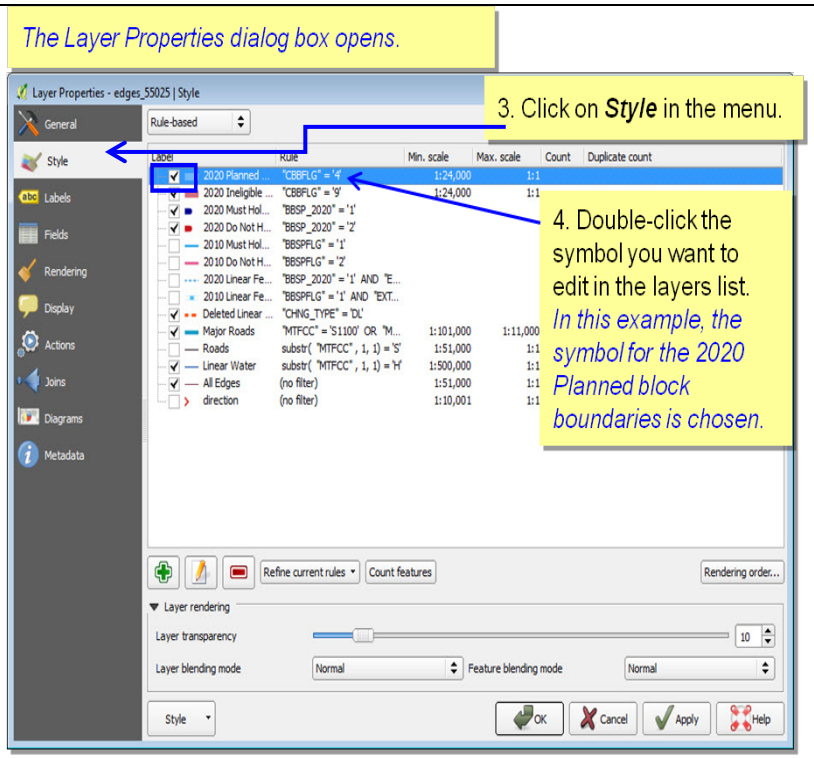
In the Table of Contents, the order in which the layers are listed determines how the layers are drawn on the map. The layers at the top draw on top of those below them. A layer can be selected and dragged up or down in the table of contents to change the drawing order.

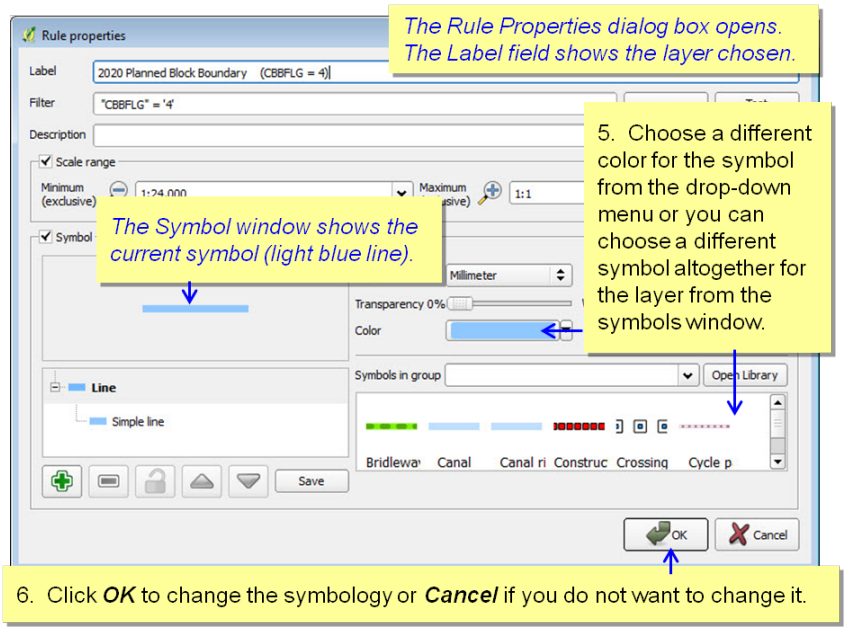
To move a layer up or down: Click the mouse on the layer and drag the layer to the desired position in the layer list. Release the mouse button to place the layer in its new position.

5.2.5.2. Setting 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:

Table 20 Changing Default Symbology

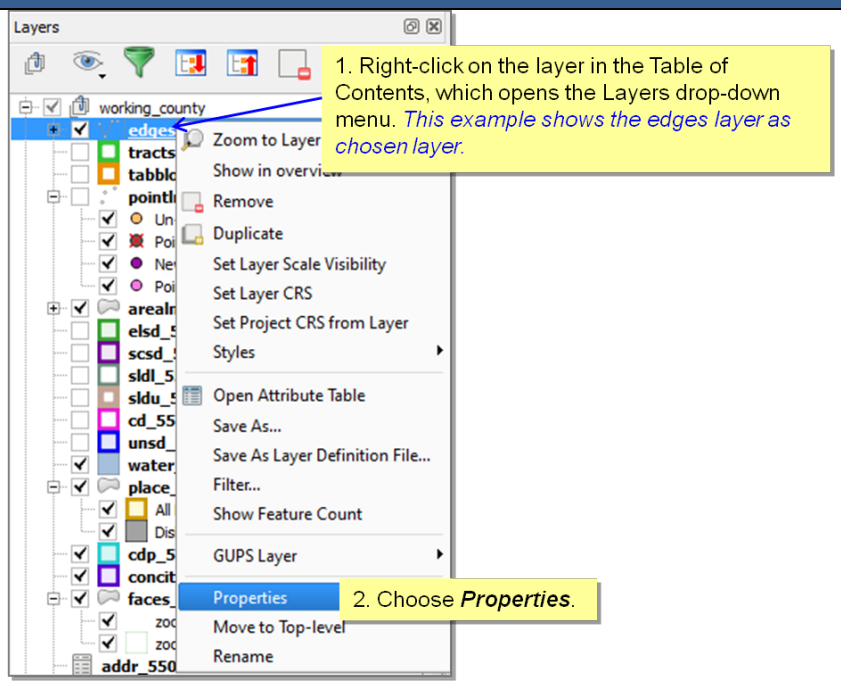
Step	Action and *Result*
Step 1 & **Step 2**	
Step 3 & **Step 4**	

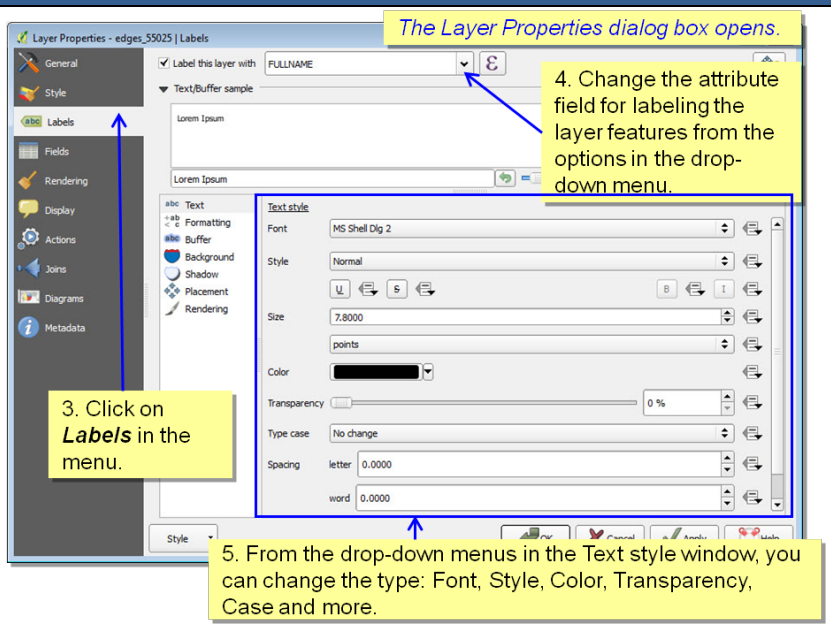
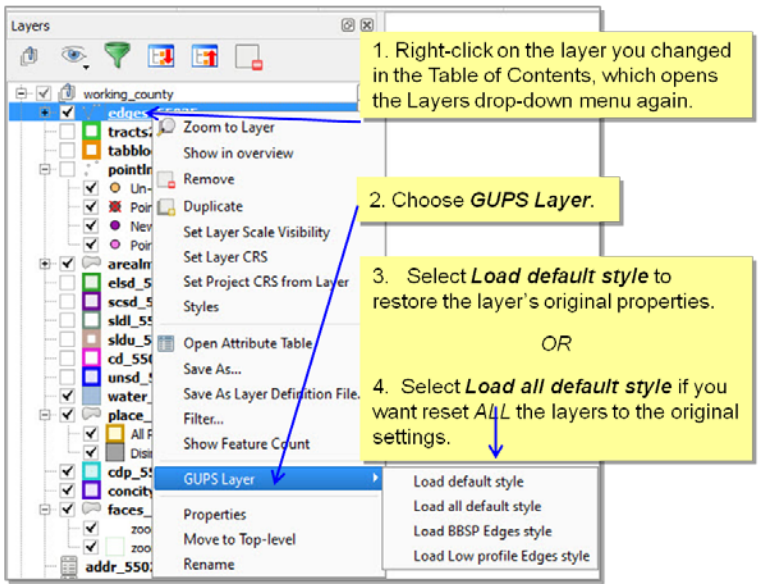
Step 5 & **Step 6**	

5.2.5.3. Label Display

You can change the default GUPS labeling display for features. To change the default labeling for a layer in GUPS:

Table 21 Change Default Labeling

Step	Action and *Result*
Step 1 & **Step 2**	

Step	Action and *Result*
Step 3 through Step 5	
	To restore the default setting for a layer:
Step 1 through Step 4	

5.2.5.4. Layer Display

The checkbox for each of the data layers indicates whether the layer is displayed or hidden.

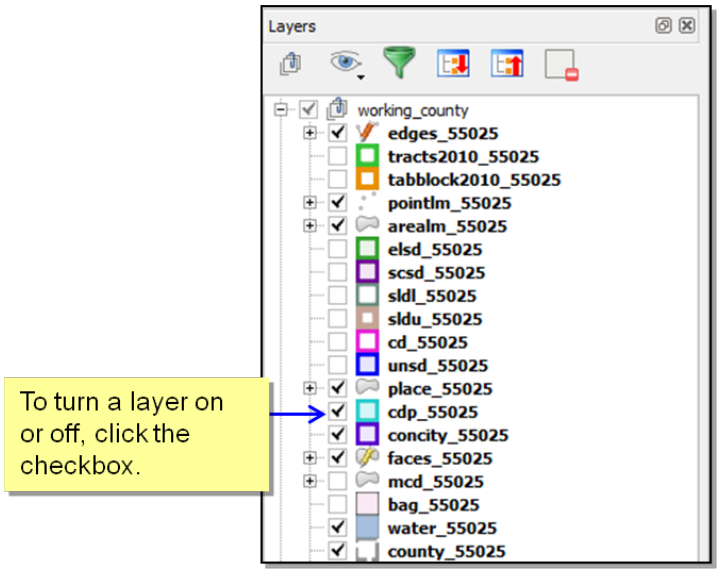


Figure 10 Data Layer Display

5.2.5.5. Adding and Removing Layers

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, or you can add user-provided data.

A click on the **Add Vector Layer** button on the Add Data Toolbar allows you to add shapefile and geodatabase files to your GUPS project. More detailed instructions, with accompanying graphics, are included under the *Add Data Toolbar* section.

To remove a layer, click on the layer you want to remove, and while holding down the CTRL key, click the **Remove Layer/Group** button on the Table of Contents menu.

5.3 Status Bar

The Status Bar, as shown in Figure 11, displays information about the map. It allows you to adjust the map scale and see the mouse cursor's coordinates on the map. Table 22 lists the Status Bar elements and their descriptions and functions.

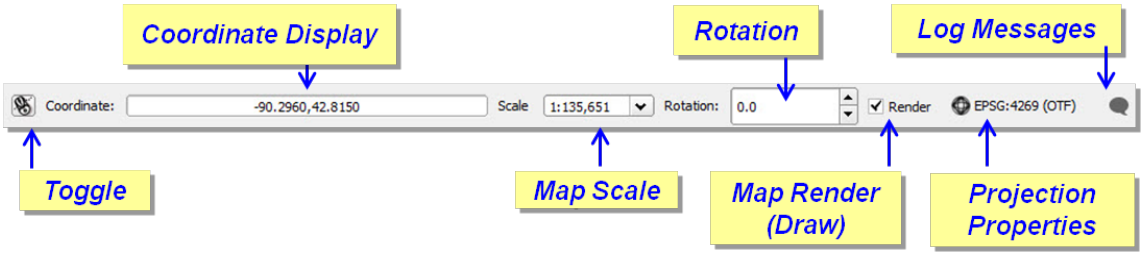


Figure 11 Status Bar

Table 22 Status Bar Element and Function/Description

Status Bar Element	Function/Description
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 the ratio of a distance on the map to the corresponding distance on the ground.
Rotation	Allows you to define a current clockwise rotation for you map view in degrees.
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.
Log Messages	Clicking on the icon will display 3 tabs that contain messages about the GUPS application launch, python scripting, and the QGIS plug-ins developed for GUPS.

Section 6. BBSP Update Activities in GUPS

Figure 12 on the next page depicts the *Suggested BBSP Workflow* for reviewing and updating Census Bureau data using GUPS. Step-by-step instructions for each of the workflow activities are outlined in a separate heading.

A State RDP Liaison participating in the BBSP may decide to perform the work in-house or delegate the work to their staff, state's counties, or a contractor. Any work performed on behalf of the State Redistricting Data Program Liaison must be submitted to the State Liaison for review and approval. Only the designated State Redistricting Data Program Liaison may submit completed work to the Census Bureau.

A BBSP participant is not required to perform all update activities shown in the workflow diagram. The area landmark, legal boundary, block area grouping, and point landmark reviews are all optional. We suggest, however, that you make the decision whether to perform each of these review/update activities based on your state's redistricting requirements and available resources. States with laws that require the re-allocation prison populations for the purposes of redistricting may wish to review the area landmarks with the MTFCCs that represent prisons (K1235, K1236, K1237, and K1238). Since legal boundaries are always tabulation block boundaries, all states may wish to review the legal boundaries, as reflected in the Census Bureau data, to ensure they are accurate as of the review date. States with numerous islands may wish to create block area groupings (BAGs) for 2020.

The Geographic Update Partnership Software contains several validation tools for quality control. These tools help ensure that BBSP updates meet the established criteria and submission files meet Census Bureau processing requirements. The validation checks include block boundary review, the small area and find holes checks as part of change polygon review, and the closed polygon check. Although the BBSP workflow shows these quality control checks as later steps in the BBSP workflow, you may initiate these checks at any time during update work. We suggest that the closed polygon check tool be utilized early during the review and update process and then periodically afterwards to lessen the possibility of extensive rework later.

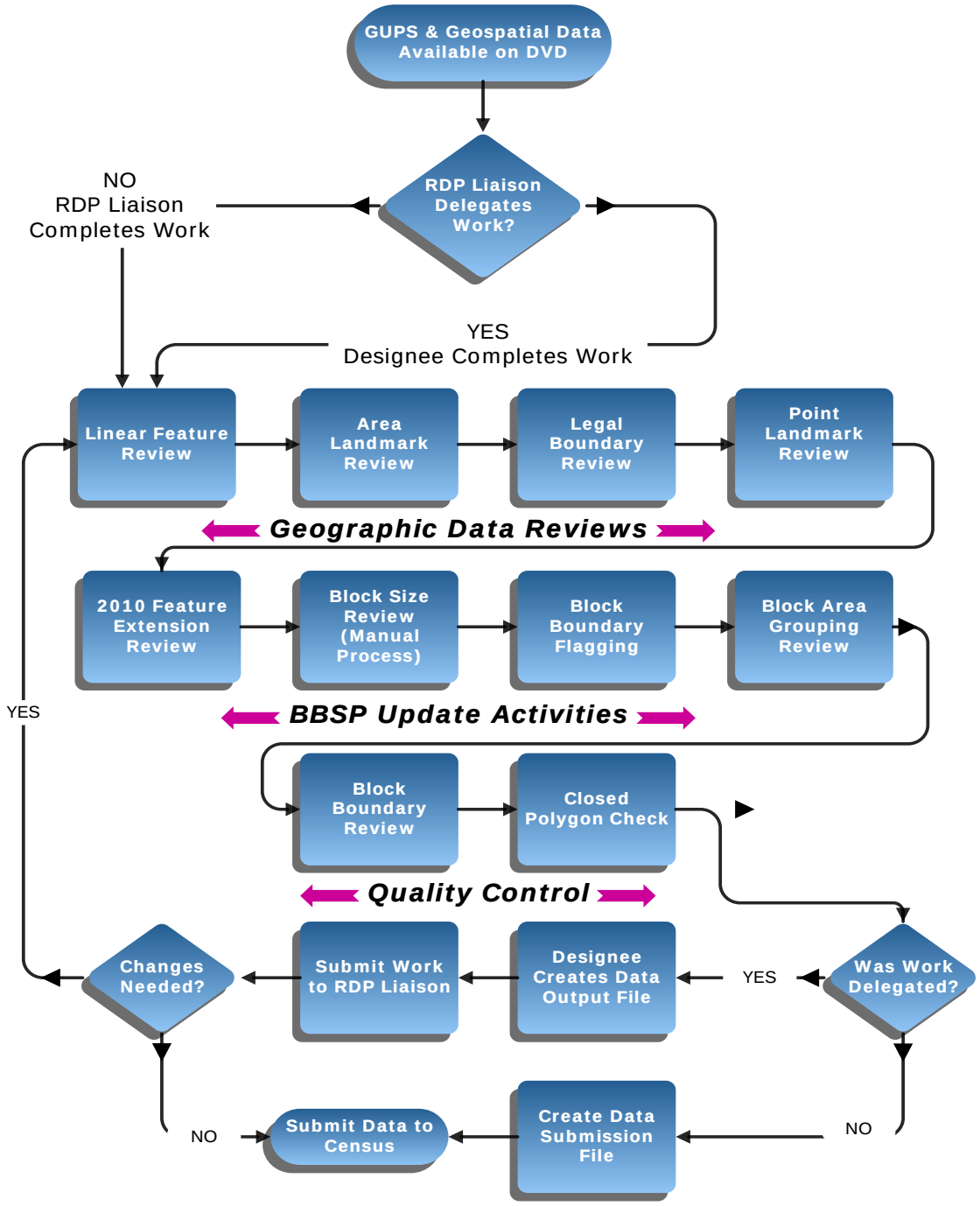


Figure 12 Suggested BBSP Workflow

6.1 Linear Feature Review

We recommend that you review the linear features in the Census Bureau file to determine whether there are missing features or existing features that should be deleted. You can import your own shapefiles, geodatabases, Web Mapping Services and/or imagery for comparison against Census Bureau data. If you plan to import data for reference purposes, follow the directions for importing user-provided geospatial data and/or web mapping services listed in the *Add Data Toolbar* section. Then return to this section for instructions for adding and deleting features or changing a feature's attribution. Another option for automatically adding imagery is to use the "Add Imagery" button on the BBSP toolbar.

Click *Appendix A2: Linear Feature Updates Permitted* for the list of feature updates the Census Bureau will accept.

Note: GUPS will not allow you to make edits (add, delete, update attributes) for many BBSP update activities, including linear feature updates, unless you are at a map scale greater than 1:20,000. This means the second number in the map scale, shown on the status bar at the very bottom of the GUPS page, must be less than 20,000.

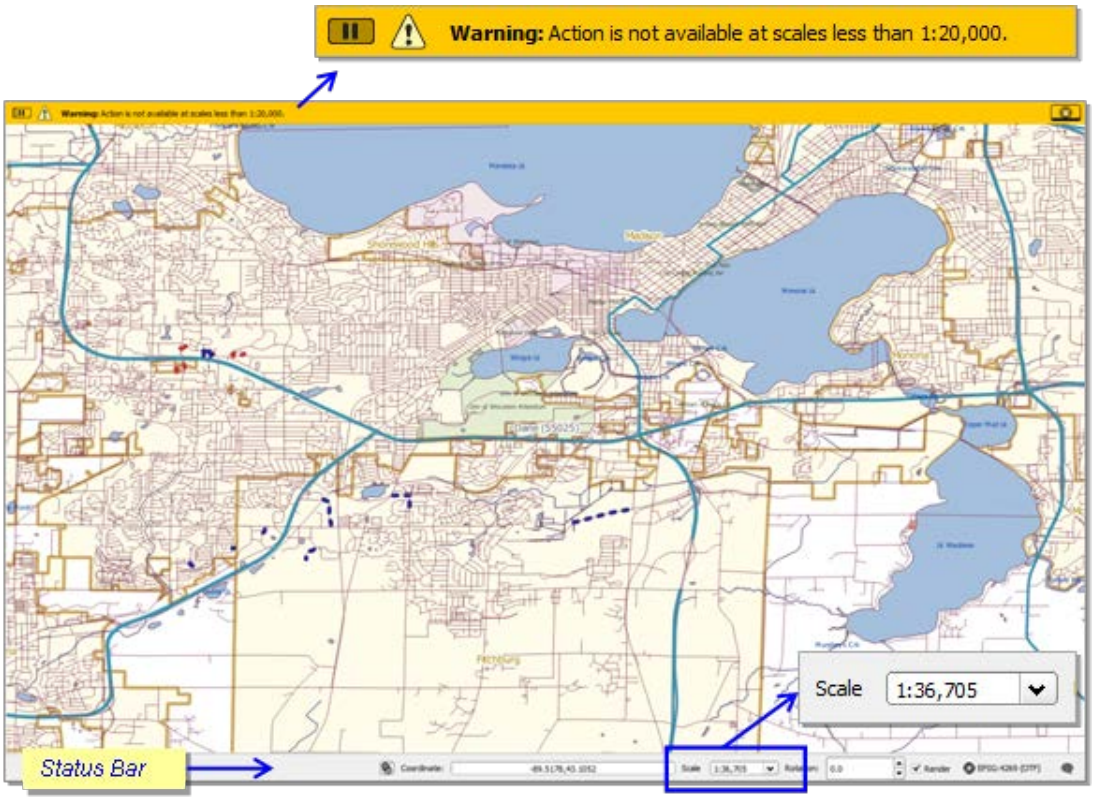
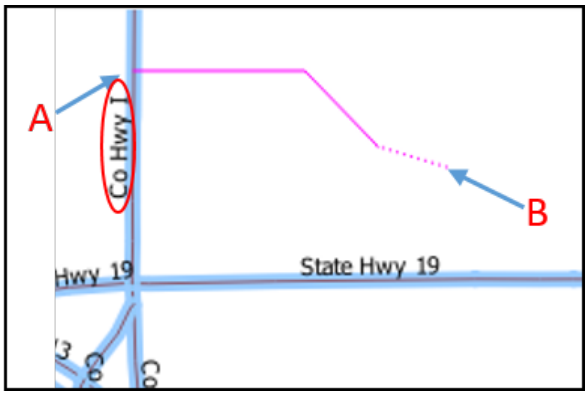
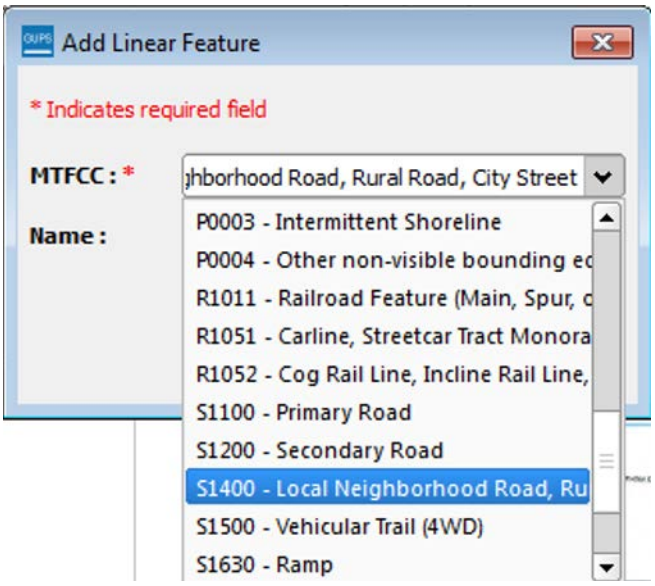
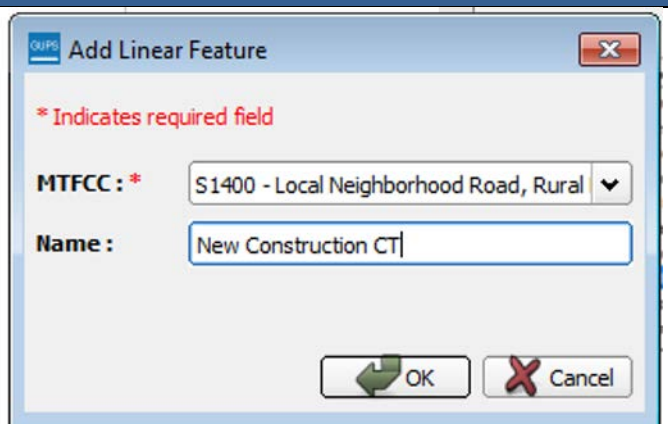
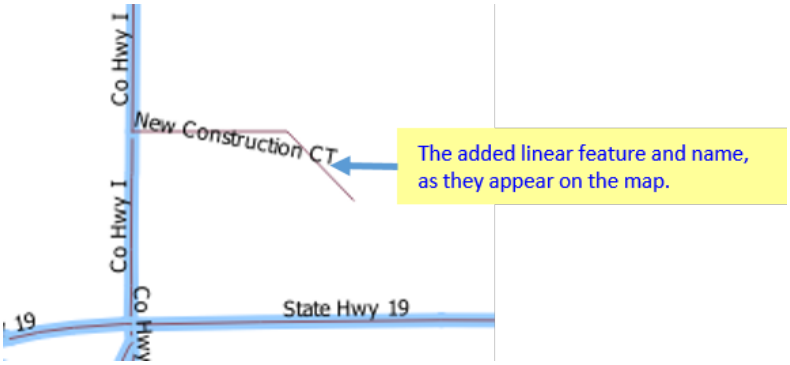


Figure 13 Warning Displayed When Working at Too Small a Scale

6.1.1 To Add a Linear Feature:

Table 23 Add a Linear Feature

Step	Action and *Result*
Step 1	Click on the **Add Linear Feature** button on the BBSP toolbar.
Step 2	Digitize the new linear feature by A) left- clicking the mouse at the starting point of line and continuing to click at each vertex (shape) point of the line. B) Right-clicking the mouse when you have completed the new line. 
Step 3	*The Add Linear Feature dialog box opens*. Click on the ***MTFCC*** drop-down menu to choose the appropriate code from the drop-down menu. 

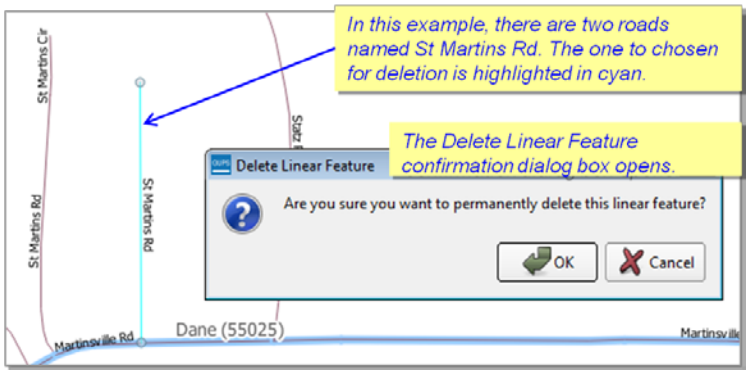
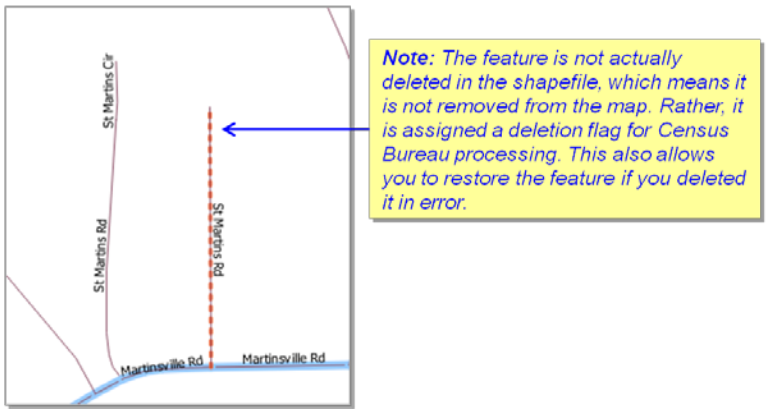
Step	Action and *Result*
	 Type the name of the feature, if the feature is named, in the ***Name*** field. Refer to Appendix B for the list of standardized street type abbreviations. Click the ***OK*** button.
Step 4	
	GUPS will not allow one linear feature to be placed on top of another. If you attempt to add a road over a boundary, a dialog box with the message "Added Line Overlays an Existing Line" opens. Instead, select the **Modify Linear Features Attributes** button on the BBSP toolbar, select the boundary line coincident with the road feature, and after the Update Attributes dialog box opens, change the MTFCC to the appropriate Sxxxx MTFCC. Provide a name for the road. The feature remains a "boundary" because all geographic entity boundaries are determined by faces (polygons), not by linear features.

6.1.2 To Delete a Linear Feature:

Note: You are not actually "deleting" a feature in the Census Bureau file. The software assigns a "deletion" change type to the feature in the attribute table. After receiving the file, the Census Bureau first reviews the deletion before deleting the feature. The feature flagged for deletion will appear on the GUPS map with a

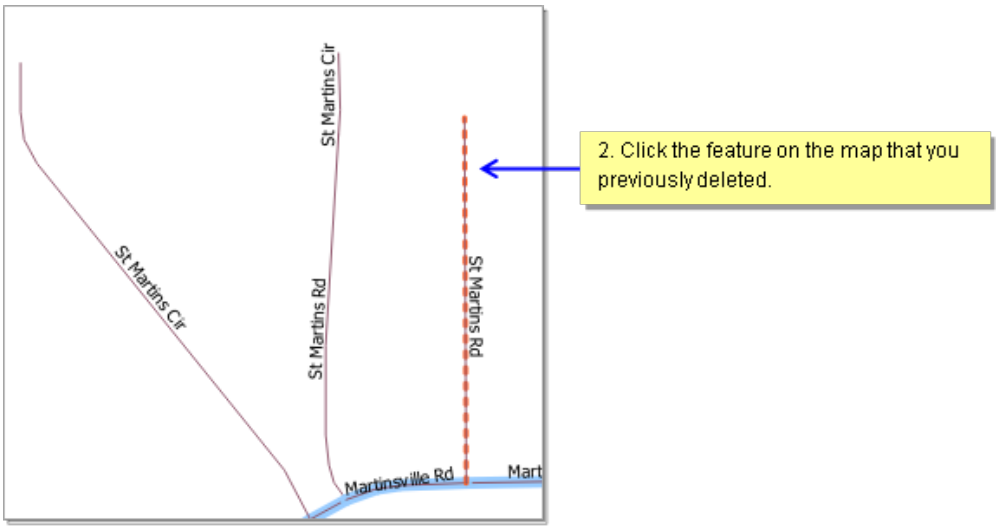
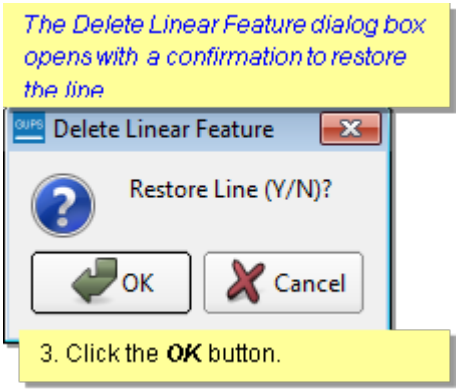
heavier weight orange dashed symbology on top of the feature's original symbology.

Table 24 Delete a Linear Feature

Step	Action and *Result*
Step 1	Click on the ***Delete Linear Feature*** button on the BBSP toolbar.
Step 2	Click on the feature(s) on the map you want to delete.  Click ***OK*** to delete the feature.
Step 3	The deleted feature appears on the map with a dashed orange line symbology on top of the original feature symbology. 
	If you delete a feature that you added, meaning the feature was not originally in the Census Bureau partnership shapefile, the GUPS actually deletes the feature. This occurs because the Census Bureau processes the "changes" from the original file. You cannot restore a deleted linear feature you added; you will need to add it again if you deleted it in error.

6.1.3 To Restore a Deleted Linear Feature:

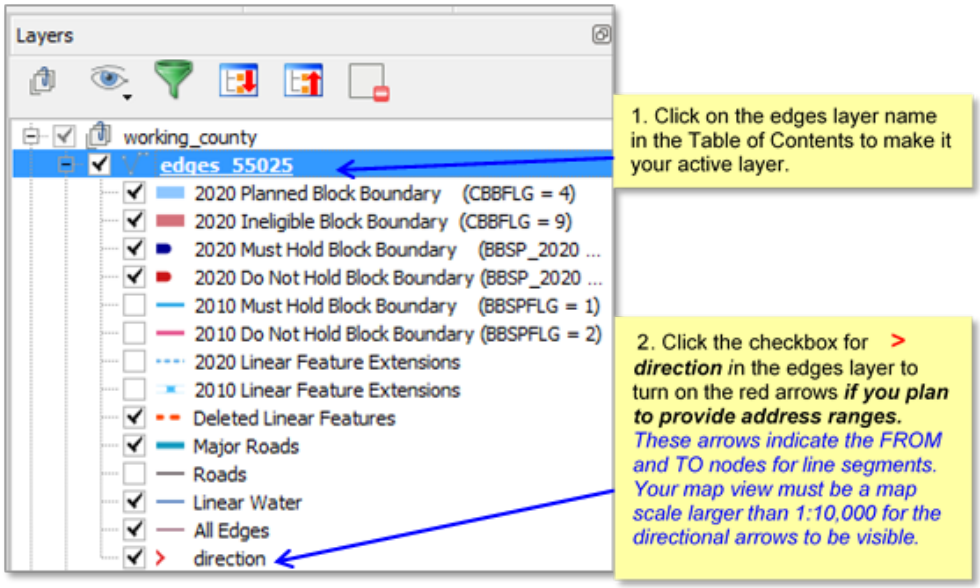
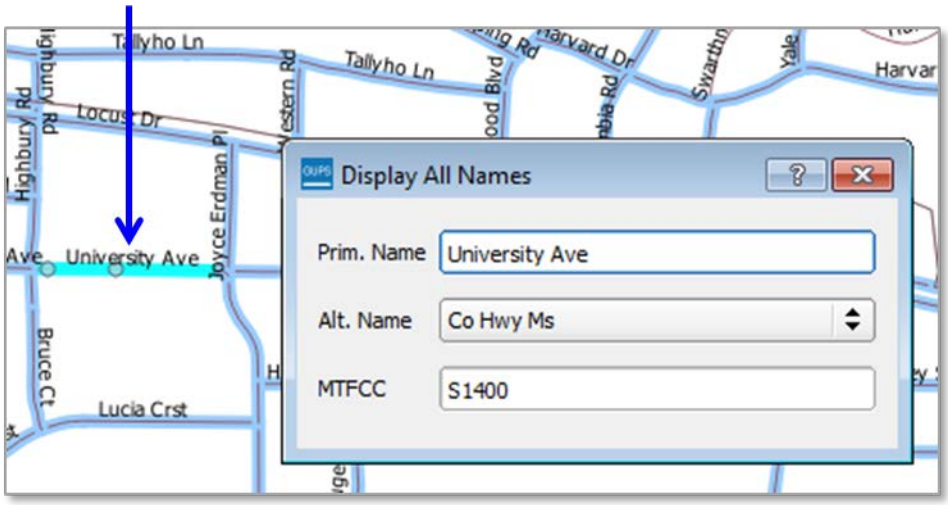
Table 25 Restore a Linear Feature

Step	Action and *Result*
Step 1	Click on the ***Delete Linear Feature*** button on the BBSP toolbar.
Step 2	
Step 3	

6.1.4 Before Changing the Attribution of a Linear Feature (Name, MTFCC, Add Address Range)

Depending on the attribute update actions you intend to initiate, there a few steps that we suggest you take first before editing a linear feature.

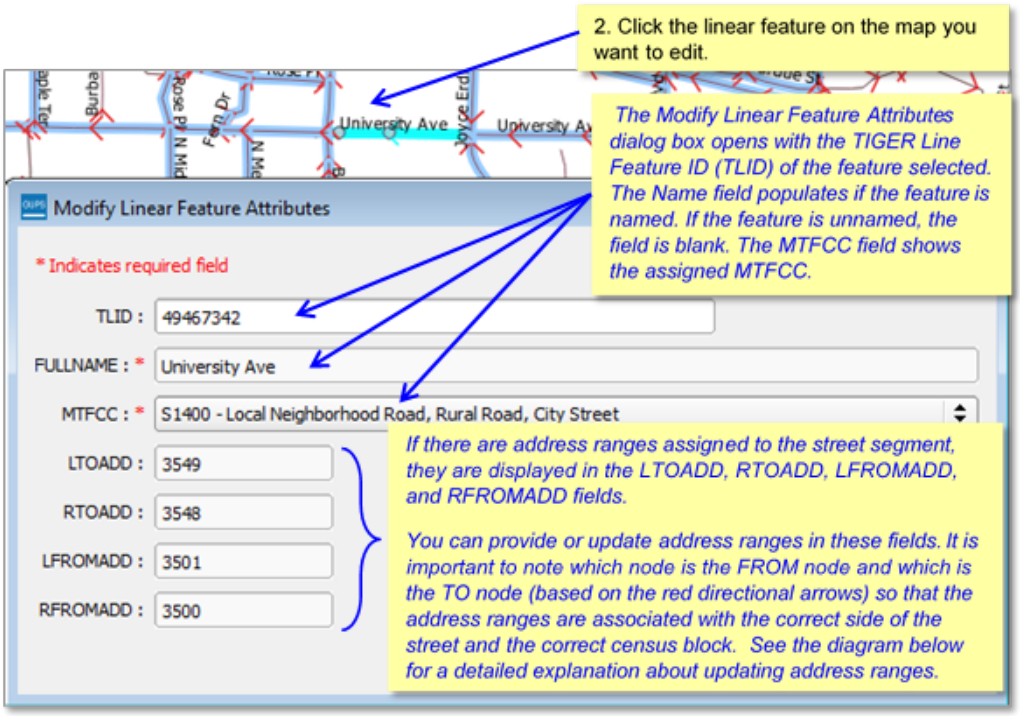
Table 26 Review the Attribution of a Linear Feature

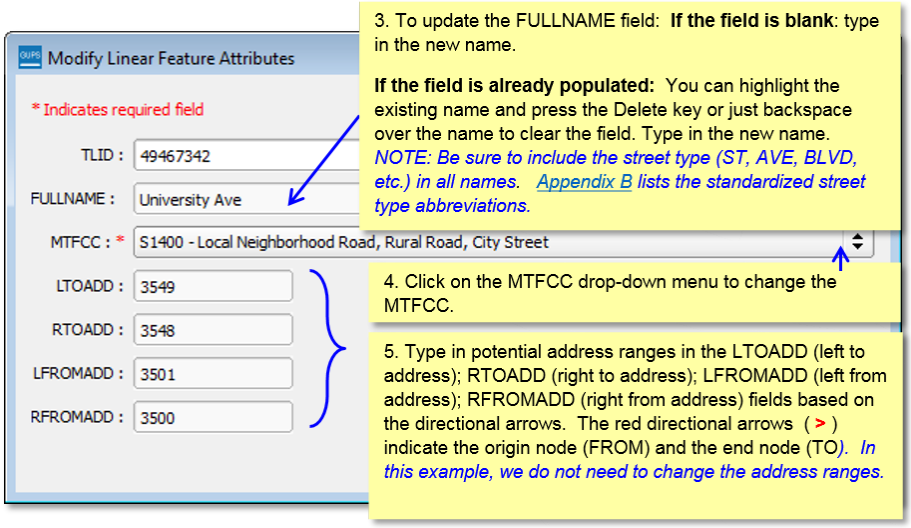
Step	Action and *Result*
Step 1 & Step 2	 Layers working_county edges_55025 2020 Planned Block Boundary (CBBFLG = 4) 2020 Ineligible Block Block Boundary (CBBFLG = 9) 2020 Must Hold Block Boundary (BBSP_2020 ... 2020 Do Not Hold Block Boundary (BBSP_2020 ... 2010 Must Hold Block Boundary (BBSPFLG = 1) 2010 Do Not Hold Block Boundary (BBSPFLG = 2) 2020 Linear Feature Extensions 2010 Linear Feature Extensions Deleted Linear Features Major Roads Roads Linear Water All Edges direction 1. Click on the edges layer name in the Table of Contents to make it your active layer. 2. Click the checkbox for > ***direction*** in the edges layer to turn on the red arrows ***if you plan to provide address ranges.*** *These arrows indicate the FROM and TO nodes for line segments. Your map view must be a map scale larger than 1:10,000 for the directional arrows to be visible.*
Step 3 through Step 5	*Before changing the name of a linear feature, check to see whether the feature has an alternative name in the partnership shapefile.* 3. Click on the ***Display All Names*** button on the BBSP toolbar. 4. Click the feature on the map. *The Display All Names dialog box opens, displaying the primary name of the feature. The Alt. Name field shows the alternate name for the feature, if one is present.* 

Step	Action and *Result*
	5. Click on the drop-down menu of the **Alt. Name** field to see a third alternative name, if one is present.

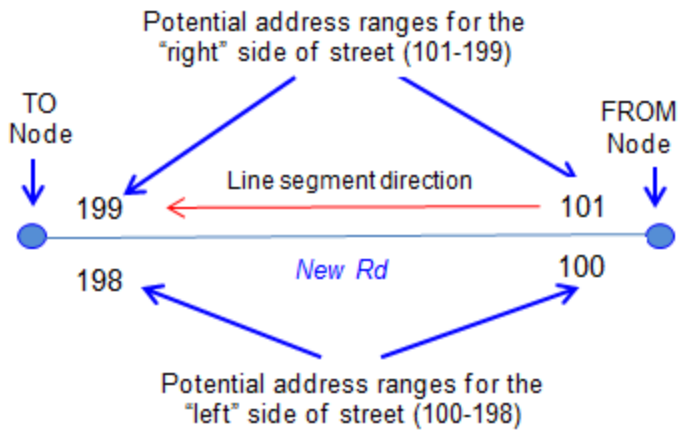
6.1.5 Edit the Attribution of a Linear Feature:

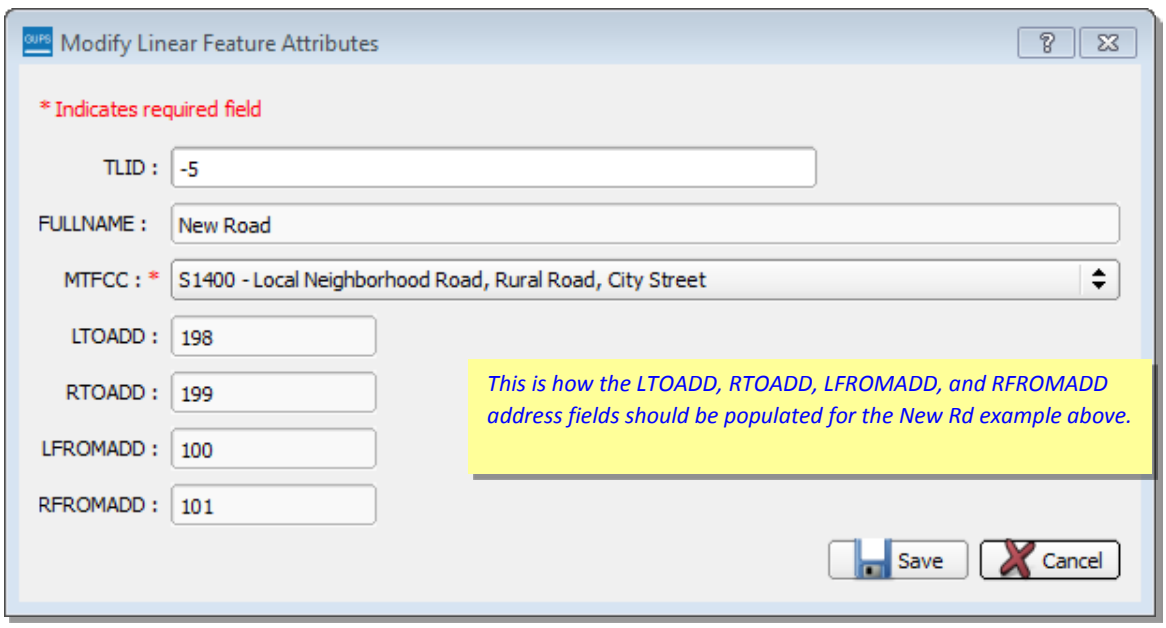
Table 27 Edit a Linear Feature

Step	Action and *Result*
Step 1	Click on the Modify Linear Feature Attributes button on the BBSP toolbar.
Step 2	

Step	Action and *Result*
Step 3 through Step 5	 Modify Linear Feature Attributes * Indicates required field TLID : 49467342 FULLNAME : University Ave MTFCC : * S1400 - Local Neighborhood Road, Rural Road, City Street LTOADD : 3549 RTOADD : 3548 LFROMADD : 3501 RFROMADD : 3500 3. To update the FULLNAME field: **If the field is blank**: type in the new name. **If the field is already populated:** You can highlight the existing name and press the Delete key or just backspace over the name to clear the field. Type in the new name. *NOTE: Be sure to include the street type (ST, AVE, BLVD, etc.) in all names. Appendix B lists the standardized street type abbreviations.* 4. Click on the MTFCC drop-down menu to change the MTFCC. 5. 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 red directional arrows (>) indicate the origin node (FROM) and the end node (TO). *In this example, we do not need to change the address ranges.*
⚠	Do **not** update the address ranges to provide **exact/actual** ranges. The Census Bureau uses potential address ranges for a number of reasons. If providing address ranges for a new street, provide potential address ranges for blocksides between intersecting features, such as 0-98, 100-198, etc. for even parity and 1-99, 101-199, etc. for odd parity address ranges.

The graphic below shows the FROM/TO nodes for a newly added road feature, which has been named *New Rd.* The illustration below the graphic indicates the "right" and "left" sides of the line segment, based on the red directional arrows which indicate the FROM and TO nodes, with the potential address ranges added.


Potential address ranges for the
"right" side of street (101-199)
TO
Node
FROM
Node
Line segment direction
199
101
198
New Rd
100
Potential address ranges for the
"left" side of street (100-198)


Modify Linear Feature Attributes
* Indicates required field
TLID : -5
FULLNAME : New Road
MTFCC : * S1400 - Local Neighborhood Road, Rural Road, City Street
LTOADD : 198
RTOADD : 199
LFROMADD : 100
RFROMADD : 101
This is how the LTOADD, RTOADD, LFROMADD, and RFROMADD address fields should be populated for the New Rd example above.
Save
Cancel

6.2 Area Landmark Review

The Census Bureau accepts updates to area landmarks, including hydrographic areas, as part of the Block Boundary Suggestion Project.

Allowable updates include:

- Boundary corrections (adding and removing area)
- Creating a new area landmark or hydrographic area
- Removing an area landmark or hydrographic area
- Changing or adding a name

Adding or removing area from an area landmark, including areal hydrography, is accomplished by selecting the face or faces (polygons) that comprise the area of change. If a face boundary does not already reflect the area needed for a boundary update, you must digitize a linear feature to split the face and assign it the proper MTFCC. Instructions for adding linear features are contained in Section 6.1.

If your state plans to reallocate prisoners during redistricting, you may wish to review the existing area landmarks with MTFCCs K1235, K1236, K1237, and K1238, which represent areas that contain prison populations.

The GUPS displays area landmarks in different symbology depending on categorization, as shown in Figure 14. Area landmarks deleted by the user are shown in gray symbology.

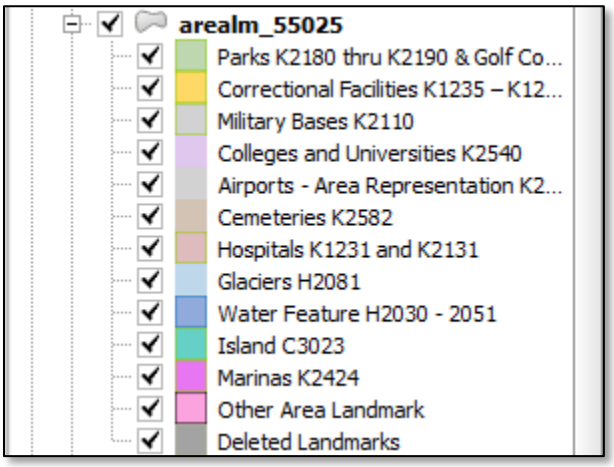
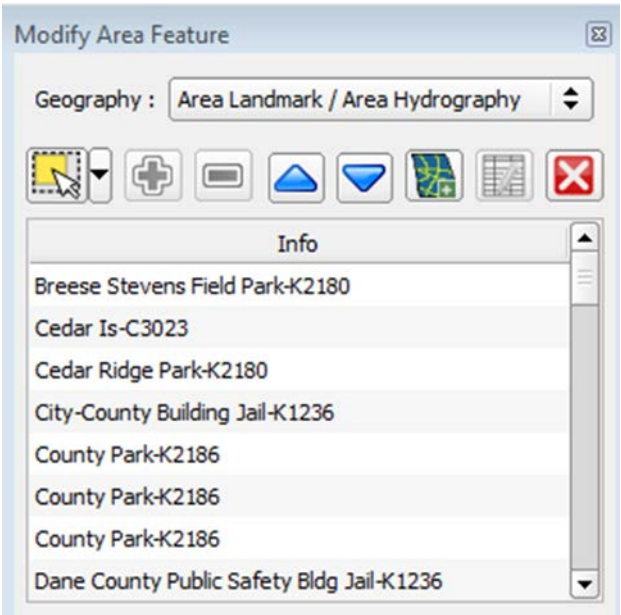


Figure 14 Area Landmark Symbology

There are some restrictions to area landmark updates. *Appendix A1: Area Landmark Updates Permitted* lists the feature updates the Census Bureau will accept.

6.2.1 To Review Area Landmarks, Including Area Hydrography:

Table 28 Review Area Landmarks

Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the BBSP toolbar.
Step 2	The Modify Area Feature dialog box opens. Choose Area Landmark/Area Hydrography from the drop-down menu. *The info window populates with the list of area landmarks and area hydrography in the county.* *Clicking on the blue arrows on the toolbar moves you up and down through the list, highlighting the feature on the map as the feature is highlighted in the Info window.* 

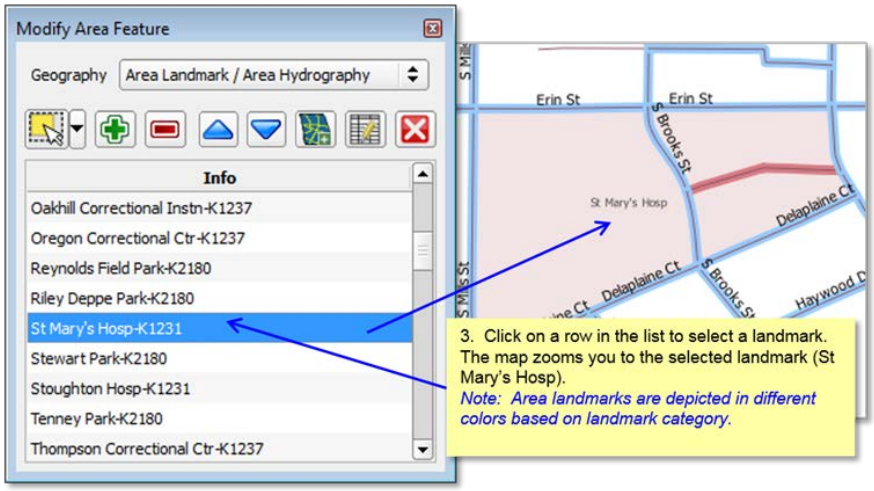
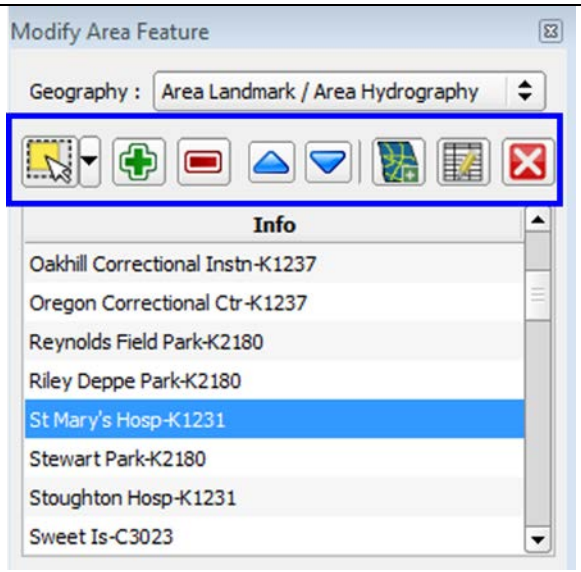
Step	Action and *Result*
Step 3	
Step 4	 You can make changes to the selected areal landmark with the tools above the Info window.

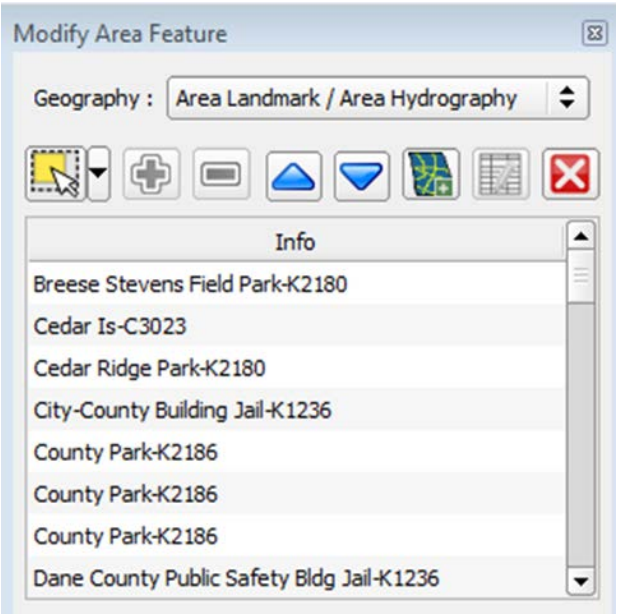
Table 29 Modify Area Feature Toolbar Buttons and Functions

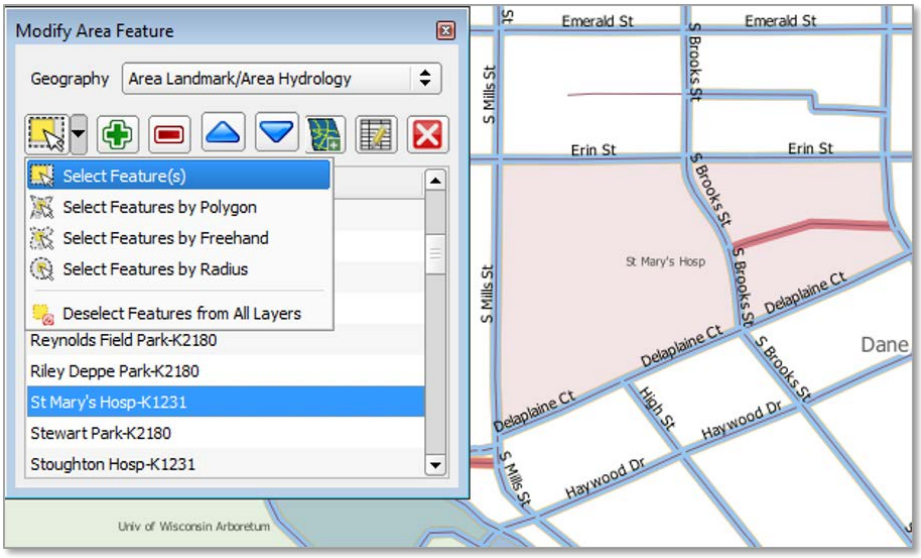
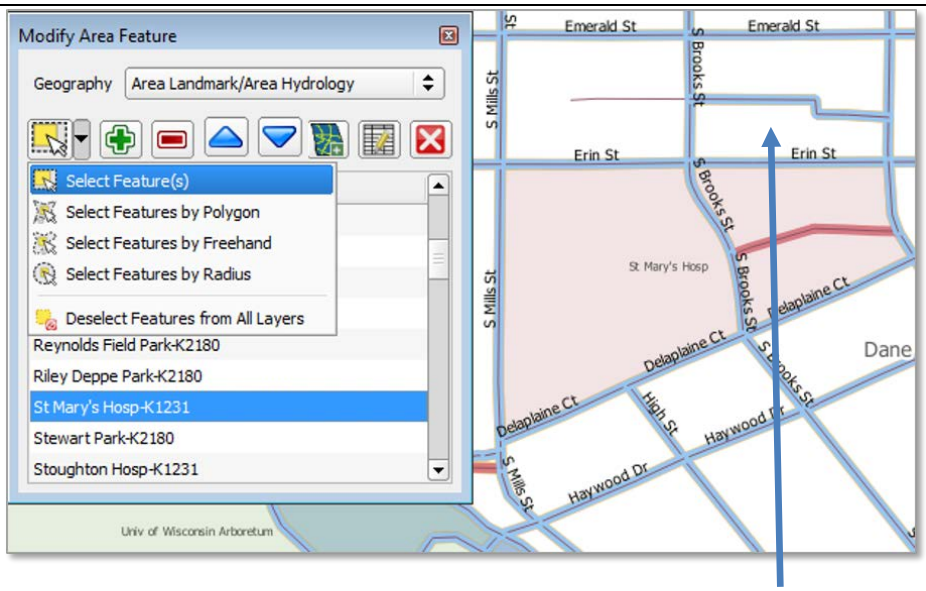
Button	Function
	Select Features
	Add selected faces to target entity

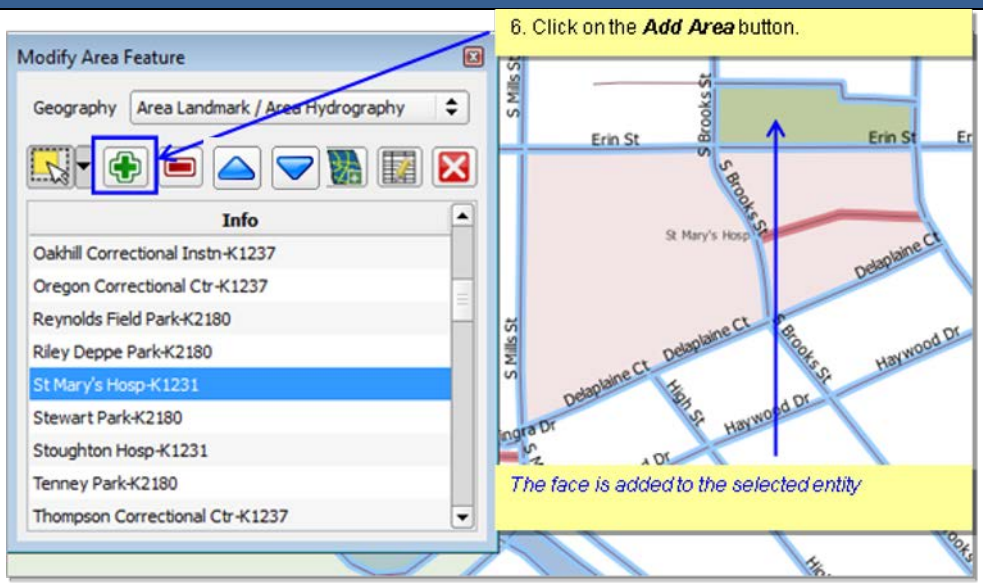
	Remove selected faces from target entity
	Select and zoom to previous entity on the list
	Select and zoom to next entity on the list
	Add new entity
	Modify attributes of target entity
	Delete selected entity

6.2.2 To Add Area to an Area Landmark:

Table 30 Add Area to an Area Landmark

Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the BBSP toolbar.
Step 2	*The Modify Area Feature dialog box opens.* Choose Area Landmark/Area Hydrography from the drop-down menu.  *The Info window populates with the list of area landmarks and area hydrography in the county.* *Clicking on the blue arrows on the toolbar moves you up and down through the list.*
Step 3 & Step 4	Click on a row in the list to select the landmark to update. The map zooms you to the selected landmark (St Mary's Hosp).

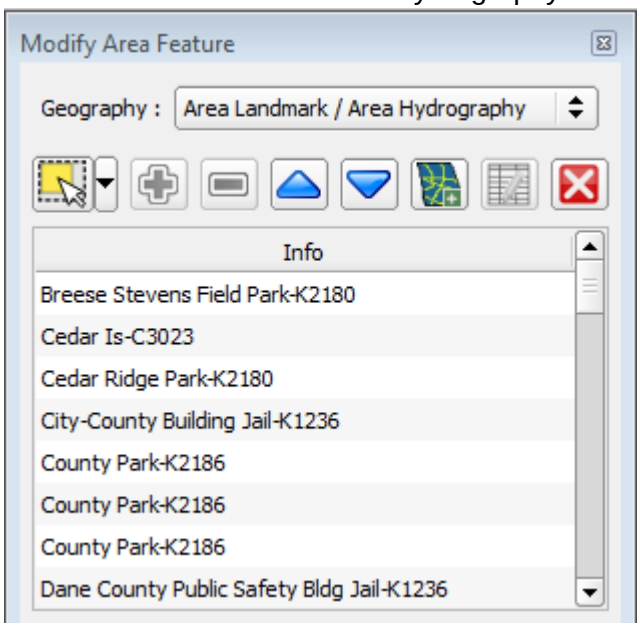
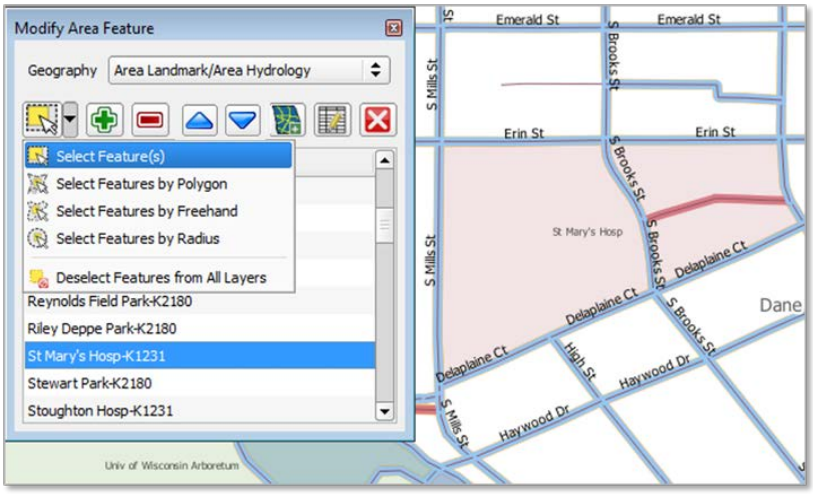
Step	Action and *Result*
	Click on the Select Features button on the toolbar. Choose the method from the drop-down menu to select the face(s) to add to the area landmark. 
Step 5	 Click on the face(s) on the map you want to add to the area landmark. To add more than one face, click on the first face, hold down the CRTL key, and click on the remaining faces you want to add.

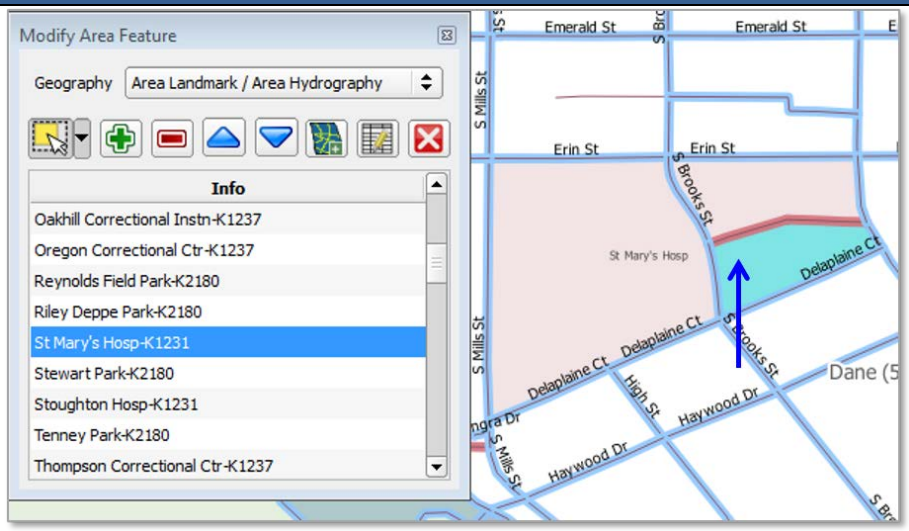
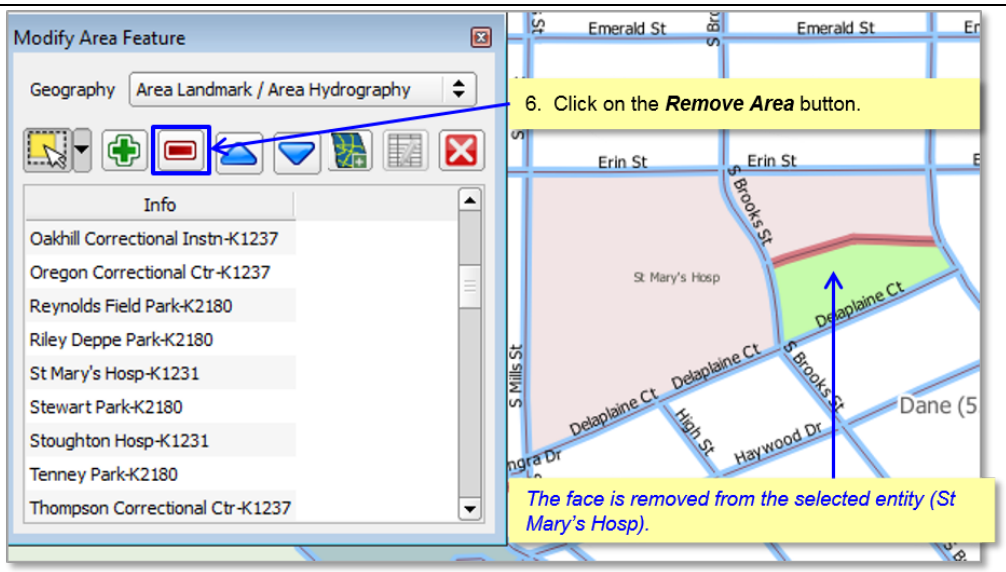
Step	Action and *Result*
Step 6	 6. Click on the **Add Area** button. Modify Area Feature Geography Area Landmark / Area Hydrography Info Oakhill Correctional Instn-K1237 Oregon Correctional Ctr-K1237 Reynolds Field Park-K2180 Riley Deppe Park-K2180 St Mary's Hosp-K1231 Stewart Park-K2180 Stoughton Hosp-K1231 Tenney Park-K2180 Thompson Correctional Ctr-K1237 Erin St S Brooks St S Mills St Delaplaine Ct Haywood Dr High St *The face is added to the selected entity*

6.2.3 To Remove Area from an Area Landmark:

Table 31 Remove an Area from an Area Landmark

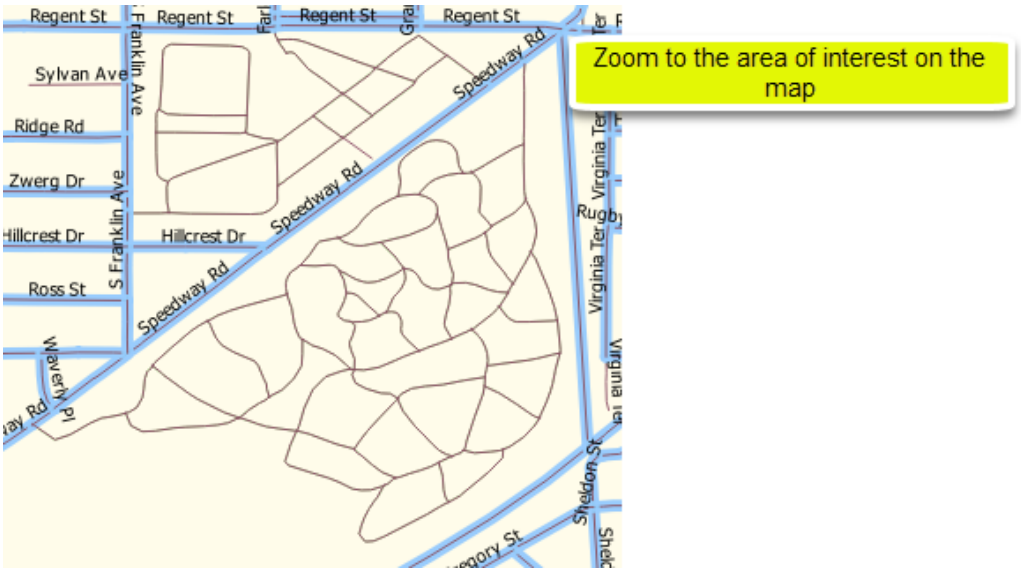
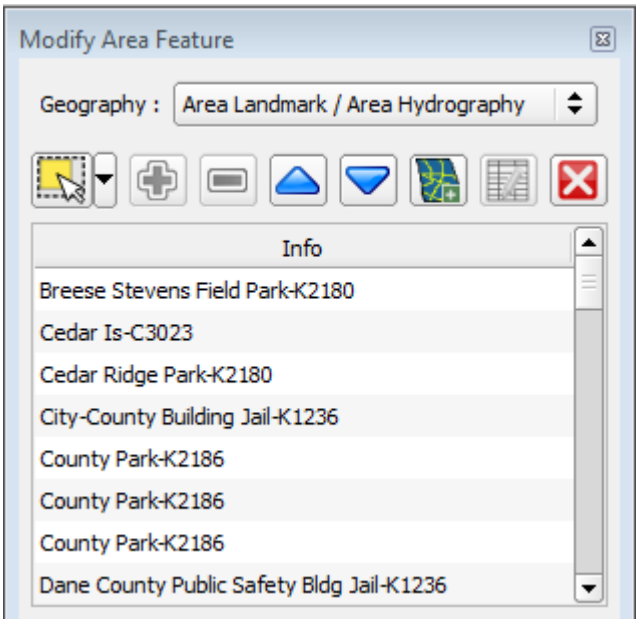
Step	Action and *Result*
Step 1	1.Click the **Modify Area Feature** button on the BBSP toolbar.
Step 2	*The Modify Area Feature dialog box opens.*

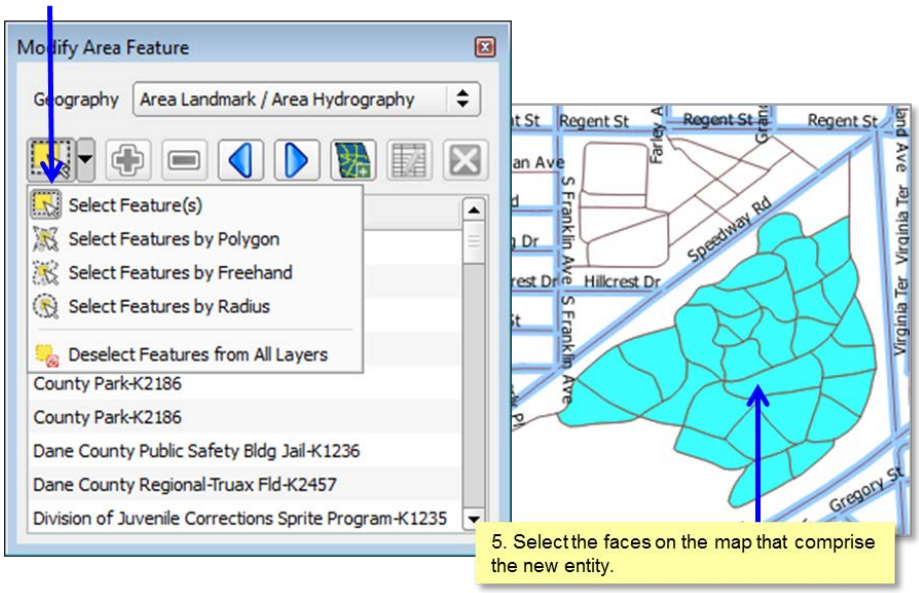
Step	Action and *Result*
	2. Choose Area Landmark/Area Hydrography from the drop-down menu.  *The Info window populates with the list of area landmarks and area hydrography in the county.* *Clicking on the blue arrows on the toolbar moves you up and down through the list, highlighting the feature on the map as the feature is highlighted In the Info window.*
Step 3 & Step 4	 3. Click on a row in the list to select the landmark to update. The map zooms you to the selected landmark (St Mary's Hosp). 4. Click on the Select Features button on the toolbar. Choose the method from the drop-down menu to select the face(s) to remove from the landmark.

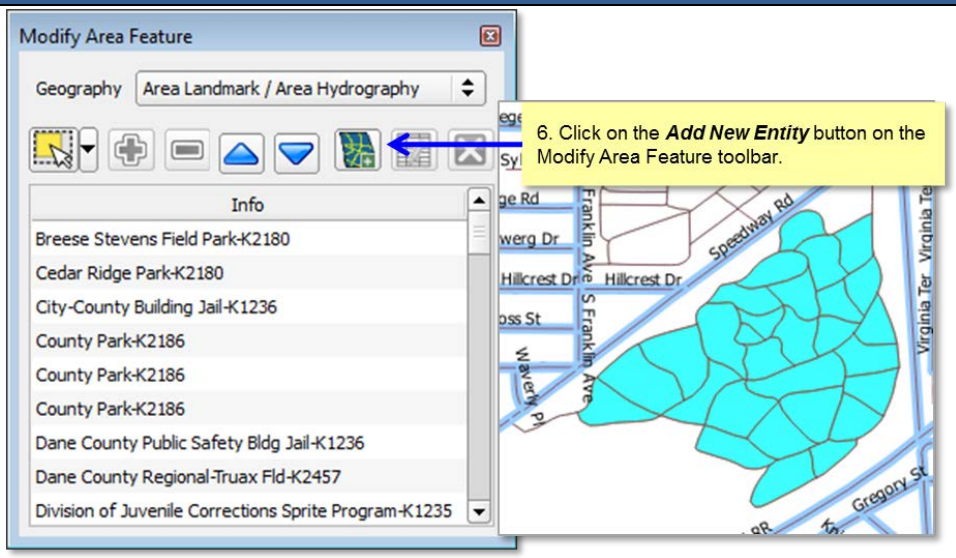
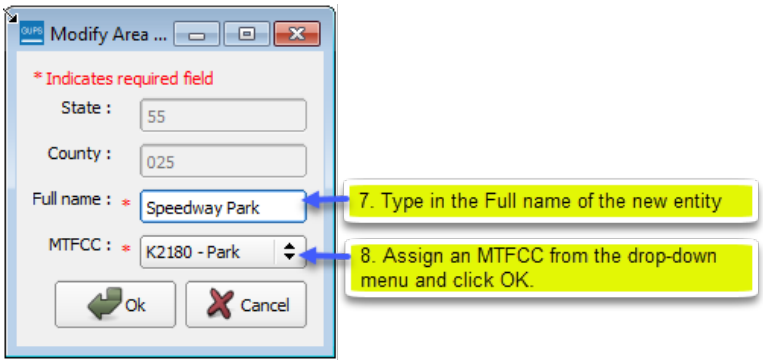
Step	Action and *Result*
Step 5	 5. Click on the face(s) on the map you want to remove from the area landmark. To remove more than one face, click on the first face, hold down the CRTL key, and click on the remaining faces you want to remove.
Step 6	

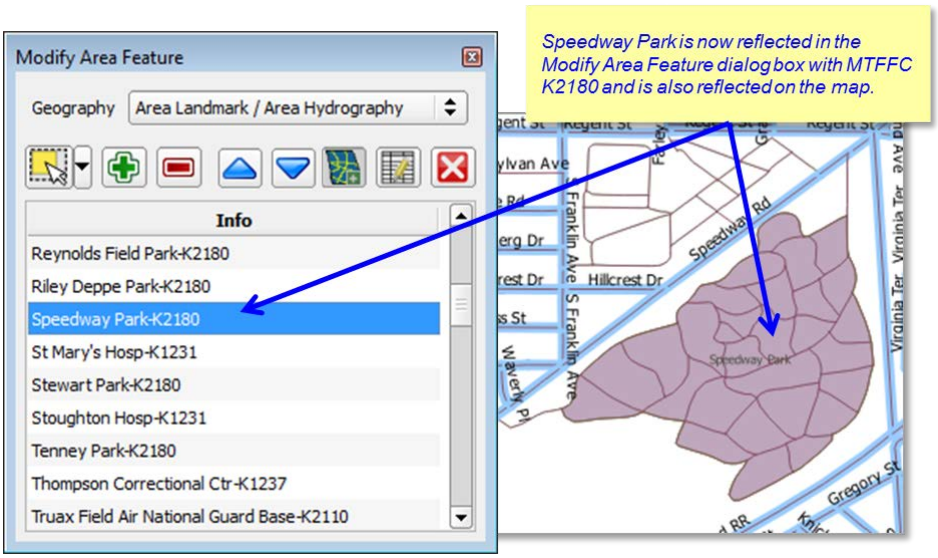
6.2.4 To Create a New Area Landmark:

Table 32 Create a New Area Landmark

Step	Action and *Result*
Step 1	
Step 2	Click the **Modify Area Feature** button on the BBSP toolbar.
Step 3	*The Modify Area Feature dialog box opens.* Choose Area Landmark/Area Hydrography from the drop-down menu.  *The Info window populates with the list of area landmarks and area hydrography in the county.*

Step	Action and *Result*
	Clicking on the blue arrows on the toolbar moves you up and down through the list, highlighting the feature on the map as the feature is highlighted in the Info window.
Step 4 & Step 5	4. Click on the Select Features button on the toolbar. Choose the selection method from the drop-down menu to add faces (polygons) to create the landmark. 
	Because areal features are comprised 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) for addition to the new entity. Click *here* for directions on adding a linear feature.

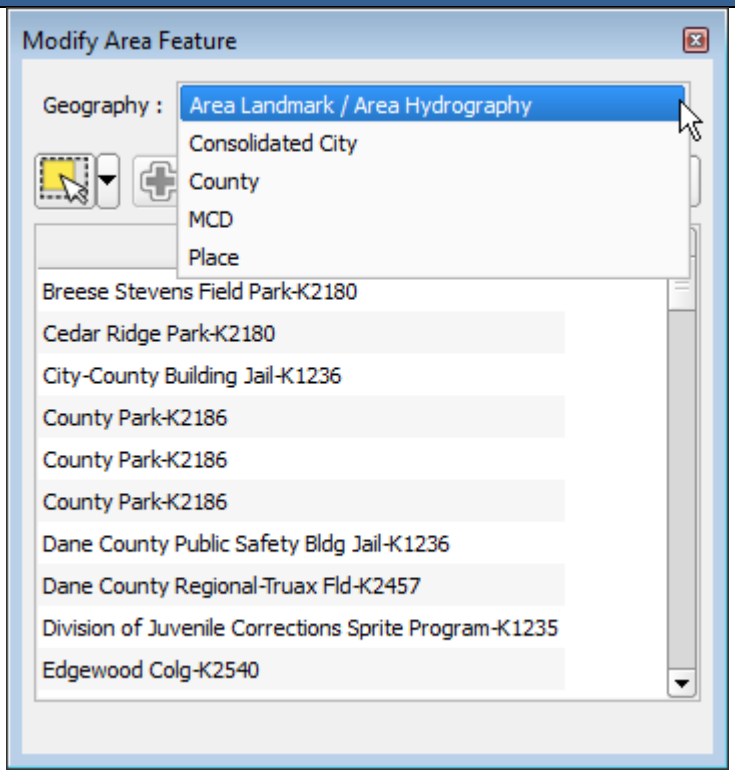
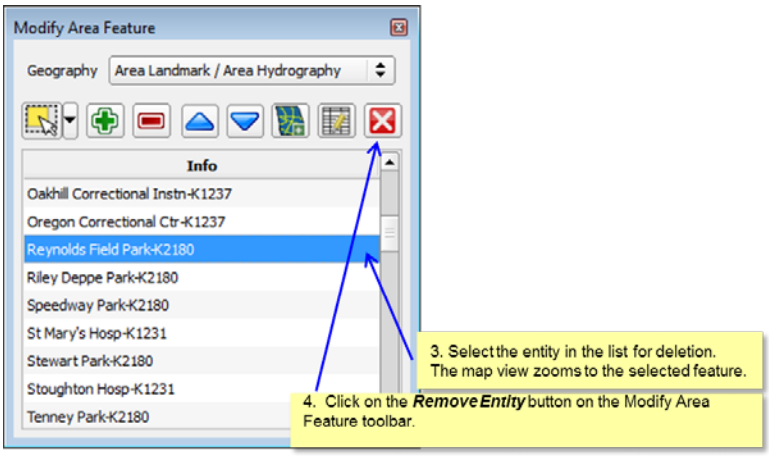
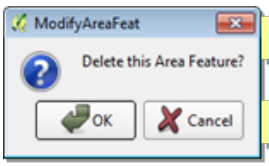
Step	Action and *Result*
Step 6	
Step 7 & Step 8	*The Add Entity Attributes dialog box opens. The State and County code fields are pre-populated.* 

Step	Action and *Result*
Step 9	

6.2.5 To Delete an Area Landmark:

Table 33 Delete a New Area Landmark

Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the BBSP toolbar.
Step 2	*The Modify Area Feature dialog box opens.* Choose Area Landmark/Area Hydrography from the drop-down menu.

Step	Action and *Result*
	 *The Info window populates with the list of area landmarks and area hydrography in the county.* *Clicking on the blue arrows on the toolbar moves you up and down through the list, highlighting the feature on the map as the feature is highlighted In the Info window.*
Step 3 **Step 4**	
Step 5	 *The Deletion confirmation dialog box opens.* 5. Click **OK** to delete the feature.

6.3 Legal Boundary Updates (New for 2020)

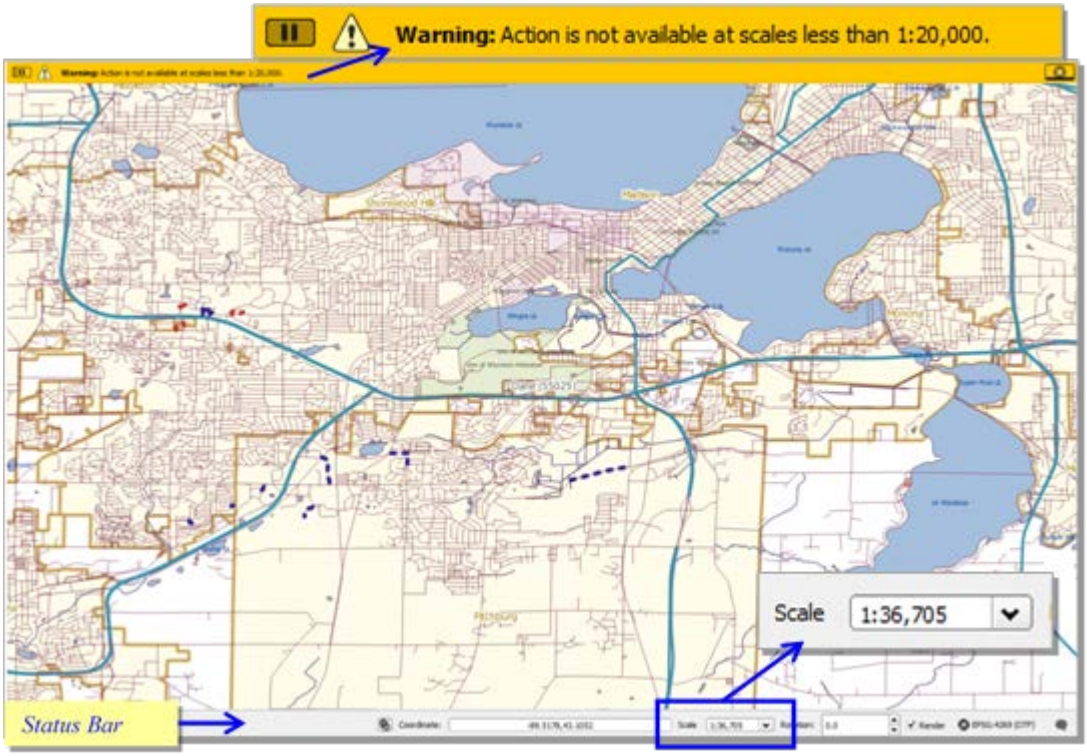
Block Boundary Suggestion Project participants may submit legal boundary updates (annexations, deannexations, incorporations and disincorporations) for counties, county subdivisions, incorporated places, and consolidated cities. You may also submit boundary corrections. The Census Bureau will reconcile the boundary submissions with the appropriate local governments as part of our 2017 Boundary and Annexation Survey.

Although legal documentation (effective date, authorization type, and ordinance number) is not *required* for boundary updates submitted through the BBSP, we strongly encourage you to submit the documentation to expedite our ability to reconcile and process any legal updates reported.

Important Note: If you do **not** plan to provide the legal documentation for a legal boundary change you must report your boundary update as a Boundary Correction, not a Legal Change. This is for Census Bureau processing purposes, regardless of whether if it is annexation or deannexation. You make this selection in the Select Output Type dialog box by clicking the radio button for *Boundary Correction.*

You do not have to provide the legal *paperwork* for a legal change, just the effective date, authorization type, and documentation number for the Census Bureau to process a change as a Legal Change.

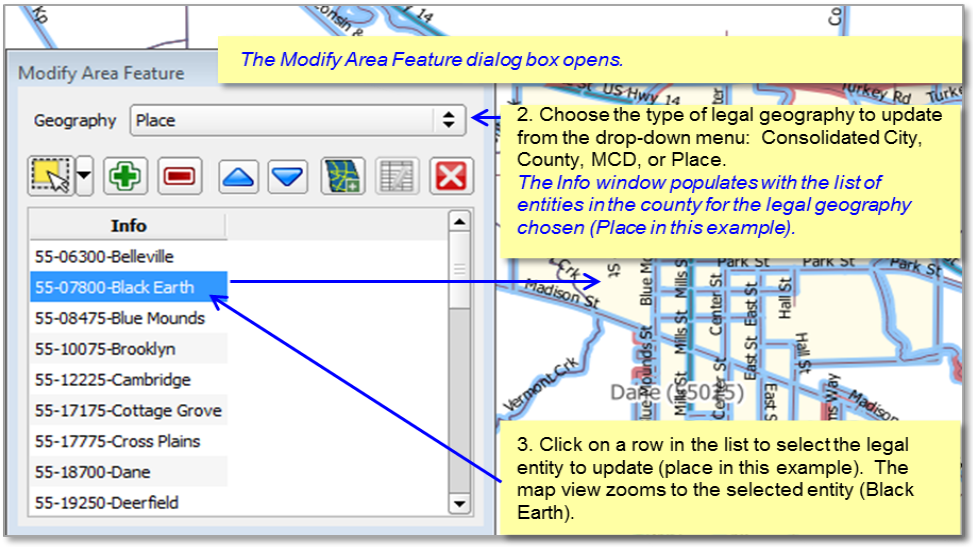
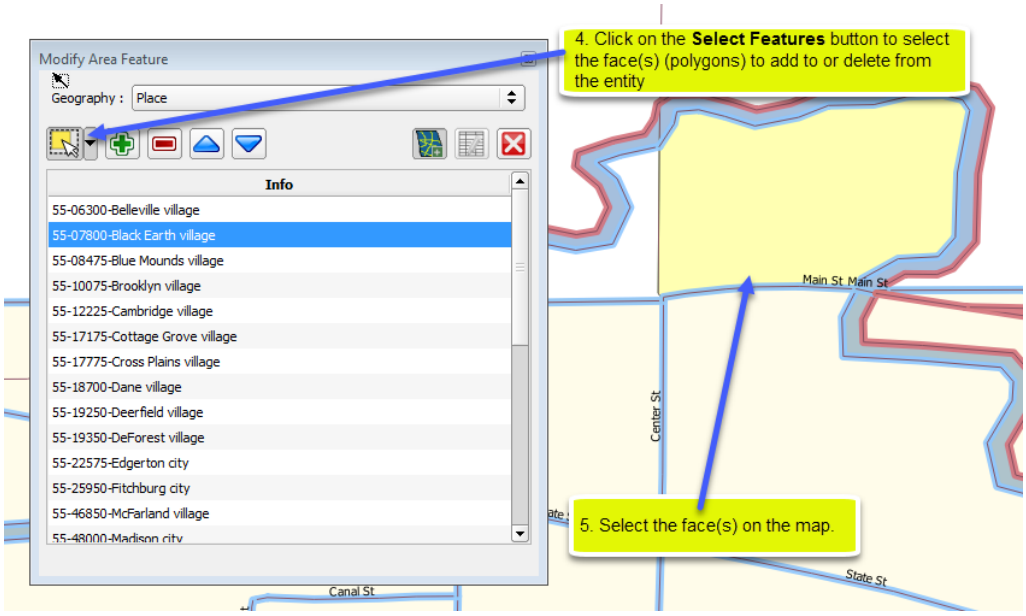
The GUPS will not allow you to make edits (add, delete, update attributes) for many BBSP update activities, including legal boundary updates, unless you are at a map scale greater than 1:20,000. This means the second number in the map scale, shown on the status bar at the very bottom of the GUPS page, must be less than 20,000.

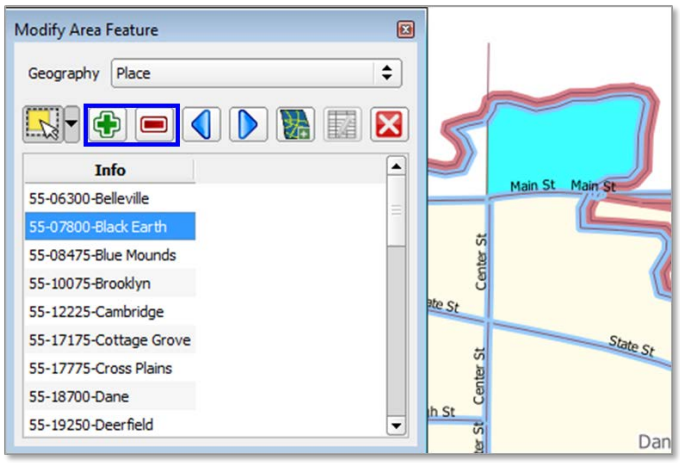


6.3.1 To Add or Delete Area to Make a Boundary Change, for both Legal Changes and Boundary Corrections

Table 34 Boundary Changes

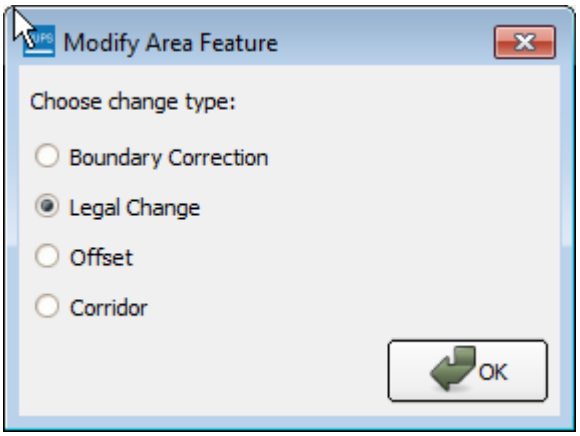
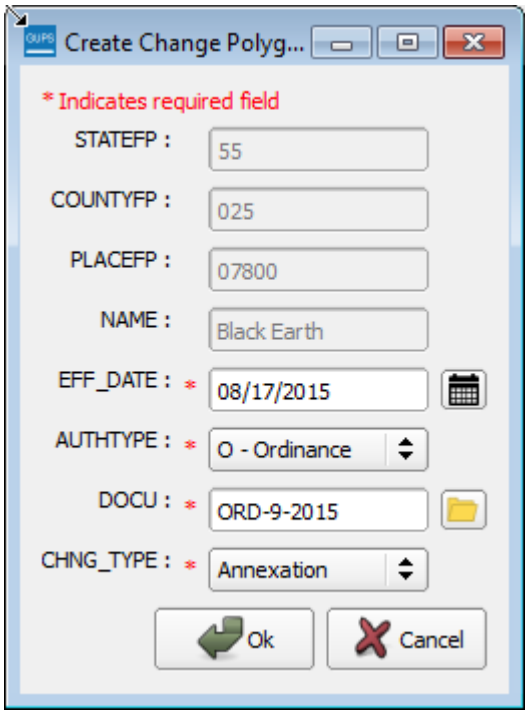
Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the BBSP toolbar.

Step	Action and *Result*
Step 2 & Step 3	
Step 4 & Step 5	

Step	Action and *Result*
Step 6	 On the Modify Area Feature toolbar, click the Add Area or the Remove Area button, as appropriate. For this example, Add Area is chosen. At this point, follow the directions for submitting a Legal Change (Table 35), or for submitting a Boundary Correction (Table 36).
	Because areal features are comprised 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) for addition to the new entity. Click *here* for directions on adding a linear feature.
	If you need to make boundary updates for an incorporated place that is located in one or more counties, and the updates are in more than one county, you must make the updates in the working county. After completing the updates in your initial working county, return to **Map Management**, select the other county as the working county, and make the boundary updates. Repeat this process for each additional county as necessary.

6.3.2 To Submit a Legal Change:

Table 35 Submit Legal Change

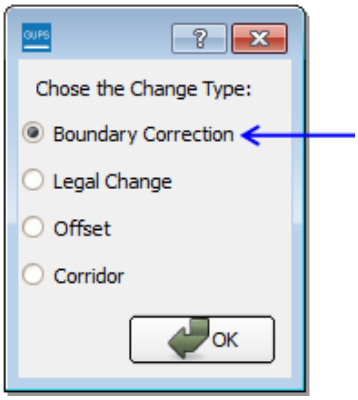
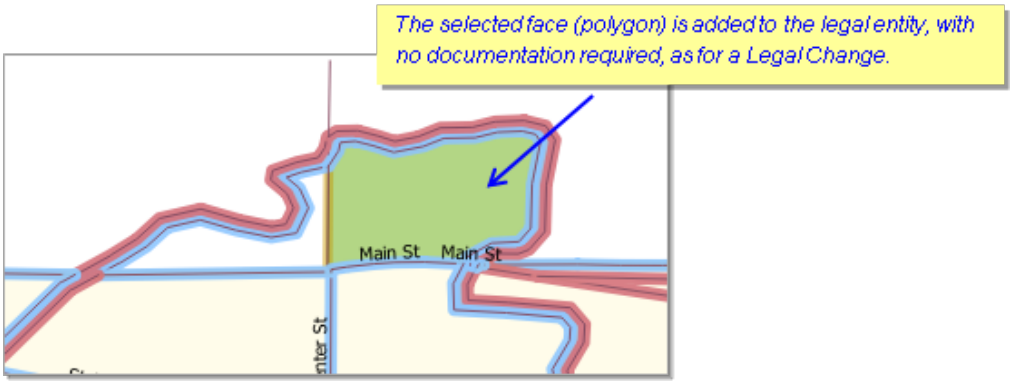
Step	Action and *Result*
Step 7	The Choose Change Type dialog box opens. Click the ***Legal Change*** radio button. 
Step 8 through Step 13	*The Create Change Polygon dialog box opens. The State, County, Place Name, and LSAD fields are prepopulated.* 

Step	Action and *Result*
	8. Fill in the ***Effective Date*** (EFF_DATE). 9. Select the **Authorization Type** (AUTHTYPE) from the drop-down menu: L – Local Law O – Ordinance R – Resolution S – State-Level Action X – Other 11. Type in the **Documentation Number** (DOCU) or appropriate information from the authorization type chosen if you do not plan to provide the actual legal action paperwork. ***OR*** Click the ***Open Folder*** button if you wish to provide the paperwork to support the documentation. Navigate to the folder on your computer to select the file for upload. The GUPS automatically populates the ***DOCU*** field with the file name. 12. Choose the appropriate ***Change Type*** (CHNG_TYPE) from the drop-down menu. 13. Click OK to save the change.

6.3.3 To Submit a Boundary Correction

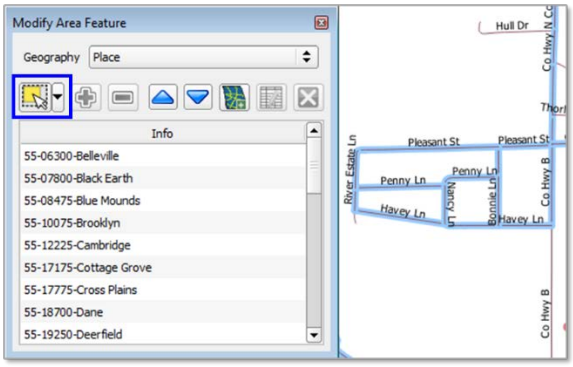
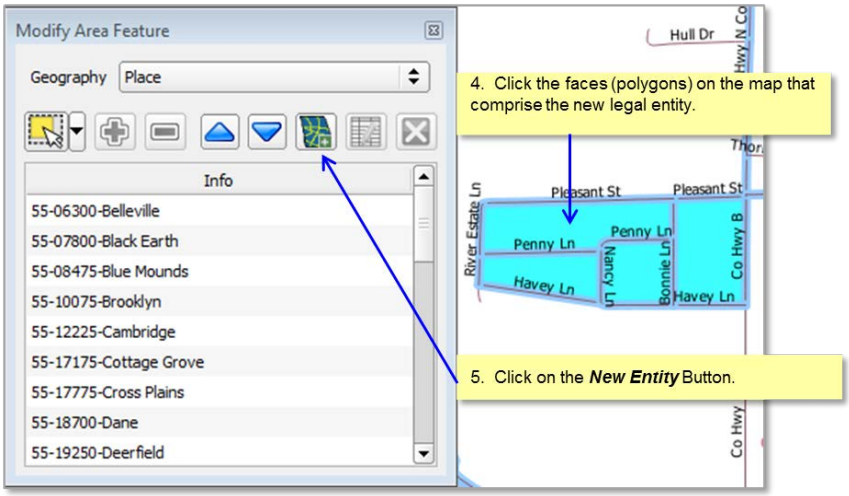
The steps for submitting a boundary change are the same as Steps 1 through 6 above, but choose the Boundary Correction radio button instead of the Legal Change radio button:

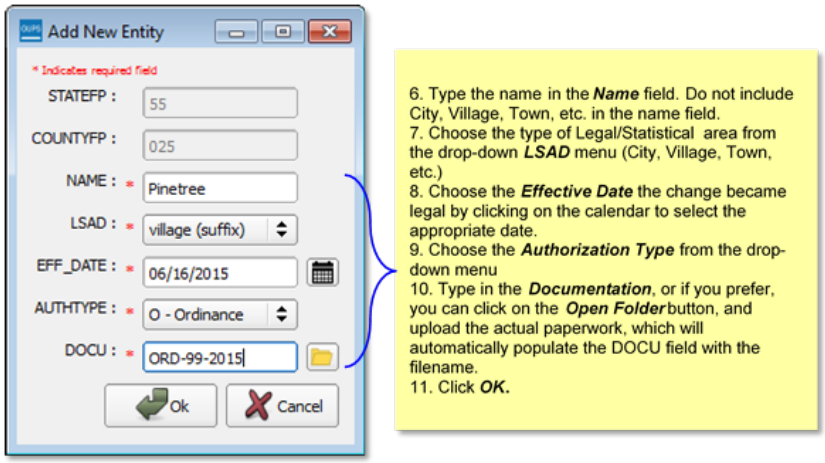
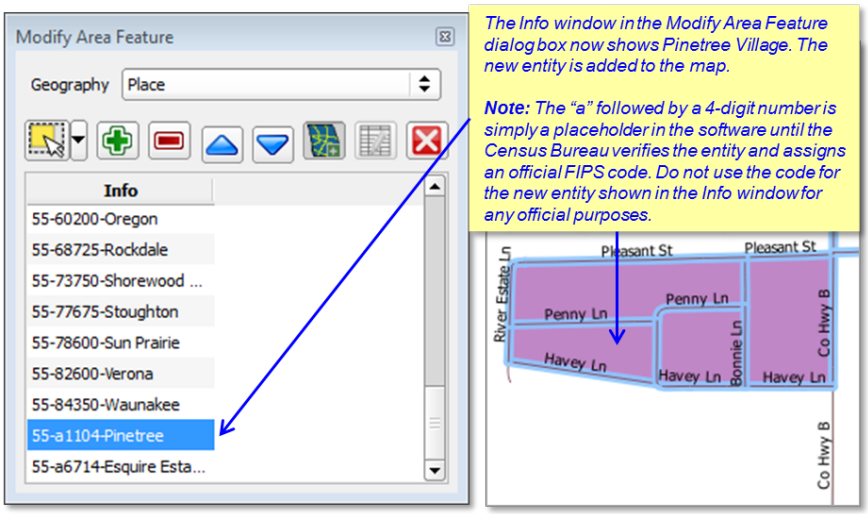
Table 36 Submit a Boundary Correction

Step	Action and *Result*
Step 7	 Click the radio button for ***Boundary Correction*.** **Click OK.** *If you plan to provide legal documentation for boundary changes such as annexations and deannexations, choose the **Legal Change** radio button. You only need to provide the effective date, authorization type, and documentation number. You are not required to provide the paperwork, although you have that option.* ***Note:** If you do not plan to provide the legal documentation (effective date authorization type, and documentation number), then choose the **Boundary Correction** radio button.*
Step 8	

6.3.4 To Add a New Legal Entity:

Table 37 Add a New Legal Entity

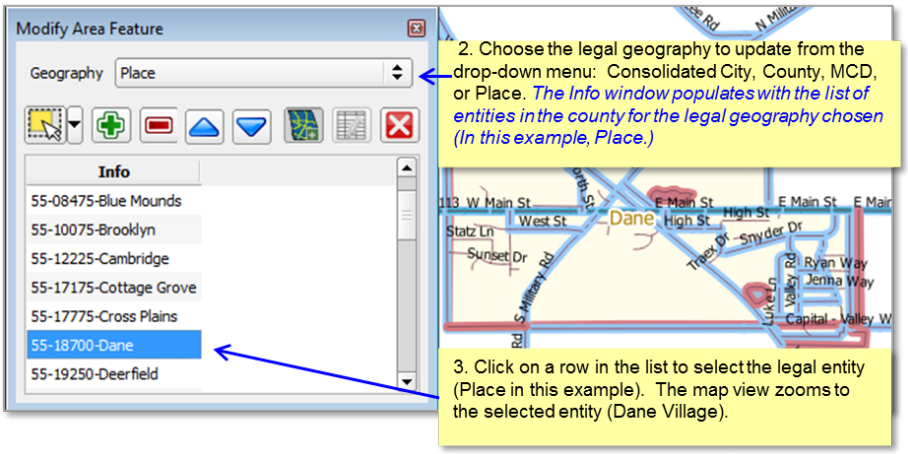
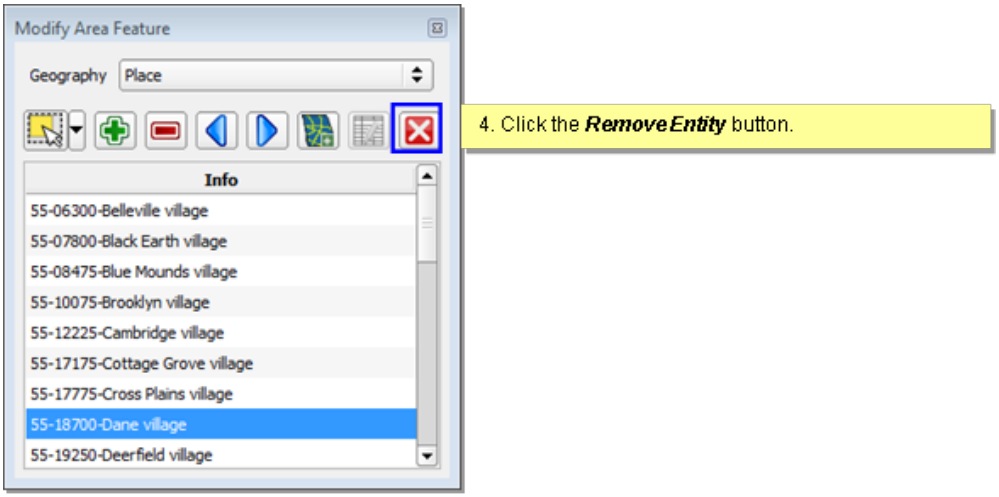
Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the BBSP toolbar.
Step 2 through Step 3	2. Click on the Geography drop-down menu to choose the type of legal entity to add. 3. Click the Select Features button. 
Step 4 through Step 5	
Step 6 through Step 11	*The Add New Entity dialog box opens.*

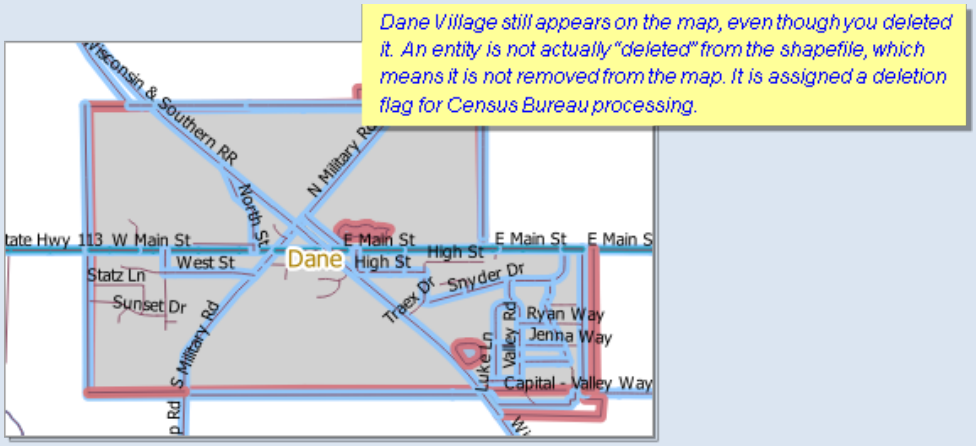
Step	Action and *Result*
	
Step 12	
	If the new entity crosses a county boundary, you must add the new entity in both counties separately. After making the change in your working county, return to **Map Management**, select the other county as the working county, and proceed to add the new entity in this county as well. If the added entity crosses more than one county boundary, complete the addition in each county affected.

6.3.5 To Delete a Legal Entity

Table 38 Delete a New Legal Entity

Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the BBSP toolbar.

Step	Action and *Result*
Step 2 through Step 3	*The Modify Area Feature dialog box opens.* 
Step 4	
	If the deleted entity crosses a county boundary, you must delete the entity in both counties separately. After making the change in your working county, return to **Map Management**, select the other county as the working, and proceed to delete the entity in this county as well. If the deleted entity crosses more than one county boundary, complete the deletion in each county affected.
Step 5	

Step	Action and *Result*
	

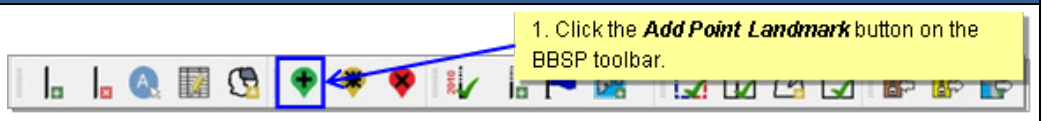
6.4 Point Landmark Review

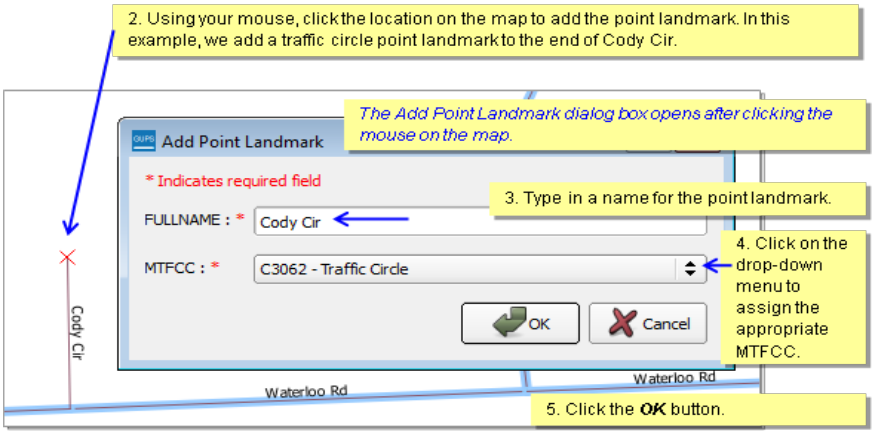
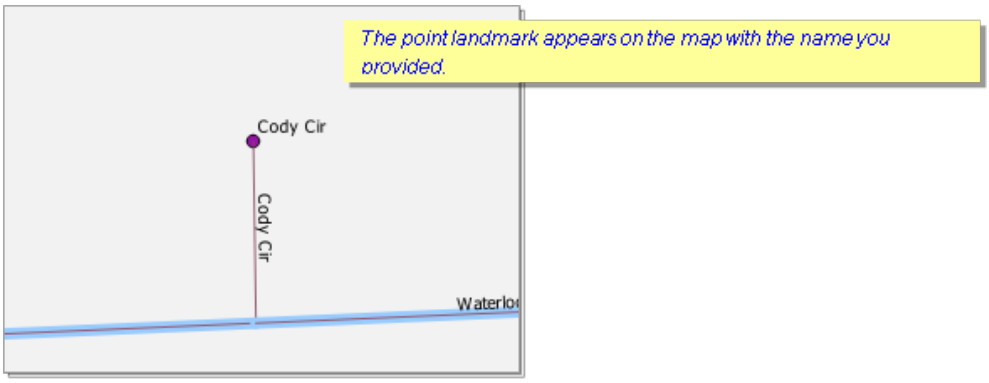
Point landmark review is an optional activity. Updates are limited because many of the point landmarks stored in the MAF/TIGER System originate from the national Geographic Names Information System. *Appendix A3: Point Landmark Updates Permitted,* lists the feature updates the Census Bureau will accept.

> The GUPS will not allow you to make edits (add, delete, update attributes) for many BBSP update activities, including point landmark updates, unless you are at a map scale greater than 1:20,000. This means the second number in the map scale, shown on the status bar at the very bottom of the GUPS page, must be less than 20,000.

6.4.1 To Add a Point Landmark:

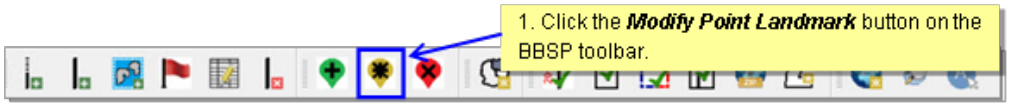
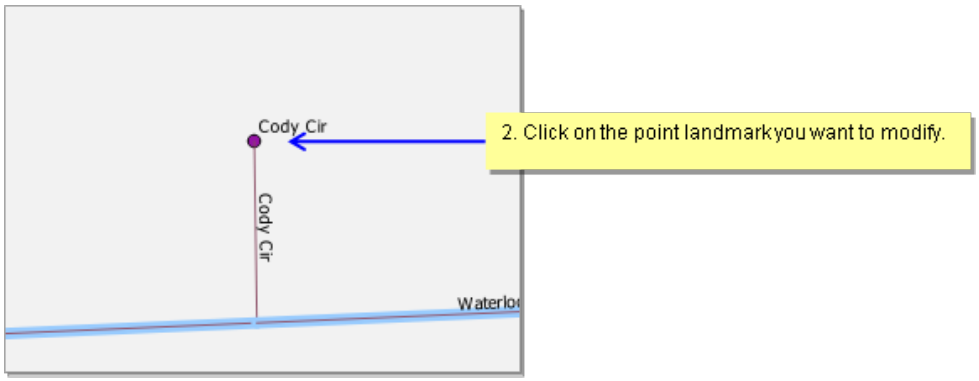
Table 39 Add a Point Landmark

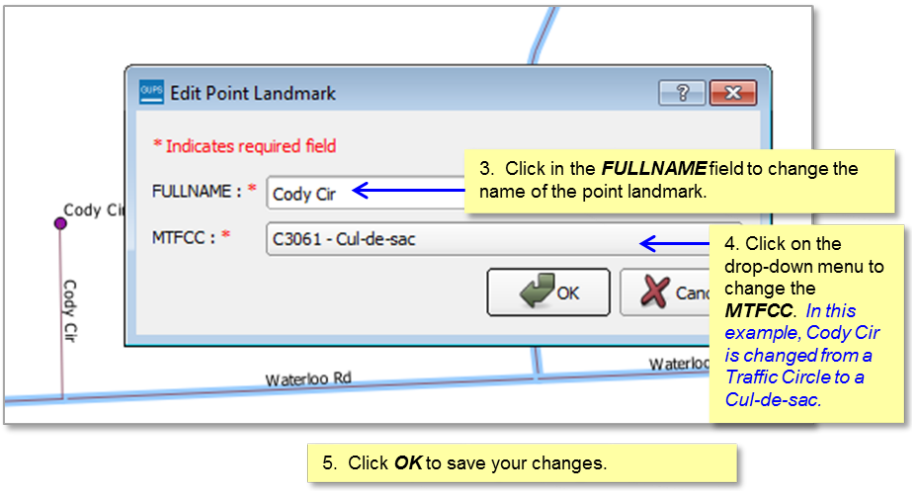
Step	Action and *Result*
Step 1	

Step	Action and *Result*
Step 2 through Step 5	
Step 6	

6.4.2 To Modify Point Landmark Attribution:

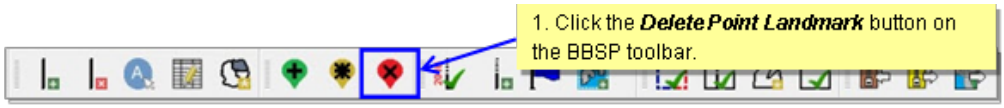
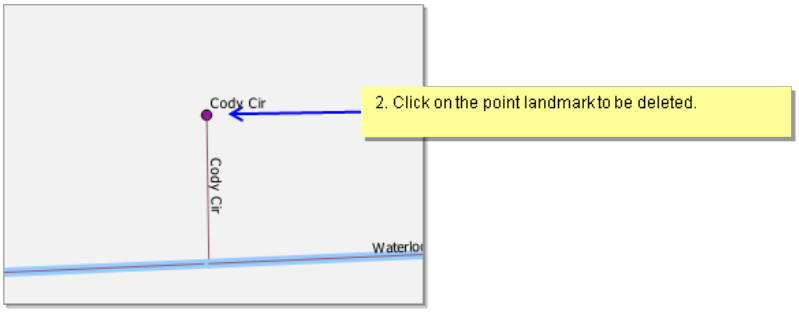
Table 40 Modify Point Landmark Attribution

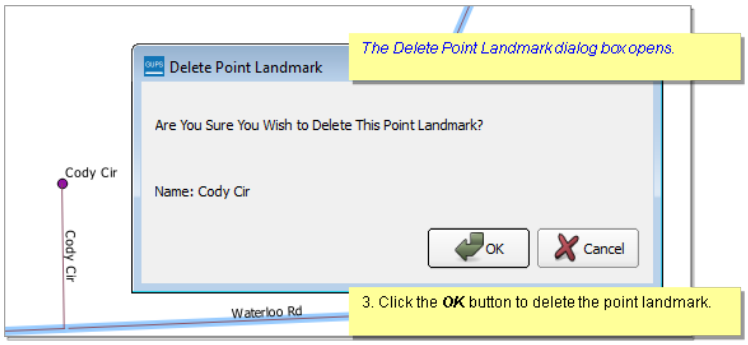
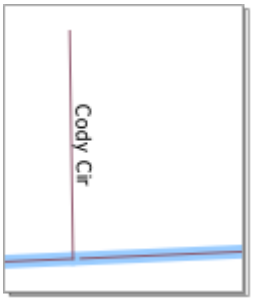
Step	Action and *Result*
Step 1	
Step 2	

Step	Action and *Result*
Step 3 through Step 5	*The Edit Point Landmark dialog box opens.* 

6.4.3 To Delete a Point Landmark:

Table 41 Delete a Point Landmark

Step	Action and *Result*
Step 1	
Step 2	

Step	Action and *Result*
Step 3	
Step 4	The point landmark is deleted.  *Note: In this instance, the point landmark no longer appears on the map because this feature was not originally in the Census Bureau shapefile, it was a user- added feature. Existing features in the Census Bureau shapefile that are deleted by the user still appear on the map, but with different symbology and a deletion flag assigned for Census Bureau processing.*

6.5 2010/2020 Linear Feature Extension Review

GUPS allows you to review the 2010 and 2020 feature extensions. Please be aware that if you would like a 2010 feature extension held as a 2020 block boundary, you must take an action on the feature extension. The Census Bureau will not automatically hold the 2010 feature extensions as block boundaries for 2020. If you created 2020 feature extensions during BBSP last year, you do not need to take any further action for those to be considered.

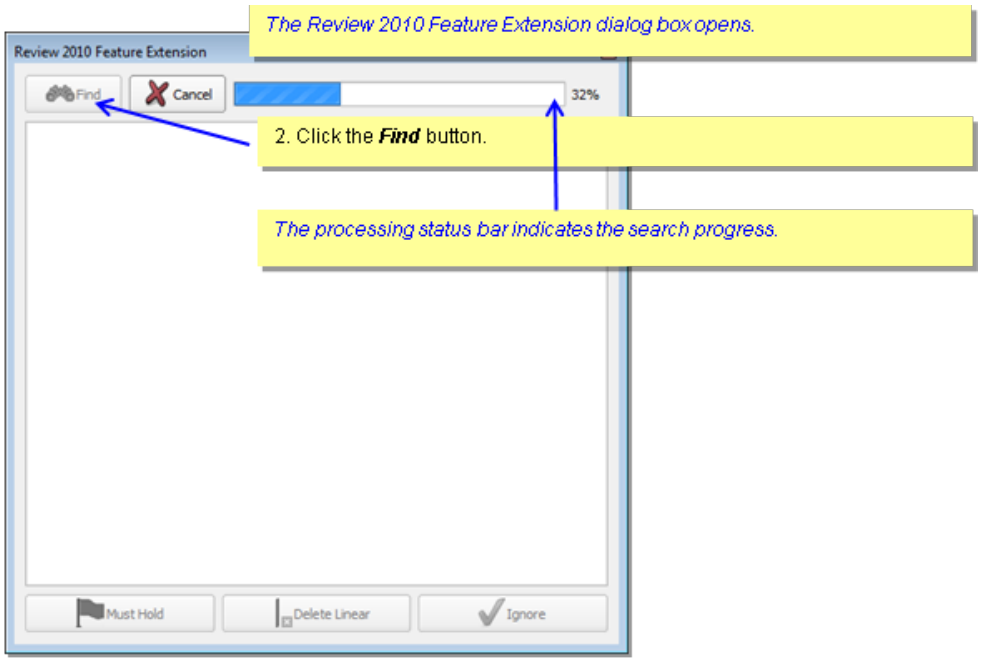
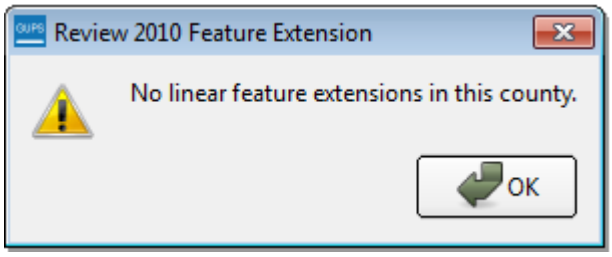
During the 2010 feature extension review, you may:

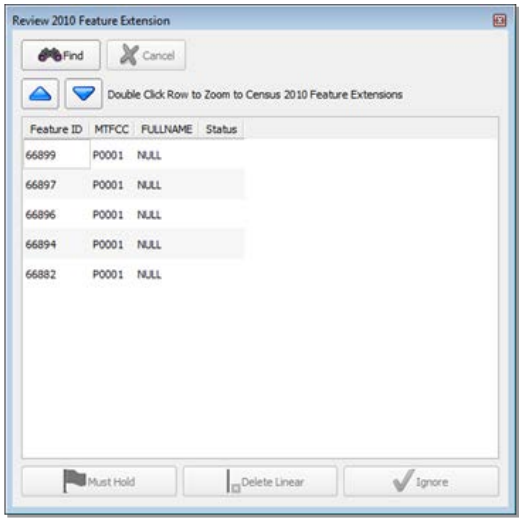
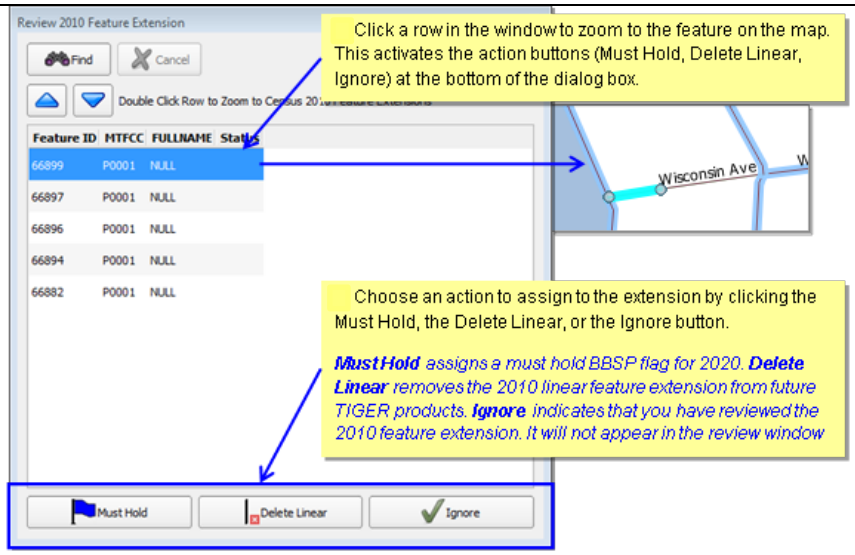
1) **Hold the feature extension**. A 2010 feature extension flagged as a feature extension for 2020 will be automatically flagged as Must Hold, along with the feature segment from which they extending.
2) **Delete the 2010 feature extension**. Deleting an unwanted 2010 feature extension will help the Census Bureau remove features from the MAF/TIGER System that no longer serve a current data tabulation purpose.

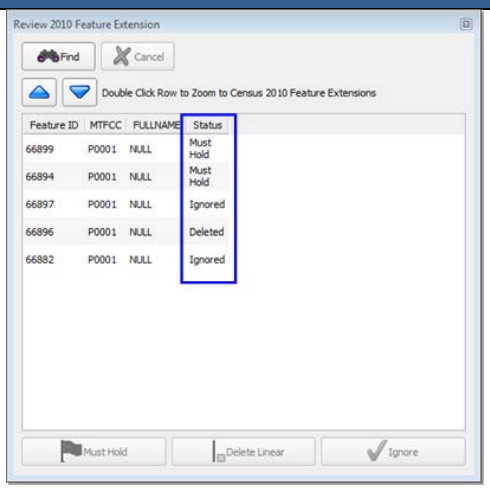
3) **Ignore the 2010 feature extension**. If you take no action on a 2010 feature extension, the Census Bureau will determine whether to hold the extension and the feature associated with it as a 2020 block boundary. Be aware that if you do not assign an 'Ignore' flag to a 2010 linear feature extension during your review, each time you activate the 2010 Linear Feature Extension Review tool in GUPS, the tool will display the entire list of 2010 linear feature extensions which were not assigned a flag. If you assign a flag (Hold, Delete, or Ignore) to a 2010 linear feature extension, it is removed from the 2010 feature extensions review list.

6.6 To Review and Assign Flags to 2010 Feature Extensions:

Table 42 Review/Assign Flags

Step	Action and *Result*
Step 1	Click *the **2010 Feature Extension Review*** button on the BBSP toolbar.
Step 2	
Step 3	*The search results if there are no 2010 Linear Feature Extensions in the county:* 

Step	Action and *Result*
	Click the ***OK*** button.
Step 4	*The search results if there are 2010 linear feature extensions present: The dialog box window populates with the 2010 Linear Feature Extensions.* 
Step 5 **&** **Step 6**	
Step 7	*As you assign a **Must Hold**, **Delete Linear**, or **Ignore** action to a 2010 linear feature extension, the extension's status updates in the Status column.*

Step	Action and *Result*
	

6.7 Block Size Review

To facilitate your BBSP work, the Census Bureau created “planned” 2020 tabulation blocks based on the 2020 planned tabulation block boundaries, and estimated the number of housing units within each of these blocks. The Census Bureau assigned a block size indicator to each block, which is based on the range of the estimated number of housing units in the planned block.

Note: Although discrete numbers have been established in order to assign each block a size value, the actual number of housing units in a block is *approximate.*

Block size indicators range from “A” through “I,” with “A” blocks having the most housing units and “I” having the least. Planned blocks estimated to contain no housing units are assigned an indicator letter of “Z.”

Factors considered when establishing the block sizes were the criteria for blocks groups, with a minimum housing unit count threshold of 240 and a maximum of 1200, and the census tract criteria, with a minimum housing unit count of 480, optimum count of 1,600, and a maximum of 3,200. The block size indicator is found in the **BLKSZIND** field of the **bbsp_2016_block_<ssccc>** shapefile. Table 43 lists the block size categories and indicator values.

Table 43 Block Size Categories

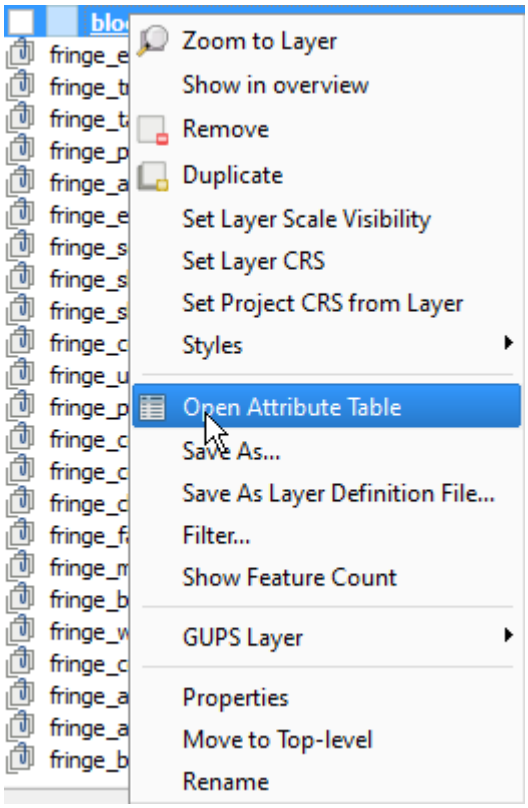
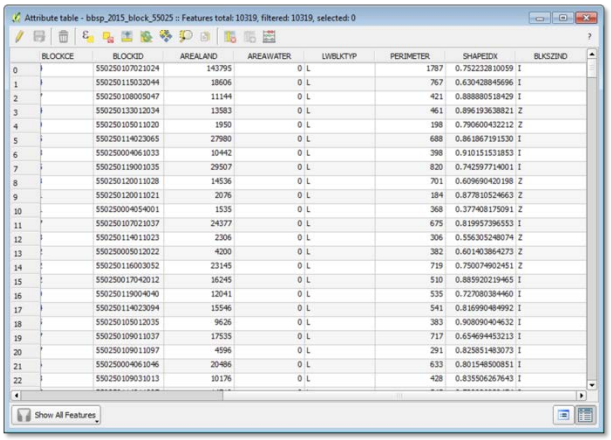
Size	Approximate Number Housing Units
A	Greater than 2,000 housing units
B	1,600-1,999
C	1,200-1,599
D	1,000-1,199
E	700-999
F	480-699
G	400-479
H	240-399
I	1-239
Z	Potential “0” housing unit block

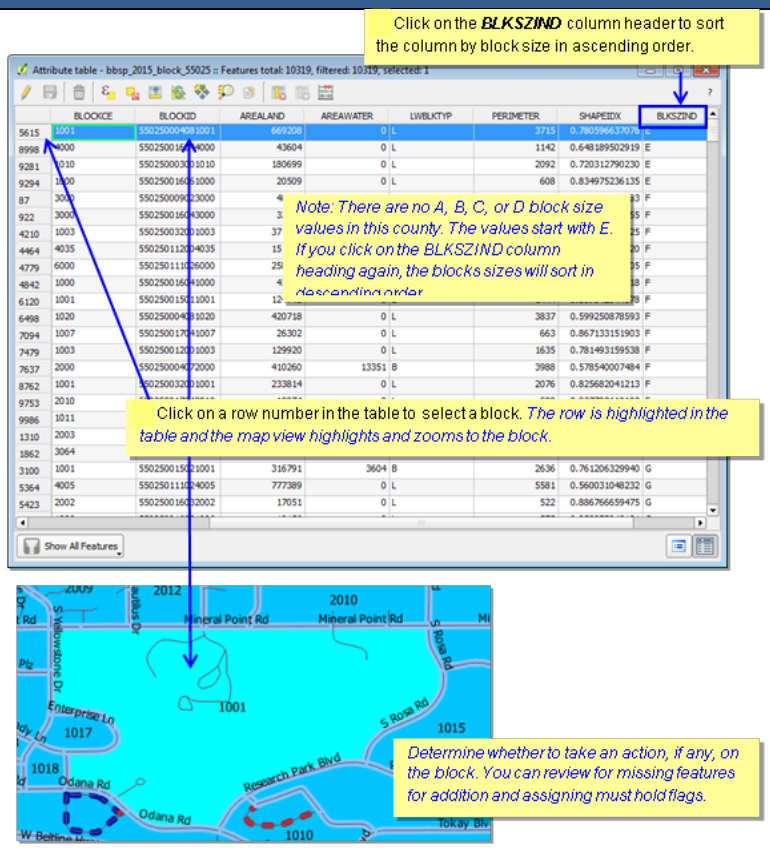
Note: The planned block size shapefile was created specifically for BBSP participants and is not included in the normal suite of partnership shapefiles, however they will download and automatically load in your project if you load files via the “Census Web” or “CD/DVD” option in Map Management. If you want to add them manually, the block shapefiles (**bbsp_2016_block_<ssccc>**) are on the provided data DVD or can be downloaded from the following Census FTP site: ftp://ftp2.census.gov/geo/PVS/bbsp

GUPS does not contain a specific tool for reviewing the 2020 planned blocks by size. However, the directions below will allow you to review blocks by size category to determine whether you wish to take an action on a planned 2020 tabulation block. Factors to consider when reviewing block size are the block boundaries necessary for the 2020 Participant Statistical Areas Program. For example, you may wish to review planned blocks in the “**A**” and “**B**” size categories because they are near or exceed the optimum 2020 census tract housing unit count. You may also choose to review blocks in the C through H categories to suggest block boundaries, as appropriate, for the delineation of the 2020 block groups.

To review blocks by size:

Table 44 Review Blocks by Size

Step	Action and *Result*
Step 1	Right-click the mouse on the **block_ssccc** layer in the Table of Contents. Select ***Open Attribute Table*** in the menu. 
Step 2	*The block attribute table opens. There are 10,319 blocks in county 55025.* 

Step	Action and *Result*
Step 3 & Step 4	
	If you click on the map after opening the attribute table, the attribute table may seem to “disappear". It’s still open. Click on the QGIS task icon on the Windows task bar, which opens active QGIS functions. Click on the Attribute table line to restore the attribute table view.

You can follow the same procedures outlined above to review small blocks (size category “Z”) if you wish, time permitting. You may wish to place a Do Not Hold flag on one or more of the planned block boundaries. Small block candidates for review include highway cloverleafs and medians.

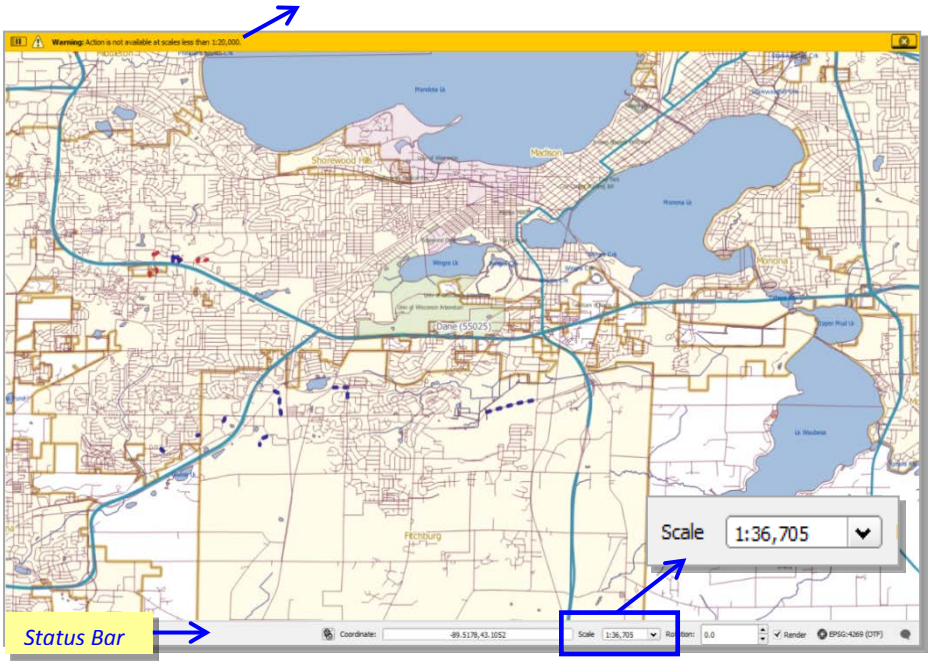
6.8 Block Boundary Suggestion Flagging

To identify linear features that you want the Census Bureau to hold or not hold as 2020 Census tabulation block boundaries, you will use the BBSP feature flagging button on the BBSP toolbar in the GUPS.

You can refer to the list of features and boundaries planned as 2020 tabulation block boundaries in Part 1, Chapter 1, *Planned 2020 Census Tabulation Block Boundaries*. Because these features are planned boundaries, it is not necessary for you to place a must-hold flag on them. However, you *may* place a must-hold flag on a feature that is a 2020 planned block boundary to help ensure that the feature is held if the 2020 tabulation block criteria or the feature's classification changes from now until the time the Census Bureau creates the 2020 tabulation blocks.

You may also place a Do Not Hold flag on features that are not desirable as block boundaries. Features that are potential candidates for assigning a Do Not Hold flag include private roads, trails, unimproved roads and single line hydrographic features. Be aware that assigning a Do Not Hold flag to a feature that is a 2020 planned block boundary does not ensure that the Census Bureau will honor your request.

The GUPS will not allow you to make edits (add, delete, update attributes) for many BBSP update activities, including flagging block boundaries, unless you are at a map scale greater than 1: 20,000. This means the second number in the map scale, shown on the status bar at the very bottom of the GUPS page, must be less than 20,000.



The GUPS displays the planned 2020 Census tabulation block boundaries (CBBFLG = “4” in the edge attribute table) in light blue on the map. The GUPS displays ineligible block boundaries (CBBFLG = “9” in the edge attribute table) in light red on the map. As you assign Must Hold (BBSP_ 2020 = 1) and Do Not Hold (BBSP_2020 = 2) flags to features, the feature symbology displayed by the GUPS changes. Features assigned a Must Hold flag will have the heavier weight dashed blue symbology added on top of the original feature symbology. Features assigned a Do Not Hold flag will have the heavier weight dashed red line added on top of the original feature symbology. This dual symbology allows you to visualize the planned or ineligible status of the feature and the flag, if any, that you assigned to the feature.

Figure 14 shows the map symbology as displayed in the Table of Contents. Figure 15 shows the map symbology as displayed on the map.

If you participated in the initial BBSP last year and flagged any features as Must Holds or Do Not Holds, you will also see these uniquely symbolized. Holds set during BBSP are represented with blue triangles while Do Not Holds are represented with red triangles.

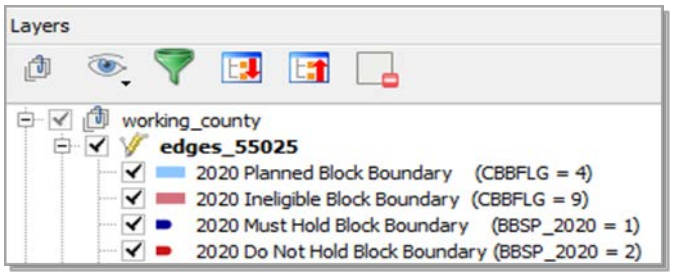


Figure 15 Block Boundary Symbology in the Table of Contents

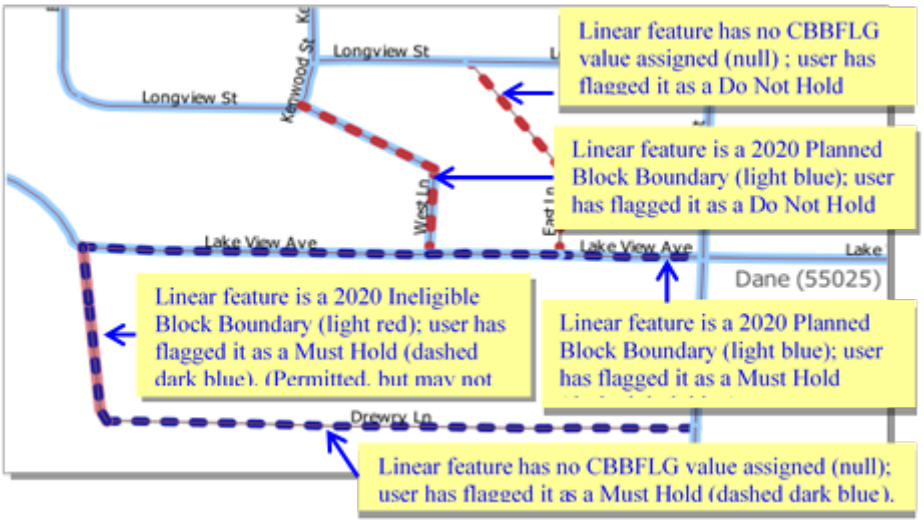
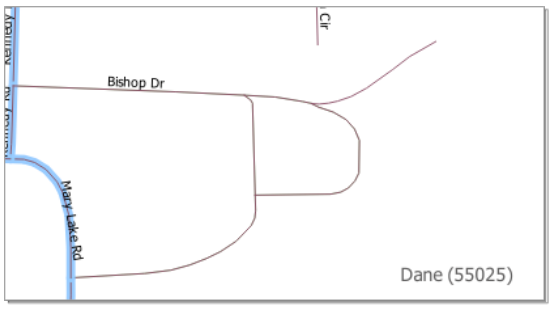


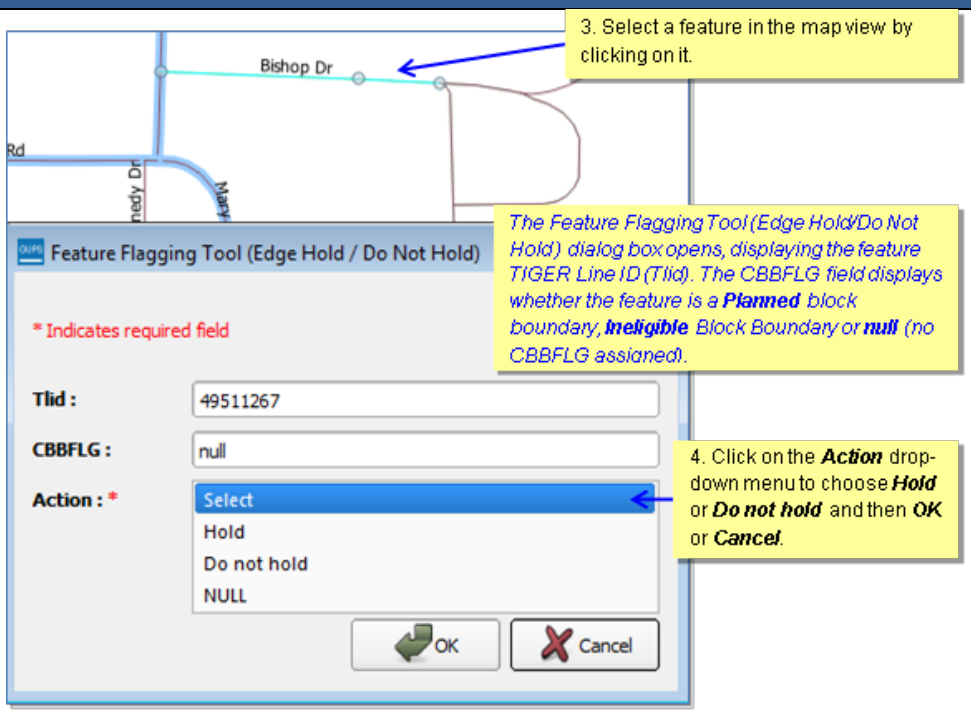
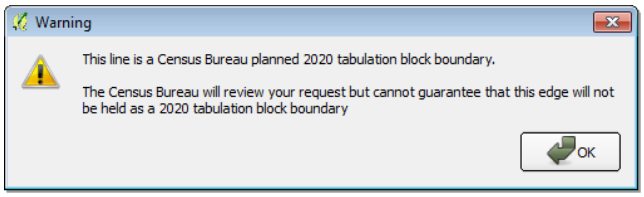
Figure 16 Block Boundary Symbology on the Map

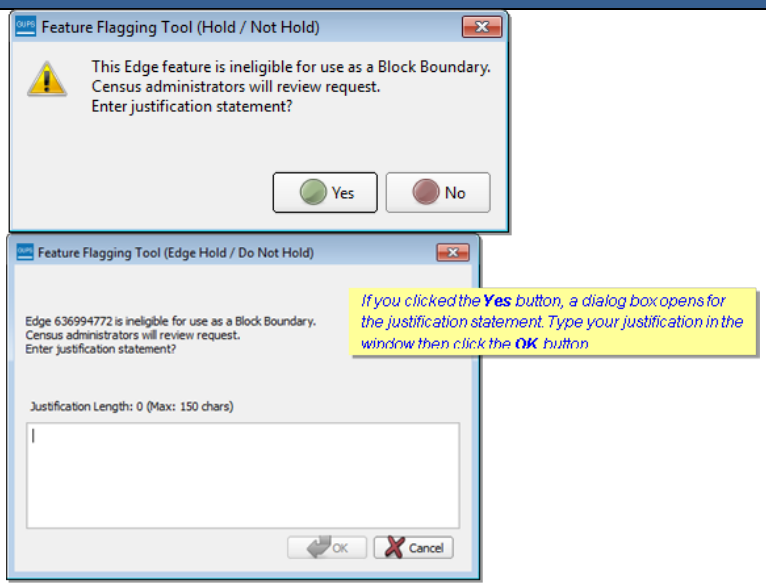
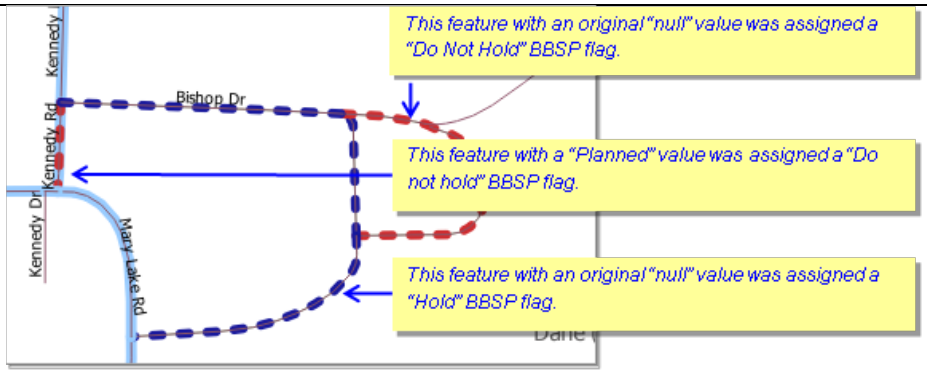
If you want to use an existing feature as a 2020 block boundary but it does not form a closed a polygon, you may create a 2020 linear feature extension. Click *here* for technical directions on how to create a 2020 linear feature extension.

6.8.1 To Assign a 2020 Block Boundary Suggestion Flag to a Feature:

Table 45 Assign Block Boundary Suggestion Flag

Step	Action and *Result*
Step 1	Zoom to your area of interest on the map. 
Step 2	Click the ***Feature Flagging Tool*** button on the BBSP toolbar.

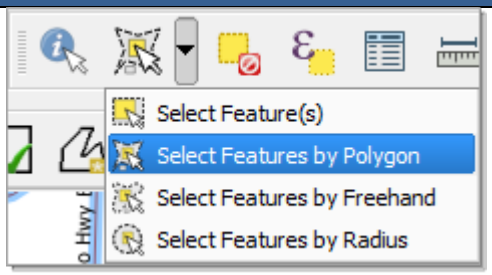
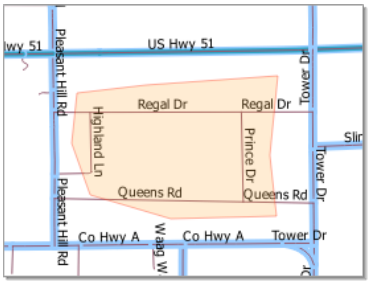
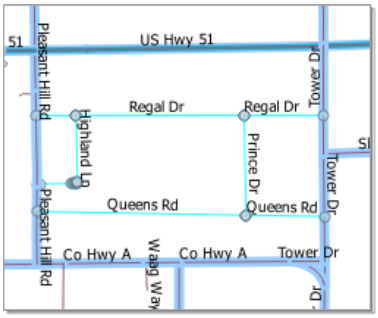
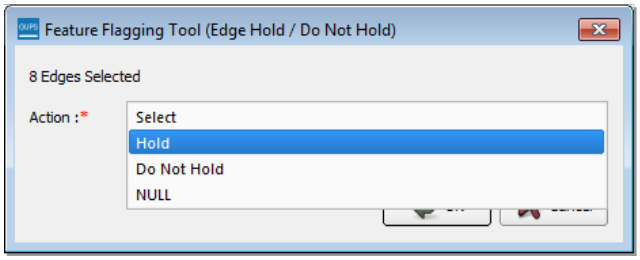
Step	Action and *Result*
Step 3 & Step 4	 ***Note**: All features not assigned as a 2020 planned or ineligible block boundary by the Census Bureau have a **null** value. It is not necessary to assign a BBSP flag to every feature. The **NULL** value in the dropdown menu allows you to revert the status of a feature to **null** after you have assigned a Hold or Do not hold flag.*
Step 5	*If you assign a "Do not hold" BBSP flag to a planned 2020 tabulation block boundary, you receive a warning message. You may either change the BBSP flag you assigned or retain it by clicking the OK button.* 
Step 6	*If you assign a "Hold" BBSP flag to an ineligible 2020 tabulation block boundary, you receive a warning message. You may provide a justification for your request by clicking the **Yes** button. Otherwise, click the **No** button.* ***Note:** You are not required to provide a justification, although it may aid the Census Bureau in reviewing your request.*

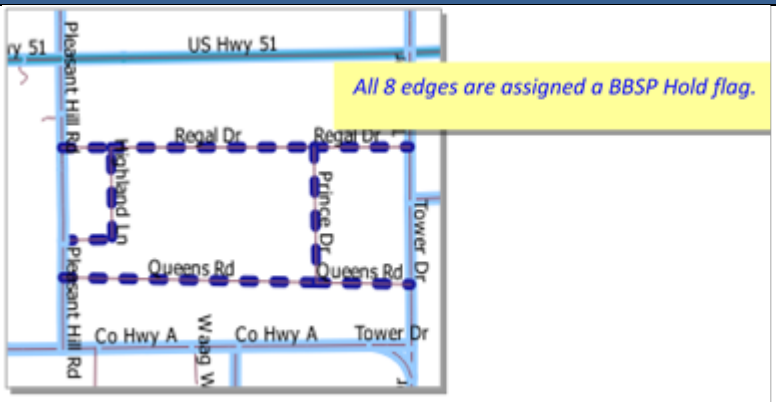
Step	Action and *Result*
	
Step 7	

6.8.2 To Assign a 2020 Block Boundary Suggestion to Multiple Features at Once

Table 46 Assign Block Boundary Suggestion to Multiple Features

Step	Action and *Result*
Step 1	Click the ***Select Features*** button on the Standard toolbar. Choose a method to select multiple features. *This example shows selecting features by drawing a polygon*. You can also select multiple features by clicking on the 1st feature, holding down the CTRL key, then clicking on additional features.

Step	Action and *Result*
	
Step 2	Draw a polygon around the edges you want to select by clicking points on the map to capture the edges. Right click the mouse to end the polygon.  *The selected edges within the polygon are highlighted.* 
Step 3	Click the **Feature Flagging Tool** button on the BBSP toolbar.
Step 4	*The Feature Flagging Tool (Edge Hold/Do Not Hold) dialog box opens. The number of selected edges (8) is indicated.* Choose the flag type to assign to the selected edges from the drop-down menu. 

Step	Action and *Result*
Step 5	

6.8.3 To Create a 2020 Linear Feature Extension

If you want to use an existing feature as a 2020 block boundary but it does not form a closed a polygon, you may create a 2020 linear feature extension. A linear feature extension is a short, non-visible line that:

- Is no longer than 300 feet in length
- Is a straight line from the end of road and intersects a non-road feature. Highways and freeways are acceptable as long as they have no housing units. You may create linear feature extensions to features with MTFCCs:

C3024 Levee	P0002 Shoreline
C3027 Dam	P0003 Intermittent Shoreline
Hxxxx (Hydrographic features)	Rxxxx (Railroads)
L4010 Pipelines	S1100 Primary Roads
L4020 Powerlines	L4150 Coastline

- Does not intersect a cul-de sac shown as an open circle or “lollipop” in the Census Bureau files.

Illustrations of acceptable 2020 Linear Feature Extensions are shown in **Figure 17. Figure 18** depicts examples of unacceptable linear feature extensions.

Example 1 ***Example 2***

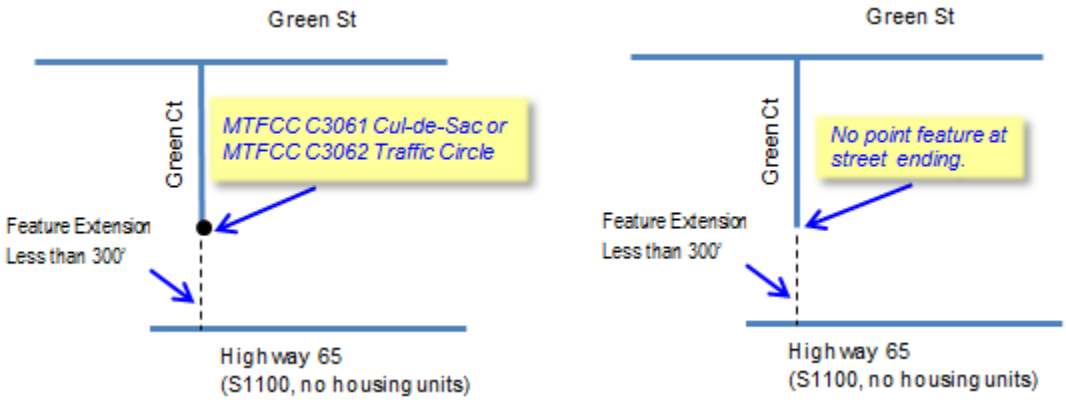


Figure 17 Acceptable 2020 Linear Feature Extensions

Example 1 ***Example 2***

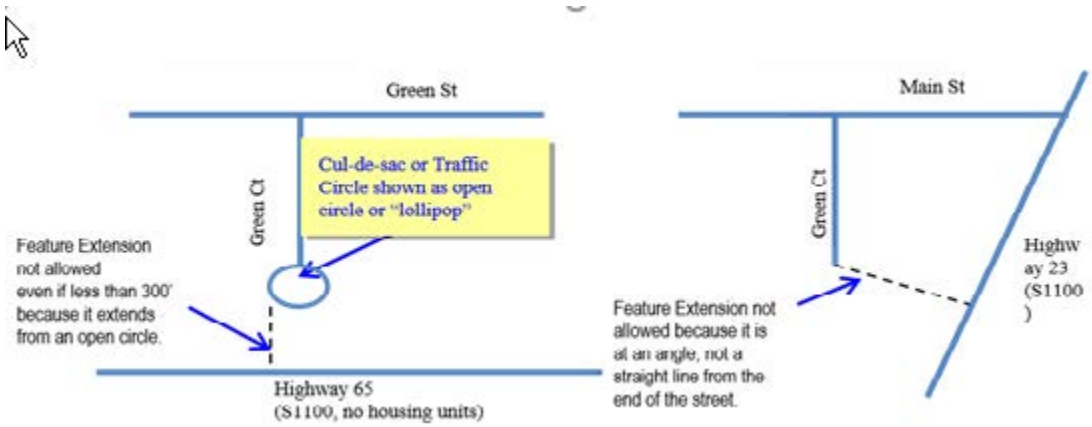
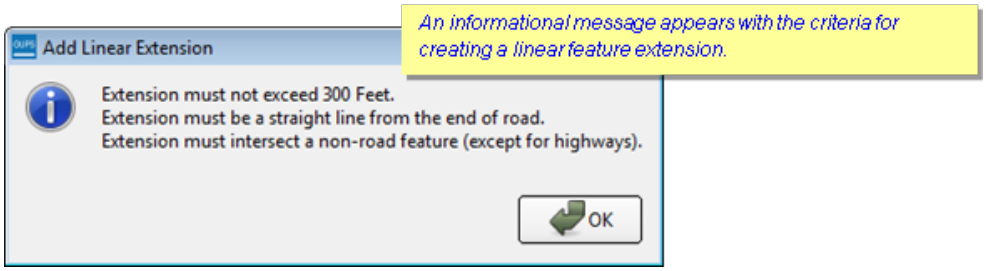
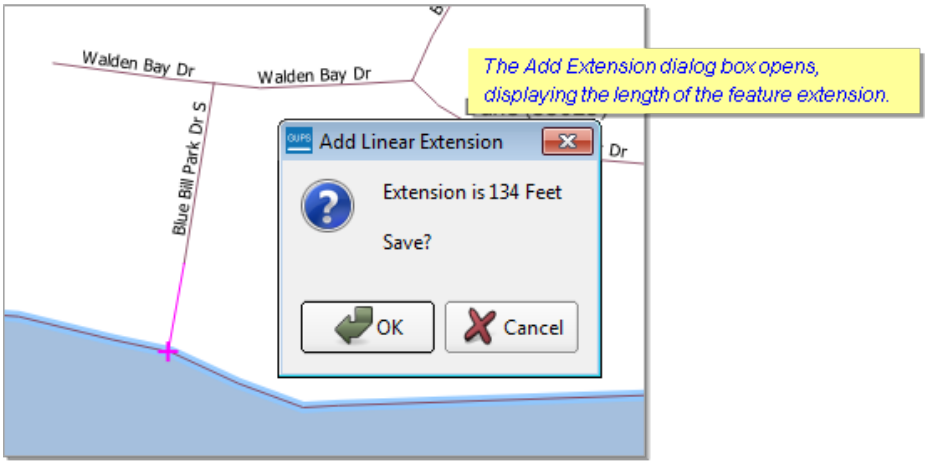
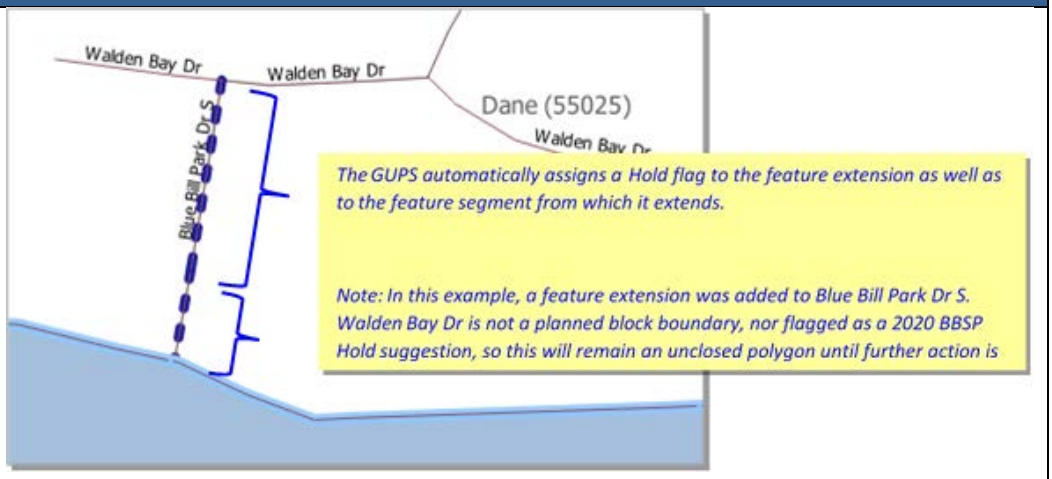
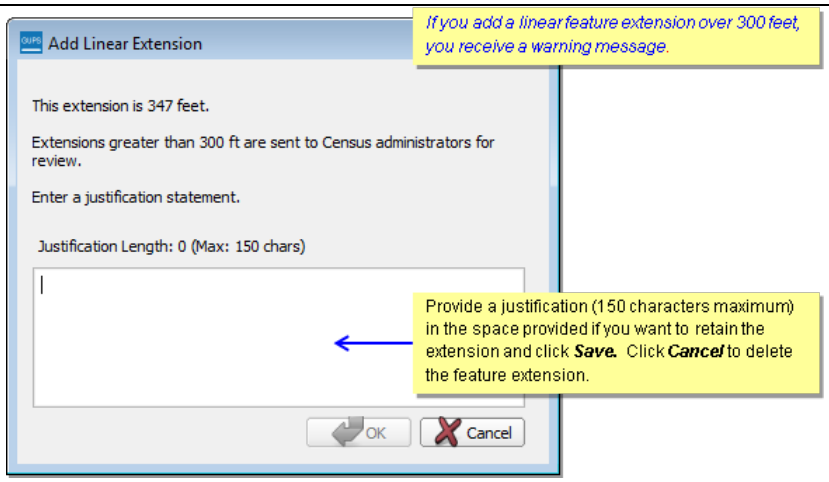


Figure 18 Unacceptable 2020 Linear Feature Extensions

Table 47 Create Linear Feature Extension

Step	Action and *Result*
Step 1	
Step 2	 *Click here for more information on 2020 Linear Feature Extension Criteria*
Step 3	*Digitize the feature extension by A) clicking the left mouse button at the end point of the feature, then B) left clicking the mouse at the point along the feature where the extension will intersect.*  Click the ***OK*** button.

Step	Action and *Result*
Step 4	
Step 5	

6.9 Block Area Grouping Delineation

Delineating block area groupings is an optional activity. During the 2020 Census tabulation block delineation, the Census Bureau will automatically group islands to form a single tabulation block if they have no road features and are within a 5-kilometer radius.

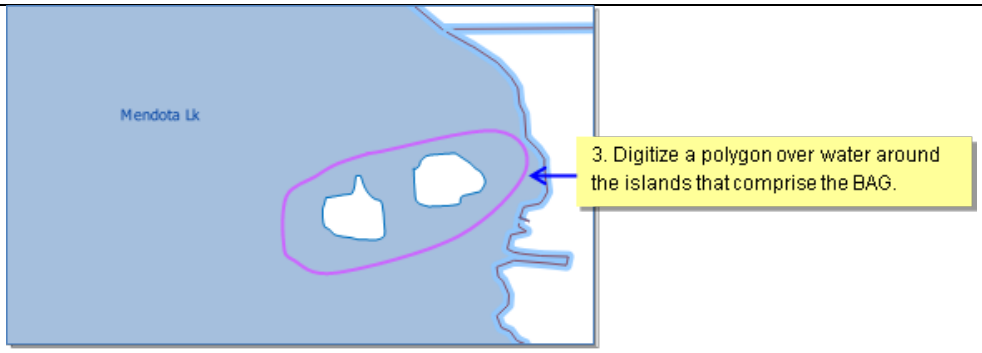
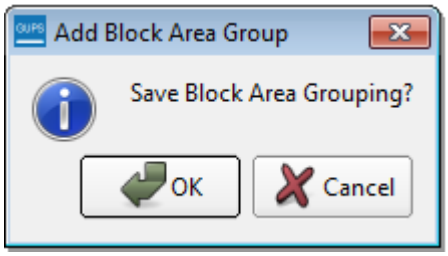
You may also group specific islands to suggest a 2020 tabulation block, called a block area grouping (BAG). BAGs are exempt from the 5-kilometer radius requirement. The criteria for creating a Block Area Grouping are:

- BAG must consist of two or more islands.

- BAG perimeter must be entirely over water.
- BAGs cannot overlap.
- BAGs cannot cross the boundary of other tabulation geographies, such as county or incorporated place boundaries.

6.9.1 To Create a Block Area Grouping:

Table 48 Create a Block Area Grouping

Step	Action and *Result*
Step 1	Zoom to your area of interest on the map.
Step 2	
Step 3	
Step 4	*The Add Block Area Grouping confirmation dialog box opens.* Click ***OK*** to save the BAG. Click ***Cancel*** if you would like to discard the BAG or to draw a different BAG boundary. 

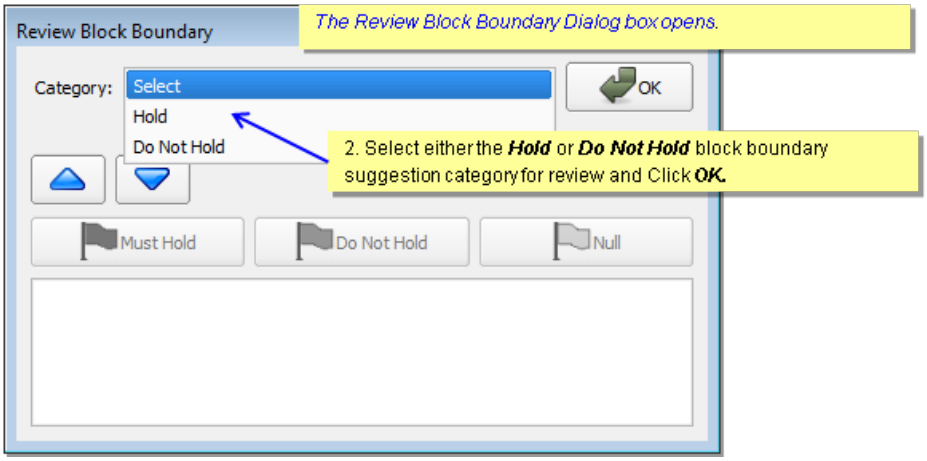
6.10 Block Boundary Review (Required)

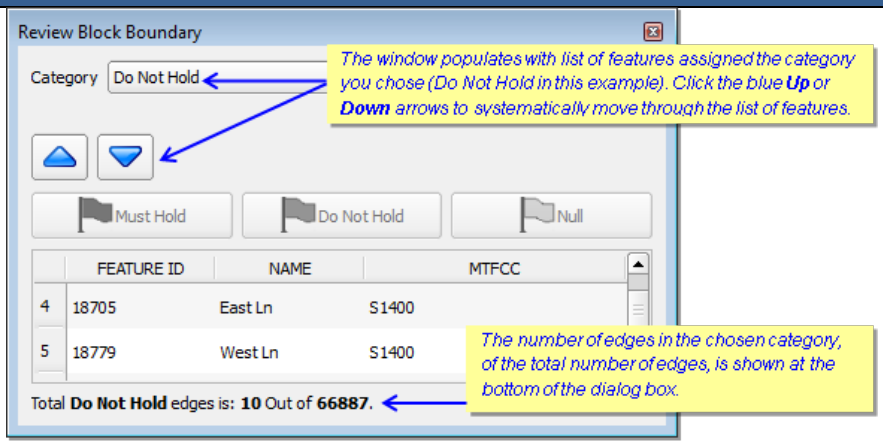
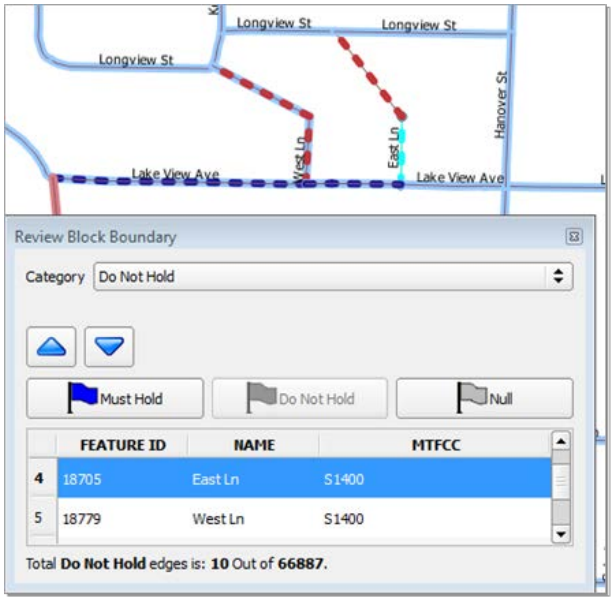
You must initiate the Block Boundary Review of your Hold and Do Not Hold block boundary suggestions at least once before the GUPS will allow you to create a data output file.

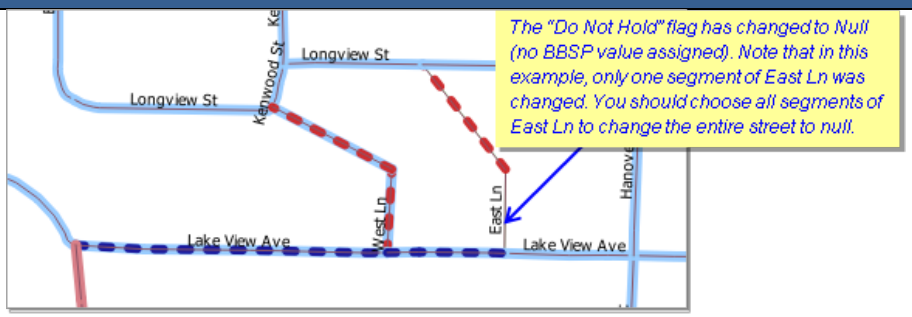
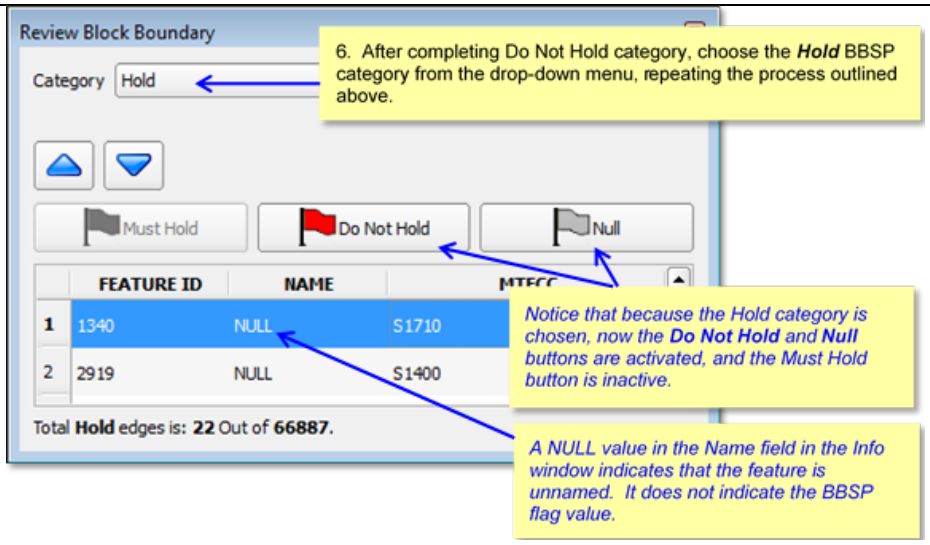
Note: Additional functionality was added to the Block Boundary Review Tool too late to be added to this guide in detail. The information below is still correct; however the screens may look slightly different. To learn more about the added functionality, please see the Quick Reference Guide included with your mailing or available from the 2020 Programs page at the CRVRDO website at http://www.census.gov/rdo

6.10.1 To Review Your Block Boundary Suggestions:

Table 49 Review Block Boundary Suggestions

Step	Action and *Result*
Step 1	
Step 2	

Step	Action and *Result*
Step 3	
Step 4	Click on a row to select the feature and zoom to it on the map. *This action activates 2 of the 3 flagging change buttons (Must Hold, Do Not Hold, or Null). The button not activated is the one that has the same flag assignment as the feature, in this case, Do Not Hold. (The Null flag is a gray color, not "grayed out").*  *In this example, we have decided to remove the Do Not Hold flag from East Ln.* While the feature is selected, click the ***Null*** flag *button.*

Step	Action and *Result*
Step 5	
Step 6	

6.11 Review Change Polygons and Geography Review

The GUPS provides two sets of tools for reviewing your updated data layers. The first tools are available under the **Review Change Polygons** button: Small Area Check and Find Holes. You must initiate both of these tools at least once before the GUPS will allow you to create a data output file.

The Small Area Check ensures that you do not submit area changes that are too small for the Census Bureau to process.

The Find Holes check identifies any change polygons surrounded by an entity but not included in the entity, creating a “hole”. These “holes” may be legitimate, but they may also be the result of delineation errors. The tool also provides the ability to make changes to legal boundary updates as you review your original updates.

You ***must*** perform the **Small Area Check** and **Find Holes Check** available under the Review Change Polygons button for each geography type for which you have created change polygons. The GUPS will not allow you to create a data output export file unless these checks have been initiated at least once by the user.

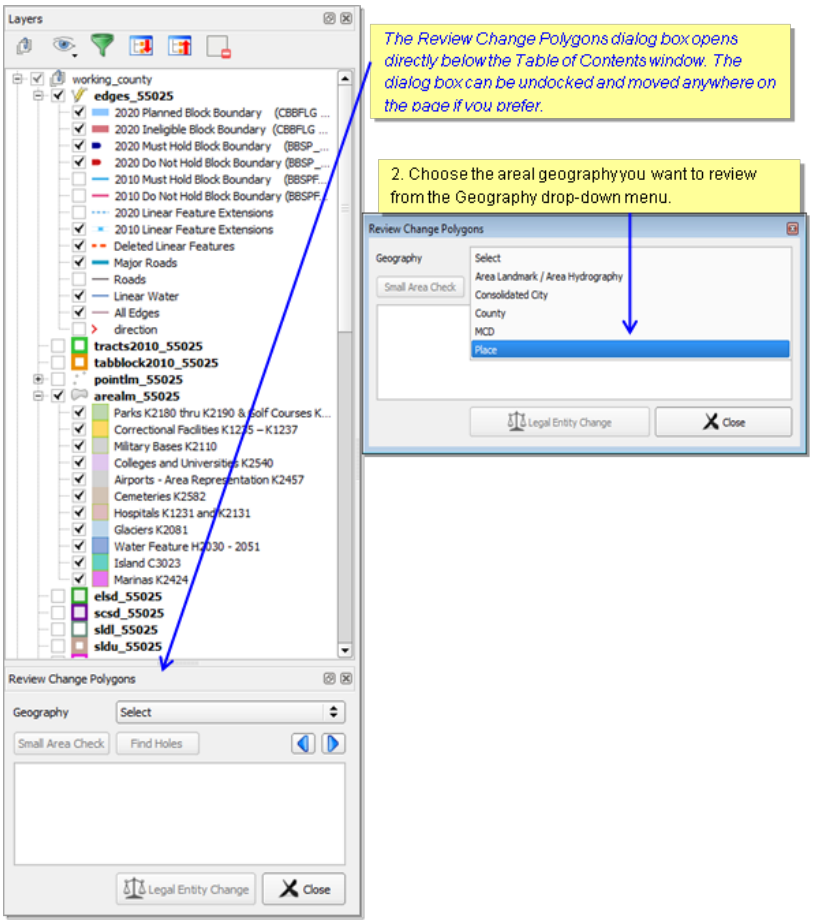
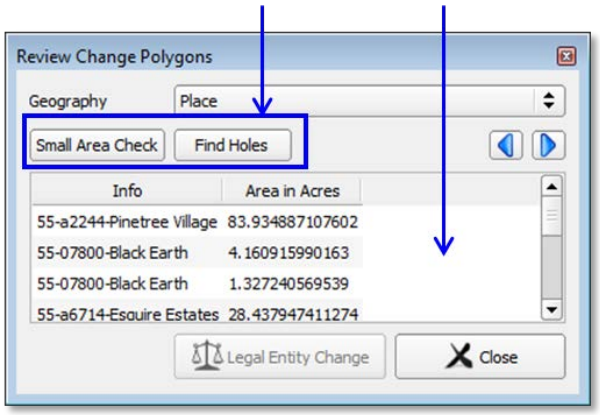
The second tool for reviewing all shapefile layers is available under the **Geography Review** button. You can filter a layer based on field values in the attribute table. However, be aware that you cannot make changes using the Geography Review tool.

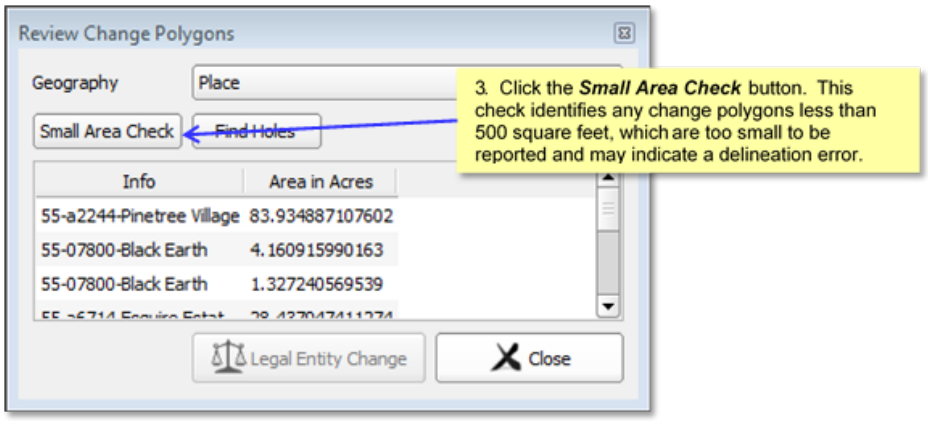
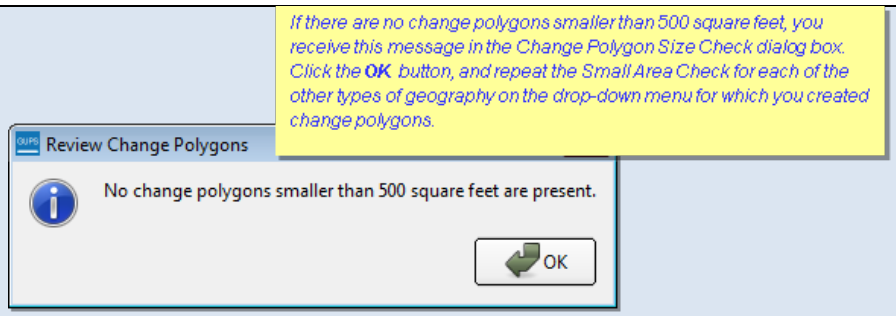
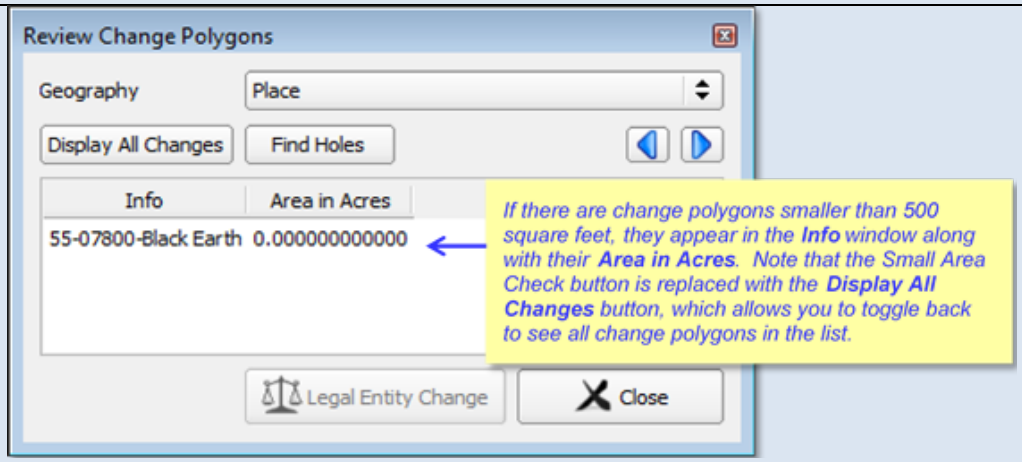
Of these two tools, you can only make changes to your previous updates using the Review Change Polygons tool, not the Geography Review tool. However, the Geography Review tool can be very helpful, especially as an overall review of geography inventories for new or deleted entities, or entities with boundary changes.

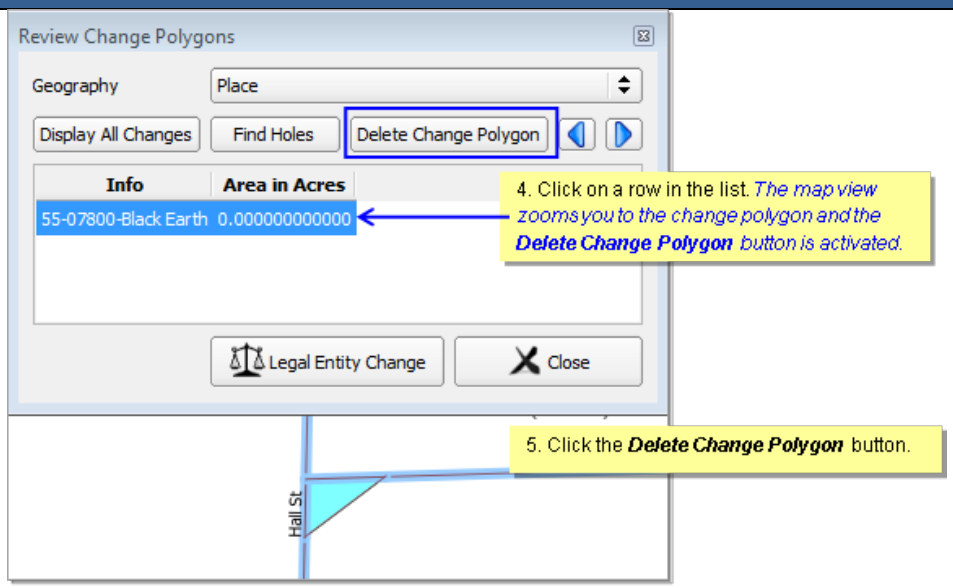
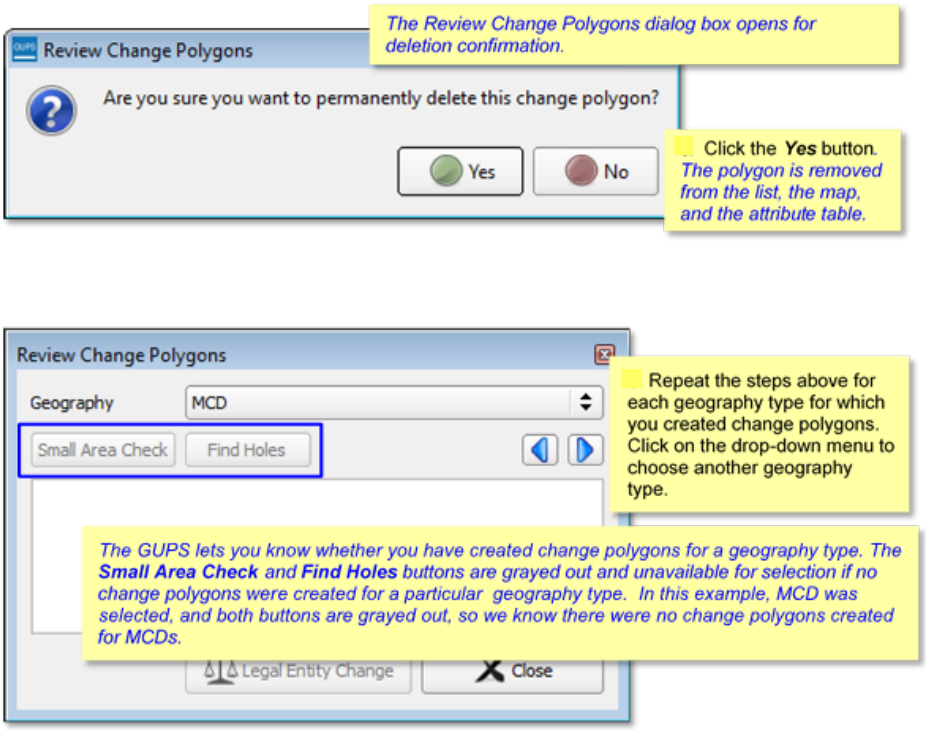
6.11.1 To Review Change Polygons

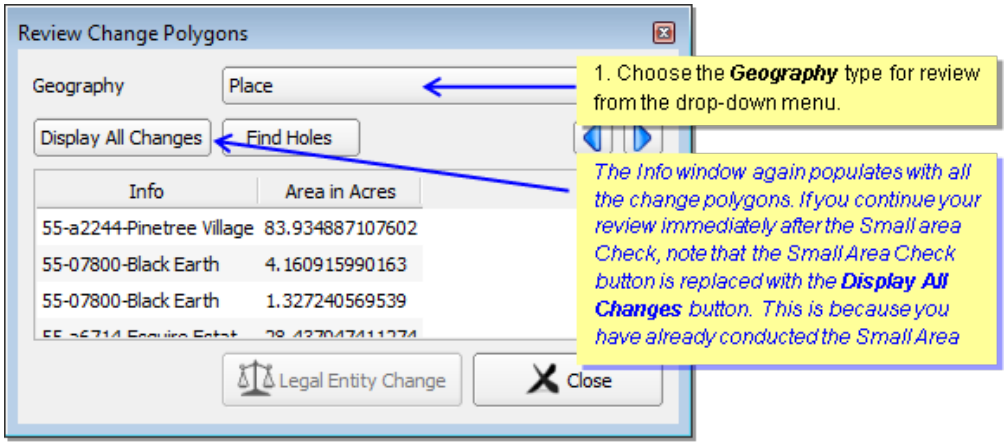
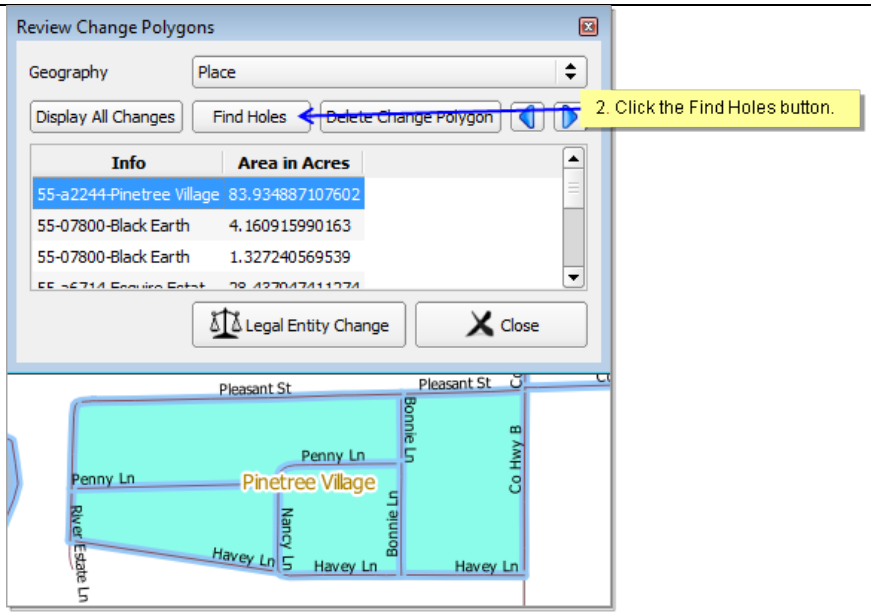
Table 50 Review Change Polygons

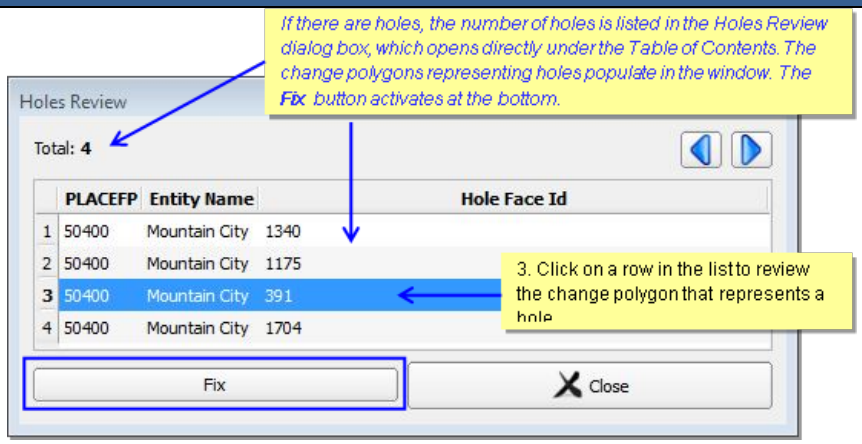
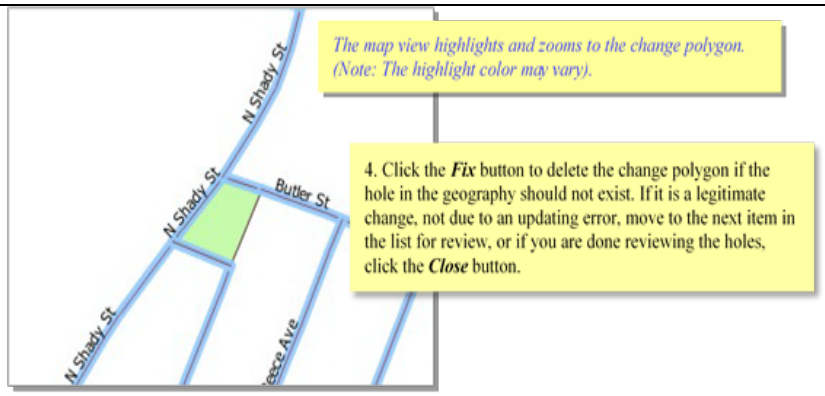
Step	Action and *Result*
Step 1	

Step	Action and *Result*
Step 2	
	*The **Small Area Check** and **Find Holes** buttons become activated. All change polygons for the geography type you selected appear in the Info list window.* 
To Conduct the Small Area Check (Required):	

Step	Action and *Result*
Step 3	
	
	

Step	Action and *Result*
Step 4 & Step 5	
Step 6 & Step 7	
Next, Conduct the Find Holes Check (Required):	

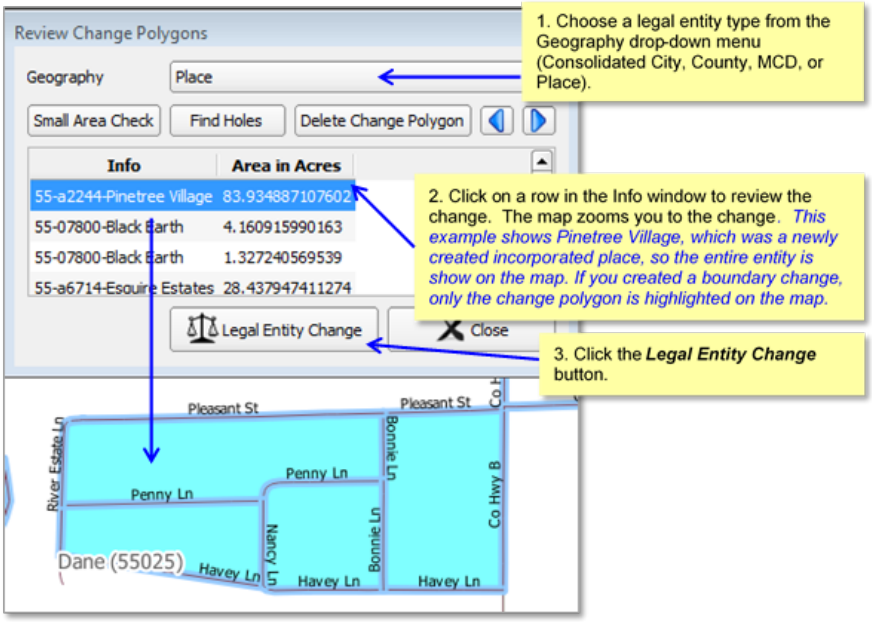
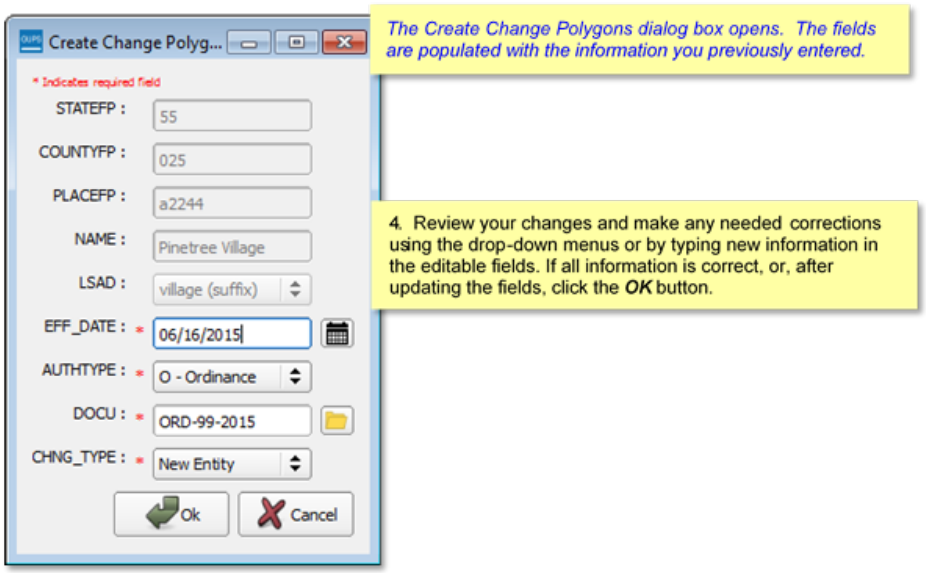
Step	Action and *Result*
Step 1	While still in the Review Change Polygons dialog box (or you can click on the Review Change Polygons button on the BBSP toolbar again):  Review Change Polygons Geography Place Display All Changes Find Holes Info Area in Acres 55-a2244-Pinetree Village 83.934887107602 55-07800-Black Earth 4.160915990163 55-07800-Black Earth 1.327240569539 Legal Entity Change Close 1. Choose the **Geography** type for review from the drop-down menu. *The Info window again populates with all the change polygons. If you continue your review immediately after the Small area Check, note that the Small Area Check button is replaced with the **Display All Changes** button. This is because you have already conducted the Small Area*
Step 2	

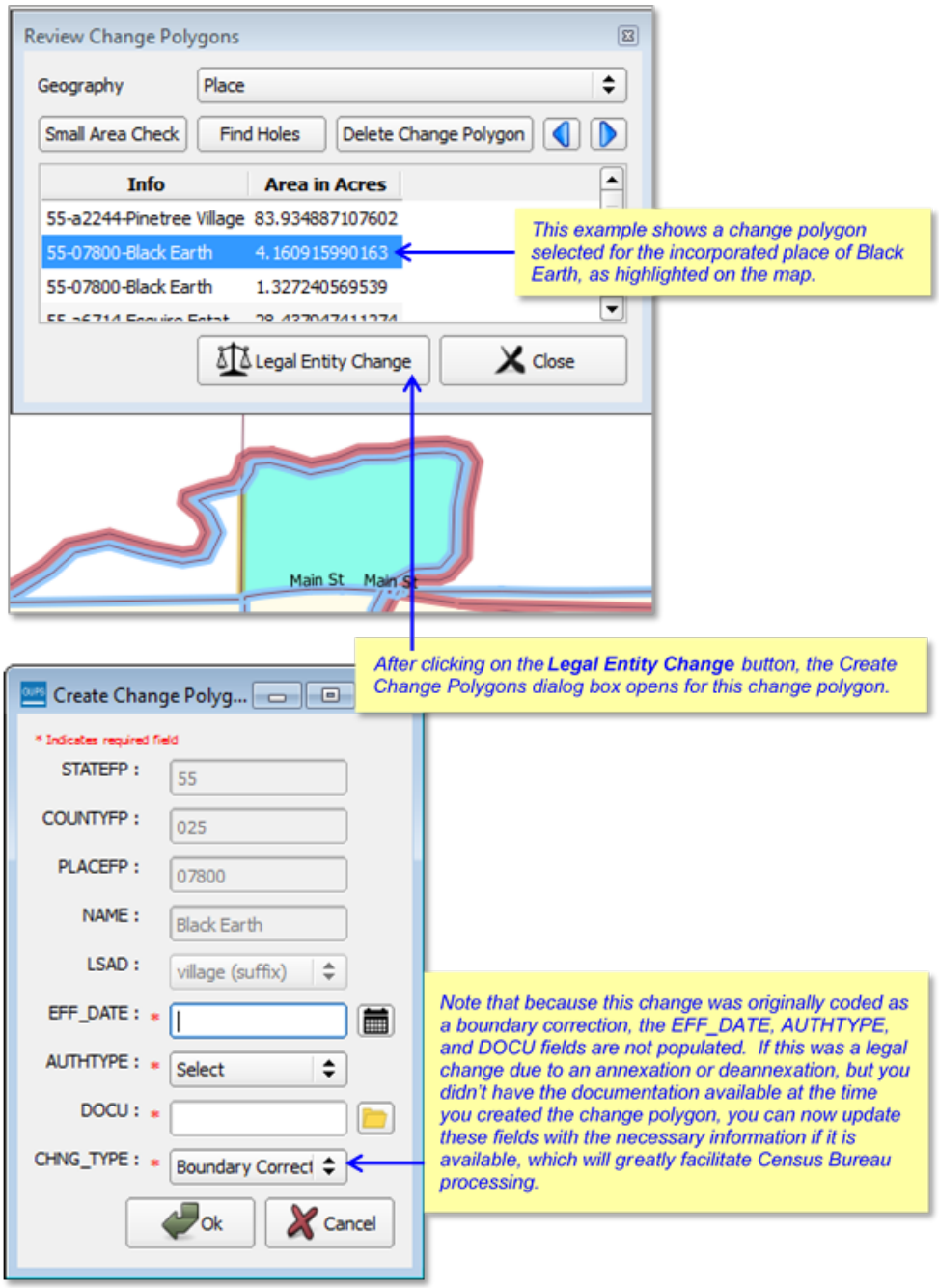
Step	Action and *Result*
Step 3	
Step 4	

6.11.2 Reviewing Legal Entity Boundary Changes, Including Legal Documentation Changes

While still in the Review Change Polygons dialog box (or you can click on the Review Change Polygons button on the BBSP toolbar again):

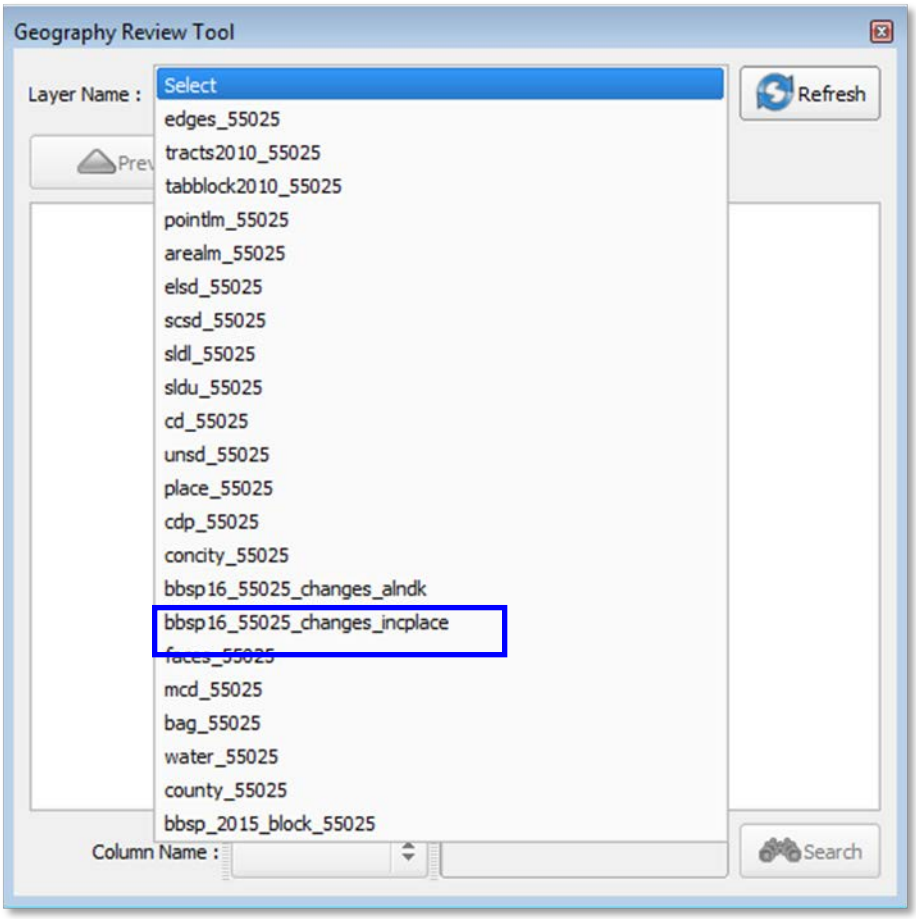
Table 51 Review Legal Entity Boundary Changes, Including Legal Documentation Changes

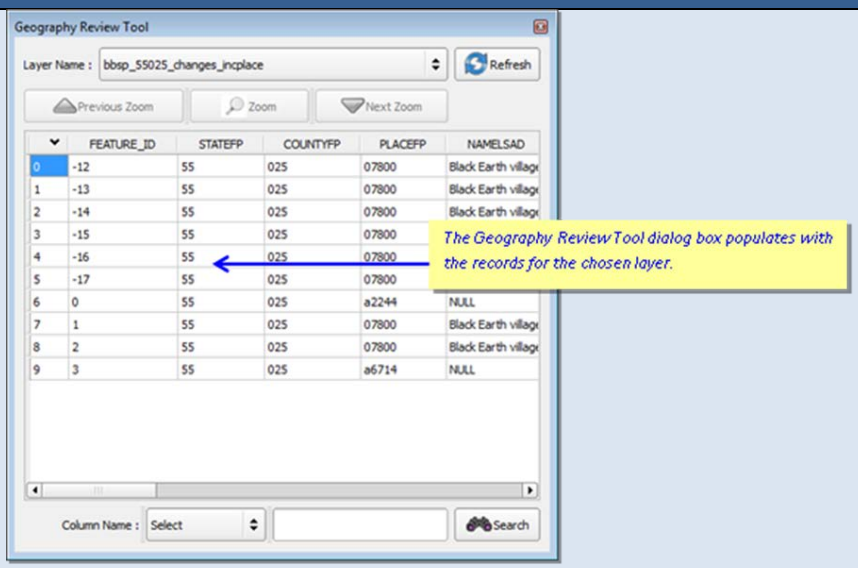
Step	Action and *Result*
Step 1 through Step 3	
Step 4	

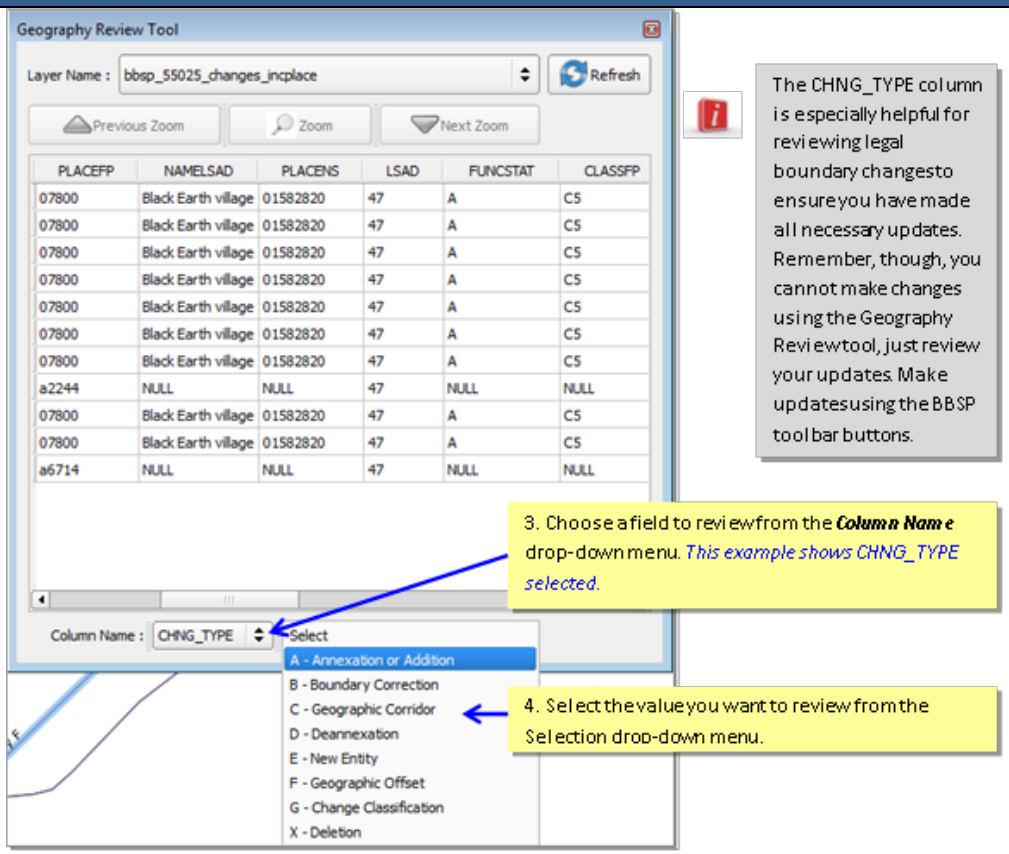
Step	Action and *Result*
Step 5	

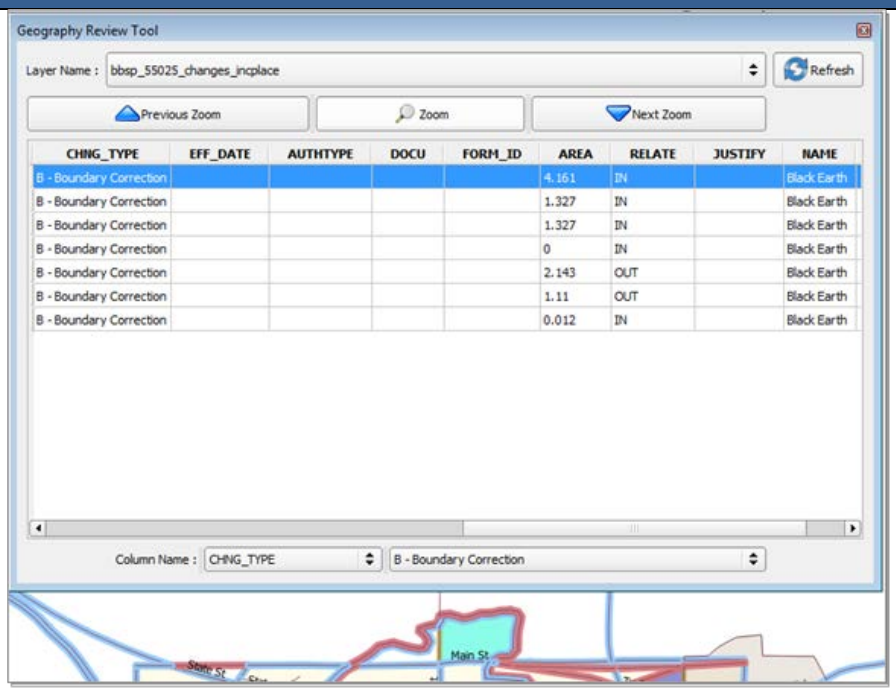
6.11.3 Conducting a Geography Review (Optional)

Table 52 Conduct Geography Review

Step	Action and *Result*
Step 1	Click the ***Geography Review Tool*** button on the BBSP Toolbar.
Step 2	*The Geography Review Tool dialog box opens.*  Select the shapefile layer from the drop-down list for the geography you want to review. The attribute table will display.
	The 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. For example, the highlighted row in the figure above, **bbsp16_55025_changes_incplace,** is the transaction file for incorporated places. In BBSPV, the file would be named bbspv17_55025_changes_incplace.

Step	Action and *Result*
	 *Use the scroll bar at the bottom of the page to scroll to the right to see additional columns in the attribute table. To see all the columns, left click the mouse on the edge of the dialog box and, while holding down the mouse, drag to widen the window.* *Click on a row in the table and then click the **Zoom** button to zoom the map view to the boundary change polygon.*

Step	Action and *Result*
Step 3 & Step 4	
Step 5	*In the following example, **CHNG_TYPE** was chosen from the Column Name drop-down menu, and **Boundary Correction** from the selection drop-down menu. We can see that there are 7 boundary corrections for the incorporated place of Black Earth. There were 5 corrections that added area to Black Earth (Relate Field= IN), while 2 corrections removed area from Black Earth (relate Field =OUT).*

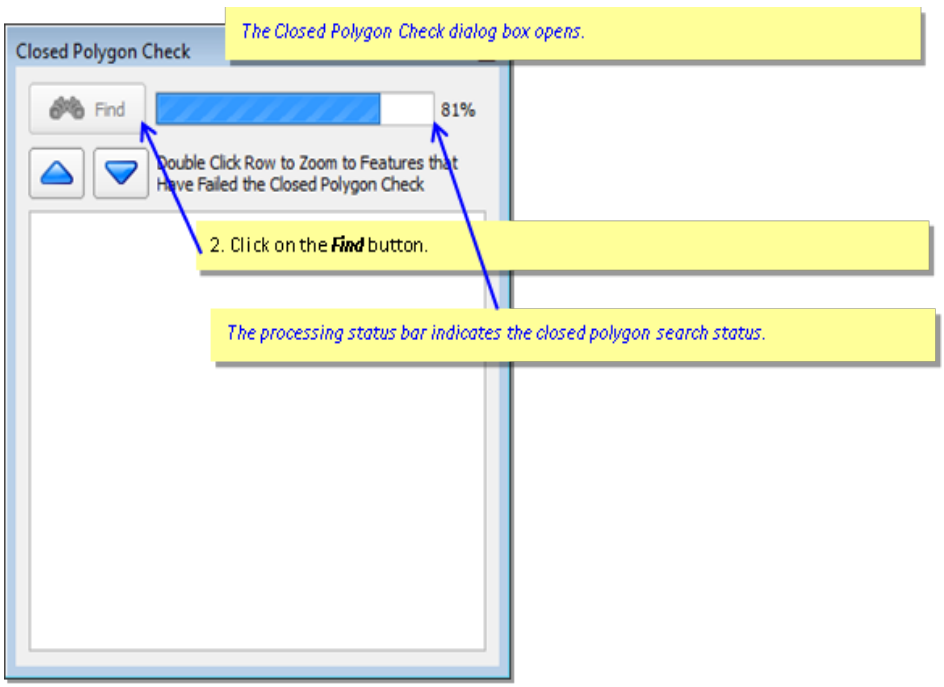
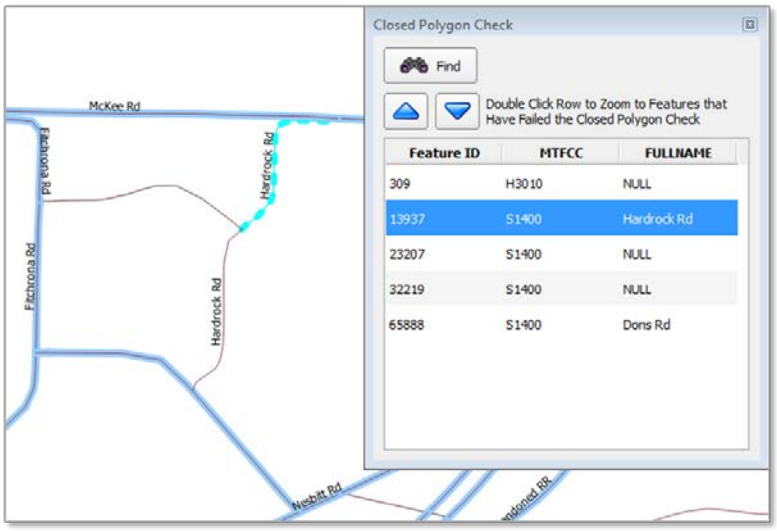
Step	Action and *Result*
	

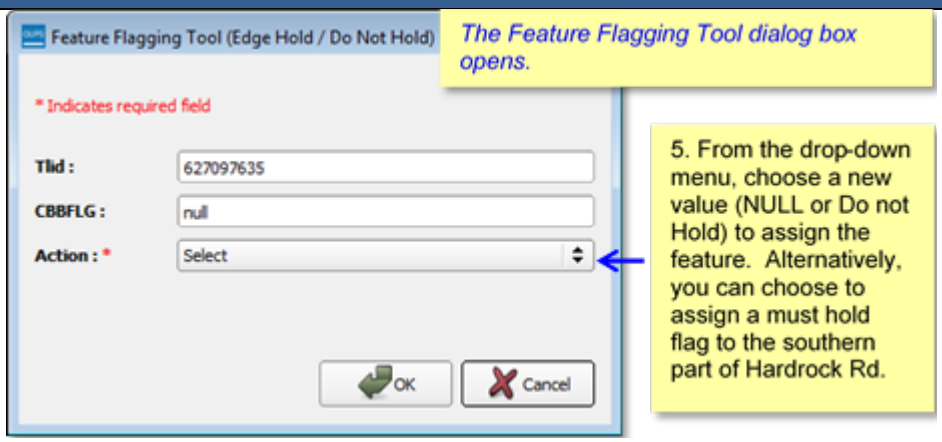
6.12 Closed Polygon Check

Once you have completed your BBSP work, you must initiate the closed polygon check to ensure that your Must Hold block boundary suggestions form closed polygons. You must run this quality control measure at least once before the GUPS will create a BBSP data output file. You may also initiate the closed polygon check at any point during your BBSP work. We recommend you perform the closed polygon check early in the delineation process to validate your initial work and minimize extensive re-work later. To Conduct the Closed Polygon Check (Required):

Table 53 Conduct Closed Polygon Check

Step	Action and *Result*
Step 1	Click the ***Closed Polygon Check*** button on the BBSP Toolbar.

Step	Action and *Result*
Step 2	
Step 3	*The search window populates with any features of polygons that failed the closed polygon check.*  Double click on a row to be zoomed to that feature on the map.
Step 4	Click the ***BBSP Flag*** button on the BBSP toolbar to change the BBSP value on the selected feature, or on a connecting feature so it closes the polygon.

Step	Action and *Result*
Step 5	
If you want to assign a must hold flag to the southern part of Hardrock Rd:	
Step 6	Click the ***Deselect Features*** button on the Standard Toolbar.
Step 7	Click the ***BBSP Flag*** button on the BBSP toolbar.
Step 8	Click the southern segment of Hardrock Rd on the map. The Feature Flagging Tool (Edge Hold/Do Not Hold) dialog box opens.
Step 9	Choose ***Hold*** from the action drop-down menu.

6.13 Work Delegated?

Only the designated State RDP Liaison may submit BBSP files to the Census Bureau. If you are a county, agency, or contractor completing BBSP work on behalf of the State Liaison, you must submit the updated county file(s) to the State RDP liaison for review and approval.

GUPS creates two different types of data output files in .zip format, depending on whether the RDP Liaison is creating the data output for submission to the Census Bureau or the State Liaison's designee is creating data output files for submission to the RDP Liaison or for sharing with other participants. The data output .zip file naming conventions are standardized differently for each type of data output file.

Files created by a state liaison's designee for sharing with other participants or submitting to the State RDP Liaison for review and approval are named **bbspv17_ssccc_DataDirectory.zip**, where **ssccc** is the state and county FIPS code. The file must be sent to the State RDP Liaison for review, approval, and submission to the Census Bureau. This file is created by choosing the **Share with Another Participant** radio button on the Select Output type dialog box (see Section 6.13.1).

If the State RDP liaison plans to return a file to their designee for further work after reviewing a file submitted by the designee, they should also create a file named **bbspv17_ssccc_DataDirectory.zip**. This file is created by choosing the **Share with Another Participant** radio button on the Select Output type dialog box (see Section 6.13.1).

Files created by the RDP Liaison for submission to the Census Bureau are named **bbspv17_ssccc_return.zip**, where **ssccc** is the state and county FIPS code of the file**.** The State RDP Liaison chooses the **Export for Census** radio button on the Select Output Style type dialog box. (See Section 6.13.2)

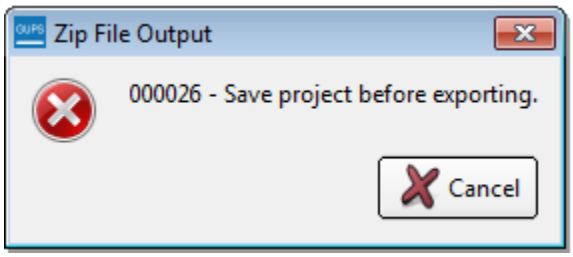
GUPS automatically packages into the data output .zip file all the files required for submission to the Census Bureau.

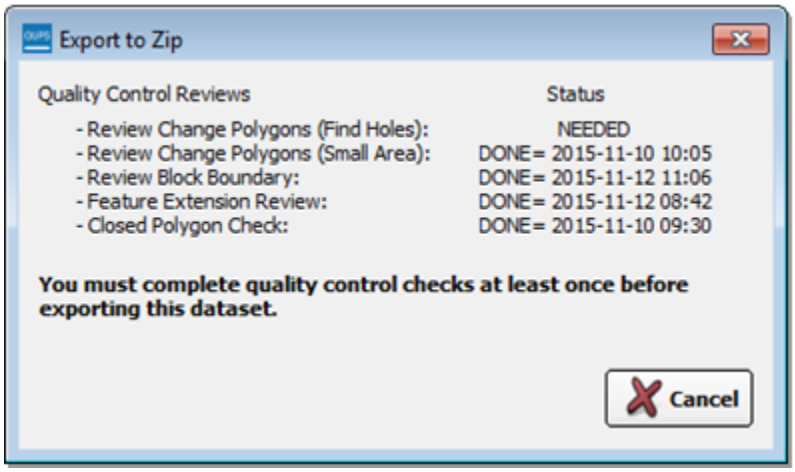
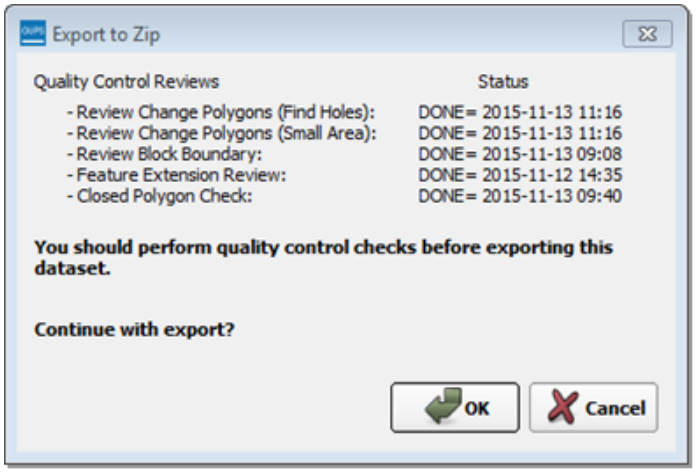
Note: A .zip data output file is created for the working county only, not any adjacent counties that may have been selected and loaded at the beginning of a project. All files submitted to the Census Bureau by the RDP Liaison are submitted by individual county.

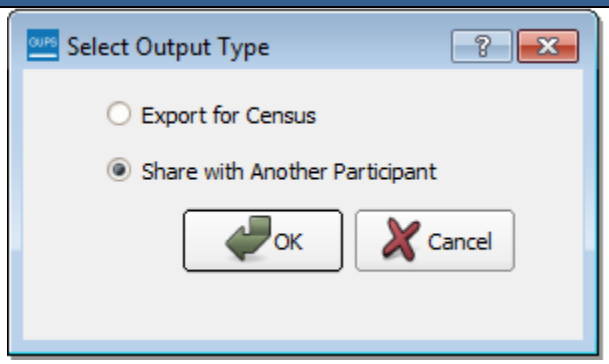
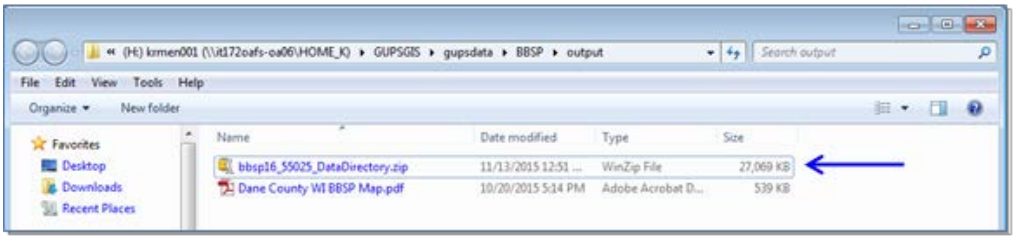
Follow the directions below for creating data output files and sending them to the appropriate recipient.

6.13.1 Creating a ZIP File for the State Liaison or Other Non-Census Reviewer

Table 54 Creating a ZIP File to Share with Non-Census Reviewer

Step	Action and *Result*
	Make sure to save your project by clicking the ***Save*** button before beginning the export process.
Step 1	Click the ***Export to Zip*** button on the BBSP Toolbar.
Step 2	*If you did not save your project before beginning the Export to Zip process, you receive a reminder message to save your project. Click the **Cancel** button and save your project by clicking on the **Save** button on the Standard toolbar. Click the **Export to Zip** button again.* 

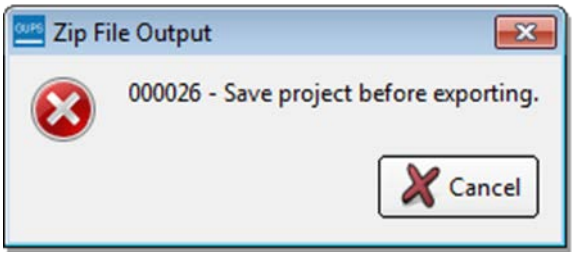
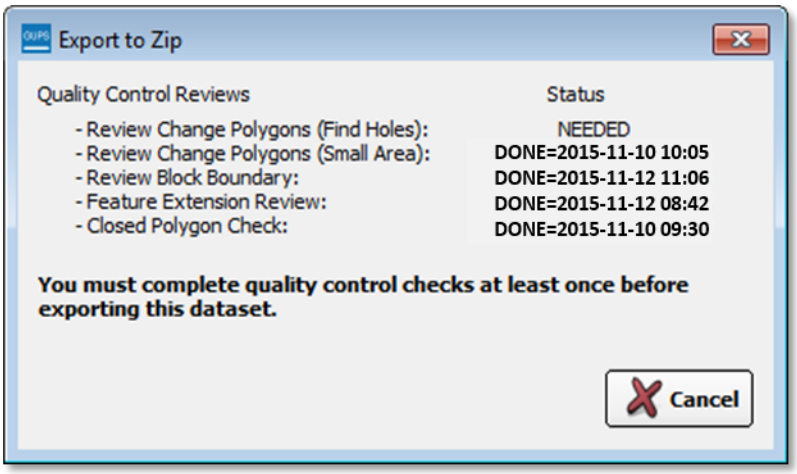
Step	Action and *Result*
Step 3	*The Export to Zip dialog box opens. The status of each required quality control review check is listed, including the date and time at which it was last performed. Each check must be initiated at least once before you can export the dataset. These checks are available on the BBSP Toolbar.* 
Step 4	*After all the Quality Control Reviews have been initiated at least once, the status column for each reflects DONE. The message is now a reminder message that you should perform the quality checks (again) if you have made updates since the last time the checks were run.*  Click the ***OK*** button.
Step 5	*The Select Output Type dialog box opens.* Click the ***Share with Another Participant*** radio button and then the ***OK*** button.

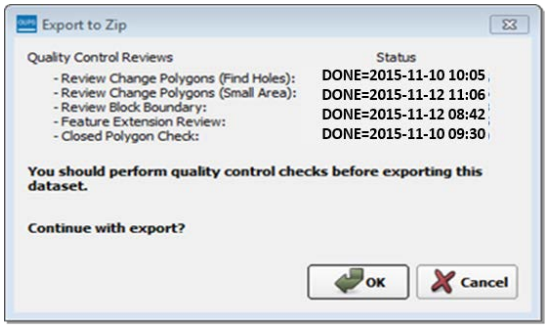
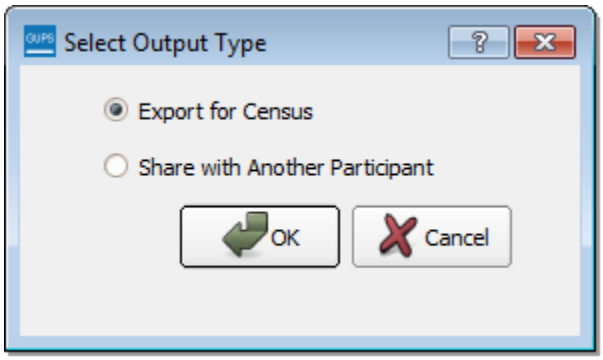
Step	Action and *Result*
	 ***Note:*** *It may take several minutes for the GUPS to create the .zip file. Be patient and wait for a Windows Explorer window that automatically opens after the file is created.*
Step 6	*When the .zip file has been created, a Windows Explorer window with the GUPS directories automatically opens. All .zip data output files for the BBSP are stored in the directory:* *C:\Users\<username>\GUPSGIS\ gupsdata\BBSP\output\.* ***Note**: Files created using the **Share With Another Participant** radio button will have the naming convention **bbspv17_<ssccc>_DataDirectory.zip**.* 

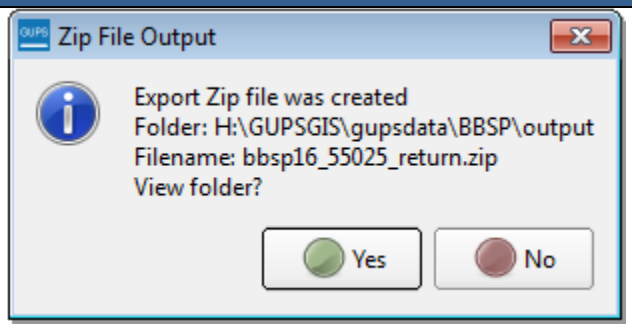
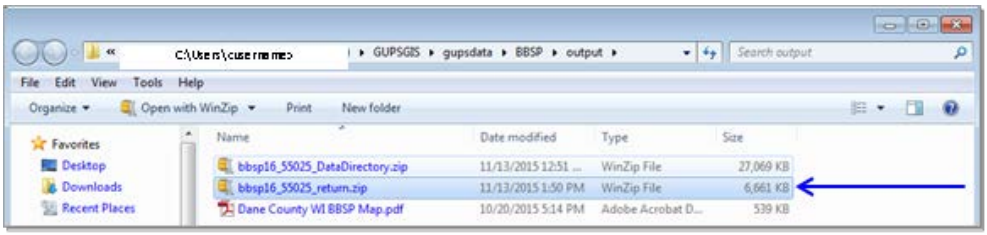
After the .zip file has been created, send the .zip file(s) to the State RDP Liaison for review and approval. You and your State RDP Liaison must arrange for file exchange. If, after reviewing the file, the State RDP Liaison determines that the project needs changes, the state may return the file to you for additional work or the RDP Liaison may make the changes. Only the State RDP Liaison can submit files to the Census Bureau.

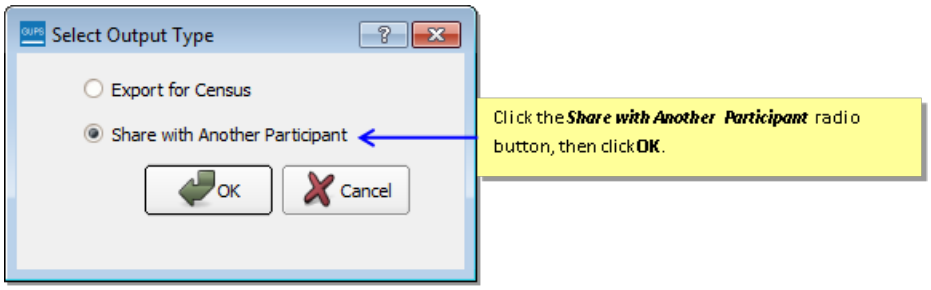
6.13.2 Creating a ZIP File for Submission to the Census Bureau

Table 55 Creating Files to Submit to the Census Bureau

Step	Action and *Result*
	Make sure to save your project by clicking the ***Save*** button before beginning the export process.
Step 1	Click the ***Export to Zip*** button on the BBSP Toolbar.
Step 2	*If you did not save your project before beginning the Export to Zip process, you receive a reminder message to save your project. Click the **Cancel** button and save your project by clicking on the **Save** button on the Standard toolbar. Click the **Export to Zip** button again.* 
Step 3	*The Export to Zip dialog box opens. The status of each required quality control review check is listed, including the date and time at which it was last performed. Each check must be initiated at least once before you can export the dataset. These checks are available on the BBSP Toolbar.* 
Step 4	*After all the Quality Control Reviews have been initiated at least once, the status column for each reflects DONE. The message is now a reminder*

Step	Action and *Result*
	message that you should perform the quality checks (again) if you have made updates since the last time the checks were run.  Click the OK button.
Step 5	*The Select Output Type dialog box opens.*  Click the ***Export for Census*** radio button and then the ***OK*** button. ***Note:*** *It may take several minutes for the GUPS to create the .zip file. Be patient and wait for the Zip File Output dialog box to open after the .zip file has been created.*
Step 6	*The Zip File Output dialog box opens. Your file directory in the message will look similar to this, with the exception of the filename.* ***Note****: Files created using the* ***Export to Census*** *radio button will have the naming convention* ***bbspv17_<ssccc>_return.zip****.*

Step	Action and *Result*
	 Click the ***Yes*** button to view the directory folder or the ***No*** button if you do not want to view the directory.
Step 7	*If you clicked the Yes button to view the folder, the Windows Explorer window with the GUPS directories is opened. All .zip data output files for the BBSP are stored in the directory:* *C:\Users\<username>\GUPSGIS\gupsdata\BBSP\output\.* ***Note**: Files created using the **Export to Census** radio button will have the naming convention **bbspv17_<ssccc>_return.zip**.*  Submit files to the Census Bureau using the instructions in Section 7, *File Submission through SWIM*.
NOTE TO RDP STATE LIASONS THAT HAVE DELEGATED WORK TO DESIGNEES:	
	Arrange with your designees how you plan to share files. When your designee completes work, they should send files to you for review, approval and submission to the Census Bureau. If you think a project needs changes, it is at your discretion whether to return the file to the designee or make the changes yourself.
	Do not save the ***bbspv17_<ssccc>_DataDirectory.zip*** files you receive from your designees in the \shape folder in the directory *C:\Users\<username>\GUPSGIS\ gupsdata\BBSP\shape*. You must save .zip files in a different directory on your computer for GUPS to recognize and import the .zip files.

Step	Action and *Result*
Step 8	If you choose to return the file to your designee for further work, follow the steps outlined in Table 54 to create the appropriate data output file. You will choose the **Share with Another Participant** radio button instead of the Export for Census radio button. 

Section 7. File Submission through SWIM

The Secure Web Incoming Module (SWIM) is a tool for U.S. Census Bureau partners to send their geospatial data to a Census Bureau server. For security reasons, we cannot accept files sent via email or through our former ftp site.

For the RDP, including the Phase 1 BBSP, the Census Bureau will only accept files submitted by the State RDP Liaison. If a county, agency, or contractor is performing work on behalf of the state liaison, the State Liaison must review, approve, and submit the files.

To establish a SWIM account, the Census Bureau must first provide a user a registration token, which is a unique, single-use 12-digit number associated to an individual. Every user must have a unique token in order to register. Once the token has been used to establish your account, it is no longer required to access your account.

To access the SWIM, enter the following URL in a new browser window: *https://respond.census.gov/swim/*.

Follow the directions below for account access and file upload.

7.1 Login Page

The Login page is the first page you see, as shown in Figure 22.

7.1.1 If you already have a SWIM Account:

1. Enter your Email address and Password
2. Click the **Login** button, which directs you to the **Welcome** page.

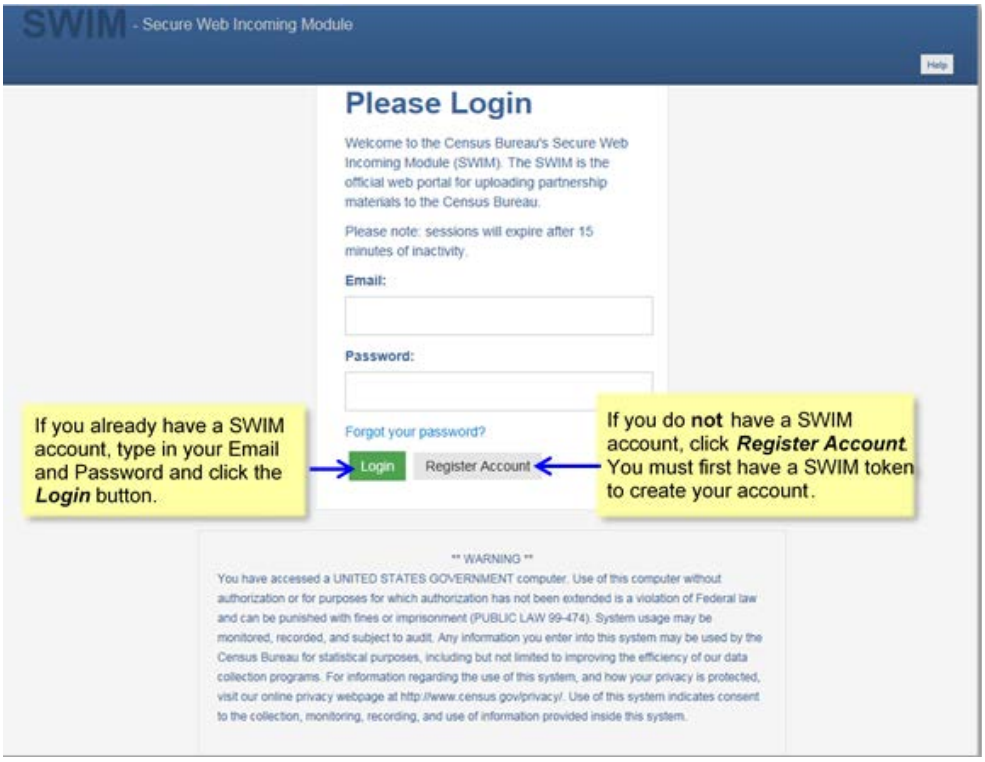


Figure 19 SWIM Login Screen

7.1.2 If you do not yet have a SWIM Account:

1. Click the **Register Account** button, which directs you to **the Account Registration** page, shown in Figure 3
2. Enter the 12 digit Registration Token number provided to you by the Census Bureau. If you do not have a token, contact the CRVRDO at 301-763-4039 or rdo@census.gov.
3. Complete all other fields. Click the Submit button.

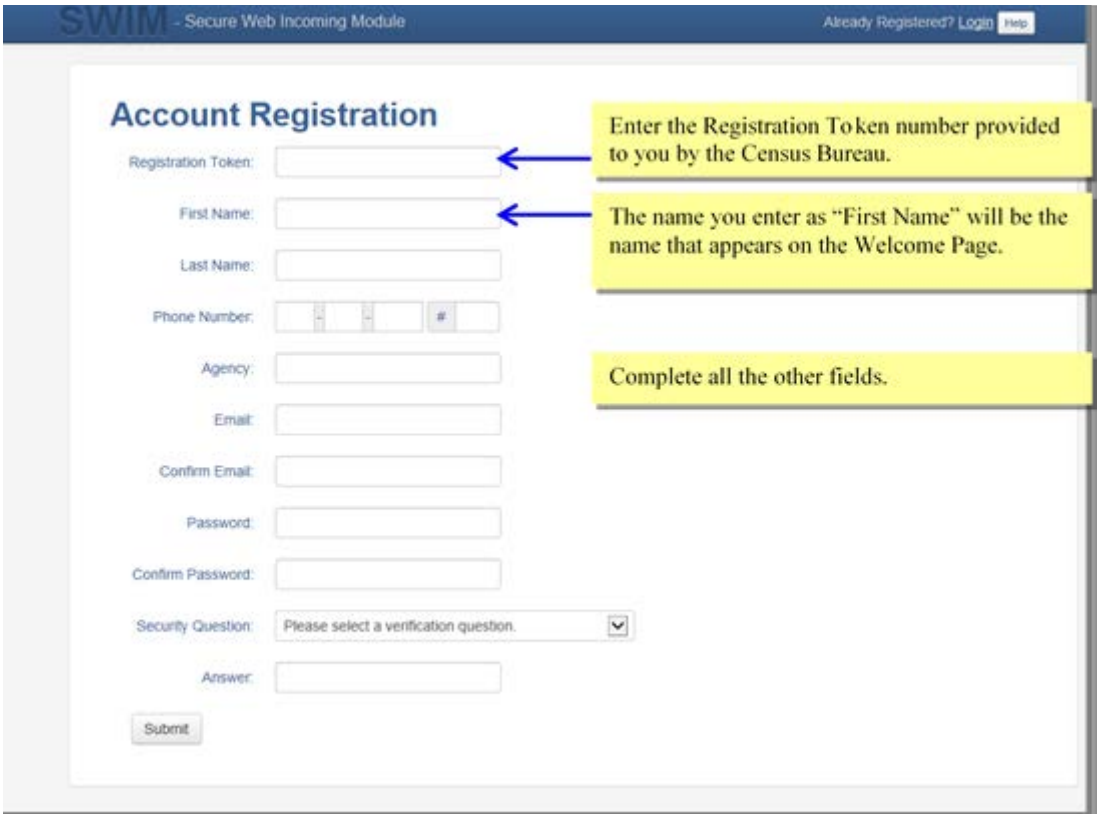


Figure 20 SWIM Account Registration Screen

7.2 Welcome Page

The Welcome Page is where you initiate the file upload process. Because the SWIM tracks files submitted and the submission date, the page appearance will change after you have successfully uploaded files. Figure 20 depicts the Welcome Page if you have not yet uploaded any files. Figure 21 depicts the Welcome Page appearance after you have uploaded files.

1. To submit a file, click the **Start New Upload** button.

Password Requirements: 8 characters in length

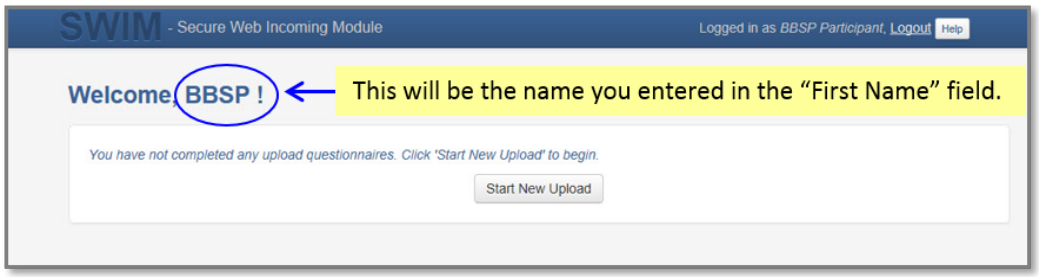


Figure 21 SWIM Welcome Page (no previous files uploaded)

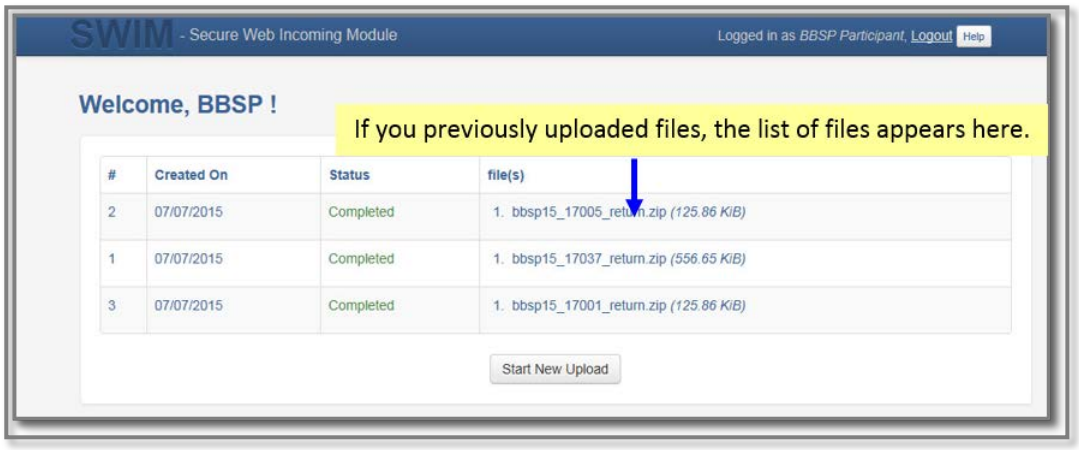


Figure 22 SWIM Welcome Page (files previously uploaded)

7.3 Geographic Program Page

The Geographic Program Page, shown in Figure 6, allows you to select the partnership program for which you are submitting data.

1. Click on the radio button next to **Redistricting Data Program – BBSP-VTD (RDP)**.
2. Click the **Next** button.

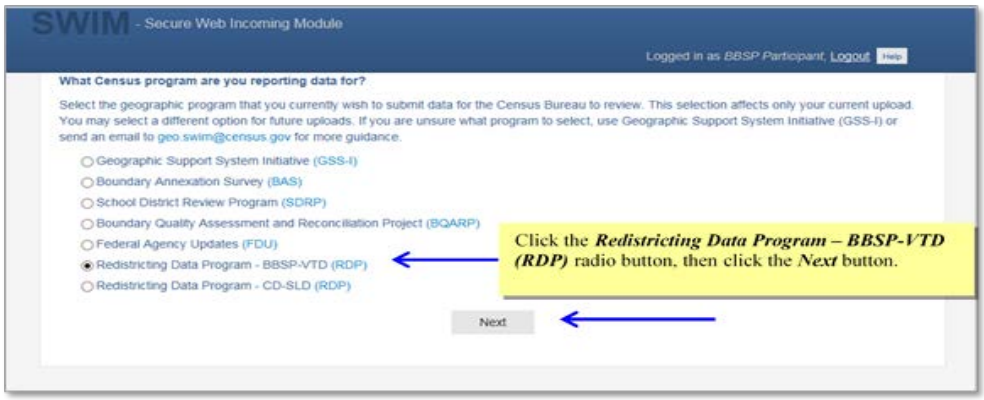


Figure 23 SWIM Geographic Program Page

7.4 Select a State

After choosing the Redistricting Data Program – BBSP-VTD (RDP), you must specify the state for which you are submitting data, as shown in Figure 7.

1. From the drop-down list, click on your **state name**.
2. Click on the **Next** button.

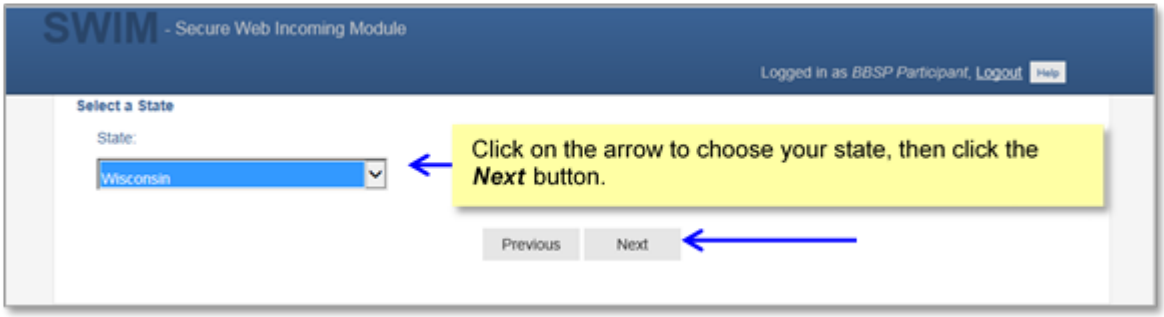


Figure 24 SWIM Select a State Page (for BBSP-VTD)

7.5 Select a .ZIP File to Upload

Figure 24 depicts the file upload page. Files must be in a .zip format and you can upload only one .zip file at a time. For the Redistricting Data Program, the GUPS will automatically create a separate .zip file for each county.

1. Click on the **+ Add File** button.
2. Navigate to the directory on your computer to choose the .zip file to upload.

3. Complete the **Comments** box, including pertinent information about data projection or supporting documentation.
4. Click on the **Next** button.

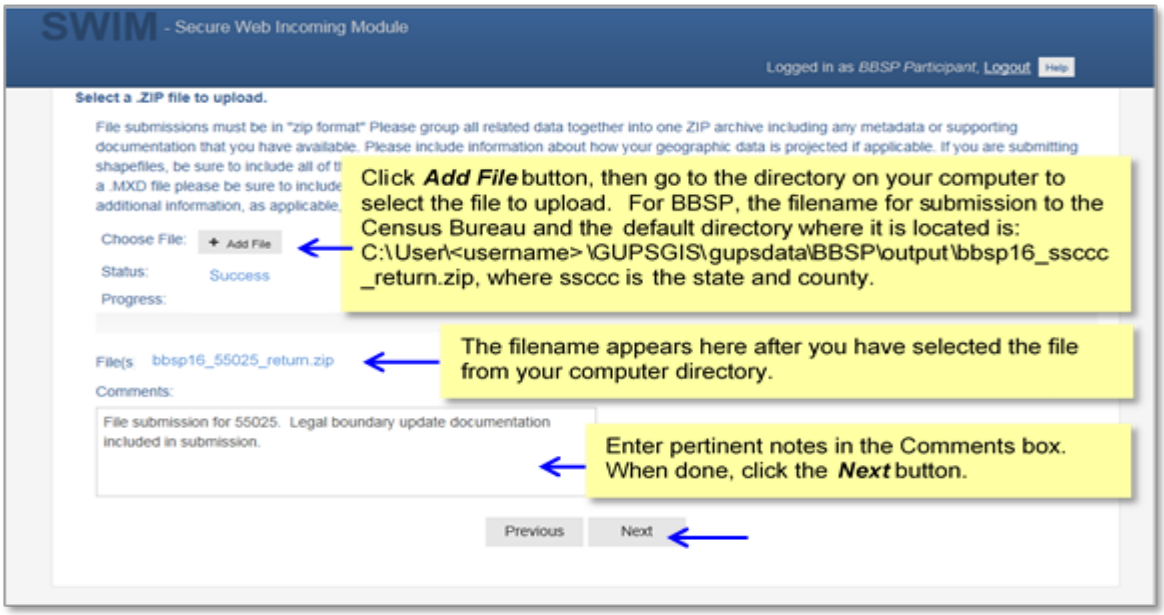


Figure 25 SWIM Select a .ZIP File to Upload Page

7.6 Thank You Page

The "Thank You" page, as shown below, confirms the receipt of your file submission. If you do not have any additional files to upload, click on **Log Out**. The Census Bureau will acknowledge the receipt of the uploaded file.

If you have additional files to upload, click on **Upload Form**. This choice returns you to the Welcome screen.

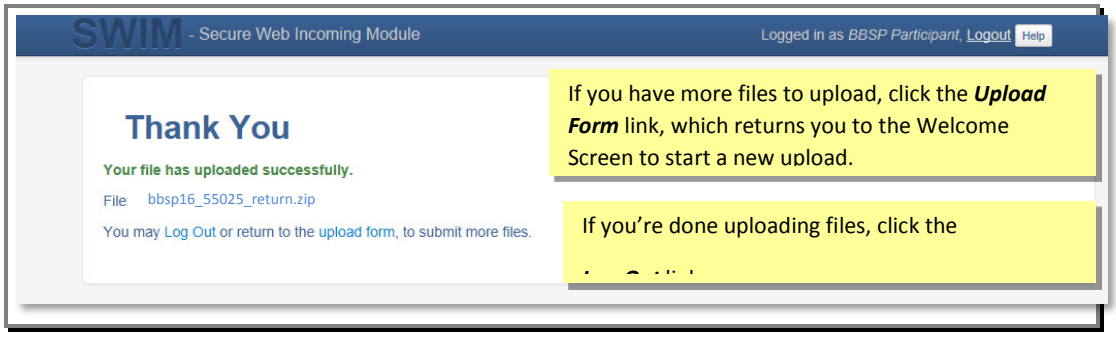


Figure 26 SWIM Thank You Page

Appendices

APPENDIX A Updates Allowed by MTFCC

The following three tables list, by MTFCC, the geographic updates permitted for area landmarks, linear features, and point landmarks.

A.1 Area Landmark Updates Permitted

Table A1: Area Landmark Updates Permitted

MTFCC	DESCRIPTION
C3023	Island
H2030	Lake/Pond
H2040	Reservoir
H2041	Treatment Pond
H2051	Bay/Estuary/Gulf/Sound
H2081	Glacier
K1231	Hospital
K1235	Juvenile Institution
K1236	Local Jail or Detention Center
K1237	Federal Penitentiary, State Prison, or Prison Farm
K2110	Military Installation
K2131	Hospital/Hospice/Urgent Care Facility
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

MTFCC	DESCRIPTION
K2190	Other Park, Forest, or Recreation Area (quasi-public, independent park, commission, etc.)
K2424	Marina
K2457	Airport - Area Representation
K2540	University or College
K2561	Golf Course
K2582	Cemetery

A.2 Linear Feature Updates Permitted

Table A2: Linear Feature Updates Permitted

MTFCC	DESCRIPTION
C3024	Levee
C3027	Dam
H3010	Stream/River
H3013	Braided Stream
H3020	Canal, Ditch, or Aqueduct
K2432	Pier/Dock
K2459	Runway/Taxiway
L4010	Pipeline
L4020	Power Line
L4110	Fence Line
L4121	Ridge Line
L4125	Cliff/Escarpment
L4130	Point-to Point Line
L4140	Property/Parcel Line (includes PLSS)
L4165	Ferry Crossing
P0001	Nonvisible Legal/Statistical Boundary
P0002	Perennial Shoreline

MTFCC	DESCRIPTION
P0003	Intermittent Shoreline
P0004	Other non-visible bounding edge (e.g., Census water boundary, boundary of areal feature
R1011	Railroad Feature (Main, Spur, or Yard
R1051	Carline, Streetcar Tract Monorail, Other Mass
R1052	Cog Rail Line, Incline Rail Line, Tram
S1100	Primary Road
S1200	Secondary Road
S1400	Local Neighborhood Road, Rural Road, City Street
S1500	Vehicular Trail (4WD)
S1630	Ramp
S1640	Service Drive usually along a limited access highway
S1730	Alley
S1740	Private Road for service vehicles (logging, oil fields, ranches, etc.)
S1820	Bike Path or Trail

A.3 Point Landmark Updates Permitted

Table A3: Point Landmark Updates Permitted

MTFCC	DESCRIPTION
C3022	Mountain Peak or Summit (Attribute modification and deletions not allowed because sourced from GNIS)
C3061	Cul-de-sac
C3062	Traffic Circle
K2451	Airport of Airfield (Attribute modification and deletions not allowed because sourced from GNIS)

APPENDIX B Street Type Abbreviations

The MAF/TIGER system uses the U.S. Postal Service standard abbreviations for street name types. The table below lists the street name type and the standard abbreviation to use when updating or adding street names to the MAF/TIGER system.

Table B1: 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

Street Name Type	Standard Abbreviation
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
CROSSROADS	XRDS
CURVE	CURV
DALE	DL
DAM	DM
DIVIDE	DV
DRIVE	DR
DRIVES	DRS
ESTATE	EST

Street Name Type	Standard Abbreviation
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

Street Name Type	Standard Abbreviation
HARBOR	HBR
HARBORS	HBRS
HAVEN	HVN
HEIGHTS	HTS
HIGHWAY	HWY
HILL	HL
HILLS	HLS
HOLLOW	HOLW
INLET	INLT
ISLAND	IS
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

Street Name Type	Standard Abbreviation
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
PLACE	PL

Street Name Type	Standard Abbreviation
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

Street Name Type	Standard Abbreviation
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
TRAILER	TRLR
TUNNEL	TUNL
TURNPIKE	TPKE
UNDERPASS	UPAS
UNION	UN
UNIONS	UNS
VALLEY	VLY
VALLEYS	VLYS
VIADUCT	VIA
VIEW	VW
VIEWS	VWS
VILLAGE	VLG

Street Name Type	Standard Abbreviation
VILLAGES	VLGS
VILLE	VL
VISTA	VIS
WALK	WALK
WALKS	WALK
WALL	WALL
WAY	WAY
WAYS	WAYS
WELL	WL
WELLS	WLS

APPENDIX C MTFCC Descriptions

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. The table below describes each code. You can download a more comprehensive version of the table at *http://www.census.gov/geo/reference/mtfcc.html*.

Table C1: Complete List of MTFCC Descriptions

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.

MTFCC	Feature Class	Feature Class Description
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.
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-

MTFCC	Feature Class	Feature Class Description
		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.
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,

MTFCC	Feature Class	Feature Class Description
		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 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.

MTFCC	Feature Class	Feature Class Description
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.
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.

MTFCC	Feature Class	Feature Class Description
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 or 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.
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.

MTFCC	Feature Class	Feature Class Description
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.
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.
K2190	Other Park, Forest, or Recreation Area (quasi-public, independent	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.

MTFCC	Feature Class	Feature Class Description
	park, commission, etc.)	
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.
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].

MTFCC	Feature Class	Feature Class Description
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.
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.

MTFCC	Feature Class	Feature Class Description
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.
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.

MTFCC	Feature Class	Feature Class Description
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.
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 November 2016.

APPENDIX D SHAPEFILE DATA DICTIONARY

The Census Bureau's partnership shapefiles consist of numerous layers and their accompanying tables representing different geographies. Table D1 lists the shapefile layer name and the geography each layer represents. Tables D2 through D34 list the data table for each of the layers listed in Table D1, with the attribute fields, their length, type, and description.

Table D1: Shapefile Layer Names/Tables

SHAPEFILE LAYER	GEOGRAPHIC LEVEL	<LAYER> NAME
American Indian Areas (AIA) - Legal	County/State	Aial
American Indian / Alaska Native Areas (AIANA) - Statistical	County/State	Aias
American Indian Tribal Subdivisions (AITS) - Legal	County/State	Aitsl
American Indian Tribal Subdivisions (AITS) - Statistical	County/State	Aitss
Alaska Native Regional Corporations (ANRC)	County/State	Anrc
Area Landmark	County only	Arealm
Block Area Grouping	County/State	Bag
Census Block Groups	County only	Bg
Block Size Indicator	County only	Block
Metropolitan/ Micropolitan Statistical Area	County/State	Cbsa
County Subdivisions – Statistical	County/State	Ccd
Congressional Districts (CD)	County/State	Cd
Census Designated Places (CDP)	County/State	Cdp
Consolidated Cities	County only	Concity
Counties and Equivalent Areas	County/State	County
Census Tracts	County only	Curtracts
Edges (All Lines)	County only	Edges
School Districts (Elementary)	County/State	Elsd
County Subdivisions – Legal	County/State	Mcd
New England City and Town Area	County/State	Necta
Offsets	County only	Offset
Incorporated Places	County/State	Place

SHAPEFILE LAYER	GEOGRAPHIC LEVEL	<LAYER> NAME
Point Landmarks	County only	Pointlm
Public Use Microdata Areas – Census 2010	County/State	Puma2010
School Districts (Secondary)	County/State	Scsd
State Legislative Districts (Lower/House)	County/State	Sldl
State Legislative Districts (Upper/Senate)	County/State	Sldu
States and Equivalent Areas	State only	State
Subbarrios	County only	Submcd
Census Blocks - Current	County only	Tabblock
Census Blocks – Census 2010	County only	Tabblock2010
Traffic Analysis Districts – Census 2010	County only	Tad2010
Traffic Analysis Zone	County only	Taz2010
Tribal Block Group	County/State	Tbg
Census Tracts – Census 2010	County/State	Tracts2010
Urban Area/ Urban Cluster – Census 2010	County/State	Uac
Urban Growth Areas (UGA)	County only	Uga
School Districts (Unified)	County/State	Unsd
Hydrography - Area	County only	Water
Address Ranges (Relationship Table)	County	Addr
Linear Feature Names (Relationship Table)	County	Allnames
Topological Faces - Area Landmark Relationship	County	Areafaces
Topological Faces (Listing of faces with all geocodes)	County	Faces
Topological Faces - Area Hydrography Relationship	County	Hydrofaces

Table D2: American Indian Areas - Legal

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
AIANNHCE	4	String	Census AIANNH Code

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
COMPTYP	1	String	Indicates if reservation (or equivalent) or off-reservation trust land is present, or both
AIANNHFSR	1	String	Flag indicating level of recognition of an American Indian, Alaska Native, or Native Hawaiian tribe or group.
NAMELSAD	100	String	Name with translated LSAD
AIANNHNS	8	String	ANSI numeric identifier for AIANNH Areas
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS55 class code describing entity
PARTFLG*	1	String	Part Flag Indicator
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID for any boundary update
AREA	10	Numeric (3 decimal places)	Acreage of area update
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data

Table D3: American Indian /Alaska Native Areas - Statistical

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
AIANNHCE	4	String	Census AIANNH Code
COMPTYP	1	String	Indicates if reservation (or equivalent) or off-reservation trust land is present, or both
AIANNHFSR	1	String	Flag indicating level of recognition of an American Indian, Alaska Native, or Native Hawaiian tribe or group.
NAMELSAD	100	String	Name with translated LSAD
AIANNHNS	8	String	ANSI numeric identifier for AIANNH Areas
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS55 class code describing entity
PARTFLG*	1	String	Part Flag Indicator
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
VINTAGE	2	String	Vintage updated with returned data
NAME	100	String	Name

Table D4: American Indian Tribal Subdivisions - Legal

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
AIANNHCE	4	String	Census AIANNH Code
TRIBSUBCE	1	String	Census Tribal subdivision
NAMELSAD	100	String	Name with translated LSAD
AIANNHNS	8	String	ANSI numeric identifier for AIANNH Areas
LSAD	2	String	Legal/Statistical Area Description

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS55 class code describing entity
PARTFLG*	1	String	Part Flag Indicator
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID for any boundary update
AREA	10	Numeric (3 decimal places)	Acreage of area update
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data
AIANNHFSR	1	String	Flag indicating level of recognition of an American Indian, Alaska Native, or Native Hawaiian tribe or group.

Table D5: American Indian Tribal Subdivisions - Statistical

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
AIANNHCE	4	String	Census AIANNH Code
TRIBSUBCE	1	String	Census Tribal subdivision
NAMELSAD	100	String	Name with translated LSAD
AIANNHNS	8	String	ANSI numeric identifier for AIANNH Areas
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS55 class code describing entity
PARTFLG*	1	String	Part Flag Indicator
CHNG_TYPE	2	String	Type of area update

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID for any boundary update
AREA	10	Numeric (3 decimal places)	Acreage of area update
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data
AIANNHFSR	1	String	Flag indicating level of recognition of an American Indian, Alaska Native, or Native Hawaiian tribe or group.

Table D6: Alaska Native Regional Corporations

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
ANRCFP	5	String	FIPS ANRC Code (State Based)
ANRCCE	2	String	Current Census ANRC Code
NAMELSAD	100	String	Name with translated LSAD
LSAD	2	String	Legal/Statistical Area Description
AIANNHNS	8	String	ANSI numeric identifier for AIANNH Areas
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS55 class code describing entity
PARTFLG*	1	String	Part Flag Indicator
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID for any boundary update

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
AREA	10	Numeric (3 decimal places)	Acreage of area update
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data
AIANHFSR	1	String	Flag indicating level of recognition of an American Indian, Alaska Native, or Native Hawaiian tribe or group.

Table D7: Block Size Indicator

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
TRACTCE	6	String	Census Tract Code
BLOCKCE	4	String	Tabulation Block Number
BLOCKID	19	String	FIPS State Code, FIPS County Code, Census Tract Code, Tabulation Block Number, Census Block Suffix 1, Census Block Suffix 2
AREALAND	14	Numeric (3 decimal places)	Current Area Land in Square Meters
AREAWATER	10	Numeric (3 decimal places)	Current Area Water in Square Meters
LWBLKTYP	1	String	Land/Water Block Type: B = Both Land and Water; L = Land; W = Water
PERIMETER	9	String	Perimeter of Block in Square Meters
SHAPEIDX	9	String	($\sqrt{(4\pi A/P2)}$, where A=Area of block & P = Perimeter of block
BLKSZIND	1	String	Block Size Indicator

Table D8: Congressional Districts

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
CDFP	2	String	Congressional District Code
CDTYP	1	String	Congressional District Type
NAMELSAD	100	String	Name with translated LSAD
LSAD	2	String	Legal/Statistical Area Description
CHNG_TYPE	2	String	Type of Area Update
EFF_DATE	8	String	Effective date or vintage
NEW_CODE	2	String	New Congressional District Code
RELTYPE1	2	String	Relationship Type 1
RELTYPE2	2	String	Relationship Type 2
RELTYPE3	2	String	Relationship Type 3
RELTYPE4	2	String	Relationship Type 4
RELTYPE5	2	String	Relationship Type 5
REL_ENT1	8	String	Relationship Entity 1
REL_ENT2	8	String	Relationship Entity 2
REL_ENT3	8	String	Relationship Entity 3
REL_ENT4	8	String	Relationship Entity 4
REL_ENT5	8	String	Relationship Entity 5
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
CDSESSN	3	String	Congressional District Session Code
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data
FUNCSTAT	1	String	Functional Status

Table D9: Hawaiian Homelands

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
AIANNHCE	4	String	Census AIANNH Code
COMPTYP	1	String	Indicates if reservation (or equivalent) or off-reservation trust land is present, or both
NAMELSAD	100	String	Name with translated LSAD
AIANNHNS	8	String	ANSI numeric identifier for AIANNH Areas
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS55 class code describing entity
PARTFLG*	1	String	Part Flag Indicator
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting documentation
FORM_ID	4	String	Record ID for any boundary update
AREA	10	Numeric (3 decimal places)	Acreage of area update
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
VINTAGE	2	String	Vintage updated with returned data
AIANNHFSR	1	String	Flag indicating level of recognition of an American Indian, Alaska Native, or Native Hawaiian tribe or group.
NAME	100	String	Name

Table D10: School Districts

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
SDLEA	5	String	Current Local Education Agency Code

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
NAME	100	String	Name of School District
LSAD	2	Integer	Legal/Statistical Area Description
HIGRADE	2	String	Highest grade for which the district is financially responsible
LOGRADE	2	String	Lowest grade for which the district is financially responsible
PARTFLG*	1	String	Part Flag Indicator
POLYID	4	String	Record ID for each update polygon for linking back to the submission log
CHNG_TYPE	1	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
FUNCSTAT	3	String	Functional Status
VINTAGE	2	String	Vintage updated with returned data

Table D11: State Legislative Districts (Upper/Senate)

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
SLDUST	3	String	SLD Upper Chamber Code
NAMELSAD	100	String	Name with translated LSAD
LSAD	2	String	Legal/Statistical Area Description
PARTFLG*	1	String	Part Flag Indicator
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
NEW_NAME	100	String	New SLDU Name
NEW_CODE	3	String	New SLDU Code
RELTYPE1	2	String	Relationship Type 1
RELTYPE2	2	String	Relationship Type 2

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
RELTYPE3	2	String	Relationship Type 3
RELTYPE4	2	String	Relationship Type 4
RELTYPE5	2	String	Relationship Type 5
REL_ENT1	8	String	Relationship Entity 1
REL_ENT2	8	String	Relationship Entity 2
REL_ENT3	8	String	Relationship Entity 3
REL_ENT4	8	String	Relationship Entity 4
REL_ENT5	8	String	Relationship Entity 5
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
LSY	4	String	Legislative Session Year
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data
FUNCSTAT	1	String	Functional Status

Table D12: State Legislative Districts (Lower/Senate)

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
SLDLST	3	String	SLD Lower Chamber Code
NAMELSAD	100	String	Name with translated LSAD
LSAD	2	String	Legal/Statistical Area Description
PARTFLG*	1	String	Part Flag Indicator
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
NEW_NAME	100	String	New SLDL Name
NEW_CODE	3	String	New SLDL Code
RELTYPE1	2	String	Relationship Type 1
RELTYPE2	2	String	Relationship Type 2

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
RELTYPE3	2	String	Relationship Type 3
RELTYPE4	2	String	Relationship Type 4
RELTYPE5	2	String	Relationship Type 5
REL_ENT1	8	String	Relationship Entity 1
REL_ENT2	8	String	Relationship Entity 2
REL_ENT3	8	String	Relationship Entity 3
REL_ENT4	8	String	Relationship Entity 4
REL_ENT5	8	String	Relationship Entity 5
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
LSY	4	String	Legislative Session Year
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data
FUNCSTAT	1	String	Functional Status

Table D13: Urban Growth Areas

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
UGACE	5	String	Urban Growth Area Code
UGATYP	1	String	Urban Growth Area Type
NAMELSAD	100	String	Name with translated LSAD
LSAD	2	String	Legal/Statistical Area Description
PARTFLG	1	String	Part Flag Indicator
CHNG_TYPE	1	String	Type of Area Update
EFF_DATE	8	String	Effective Date or Vintage
AREA	10	Double	Acreage of Update
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
VINTAGE	2	String	Vintage updated with returned data
NAME	100	String	Name

Table D14: Census Block Groups

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
TRACTCE	6	String	Census Tract Code
BLKGRPCE	1	String	Block Group Code
BLKGRPID	12	String	FIPS State Code, FIPS County Code, Census Tract Code, Block Group Code
CHNG_TYPE	2	String	Type of Area Update
EFF_DATE	8	String	Effective Date or Vintage
BGTYP	1	String	Block Group Characteristic Flag
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
VINTAGE	2	String	Vintage updated with returned data

Table D15: Census Blocks - Current

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
STATEFP10	2	String	FIPS 2010 State Code
COUNTYFP10	3	String	FIPS 2010 County Code
TRACTCE10	6	String	Census Tract Code
BLOCKCE	4	String	Tabulation Block Number

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
SUFFIX1CE	2	String	Census Block Suffix 1
SUFFIX2CE	2	String	Census Block Suffix 2
BLOCKID	19	String	FIPS State Code, FIPS County Code, Census Tract Code, Tabulation Block Number, Census Block Suffix 1, Census Block Suffix 2

Table D16: Census Blocks - Census 2010

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP10	2	String	FIPS 2010 State Code
COUNTYFP10	3	String	FIPS 2010 County Code
TRACTCE10	6	String	Census Tract Code
BLOCKCE	4	String	Tabulation Block Number
BLOCKID10	15	String	FIPS State Code, FIPS County Code, Census Tract Code, Tabulation Block Number
PARTFLG	1	String	Part Flag Indicator
HOUSING10	9	Integer	2010 Housing
POP10	9	Integer	Census 2010 population count

Table D17: Census Tracts

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
TRACTCE	6	String	Census Tract Code
NAME	100	String	Name
TRACTID	11	String	FIPS State Code, FIPS County Code, Census Tract Code
CHNG_TYPE	2	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
TRACTTYP	1	String	Tract Characteristic Flag
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
TRACTLABEL	7	String	Tract number used for LUCA geocoding
VINTAGE	2	String	Vintage updated with returned data

Table D18: Census Designated Places

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
PLACEFP	5	String	FIPS 55 Place Code
PLACENS	5	String	ANSI feature code for the place
NAMELSAD	100	String	Name with translated LSAD
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS 55 Class Code describing an entity
PARTFLG	1	String	Part Flag Indicator
CHNG_TYPE	1	String	Type of Area Update
EFF_DATE	8	String	Effective Date or Vintage

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data

Table D19: Consolidated City

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
CONCITYFP	5	String	FIPS 55 Place Code
CONCITYCE	4	String	Census Consolidated City Code
NAMELSAD	100	String	Name with translated LSAD
PLACENS	8	String	ANSI feature code for the place
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS 55 Class Code describing an entity
CHNG_TYPE	1	String	Type of Area Update
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting Documentation
FORM_ID	4	String	(GUPS and Web BAS only)
AREA	10	Double	Acreage of Update
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification

Table D20: County and Equivalent Areas

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
COUNTYNS	8	String	ANSI Feature Code for the County or Equivalent Feature
NAMELSAD	100	String	Name with translated LSAD code
LSAD	2	String	Legal/Statistical Area Description code
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS 55 Class Code describing an entity

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
CHNG_TYPE	1	String	Type of area update
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting Documentation
FORM_ID	4	String	(GUPS and Web BAS only)
AREA	10	Double	Acreage of Area Update
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data

Table D21: County Subdivisions - Legal (MCD)

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
COUSUBFP	5	String	FIPS County Subdivision Code
NAMELSAD	100	String	Name with translated LSAD
COUSUBNS	8	String	ANSI feature code for the county subdivision
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS 55 Class Code describing an entity
CHNG_TYPE	1	String	Type of Area Update
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting Documentation
FORM_ID	4	String	(GUPS and Web BAS only)
AREA	10	Double	Acreage of Update
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data

Table D22: County Subdivisions - Statistical (CCD)

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
COUSUBFP	5	String	FIPS County Subdivision Code
NAMELSAD	100	String	Name with translated LSAD
COUSUBNS	8	String	ANSI feature code for the county subdivision
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS 55 Class Code describing an entity
CHNG_TYPE	1	String	Type of Area Update
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data

Table D23: Incorporated Place

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP*	3	String	FIPS County Code
PLACEFP	5	String	FIPS 55 Place Code
NAMELSAD	100	String	Name with translated LSAD
PLACENS	8	String	ANSI feature code for the place
LSAD	2	String	Legal/Statistical Area Description
FUNCSTAT	1	String	Functional Status
CLASSFP	2	String	FIPS 55 Class Code describing an entity
PARTFLG	1	String	Part Flag Indicator
CHNG_TYPE	1	String	Type of Area Update
EFF_DATE	8	String	Effective Date or Vintage
DOCU	120	String	Supporting Documentation
FORM_ID	4	String	(GUPS and Web BAS only)
AREA	10	Double	Acreage of Update
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data

Table D24: States and Equivalent Areas

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
STATEUSPS	3	String	USPS State Abbreviation
NAME	10	Integer	Name
LSAD	5	String	Legal/Statistical Area Description
STATENS	120	String	ANSI feature code for the state

Table D25: Subarrios

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
COUSUBFP	5	String	FIPS County Subdivision Code
SUBMCDFP	5	String	FIPS Sub-minor Civil Division Code
NAMELSAD	100	String	Name with translated LSAD
SUBMCDNS	8	String	ANSI feature code for the sub-minor civil division
LSAD	2	String	Legal/Statistical Area Description
CHNG_TYPE	1	String	Type of Area Update
EFF_DATE	8	String	Effective Date or Vintage
AREA	10	Double	Acreage of Update
RELATE	120	String	Relationship Description
JUSTIFY	150	Char	Justification
FORM_ID	4	String	(GUPS and Web BAS only)
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data
FUNCSTAT	1	String	Functional Status

Table D26: Edges (All Lines)

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	State FIPS Code
COUNTYFP	3	String	County FIPS Code
TLID	10	Integer	Permanent Edge ID
TFIDL	10	Integer	Permanent Face ID (Left)
TFIDR	10	Integer	Permanent Face ID (Right)
MTFCC	5	String	MAF/TIGER Feature Class Code

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
FIDELITY	1	String	Indication to a respondent when their entity boundary has changed through spatial enhancement
FULLNAME	120	String	Prefix qualifier code, prefix direction code, prefix type code, base name, suffix type code, suffix qualifier code
SMID	22	String	Spatial Tmeta ID
BBSPFLG	1	String	2010 block boundary suggestion
CBBFLG	1	String	Planned 2020 block boundary
BBSP_2020	1	String	BBSP Participant suggested 2020 Census block boundary
CHNG_TYPE	2	String	Type of linear update
JUSTIFY	150	Char	Justification
LTOADD	10	String	Left To Address
RTOADD	10	String	Right To Address
LFROMADD	10	String	Left From Address
RFROMADD	10	String	Right From Address
ZIPL	5	String	Left Zip Code
ZIPR	5	String	Right Zip Code

Table D27: Area Landmark

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
MTFCC	5	String	MAF/TIGER Feature Class Code
FULLNAME	120	String	Prefix direction code, prefix type code, base name, suffix type code, suffix direction code
AREAID	10	Integer	Landmark identification number
ANSICODE	8	String	ANSI code for area landmarks
CHNG_TYPE	1	String	Type of Area Landmark update
EFF_DATE	8	String	Effective Date or Vintage
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification
BAG	3	String	Block Area Grouping

Table D28: Hydrography Area

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
ANSICODE	8	String	ANSI code for hydrography area
MTFCC	5	String	MAF/TIGER Feature Class Code
FULLNAME	120	String	Prefix direction code, prefix type code, base name, suffix type, suffix type code, suffix direction code
CHNG_TYPE	1	String	Type of Area Update
HYDROID	10	String	Hydrography Identification Number
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification

Table D29: Point Landmarks

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
POINTID	10	Integer	Point Landmark Identification Number
ANSICODE	8	Char	Official Code for Federal Agency use
MTFCC	5	String	MAF/TIGER Feature Class Code
FULLNAME	120	String	Prefix type code, base name, suffix type code
CHNG_TYPE	1	String	Type of Area Update
JUSTIFY	150	Char	Justification

Table D30: Topological Faces - Geogrpahic Entity Relationships

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
TFID	20	Integer	Permanent Face ID
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
TRIBSUBCE	3	String	Census Tribal Subdivision
TTRACTCE	6	String	Tribal Census Tract Code
TBLKGRPCE	1	String	Tribal Census Block Group Code
AIANNHCE	4	String	Census AIANNH Code
COMPTYP	1	String	Indicates if reservation (or equivalent) or off-reservation trust land is present, or both
ANRCCE	5	String	FIPS ANRC Code
SLDUST	3	String	SLD Upper Chamber Code
SLDLST	3	String	SLD Lower Chamber Code
ELSD	5	String	Current ELSD Local Education Agency (LEA) Code
SCSD	5	String	Current SCSD Local Education Agency (LEA) Code
UNSD	5	String	Current UNSD Local Education Agency (LEA) Code
CDFP	2	String	Congressional District Code
TRACTCE	6	String	Census Tract Code

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
UACE	5	String	Census Urban Area Code
BLKGRPCE	1	String	Census Block Group Code
BLOCKCE	4	String	Tabulation Block Number
SUFFIX1CE	2	String	Census Block Suffix 1
SUFFIX2CE	2	String	Census Block Suffix 2
TAZCE	6	String	Traffic Analysis Zone Code
SUBMCDFP	5	String	FIPS 55 Sub-minor Civil Division Code
UGACE	5	String	Urban Growth Area Code
VTDST10	6	String	2010 Voting District Code
STATEFP10	2	String	FIPS 2010 State Code
COUNTYFP10	3	String	FIPS 2010 County Code
TRACTCE10	6	String	Census 2010 Tract Code
PLACEFP	5	String	FIPS 55 Place Code
COUSUBFP	5	String	FIPS 55 County Subdivision Code
CONCITYFP	5	String	FIPS 55 Place Code
LWFLG	1	String	Land/Water Flag

Table D31: Topological Faces - Area Landmark Relationships

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
TFID	20	Integer	Permanent Face ID
AREAID	22	Integer	Object ID

Table D32 Topological Faces - Hydrography Area Relationships

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
TFID	20	Integer	Permanent Face ID
HYDROID	22	Integer	Object ID

Table D33: Address Ranges

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
TLID	22	Integer	TIGER Line ID
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
FROMHN	12	String	From House Number
TOHN	12	String	To House Number
SIDE	1	String	Side Indicator Flag
ZIP	5	String	5-digit ZIP Code
PLUS4	4	String	ZIP+4 Code
LFROMADD	10	String	Left From Address
LTOADD	10	String	Left To Address
RFROMADD	10	String	Right From Address
RTOADD	10	String	Right To Address
ZIPL	5	String	Left 5-digit ZIP Code
ZIPR	5	String	Right 5-digit ZIP Code
ZIP4L	4	String	Left ZIP+4 Code
ZIP4R	4	String	Right ZIP+4 Code

Table D34: Linear Feature Names

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
OID	22	Integer	Object ID
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
NAME	100	String	Name
PREDIR	2	String	Prefix Direction code component of feature name
PRETYP	3	String	Prefix Type code component of feature name
PREQUAL	2	String	Prefix Qualifier code component of feature name
SUFDIR	2	String	Suffix Direction code component of feature name
SUFTYP	3	String	Suffix Type code component of feature name
SUFQUAL	2	String	Suffix Qualifier code component of feature name

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
MTFCC	5	String	MAF/TIGER Feature Class Code
PAFLAG	1	String	Primary/Alternate flag

APPENDIX E Acronyms

The table below lists the acronyms used throughout the Block Boundary Suggestion Project GUPS User's Guide and the explanation of these abbreviations.

Table E1: Acronyms

ACRONYM	EXPLANATION
BAS	Boundary and Annexation Survey
BAG	Block Area Grouping
BBSP	Block Boundary Suggestion Project
CBBFLG	Census Block Boundary Flag
CRVRDO	Census Redistricting & Voting Rights Data Office
FIPS	Federal Information Processing Standard
GNIS	Geographic Names Information System
GUPS	Geographic Update Partnership Software
MAF/TIGER	Master Address File/Topologically Integrated Geographic and Encoding Reference (System)
MCD	Minor Civil Division
MTFCC	MAF TIGER Feature Classification Code
OGC	Open Geospatial Consortium
QC	Quality Control
QGIS	Q (formerly Quantum) Geographic Information System
SWIM	Secure Web Incoming Module
URL	Uniform Resource Locator
VTD	Voting District Project

APPENDIX F BBSP Participation Support

Direct all questions, regarding the Block Boundary Suggestion Project, both procedural and GUPS technical questions, to:

Census Redistricting & Voting Rights Data Office (301) 763-4039

Direct technical questions regarding the Secure Web Incoming Module (SWIM) to: geo.swim@census.gov.

APPENDIX G County Completion Tracking Sheet

BBSP Participants can print this sheet to track completed work and submissions to the state (for designees), or to the Census Bureau (for RDP Liaisons).

		GEOGRAPHIC DATA				BBSP UPDATE				QC			SUBMISSION TRACKING	
County FIPS	County Name	Linear Feature	Area Landmark Review	Legal Boundary Review	Pt Landmark	2010 Feature	Block Size	BBSP	BAGs	Block Boundary Review	General Geog Review	Validation	Date Sent to State (Designee)	Date Sent To Census (RDP Liaison)

		GEOGRAPHIC DATA				BBSP UPDATE				QC			SUBMISSION TRACKING	
County FIPS	County Name	Linear Feature	Area Landmark Review	Legal Boundary Review	Pt Landmark	2010 Feature	Block Size	BBSP	BAGs	Block Boundary Review	General Geog Review	Validation	Date Sent to State (Designee)	Date Sent To Census (RDP Liaison)