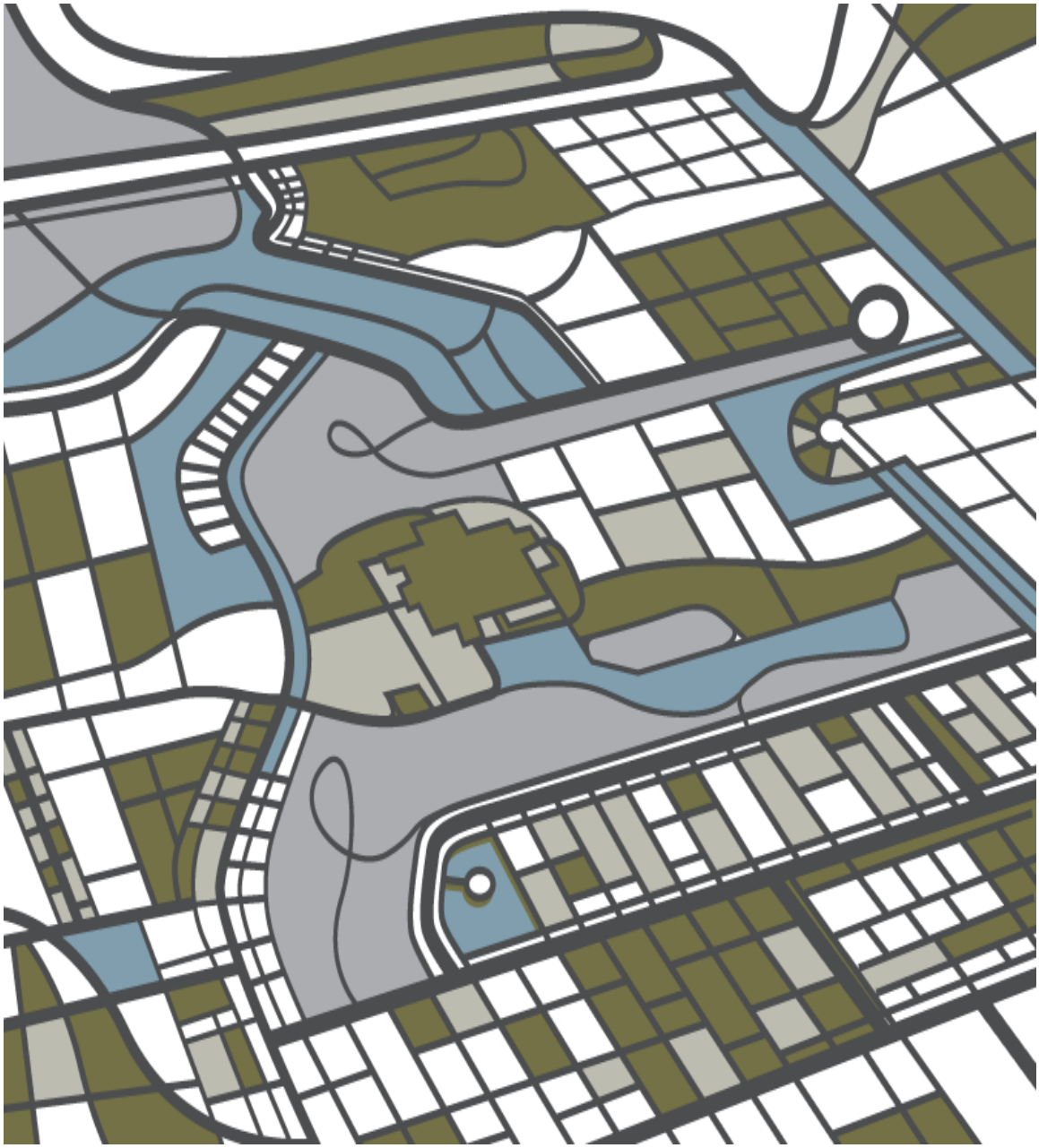
Voting District Project GUPS User's Guide

Instructions for Using the
Geographic Update Partnership Software (GUPS)



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Paperwork Reduction 0607-0988
United States Census Bureau
4600 Silver Hill Road, Room 4H177
Washington, DC 20233

The Census Bureau issued a Federal Register Notice to revise its confidentiality pledge language to address the new cybersecurity screening requirements:

Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the systems that transmit your data.

Section 1. Introduction

1.1 Background

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 2020 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

1.2 Purpose

This document addresses Phase 2: Voting District Project (VTDP) of the RDP. Through the VTDP, liaisons designated by the legislative leadership in each state, the District of Columbia, and Puerto Rico, have the opportunity to submit their voting district boundaries (e.g. precincts, wards), codes, and names to the Census Bureau as well as suggest additional updates to other geographic areas as they did in the Block Boundary Suggestion Project (BBSP). This guide is intended for state participants using the Census Bureau's Geographic Update Partnership Software (GUPS) tool to participate in the program.

1.3 Document Structure

Part 1. **VTDP Overview** of the document provides the conceptual overview of the 2020 VTDP, including:

- Update activities,
- Quality control activities, and
- New Features of GUPS

Part 2. Participating in VTDP Using GUPS contains the technical directions for using the GUPS to accomplish updates as outlined in Part 1. Part 2 contains step-by-step instructions on using the GUPS tools.

We suggest reviewing **Part 1** to determine the types of updates you wish to make, and then referring to those sections of **Part 2** that describe how to make those updates.

Part 1. VTDP Overview

Section 2. Suggested Workflow

The VTDP participant is not required to perform all the update activities permitted. 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 a flow basis permits the CRVRDO and the Census Bureau to review the files early in the process and provide feedback as necessary. GUPS contains validation tools to ensure VTDP updates meet the established criteria and submission files meet Census Bureau processing requirements.

When you begin a GUPS VTD project, the software will offer you four ways to get started:

- Editing a Census 2010 VTD shapefile – A good option if you submitted voting district boundaries to the Census Bureau prior to the 2010 Census, and they have not changed significantly since then. Note the 2010 VTD boundaries have been adjusted to conform to current county boundaries, and therefore may not appear exactly as they did in 2010 Census data products, particularly for counties with significant boundary changes.
- Creating a new VTD layer– A good option if you did not submit your voting district boundaries in 2010 or you submitted them, but they have changed significantly since 2010 AND you do not have a shapefile of tabular equivalency file defining your current VTDs.
- Importing a tabular equivalency file – A good option if you have a text file that defines what 2010 Census blocks comprise your current VTDs. Again, 2010 Census block boundaries may have been reshaped in an effort to improve spatial accuracy and may not appear exactly as they did in 2010 Census data products. Therefore, you should review the depiction of your VTDs in GUPS after you import the tabular equivalency file, to ensure your VTDs appear as expected.
- Importing your own VTD shapefile – A good option if you have a shapefile that depicts your current VTDs. Note that GUPS may conflate your VTD shapefile to align with Census geography – particularly current county boundaries – so you should review the depiction of your VTDs in GUPS after you import the shapefile, to ensure it appears as expected.

Note: If you have a statewide VTD tabular equivalency file for your state, please contact us at rdo@census.gov or 301-763-4039 for other submission options.

See **Section 7** to review the GUPS technical instructions for Starting a VTD Project.

Once you have started your project, there are various type of updates you can make, and the order you wish to make them will depend on your situation. For example, you may want to update or add linear features or incorporated place boundaries before updating your VTDs, if you plan to use those incorporated place boundaries or linear features as VTD boundaries. Updates allowed in the VTDP are listed below.

2.1. Voting District Boundary Updates

Once you begin your GUPS project using one of the four options described above you can modify or create new VTDs by adding area to them. Because VTDs cannot overlap and must cover the entire county, you can only remove area from one VTD by adding it to another. VTDs can also be deleted in their entirety. You can also add or modify VTD names and/or codes.

See **Section 8** to review the GUPS technical instructions for VTD Updates.

2.2. Linear Feature Review

You may want to review the Census Bureau's linear features (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 MAF/TIGER Feature Class Code (MTFCC) values of S1100-Primary Road, or S1200-Secondary Road, require a feature name. 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:

1. 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 more than 7.6 meters off or interferes with relationships to other features.
2. Will only accept new nonvisible edges, parcel lines, pipelines, and power lines when they are being used to define a boundary. See **Section 8.3** to review the GUPS technical instructions for Linear Feature Review.

See **Section 8.3** to review the GUPS technical instructions for Updating Linear Features.

Appendix A, Table 63: Linear Feature Updates Permitted lists the feature updates the Census Bureau will accept.

2.3. Area Landmark and Area Hydrography Review

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

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.

See **Section 8.4** to review the GUPS technical instructions for Area Landmark Review (including hydrographic areas).

Appendix A, Table 62: Area Landmark Updates Permitted lists the feature updates the Census Bureau will accept.

2.4. Legal Boundary Review and Update

At the recommendation of many states, the Census Bureau introduced a Boundary and Annexation Survey (BAS) review as part of Phase 1 (BBSP) and Phase 2 (VTDP) of the Redistricting Data Program. State Redistricting Liaisons may provide boundary corrections and other legal updates (annexations, deannexations, incorporations and disincorporations), and supporting documentation. The Census Bureau will assume the responsibility for reconciling the updates with the appropriate local governments as part of our 2018 Boundary and Annexation Surveys.

You may submit legal boundary updates for counties, minor civil divisions, incorporated places, and consolidated cities. Although legal documentation (effective date, authority type, and documentation number) is not required for boundary updates submitted through the VTDP, 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.

See **Section 8.5** to review the GUPS technical instructions for Legal Boundary Updates.

2.5. VTD Criteria Review

This QC tool checks all VTDs in the county and looks for areas (faces) not assigned to any VTD, as well as non-contiguous VTDs. Unassigned faces must be addressed. Non-contiguous entities may be ignored if the VTD is actually non-contiguous.

See **Section 8.6.1 VTD Criteria Review Tool** to review the GUPS technical instructions for running the VTD Criteria Review.

2.6. Review Change Polygons

GUPS provides a change polygon review if you made legal boundary updates. Under the Review Change Polygons button there are two checks: 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.

See **Section 8.6.2** to review the GUPS technical instructions for Reviewing Change Polygons.

2.7. 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.

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 VTDP 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.

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.

See **Section 8.7.3** to review the instructions for creating export files for submission to the RDP Liaison or **Section 8.7.4** to review the instructions for creating export files for submission to the Census Bureau.

Section 3. New Tools in GUPS

If you participated in Phase 1: Block Boundary Suggestion Program (BBSP or BBSPV) and used GUPS, you might be interested in a few tool enhancements we have made to the software and some new features introduced specifically for VTPD.

3.1 Split Linear Feature

This tool allows you to split any linear feature if you need to delete or make attribute changes to only part of the line. The tool allows you to split the line at a specific location, forming two segments, and update attributes or delete the appropriate segment.

See **Section 8.3.2, Table 31** to review the GUPS technical instructions for using the split linear feature tool.

3.2 Switch to BBSP Style

If you participated in BBSP or BBSPV and are accustomed to the symbology style used then, or wish to verify your BBSP updates, this tool allows you to switch between the symbology styles of VTDP to the symbology style of BBSP.

See **Appendix G Switch to BBSP Style Button** to review the GUPS technical instructions for using the Switch to BBSP Style tool.

3.3 Export Tabular Equivalency File

This export option allows you to export either your current VTD layer, or the 2010 VTD layer as a tabular equivalency file.

See **Section 8.7.2** to review the GUPS technical instructions for exporting a tabular equivalency file.

3.4 GUPS Data Settings

The GUPS Cleanup Tool has been renamed to the **GUPS Data Setting** Tool. It retains the same functionality of deleting project files, but has been modified to include additional data management options:

1. Allows you to change the location on your computer where your GUPS data folder is stored.
2. Allows you to view the directory where your data are being stored.

Section 4. File Submission through Secure Web Incoming Module

The Secure Web Incoming Module (SWIM) is a tool utilized by U.S. Census Bureau partners to send their VTDP submissions to a secure 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 account. Once registered, you no longer need the token to log into the system. Use your SWIM account to submit updates for all phases of the 2020 RDP.

If you have submitted files for BBSP or BBSPV, use the same SWIM account.

Note: 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 RDP Liaison for review, approval, and submission.

See **Section 9** to review the technical instructions for submitting files through the SWIM.

Part 2. Participating in VTDP Using GUPS

Section 5. Getting Started

This part of the guide includes information needed to use GUPS and submit your file returns. It offers a description of the GUPS application and gives specific instructions (in the form of step-action tables) for how to use GUPS to make VTDP updates. The five sections of Part 2 are described below.

Section 5. Getting Started:

- Lists the hardware and software requirements for GUPS and SWIM;
- Provides instructions for installing the GUPS application; and
- Details accessing partnership shapefiles.

Section 6. GUPS Basics and Map Management:

- Provides instructions to open GUPS and start a project;
- Details how to load shapefiles;
- Explains the GUPS interface (including the Menu, Toolbars, Table of Contents or Map Legend, and the Map View area); and
- Offers instructions for using the tools available through the menu and toolbars.

Section 7. Starting a VTD Project

- Provides instructions for starting a VTD Project using one of the following methods:
    - Editing 2010 VTD shapefiles;
    - Creating new blank VTD layers;
    - Importing tabular equivalency files; and
    - Importing VTD shapefiles.

Section 8. VTD Update Activities in GUPS and Creating Submission Files:

- Creating and Updating VTDs;
- Updating Linear Features;
- Updating Area Landmarks;
- Updating Legal Boundaries;
- Conducting Quality Control Checks and Criteria Reviews; and
- Creating Submission Files.

Section 9. File Submission through SWIM:

- Provides instructions for submitting files to the Census Bureau through SWIM.

VTDP participants are not required to perform all update activities. Linear feature, area landmark, and legal boundary reviews, are all optional. We suggest 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 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).

States with strong relationships between VTDs and other legal geographies may wish to review the legal boundaries as reflected in the Census Bureau data to ensure they are accurate as of the review date.

GUPS contains several required quality control checks to ensure that VTDP updates meet the established criteria, and that the submission files meet Census Bureau processing requirements.

5.1 GUPS Hardware and System Requirements

GUPS is based on QGIS a free and open-source desktop geographic information system application. You can learn more about QGIS at <http://www.qgis.org/en/site/>. The GUPS application was developed for use in a desktop PC.

Table 1 lists the hardware and software requirements to install and run GUPS, and submit files through the SWIM website.

Table 1: 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, you 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://support.apple.com/bootcamp/> **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

5.2 Installing GUPS and Census Bureau Spatial Data

The Census Bureau provides two DVDs for utilizing GUPS:

1. The first DVD contains the software installer and a readme file with installation instructions.
2. The second DVD contains the respondent guides, partnership shapefiles, and block size shapefiles for the counties in your state.

Please be aware that the VTDP GUPS software, shapefiles, and guides will be available for download from the 2020 Census Programs Phases page at the CRVRDO's website <https://www.census.gov/rdo> around January 5, 2018.

5.2.1. Installing the GUPS Application

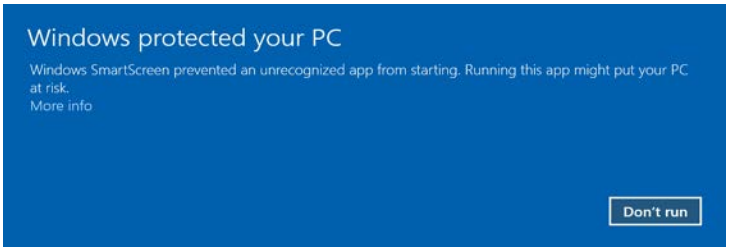
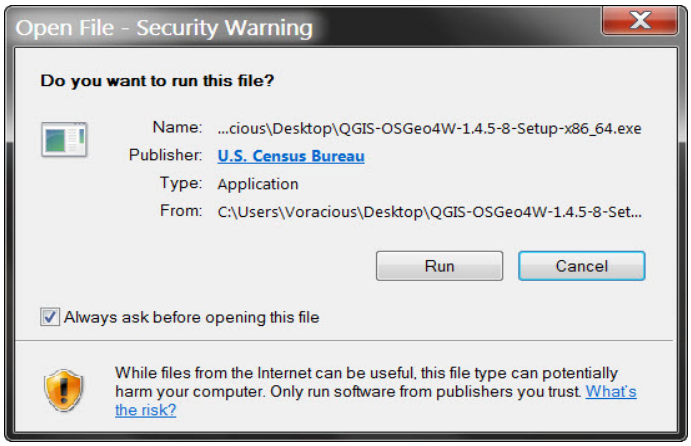
If you have worked on BBSP/BBSPV or another Census geographic update program, you will likely have GUPS already installed on your computer. As the VTDP module was not included on prior versions of GUPS, you will have to update your existing GUPS installation. When you install the new version of GUPS from the DVD or from the RDP webpage, you will be prompted to uninstall your current version of GUPS and install the new version that includes the VTDP module.

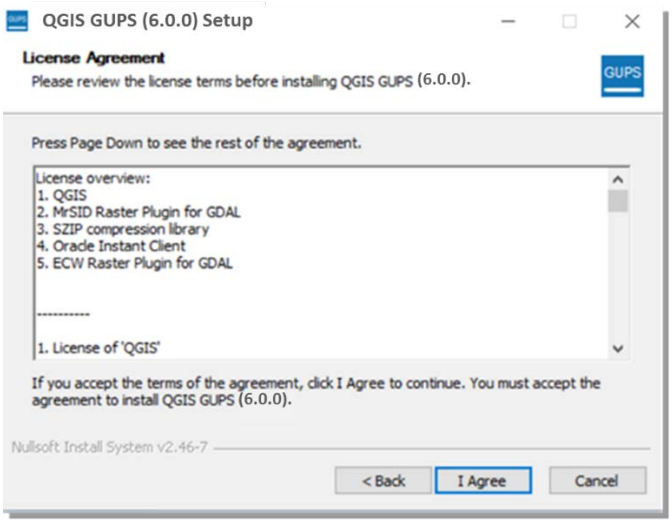
Prior to updating, it is suggested that you make a backup of your existing GUPSGIS data folder in case you have projects from BBSP/BBSPV or other Census geographic programs that you would like to keep and continue to use with GUPS. You can simply make a copy of this folder and place it in another location on your computer. The GUPS installer and software is designed to keep the existing GUPSGIS data folder, with all project data, intact if one already exists, however, it is good practice to make a backup of your existing GUPSGIS data folder before updating to a newer version of GUPS.

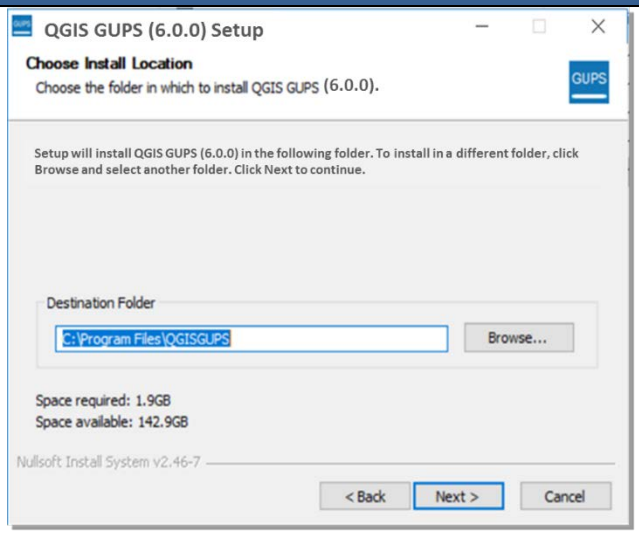
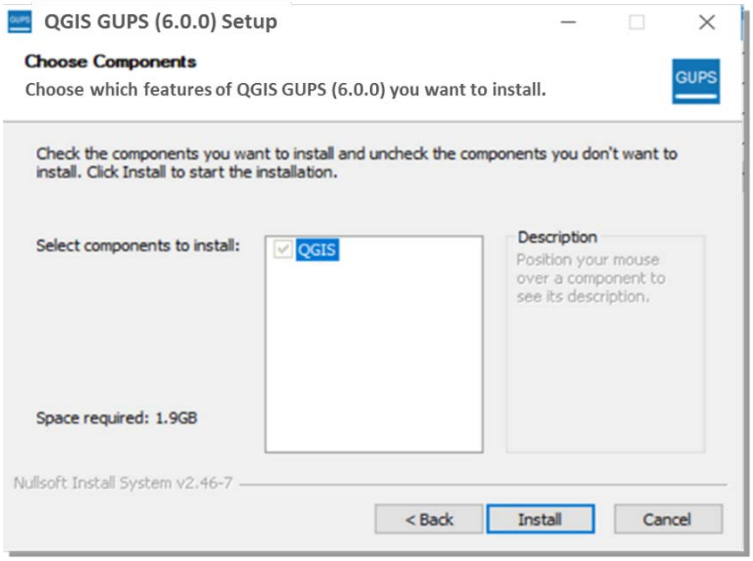
To complete the installation, follow the steps in **Table 2**.

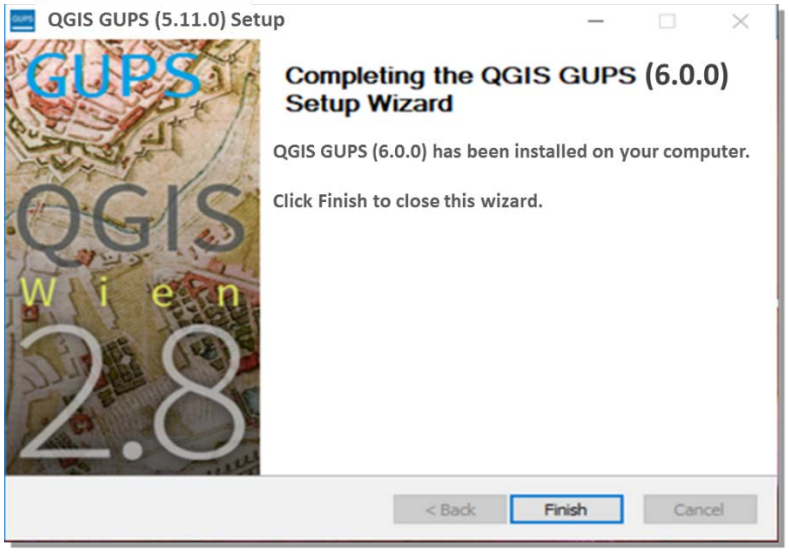
Depending on the Windows OS version, the GUPS dialog boxes may have a different appearance than the screenshots contained in the user guide, although the content is the same.

Table 2: How to 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.  If you receive such a pop-up, click '**Run**', '**Yes**', '**Allow'**, or an option that allows you to proceed. *The software runs 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-6.0.0-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 in the screen title version you see will be 6.0.0 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\QGISGUPS).

Step	Action and *Result*
	 To begin the installation, click **Next** to continue.
Step 7	*The **Choose Components** screen opens*.  '☑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** to continue.
	If you want to review a previous screen or reread the license agreement, click the **Back** button (each screen contains this button).
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.*

Step	Action and *Result*
	 Click the Finish button. If the '*Reboot now*' appears, select it and then click Finish.
Step 9	 *A blue GUPS icon appears on your desktop*.

5.2.2. Accessing the Census Bureau Partnership Shapefiles

There are two types of shapefiles available to support the VTDP update activities: **partnership shapefiles** and **block size** (also known as prototype block) **shapefiles.**

- **Partnership Shapefiles:** The Partnership Shapefiles are used in Census Bureau partner programs to share data with and capture data from our partners. They are a direct snapshot of TIGER, the Census Bureau's geographic database. Specific geographic programs may use different versions of the partnership shapefiles.
- **Block Size Shapefiles:** The Block Size Shapefiles show what the 2020 tabulation blocks would look like based on current geography, and include an estimate, based on 2010 Census data, of the number of housing units contained within each block. Actual 2020 tabulation blocks will be delineated in 2020 based on the geography that exists at that time.

There are three ways to add the shapefiles to your project in GUPS:

1. **Census Web (recommended):** GUPS will download the shapefiles from the Census Bureau's website into your home directory. You do not need to take any further action.

2. **CD/DVD:** GUPS will download the files to your home directory from the inserted DVD. You do not need to take any further action.
3. **My Computer:** 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. (See Section 5.3). GUPS stores the files in your home directory at C:\Users\<username> (with the <username> displaying your specific username), unless you have changed your file location using the **GUPS Data Settings Tool**. 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.

See **Section 6 GUPS Basics and Map Management** for the technical instructions on how to load the partnership shapefiles using Map Management in the GUPS.

See **Section 6.2.7.1** for the technical instructions on manually loading the block size shapefiles using the **Add Vector Layer** button on the **Add Data** toolbar.

Caution: Please only use the **GUPS Data Settings** tool to change your GUPS folder location. Do not change any shapefile name or folder location outside of this tool. The shapefiles and folders must have the exact, given names and locations for the GUPS application to recognize them.

5.3 Downloading Partnership Shapefiles

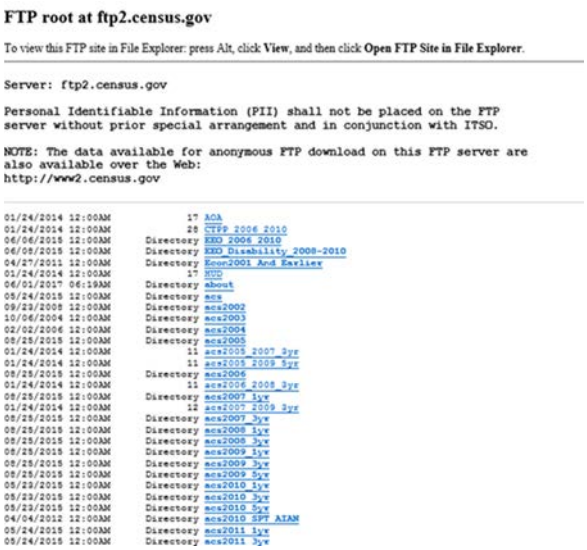
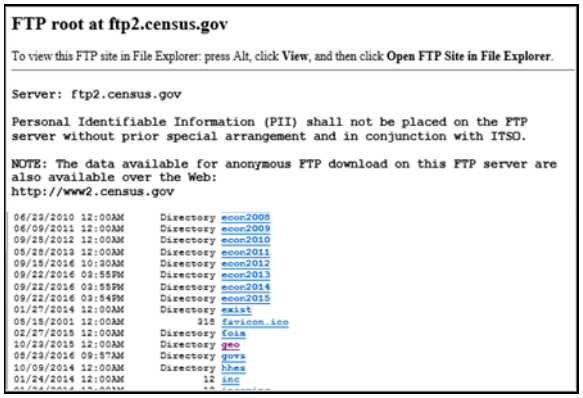
State-level users may download partnership shapefiles and the block size shapefiles for all the counties in their state. Both sets of shapefiles are available from the Census Bureau's FTP site. The block size shapefiles are located in a different directory than the partnership shapefiles, so they require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

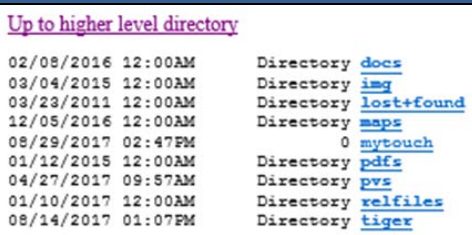
Note: We strongly suggest that you use the Census Web or DVD option that is contained within GUPS to download the partnership shapefiles. We are providing information on downloading files from the FTP site in this section as a courtesy, in the event a state or their designee may need to obtain the files from the sites directly.

5.3.1 Download the Partnership Shapefiles from FTP Site

Follow the steps in **Table 3** to download the files from the FTP site to your hard drive.

Table 3: Download Partnership Shapefiles from FTP Site

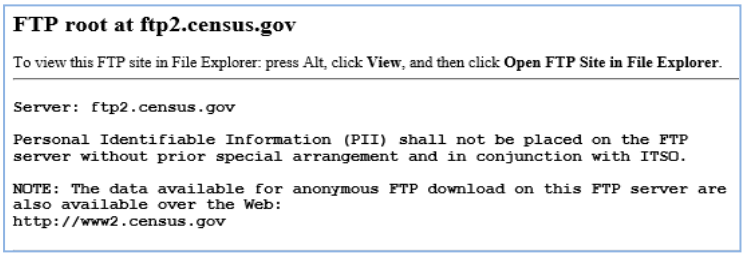
Step	Action and *Result*
Step 1	Using Internet Explorer (IE) or a web browser of your choice navigate to <ftp://ftp2.census.gov/>. **Note:** This page may appear differently depending on your browser.  **FTP root at ftp2.census.gov** To view this FTP site in File Explorer: press Alt, click **View**, 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 ACA 01/24/2014 12:00AM 28 CTPP_2006_2010 06/06/2015 12:00AM Directory EEO_2006_2010 06/05/2015 12:00AM Directory EEO_Disability_2008-2010 04/27/2011 12:00AM Directory Econ2001_And_Earlier 01/24/2014 12:00AM 17 NHD 06/01/2017 06:19AM Directory about 05/24/2015 12:00AM Directory acs 09/23/2005 12:00AM Directory acs2002 10/06/2004 12:00AM Directory acs2003 02/02/2006 12:00AM Directory acs2004 05/25/2015 12:00AM Directory acs2005 01/24/2014 12:00AM 11 acs2005_2007_3yr 01/24/2014 12:00AM 11 acs2005_2009_5yr 05/25/2015 12:00AM Directory acs2006 01/24/2014 12:00AM 11 acs2006_2008_3yr 05/25/2015 12:00AM Directory acs2007_1yr 01/24/2014 12:00AM 12 acs2007_2009_3yr 05/25/2015 12:00AM Directory acs2007_3yr 05/25/2015 12:00AM Directory acs2008_1yr 05/25/2015 12:00AM Directory acs2008_3yr 05/25/2015 12:00AM Directory acs2009_1yr 05/25/2015 12:00AM Directory acs2009_3yr 05/25/2015 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
	If you have an FTP client software such as WinSCP or FileZilla (or other) you may connect to <ftp2.census.gov> without a password. If prompted for a user name and password, enter '*anonymous*' as your user name and enter your email address in place of a password.
Step 2	After the Census Bureau ftp site has been opened, click the **geo** folder.  **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 06/23/2010 12:00AM Directory econ2008 06/09/2011 12:00AM Directory econ2009 09/25/2012 12:00AM Directory econ2010 05/28/2013 12:00AM Directory econ2011 09/15/2016 10:30AM Directory econ2012 09/22/2016 03:55PM Directory econ2013 09/22/2016 03:55PM Directory econ2014 09/22/2016 03:54PM Directory econ2015 01/27/2014 12:00AM Directory exist 05/15/2001 12:00AM 318 favicon.ico 02/27/2015 12:00AM Directory foia 10/23/2015 12:00AM Directory geo 08/23/2016 09:57AM Directory govs 10/09/2014 12:00AM Directory hhes 01/24/2014 12:00AM 12 inc
Step 3	Within the **geo** folder, click the **pvs** folder.

Step	Action and *Result*
	
Step 4	Click 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 5	There are several sets of shapefiles within each state directory. For the VTDP, you will want to download the most recent partnership shapefiles. These shapefiles are contained within a zip file named **partnership_shapefiles_17v2_ssccc.zip.** Where <ssccc> represents the FIPS state and county code (e.g., 55025). **Make sure to choose the filename with "17v2", because the "17v1" files, which are different, are sometimes also available in the folders.**
Step 6	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 to your computer. When you start a new project in GUPS and after you select the state and county you want to work on, GUPS will ask you where to find the data to start your project. To access the data you have downloaded, select the My Computer option. GUPS will ask you to navigate to the location where you have downloaded and saved your data. GUPS will load the data into the application and move the data to a directory folder established during the GUPS installation.

5.3.2 Download the Block Size Shapefiles from the FTP Site:

Follow the steps in **Table 4** to download the block size shapefiles from the FTP site to your hard drive.

Table 4: Download Block Size Shapefiles from FTP Site

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.*  **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
	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. If prompted for a user name and password, enter "anonymous" as your username and enter your email address in place of a password.
Step 2	Click the geo folder, and then within the geo folder, 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_2017_prototype_blocks_st<ss>.zip, where <ss> represents the FIPS state code (e.g., 55).
Step 3	 Up to higher level directory 08/31/2017 12:00AM 141.226,747 bbsp_2017_prototype_blocks_st01.zip 08/31/2017 12:00AM 79,621,274 bbsp_2017_prototype_blocks_st02.zip 08/31/2017 12:00AM 111,719,933 bbsp_2017_prototype_blocks_st04.zip 08/31/2017 12:00AM 123,997,053 bbsp_2017_prototype_blocks_st05.zip 08/31/2017 12:00AM 362,724,590 bbsp_2017_prototype_blocks_st06.zip 08/31/2017 12:00AM 125,457,570 bbsp_2017_prototype_blocks_st08.zip 08/31/2017 12:00AM 34,844,832 bbsp_2017_prototype_blocks_st09.zip 08/31/2017 12:00AM 11,635,792 bbsp_2017_prototype_blocks_st10.zip 08/31/2017 12:00AM 2,236,711 bbsp_2017_prototype_blocks_st11.zip 08/31/2017 12:00AM 179,405,623 bbsp_2017_prototype_blocks_st12.zip 08/31/2017 12:00AM 160,697,717 bbsp_2017_prototype_blocks_st13.zip 08/31/2017 12:00AM 13,708,338 bbsp_2017_prototype_blocks_st14.zip Click on your state zip file to copy the data to a folder on your computer. You will need to manually add the data to your project later using the **Add Data Toolbar**. See Section 6.2.7.

Section 6. GUPS Basics and Map Management

After successfully installing GUPS, you are ready to start your VTD review.

6.1 Starting GUPS

To open the GUPS application and set up your project, follow the steps in **Table 5** below.

Table 5: Open 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 2	Wait until the application loads. (This may require a few minutes). When the GUPS application has loaded, the GUPS main page opens and the **QGIS Tips!** box appears.

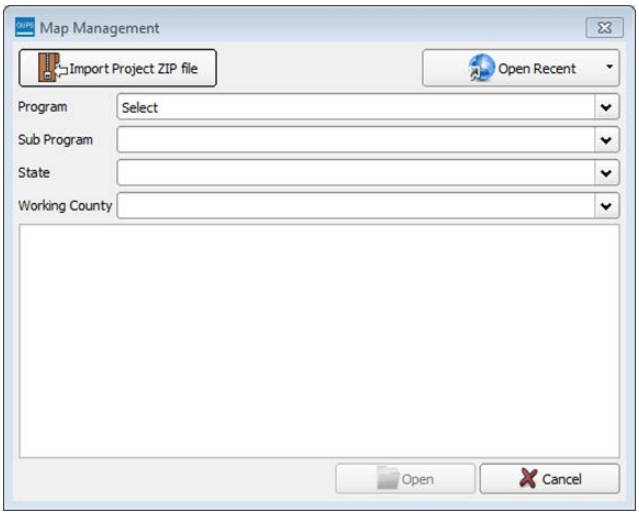
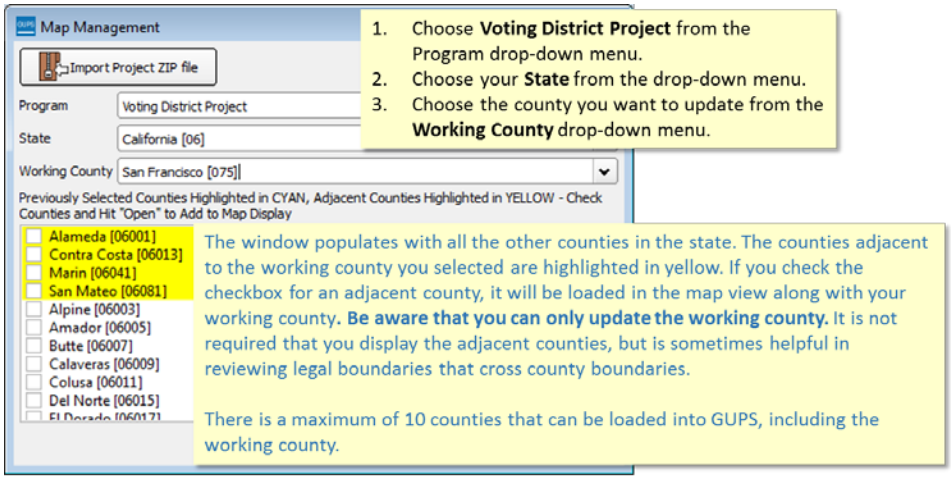
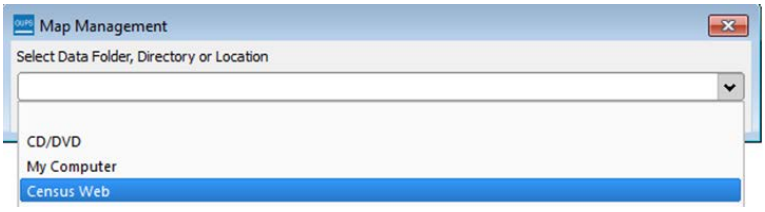
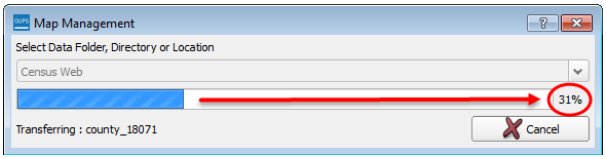
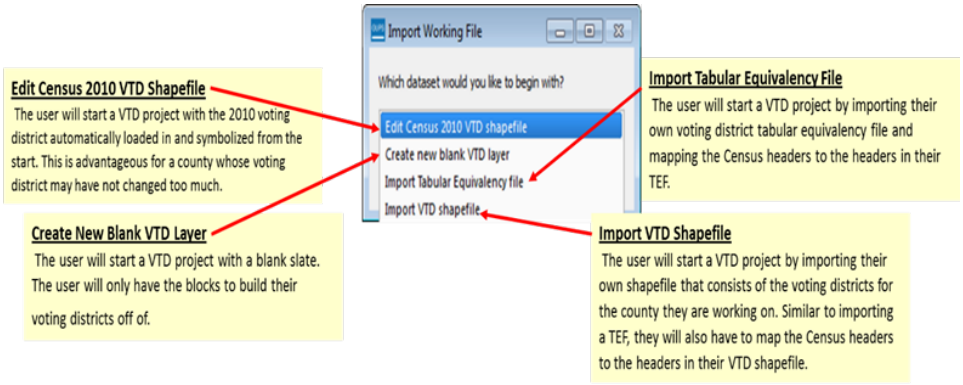
Step	Action and *Result*
	 If you do not wish to see tips again, click the checkbox in the bottom left-hand corner that reads **'I've had enough tips, don't show this on start up any more!'** **Note:** Since GUPS was built on the QGIS open-source platform, you may see references to QGIS in several locations within the GUPS application.
Step 3	GUPS data are automatically stored in a folder that has been created on your **C:** drive. If you would like your data to be stored in a different location, you can set a new location using the **GUPS Data Settings** tool. Please refer to **Section 8.7.1.1.** Ideally, you should set the location before you download the GUPS data through Map Management (see **Step 4** below). If you change the location for your GUPS folder after you have started your project, you may have to restart GUPS.
Step 4	The **Map Management** dialog box, as shown below, will open automatically. 
	Note: Table 6 below describes how to proceed if you are starting a new GUPS project, **Table 7** describes how to proceed if you are going back to continue working on a GUPS project you already started, and **Table 8** describes how to import or load a project that someone else is sharing with you.

Table 6: How to Start a GUPS Project

Step	Action and *Result*
Step 1	In the **Map Management** dialog box, use the drop-down menu next to the **Program** field to select your program, '**Voting District Project**'. In the **State** field, use the drop-down menu to select your state or type the name of the state. The scroll bar to the right allows you to move up and down the list of states. Choose your State. Repeat these steps to choose the **County** to update.  Click the **Open** button.
Step 2	After you select the working county, the GUPS asks you to specify the location from which you want to pull the county's (or county equivalent's) shapefiles. 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 project will automatically load, even if you made no changes in your first session.
Step 3	In the **Select Data Folder, Directory or Location** box drop-down menu, select the location from which you wish to pull the file. **We recommend using the Census Web Option**. 

Step	Action and *Result*
Step 4	Once you click on '**Census Web**', the shapefiles for the county begin 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.  If you select the CD/DVD option, GUPS will ask you to insert the data CD/DVD provided by the Census Bureau and click OK. The shapefiles will download from the CD/DVD. If you select My Computer option, GUPS will ask you to navigate to the location where the shapefiles you downloaded from the FTP site are stored (see **Table 3**).
Step 5	As GUPS loads the data, it unzips and copies the files to a folder that was created on your computer's home directory (i.e., C:\\GUPSGIS\gupsdata\VTD18\shape) during the installation process. It then pulls the shapefiles into the GUPS.
Step 6	Once the files are loaded, the Import Working File dialog box opens asking '**Which dataset would you like to begin with?**' Select the appropriate dataset from the dropdown menu. For more information, refer to **Section 7, Starting a VTD Project**. 
Step 7	In this example, the GUPS project San Francisco County California loaded successfully.

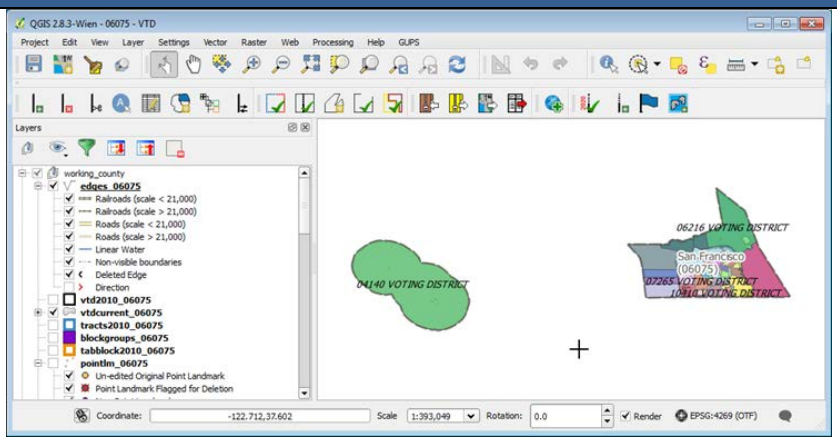
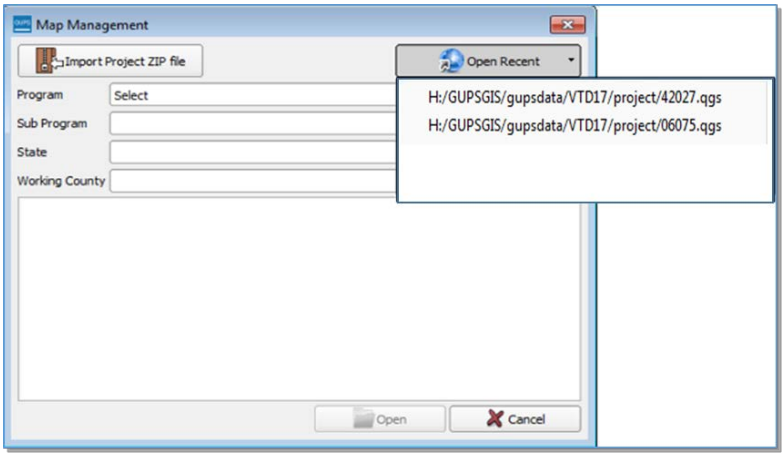
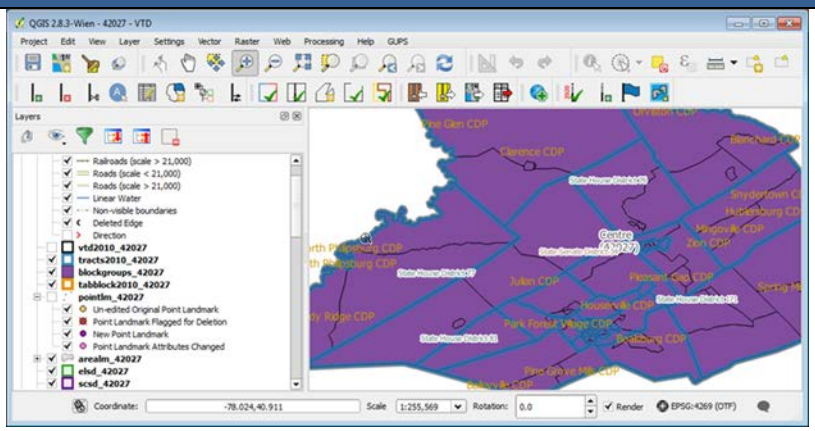
Step	Action and *Result*
	

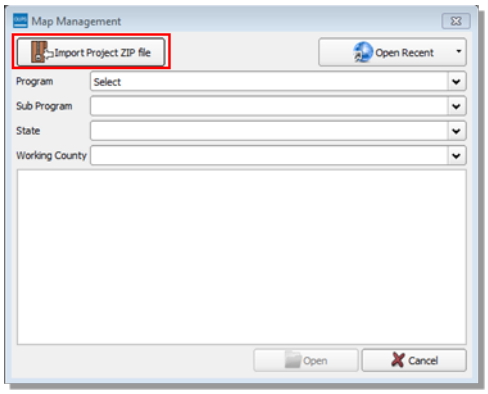
Table 7: Opening an Existing Project in GUPS

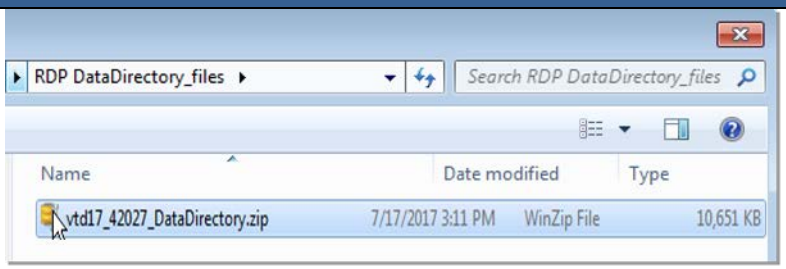
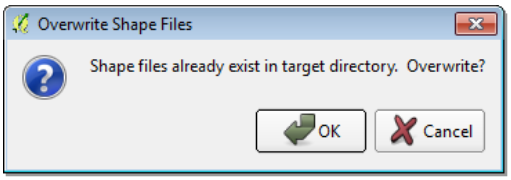
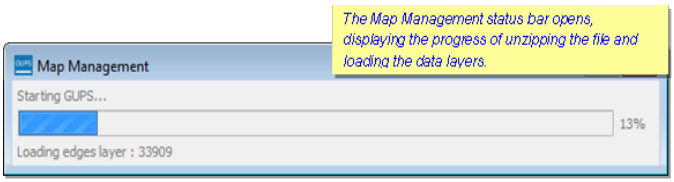
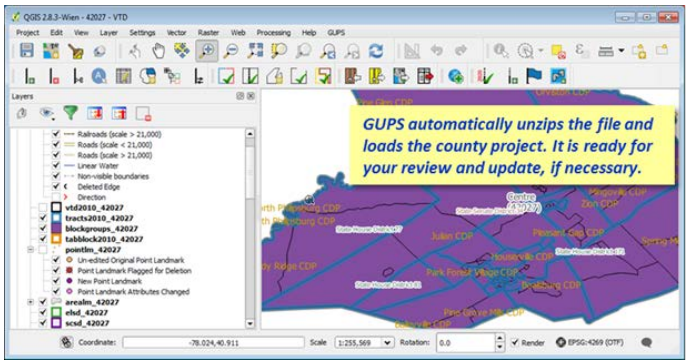
Step	Action and *Result*
Step 1	In the Map Management window, click on the **Open Recent** drop-down menu.  Choose the project from the list of projects in the directory. This example shows 2 projects. The drop-down list includes all previous projects, with the most recent one at the top of the list. GUPS automatically creates the project name as the State/County code each time you save a project file. You can also select the Program, State, and County and the existing project will open.
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 working with someone you may want to share projects. The instructions below assume another user has started a project and exported it to share with you. Instructions for exporting the project are in **Section 8.7.3 Table 60.**

Table 8: Importing a GUPS Project Someone is Sharing with You 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 file being shared with you. Click on the **vtd18_<ssccc>_DataDirectory.zip** file name (that is the naming convention GUPS uses when exporting the project to share with another participant) and click the ***Open*** button at the bottom of the Windows Explorer window. **Note:** You cannot open files exported for Census submission using this tool.

Step	Action and *Result*
	 **Note:** The screenshot shows the exported filename beginning with *vtd17*. In VTDP, the export files will begin with *vtd18.*
Step 3	When you import a file, 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. **Note:** If you want to keep your existing files, please move them to a different location on your computer before importing the new file.  Click the ***OK*** button to import the file for review.
Step 4	
Step 5	
	Do not save the zip files you receive in the \shape folder in the home directory (i.e. *C:\Users\<username>\GUPSGIS\gupsdata\VTD\shape*. You must save zip files in a different directory on your computer for GUPS to recognize and import the zip files.

6.2 VTD Page Layout

Figure 1 below illustrates the GUPS page layout. The page components include the Menu & Toolbars, the Map View, the Table of Contents, and the Status Bar.

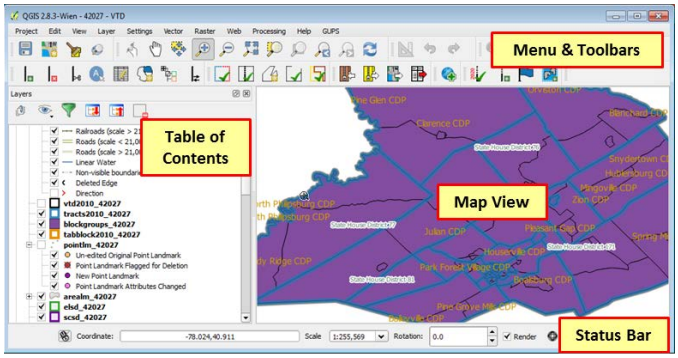


Figure 1: GUPS Page Layout

6.2.1 Map View

This area displays the map of the data layers automatically loaded and displayed by 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.

6.2.2 Menu and Toolbars

The GUPS user interface includes a menu bar and toolbars at the top of the page window, as shown in **Figure 2**. 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 VTD toolbar at the bottom provides software functions to support the Voting District Project.

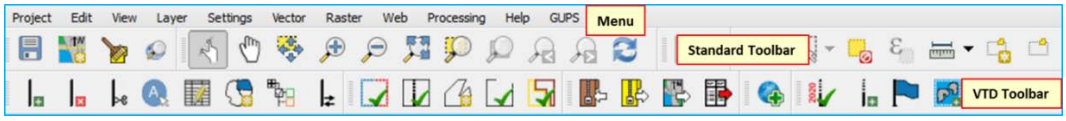
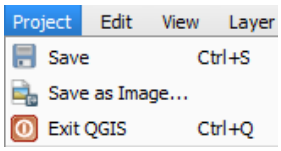
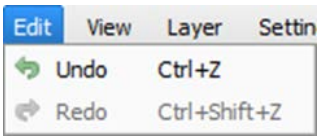
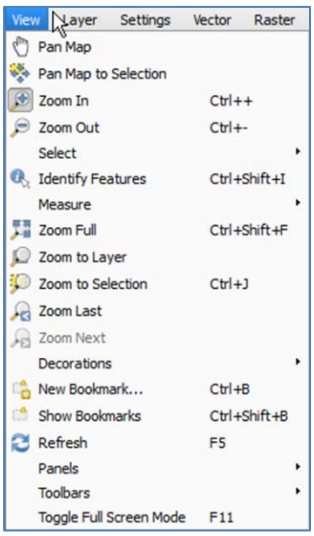
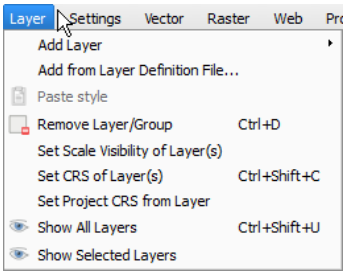


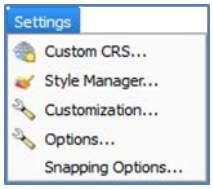
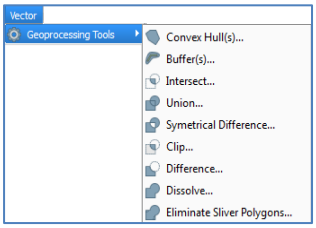
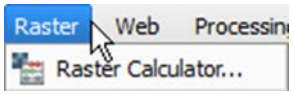
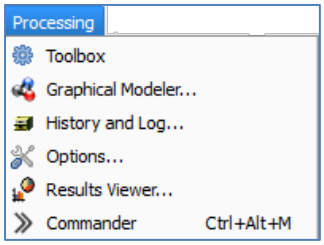
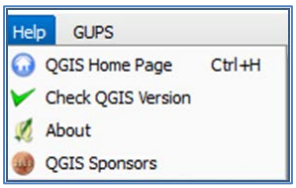
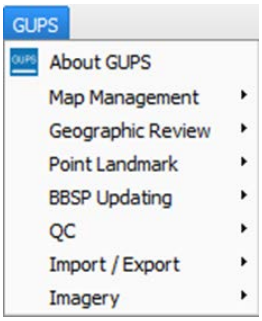
Figure 2: GUPS Menu and Toolbars

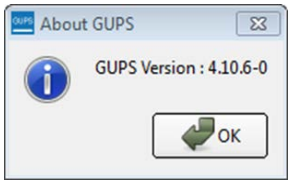
6.2.3 Menu Bar

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. Note that while all of these tools are available to you, you will not need to utilize many of them to conduct your VTDP work.

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.
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 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 Coordinate Reference System (CRS) of Layer(s), and Show All or Selected Layers. **Note:** Many of these same functions are more conveniently located on the **Add Layers toolbar** and the small

Tab	Drop-down Menu	Function / Description
		toolbar that sits at the top of the **Table of Contents.**
Settings		**Settings** allows you to customize the Coordinate Reference System (CRS), customize map display options, and set snapping tolerances.
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.
Processing		**Processing** menu options 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 **VTD** toolbars, including those needed to manage maps, make linear changes, make area changes, update VTDs, review and validate work, import county zip files from other users, export work and submission files, export maps, and add imagery.

Tab	Drop-down Menu	Function / Description
		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 4.10.6-0. The number you see will be more recent.

6.2.4 Toolbars

There are two toolbars for GUPS, as shown in **Figure 3**. The top toolbar is the Standard toolbar, which provides map navigation and data query and manipulation tools. The VTD toolbar on the bottom provides the functionality needed for the Voting District Project.

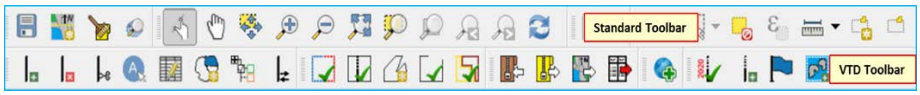


Figure 3: GUPS Toolbars

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 VTD 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.

6.2.5 Standard Toolbar Functions

The Standard navigation toolbar, shown in **Figure 4** provides the tools necessary to interact with the map and layers' attribute tables. It is comprised of three separate toolbars, identified by the grouping bars on the tool, as shown in **Figure 5**. The first toolbar contains the buttons for saving projects, managing GUPS data, changing GUPS projects, and conducting searches; the second contains the tool buttons for map navigation; the third provides tools for selecting features, making measurements, creating spatial bookmarks, and working with the layers' attribute tables. The Standard toolbar buttons, names, and functions are shown in **Table 10**.

Figure 4. Standard Toolbar

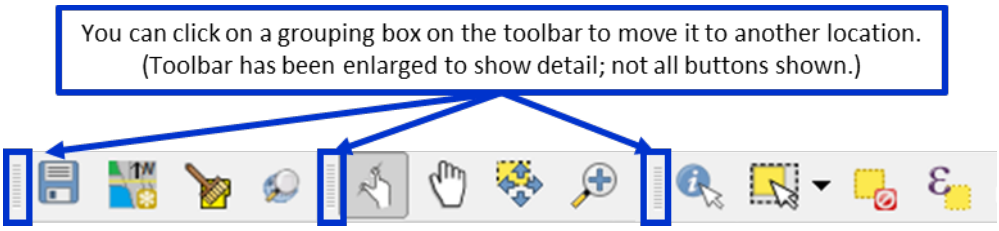
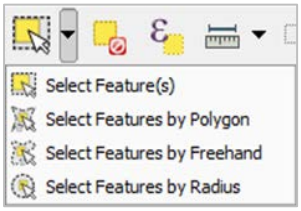


Figure 5. Toolbar Groupings

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, and layers added.
	Map Management	Allows you to choose the geographic program and working county in GUPS. Automatically loads the default map display layers based on program and county chosen.
	GUPS Data Settings	Allows you to change the location where your GUPS folder (data) and GUPS logs will be stored, delete all files and folders associated with a project or projects, and quickly open your GUPS folder, no matter where it is located. For more information on this tool please see **Section 8.7.1**.
	Search	Allows you to search the map by place, 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.

Button	Name	Function
	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 you click.
	Select Features	Enables you to select layer features in the map window with a single click, dragging a box, or drawing graphics on the screen. 
	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.
	New Bookmark	Enables user to create and name a spatial bookmark of the current map view.
	Show Bookmarks	Displays all bookmarks.

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**:

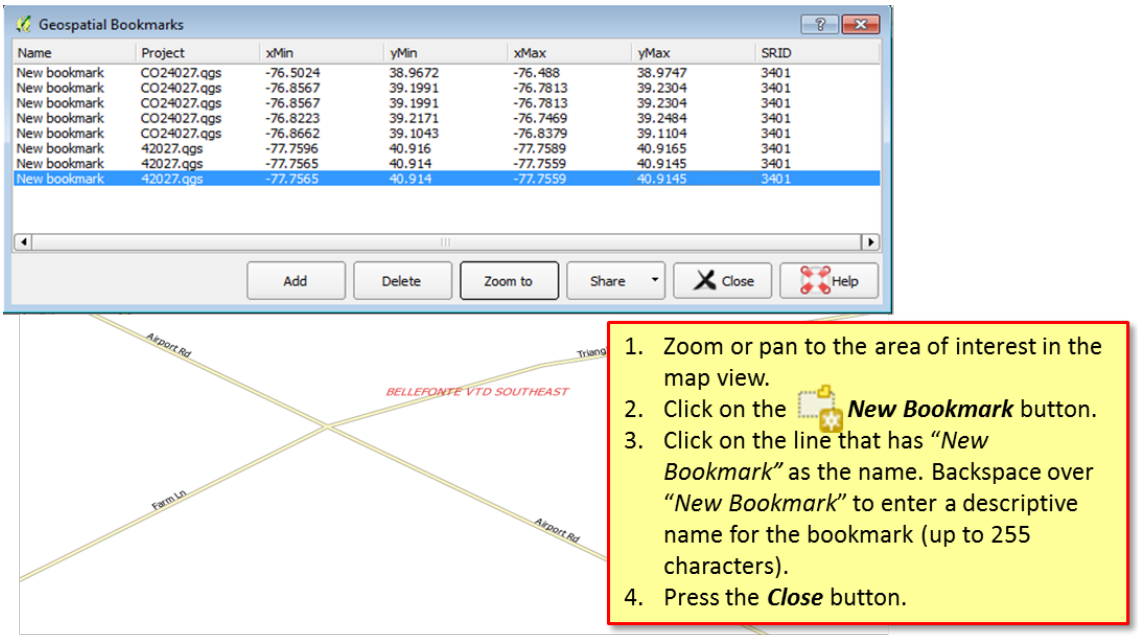


Figure 6. Map View Bookmark

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.

6.2.6 VTD Toolbar

The VTD toolbar provides the software functionality to complete the activities outlined for the VTDP. Detailed explanations for using the individual buttons are contained in the table below.

Figure 7. VTD Toolbar

Table 11: VTD 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.

Button	Name	Function
	Split Linear Feature	Enables user to split a linear feature into two segments in order to modify one of the segments.
	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 attributes for a selected linear feature.
	Modify Area Feature	Enables user to select faces (polygons) for adding and deleting area to/from area landmarks, VTDs, and legal entities.
	Show/Hide Legend	Shows or hides the legend/Table of Contents.
	Switch to BBSP/VTD Style	Enables the user to toggle between the BBSP and VTD symbology. (For use in BBSP Verification.)
	Review Block Boundary	Enables user to systematically review edges that have been flagged as Hold, Do Not Hold, or NULL. (Only for use in BBSP Verification.)
	Geography Review Tool	Enables user to review the attribute table for all data layers.
	Review Change Polygons	Enables user to review the change polygons for area landmarks, area hydrography, and legal geography updates, and make further updates if necessary.
	Closed Polygon Check	Validates that all planned block boundary edges and edges flagged as “Must Holds” connect to each other in order to form a closed polygon. (Only for use in BBSP Verification.)
	VTD Criteria Review	Reviews VTDs and returns any areas not assigned to a VTD and any non-contiguous VTDs, so the user can fix the areas or verify they are correct.
	Import County Zip	Enables a user to import another user’s Share with Participant 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 users.
	Export Map to Print	Enables user to export a printable map in .pdf, png, .tif, or jpeg format.
	Export Tabular Equivalency File	Give users the option to export the current VTD layer or export the 2010 VTD layer as a tabular equivalency file.
	Add/Remove Imagery Toggle	Enables user to add/remove Census supplied imagery to the map view.

Button	Name	Function
	2020 Feature Extension Review	Enables user to systematically review 2020 linear feature extensions and take an action: Hold, Delete, or Ignore. (Only for use in BBSP Verification.)
	Add Feature Extension	Enables user to add a 2020 linear feature extension to create a closed polygon for a suggested 2020 tabulation block. (Only for use in BBSP Verification.)
	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. (Only for use in BBSP Verification.)
	Add Block Area Grouping	Enables user to create a Block Area Grouping over water. (Only for use in BBSP Verification.)

6.2.7 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 12** lists the Add Data Toolbar buttons, names and functions.

Table 12: 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.

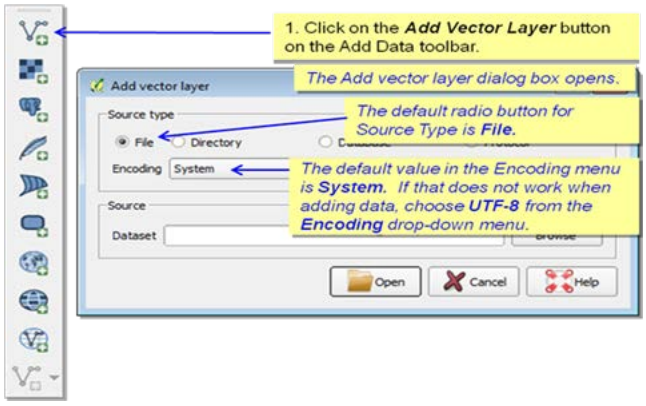
Button	Name	Function
	Add WFS Layer	Enables user to add Web Feature Services.
	New Shapefile Layer	 Enables user to add a new shapefile layer or new temporary scratch layer.

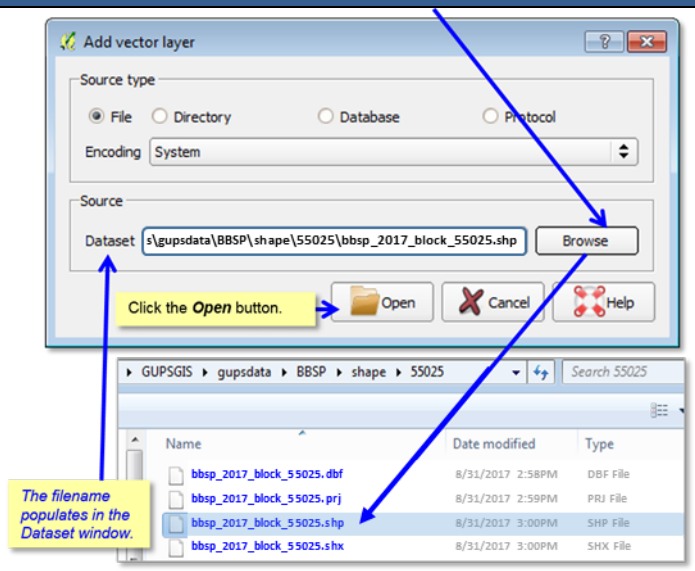
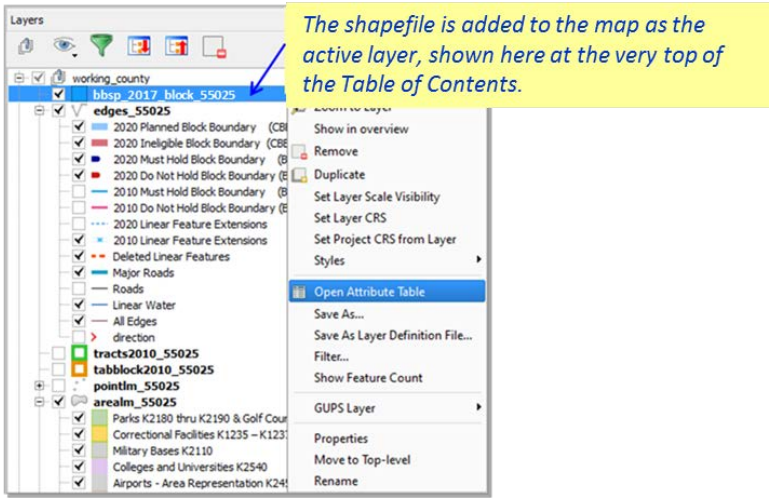
Some of the more commonly used tools from the Add Data Toolbar are described in more detail below.

6.2.7.1 Adding Vector Data

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

Table 13: Adding a Shapefile (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.

Step	Action and *Result*
	
Step 3	

6.2.7.2 Adding a Web Mapping Service

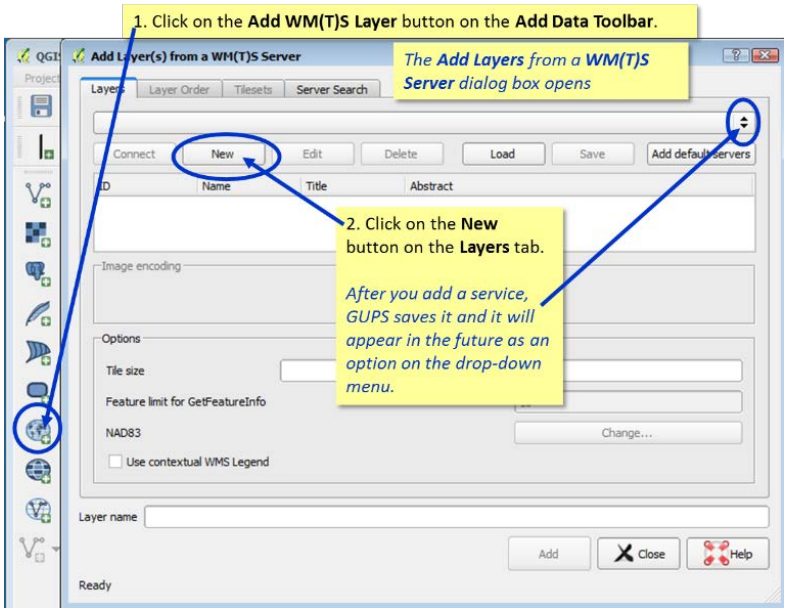
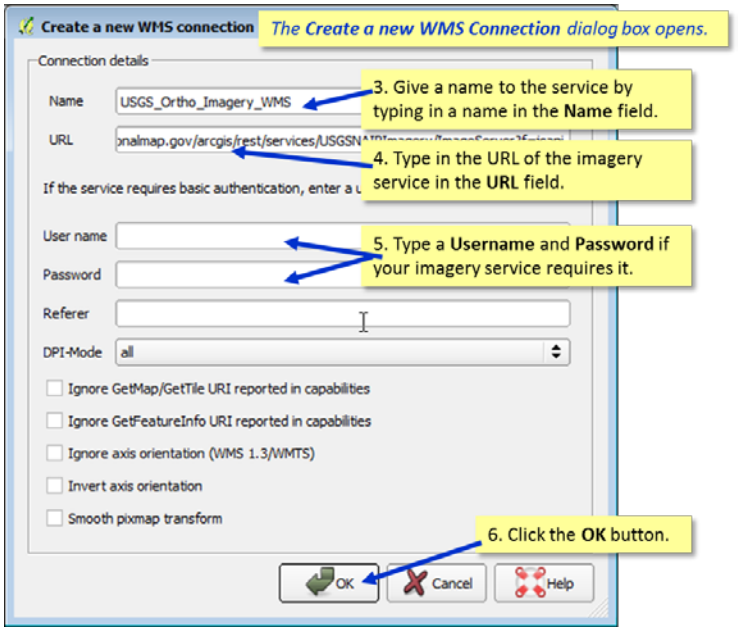
A click on the  **Add WM(T)S Layer** button allows you to add a **Web Mapping Service** to your GUPS project.

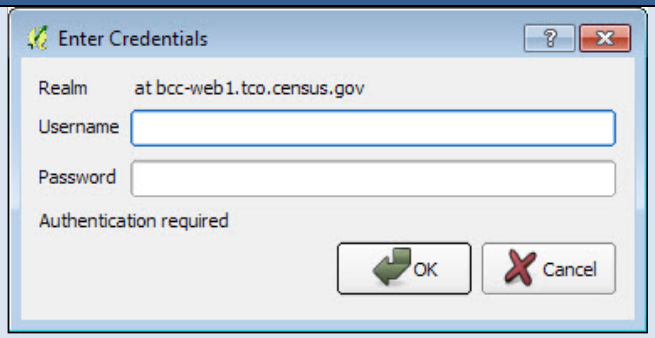
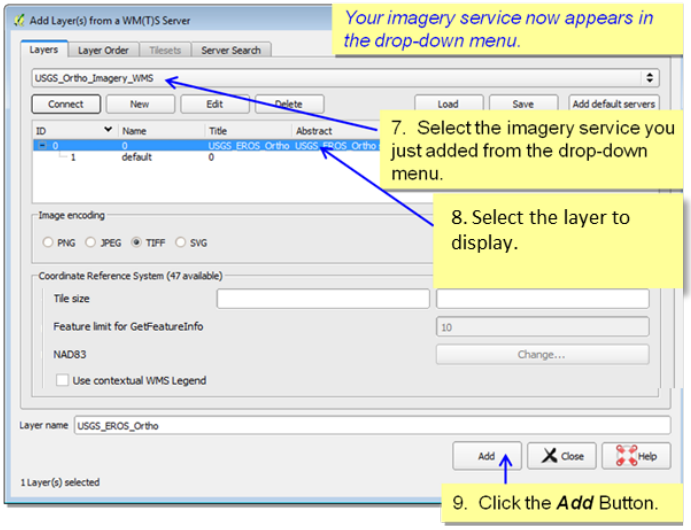
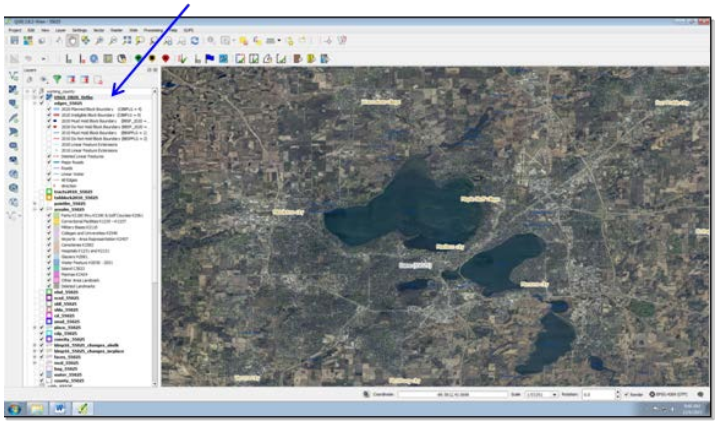
If you are unable to use the Census supplied imagery and you do not have a statewide or county web mapping service, one option for adding imagery may be the National Agricultural Imagery Service (NAIP), supplied in web mapping service format by the U.S. Geological Survey. (You can also add imagery using the **Add Imagery** button on the VTD toolbar.)

Please contact the CRVRDO for more information on accessing this WMS.

The instructions in **Table 14** below outline the steps for adding a web mapping service to GUPS.

Table 14: Adding a Web Mapping Service

Step	Action and *Result*
Step 1 through 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. 

6.2.7.3 Adding Raster Imagery

A click on the **Add Raster Layer** button allows you to add your own raster 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.

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.

6.2.8 Table of Contents

The Table of Contents, depicted in **Figure 8**, 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 9**, the expanded edges layer menu displays after clicking on the (**+**) sign to change it to the (**-**) sign.

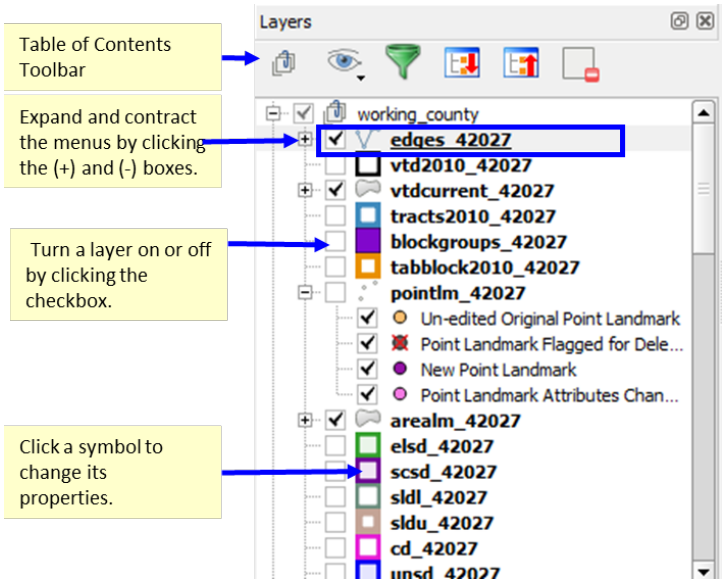


Figure 8. GUPS Table of Contents

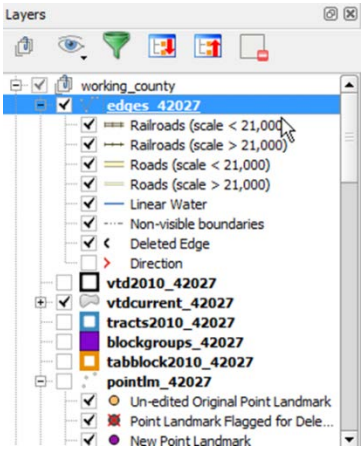


Figure 9. GUPS Table of Contents, Expanded Edges Layer Menu

6.2.8.1 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 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.

6.2.8.2 Table of Contents Toolbar

The toolbar buttons at the top of the Table of Contents, shown in **Figure 10**, allow you to add and remove layers or groups, manage layer visibility, filter the legend by map content, and expand and contract the menus by clicking on the (**+**) and (**-**) symbol.

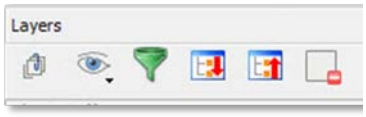


Figure 10. Table of Contents Toolbar

Table 15: 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.
	Manage Layer Visibility (and Preset Views)	Allows preset layer views created by the user. See **Section 6.2.8.4** for more details.

Button	Name	Function
	Filter Legend by Map Content	Displays in the Table of Contents only the map layers in the current map view. 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.
	Expand All (+)	Expands to show all menus. You can display all layers in all groups 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.

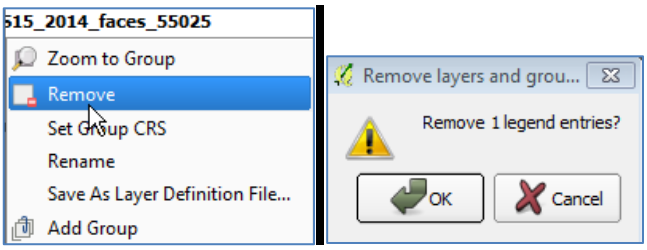
More information on using some of these tools is provided in **Section 6.2.8.3** below.

6.2.8.3 Add Group

 To organize layers in the **Table of Contents** into groups and manage the group contents, follow the steps in **Table 16** below.

Table 16: Organize Layers in the Table of Contents

Step	Action and *Result*
Step 1	Click on the **Add Group** button on the **Table of Contents** toolbar. *A new group appears automatically in the **Table of Contents***.
Step 2	Type in a name for the group and press the **Enter** key. Then, click on an existing layer and drag it into the group just created.
	You may now **show or hide all the layers in the group** with a single click on the plus or minus sign next to the group's checkbox.
Step 3	**To remove a layer** from a group, click on the layer and drag it out of the group or right-click on the layer and choose *Move to Top Level.* Then drag the layer where you want it in the **Table of Contents** list.

Step	Action and *Result*
Step 4	**To select more than one layer or group at the same time**, hold down the **CTRL** key while selecting the layers with the left mouse button.
Step 5	**To delete a group**, right-click on the group and select 'Remove' in the drop-down menu. Then click the **OK** button when prompted. 

6.2.8.4 Manage Layer Visibility

 You can add preset views in the **Table of Contents** by clicking on the Manage Layer Visibility 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 **Manage Layer Visibility** button and choose '**Add Preset…**' from the drop-down menu.

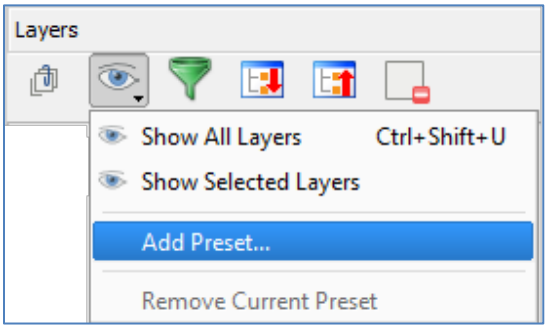


Figure 11. Add Preset Layer

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

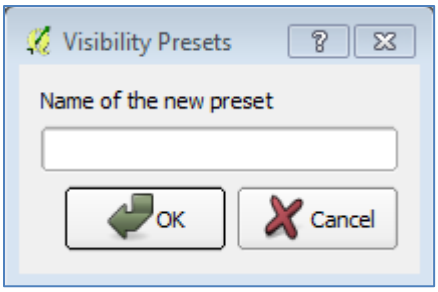


Figure 12. Visibility Presets Pop-up Screen

Note: By clicking on the Manage Layer Visibility button, you can view the list of all preset views that you have established and from which you can choose.

6.2.8.5 Remove Layer/Group

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

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

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

6.2.9 Status Bar

The Status Bar, as shown in **Figure 13**, displays information about the map. It allows you to adjust the map scale and see the mouse cursor's coordinates on the map. **Table 17** lists the Status Bar elements and their descriptions and functions.

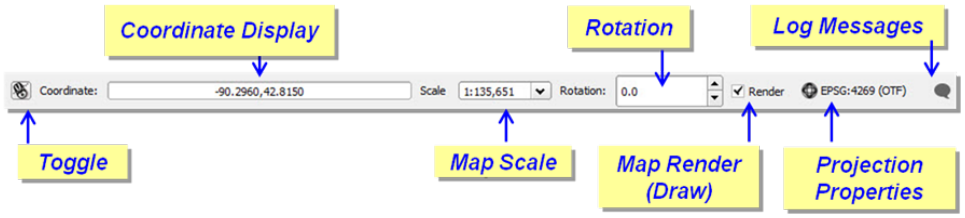


Figure 13. Status Bar

Table 17: 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. You can also enter X, Y coordinates to navigate to an area.
Map Scale	Shows the current map scale.
Rotation	Allows you to define a current clockwise rotation for the 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	Allows you to open the projection properties for the current map.
Log Messages	Allows you to display three tabs that contain messages about the GUPS application launch, python scripting, and the QGIS plug-ins developed for GUPS.

Section 7. Starting a VTD Project

Once you have set up your project (selected the program and downloaded the county data using the Map Management tool as described in **Section 6**), the **Import Working File** box will appear. You can choose to create your working VTD layer file – the file you will update with the current VTD boundaries – from a 2010 Census VTD shapefile, a tabular equivalency file, your own VTD shapefile, or you can create a blank VTD layer. Which method to use will depend on your situation. All four are described below.

1. Edit Census 2010 VTD Shapefile:

   Creating your working VTD layer from the Census Bureau's 2010 VTD shapefile is a good option if you submitted voting district boundaries to the Census Bureau prior to the 2010 Census, and they have not changed significantly since. Note the 2010 VTD boundaries have been adjusted (conflated) to conform to current county boundaries, and therefore may not appear exactly as they did in 2010 Census data products, particularly for counties with significant boundary changes.

   See Table 19: Edit Census 2010 VTD Shapefile for instructions on how to start a project using the Edit Census 2010 VTD shapefile option.

2. Create New Blank VTD Layer:

   Creating your working VTD layer from a blank slate is a good option if your state did not submit voting district boundaries to the Census Bureau prior to the 2010 Census or your state submitted them, but they have changed significantly since 2010 AND you do not have a shapefile or tabular equivalency file defining the current VTDs.

   See **Table 20: Create New Blank VTD Layer** for instructions on how to start a project using the Create new blank VTD layer option.

3. Import Tabular Equivalency File:

   Creating your working VTD layer from your own tabular equivalency file (TEF) is a good option if you have a text file that defines what 2010 Census blocks comprise your current VTDs. Be aware that 2010 Census block boundaries may have been reshaped since 2010 in an effort to improve spatial accuracy and may not appear exactly as they did in 2010 Census data products. Therefore, you should review the depiction of your VTDs in GUPS after you import the TEF and resolve any unassigned areas to ensure your VTDs appear as expected.

   In order for GUPS to convert your TEF to a working VTD layer shapefile, the TEF must include a unique identifier code for the 2010 tabulation blocks (include state, county, tract and block codes) and the VTD code for the VTD that block is assigned to. GUPS will accept that information in three different comma delimited TEF formats: Simple TEF, GEOID TEF and Extended TEF. The headers (fields) and an example format for each file type are shown in **Table 18. Three Types of Tabular Equivalency Files**.

- **Simple TEFs** have the state codes, county codes, tract codes, block codes, voting district codes and name information separated from each other by commas.
- **GEOID (Geographic Identification Code) TEFs** have the state, county, tract, and block codes concatenated into one 15 digit code (the GEOID), separated by a comma from the VTD code and separated by another comma from the name.
- **Extended TEFs** have the state, county, tract, block, and Voting District codes concatenated into one 21 digit code (the Extended GEOID), separated by a comma from the name.

Table 18. Three Types of Tabular Equivalency Files

Tabular File	Headings	Digits
Simple TEF	ST, COU, TRACT, BLOCK, VOTING DISTRICT, NAMELSAD	01, 001, 000001, 0001, 000001, Example Voting District
GEOID TEF	GEOID (ST+COU+TRACT+BLOCK), Voting District, NAMELSAD	010010000010001, 000001, Example Voting District
Extended TEF	Extended GEOID (GEOID+ VTD), NAMELSAD	0100100000100010000001, Example Voting District
ST=2 digit state code, COU=3 digit county code, TRACT=6 digit tract code, BLOCK=4 digit 2010 tabulation block code, VOTING DISTRICT=6 character VTD code, NAMELSAD=the (up to) 120 character name combined with the legal/statistical area definition (LSAD).		

Important! Importing tabular equivalency files can take a few minutes to build, depending on the size of the area or if GUPS needs to pad the VTD Code field with zeros. The VTD code field is now required to be six digits. If you supply a tabular equivalency file that does not have six digits for your VTD code (i.e., your VTD code was 1), GUPS will pad the code with zeros (i.e., 000001).

See **Table 21** for instructions on how to start a project using the Import Tabular Equivalency File option.

Note: If you have a tabular equivalency file defining what 2010 Census blocks comprise VTDs for your entire state, please contact us at rdo@census.gov or 301-763-4039 for other submission options.

4. Import VTD Shapefile:

   Creating your working VTD layer from an imported shapefile is good option if you have a shapefile that depicts your current VTDs. Note that GUPS conflates your

VTD shapefile to align with Census geography, so you should review the depiction of your VTDs in GUPS,and resolve any unassigned areas to ensure they appear as expected.

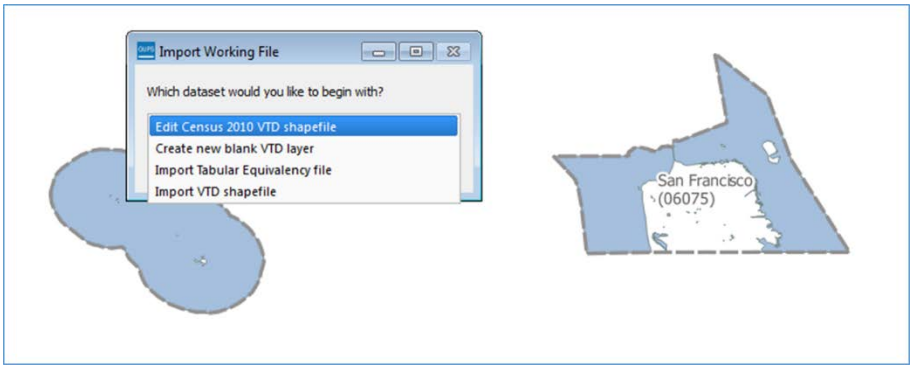
Important: Importing VTD shapefiles can take a few minutes to build, especially if you are in a large area.

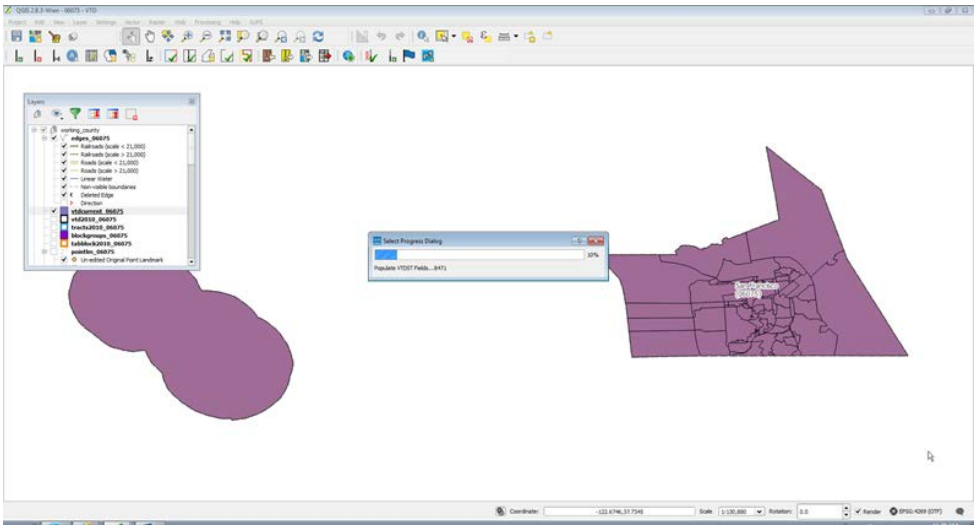
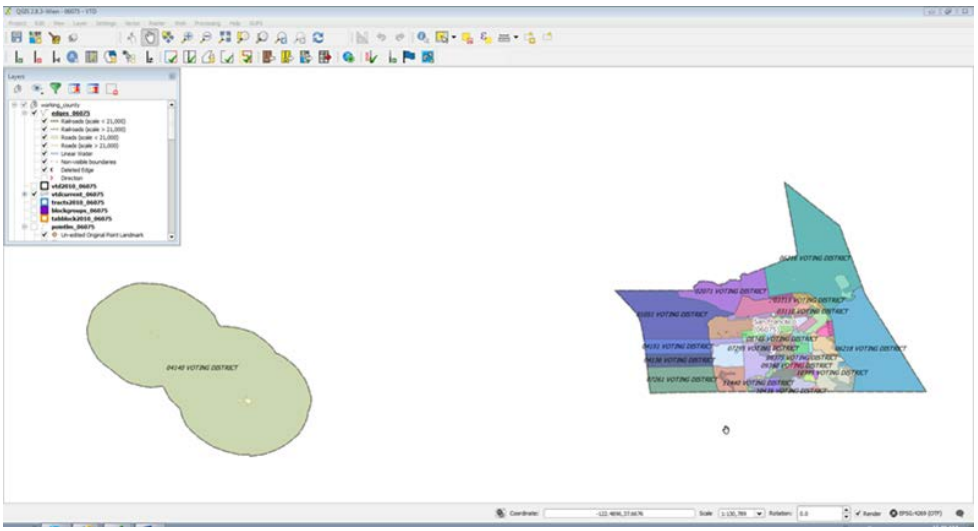
See **Table 22** for instructions on how to start a project using the Import VTD Shapefile option.

Regardless of what option you use to start your project, when your project loads, your imported file or the 2010 Census VTD file becomes the current VTD layer (vtdcurrent_<ssccc>) in GUPS. If you chose to start with a blank VTD layer, GUPS will still create a vtdcurrent_<ssccc> shapefile, but it will be empty. Additionally GUPS will load the Census 2010 Voting District shapefile (vtd2010_<ssccc>) to your project as a reference file for your convenience for each of the four options.

7.1 Edit Census 2010 VTD Shapefile

Table 19: Edit Census 2010 VTD Shapefile

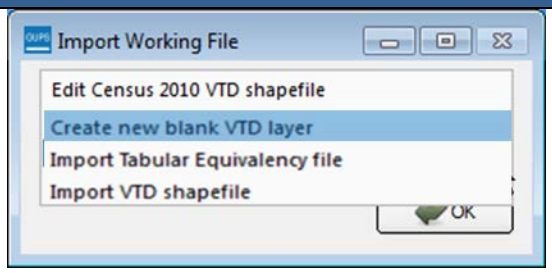
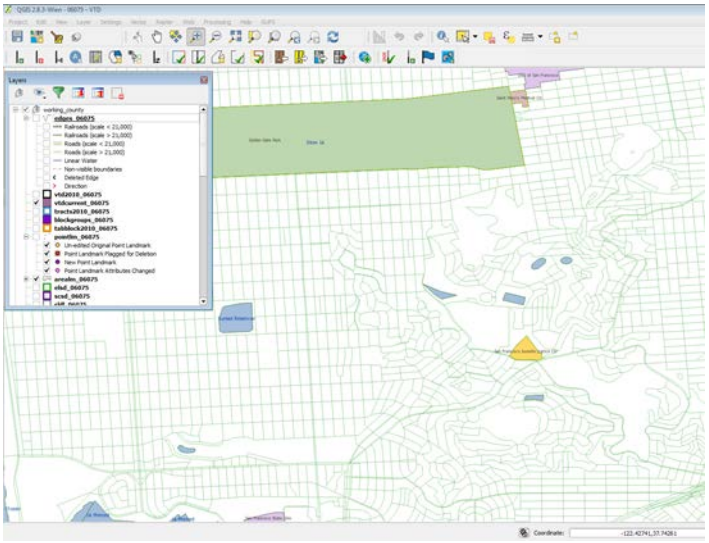
Step	Action and *Result*
Step 1	Choose **Edit Census 2010 VTD shapefile** from the drop-down menu in the Import Working File dialog box. 
Step 2	*The **Select Progress Dialog** bar will appear, showing the files upload progression.* 

Step	Action and *Result*
	As the Census 2010 VTD shapefile loads, a new VTD working layer will be added to the Table of Contents called vtdcurrent_<ssccc>. Initially, this will be the same as the 2010 VTD reference layer (vtd2010_<ssccc>). 
Step 3	Once the download is finished, you are now ready to start your updates/edits. Go to **Section 8** for instructions on how to create and edit your VTDs. 

7.2 Create New Blank VTD Layer

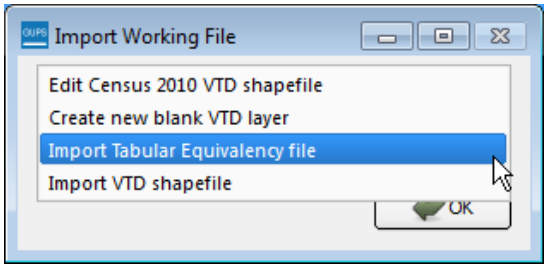
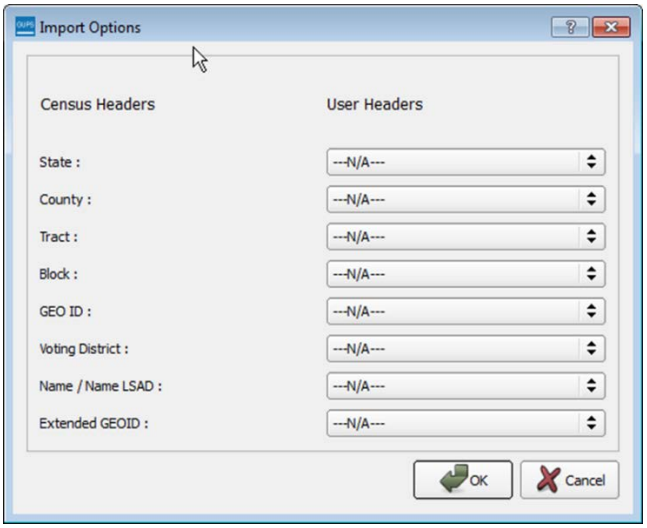
Table 20: Create New Blank VTD Layer

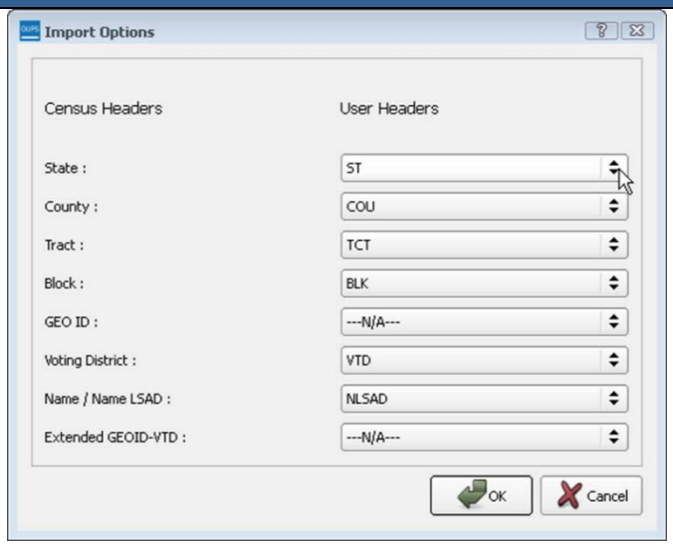
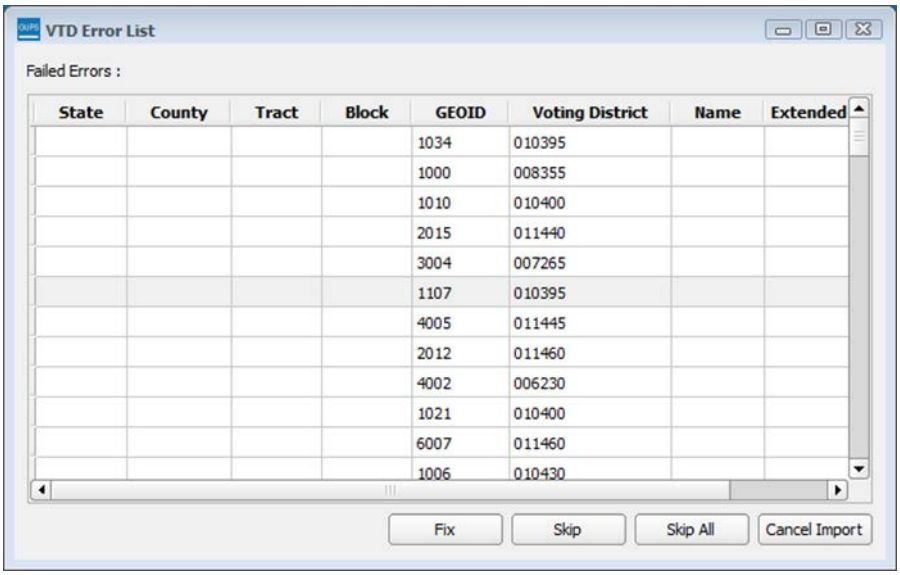
Step	Action and *Result*
Step 1	Select the **Create new blank VTD layer** from the **Import Working File** map drop-down menu and click **OK**.

Step	Action and *Result*
	
Step 2	*The **Select Progress Dialog** bar will appear, showing the files upload progression.* 
Step 3	The working VTD layer, named vtdcurrent_<ssccc>, will be added to the Table of Contents This layer will be blank. You are now ready to start your updates/edits on the blank (vtdcurrent_<ssccc>) map. Go to **Section 8** for instructions on how to create and edit your VTDs. 

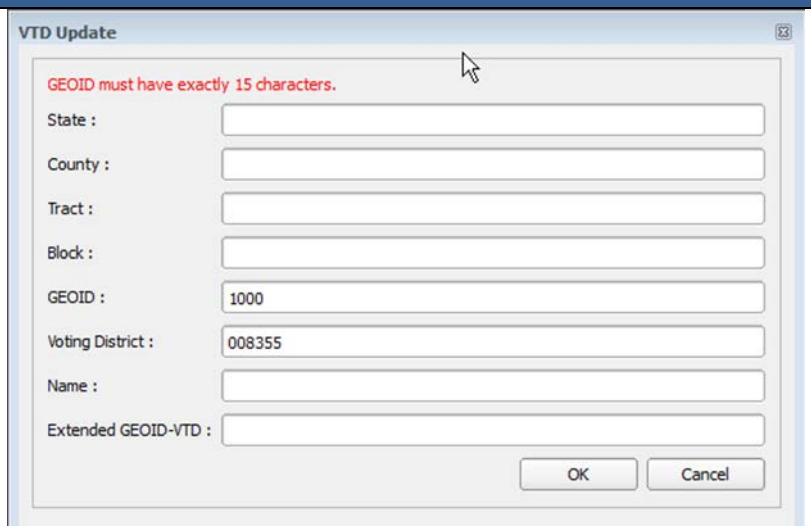
7.3 Import Tabular Equivalency File

Table 21: Import Tabular Equivalency File

Step	Action and *Result*
Step 1	Choose the **Import Tabular Equivalency file** from the drop-down to start your project from a tabular (block) equivalency file.  Navigate to your TEF file and click **Open**.
Step 2	*The '**Import Options**' dialog box will open*. 
Step 3	Map the headers (field names) from your imported TEF to the corresponding Census headers. In the example below, the user is importing a Simple TEF where state, county, tract, block, voting district, and Name LSAD are comma delimited and the user's file does not have GEOID or Extended GEOID+VTD in their file.

Step	Action and *Result*
	 Then click **OK**. Building the shapefile from an imported TEF can take a few minutes.
Step 4	If GUPS encounters any issues importing any of the records in your TEF, a **VTD Error List** dialog box will open:  To find out what the error is, please select (click) on the record and then click on the **Fix** button. The **VTD Update** box will open and the error will be explained at the top of the box.

Step	Action and *Result*



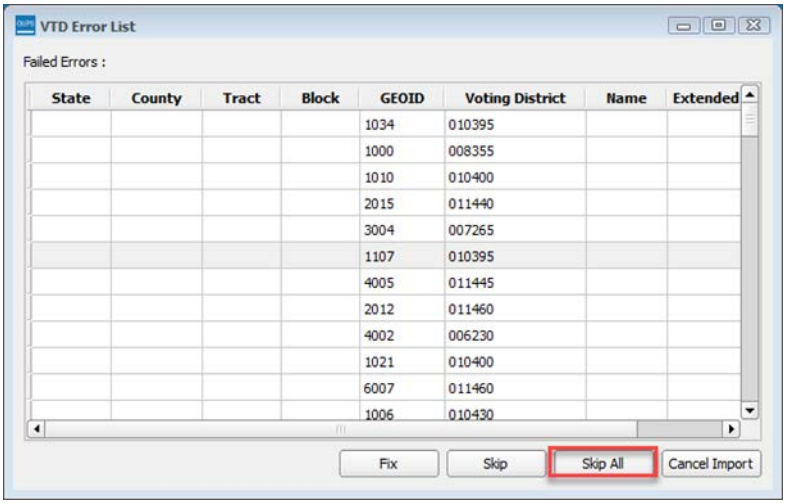
In this example, the GEOID has four characters in the tabular equivalency file, when there should be 15 characters.

At this point you can choose to correct the GEOID by typing in the correct GEOID and clicking on **OK**, or you can click **Cancel** and then **Skip**. If you skip an error, the faces associated with that GEOID will remain unassigned and will either have to be fixed while you update your VTDs or perform the **Criteria Review Tool Checks**.

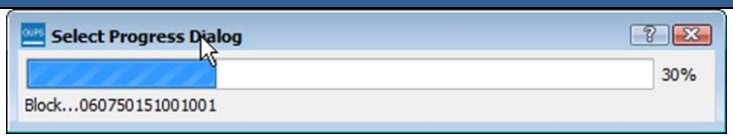
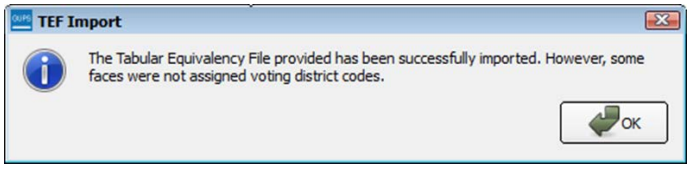
If you choose to Skip All errors in the VTD Error List:

The faces associated with the errors will remain unassigned and will either be fixed while you update your VTDs or perform the **Criteria Review Tool Checks**.

You also have the option to choose **Cancel Import** to select a different file.

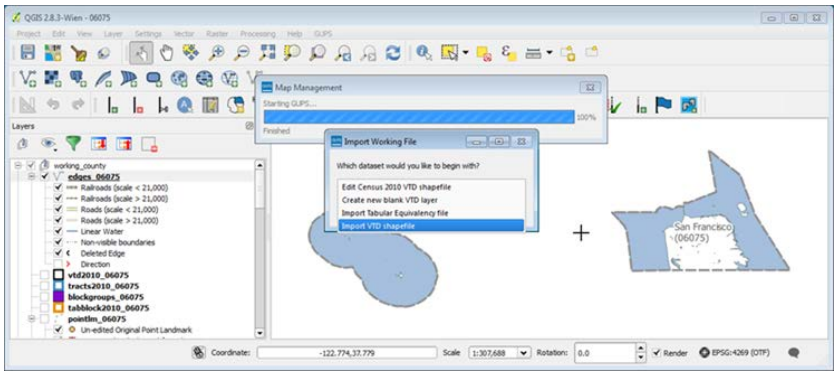
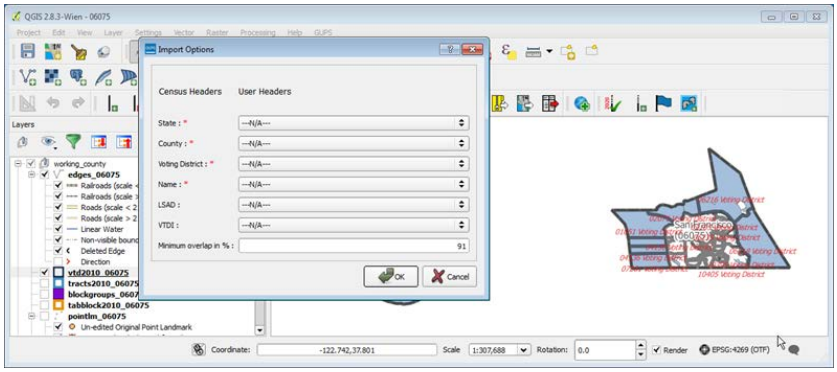


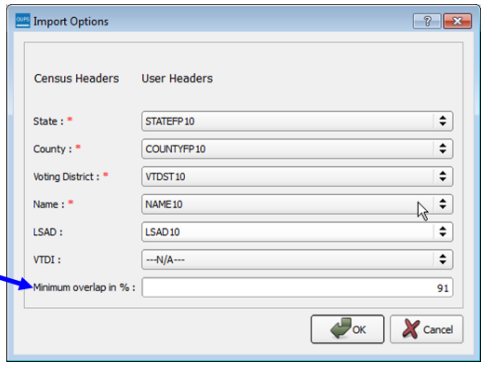
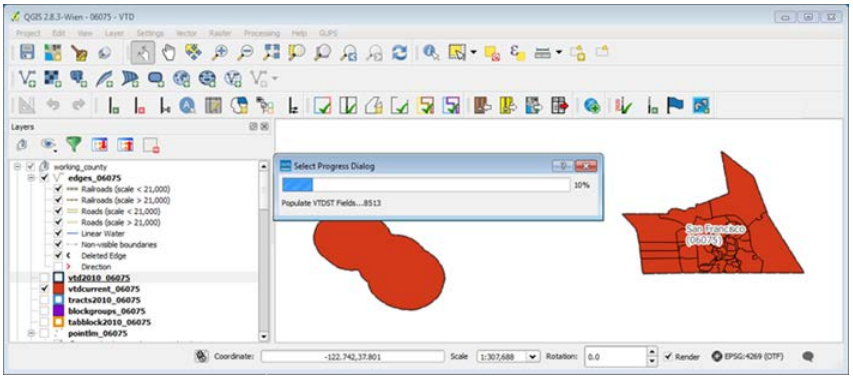
*Once you have fixed or skipped all the errors, the **Select Progress Dialog** box will open showing the progress of your file loading. This can take several minutes.*

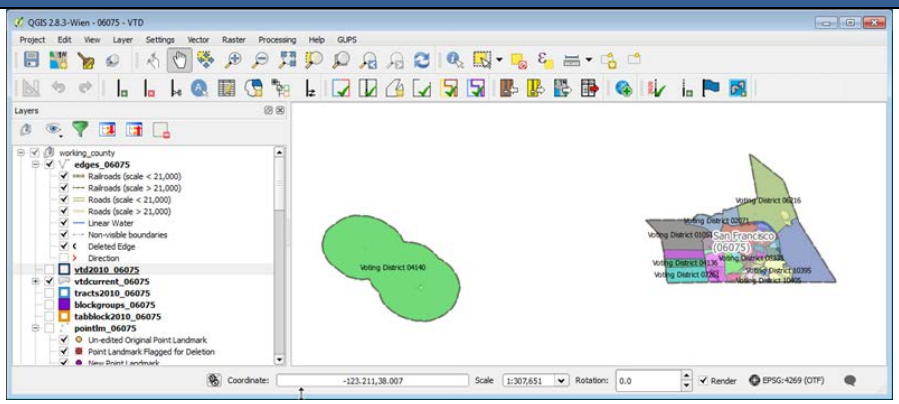
Step	Action and *Result*
	 You will receive the following notification if you either skipped any records in the error list or submitted a TEF that did not have full coverage. 
Step 5	*The working VTD layer, named vtdcurrent_<ssccc>, built from your TEF, will be added to the **Table of Contents**.* Go to **Section 8** for instructions on how to create and edit your VTDs.

7.4 Import VTD Shapefile

Table 22: Import VTD Shapefile

Step	Action and *Result*
Step 1	Choose the **Import VTD Shapefile** from the drop-down menu. 
Step 2	Navigate to your shapefile and click **OK**. *The **'Import Options'** dialog box will open*. 

Step	Action and *Result*
Step 3	All Census Headers (fields) with a red asterisk * must be populated. Map the headers from your imported shapefile to the corresponding Census Headers. State = 2-digit state FIPS code County = 3-digit county FIPS code Voting District = VTD code Name = VTD name LSAD = Legal/Statistical Area Description (i.e. whether "Voting District" should appear before the name, after the name, or not at all) VTDI = Voting District Indicator (A = actual; P = Pseudo). This is unusual to see outside of Census Bureau data files. You can also set your minimum overlap percentage, described below: When selecting the **Import Shapefile** option, GUPS is conflating your shapefile to TIGER data. The minimum overlap value is set to 91%, meaning that the at least 91% of the face in the TIGER shapefile must overlap with the VTD in the imported shapefile, for that face to be assigned to that VTD in the working VTD Layer shapefile generated.  Click **OK**. *The VTD current layer will build.* This step may take a few minutes based on the amount of information in your imported file. 
Step 4	*A working VTD layer, named vtdcurrent_<ssccc> will be added to the* ***Table of Contents****.* It will be your VTD shapefile conflated to Census Bureau geography. Go to **Section 8** for instructions on how to create and edit your VTDs.

Step	Action and *Result*
	
Step 5	If there are a large number of gaps (unassigned faces) in your imported vtdcurrent_<ssccc> shapefile, you can delete that file and re-import your shapefile, this time reducing the overlap percentage in the **Import Options** dialogue box so more faces in the Census data match to the imported shapefile.

Section 8. VTD Update Activities in GUPS

Once you have started your project, there are various types of updates you can make. The VTDP allows you to make updates to voting districts, linear features, area landmarks and legal geography (incorporated places, minor civil divisions (MCDs) and counties). The order you wish to make your updates will depend on your situation. For example, you may want to update or add linear features or incorporated place boundaries before updating your VTDs, if you plan to use those incorporated place boundaries or linear features as VTD boundaries.

Updates to linear features can be made with the linear feature update tools described in **Table 11: VTD Toolbar Buttons, Names, and Functions** and further explained in **Section 8.3**. You will use the **Modify Area Feature Tool**  to make updates to VTDs, area landmarks, and legal geographies. In general, updates are made the same way, regardless of the type of geography, or area feature, you are updating. **Section 8.1** describes the basics of how to use the Modify Area Feature Tool to update geography, and **Section 8.2** through **Section 8.5** describes in more detail how to use those tools to update specific geography types.

8.1 Using the Modify Area Feature Tool to Update Area Features

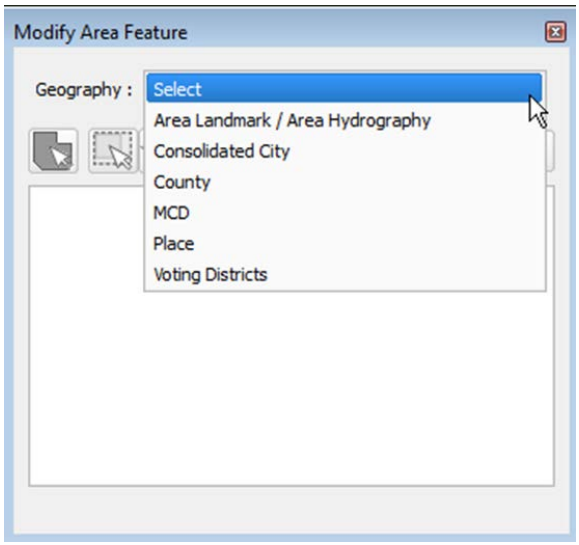
Table 23 provides a brief description of the buttons within the Modify Area Tool and their functions.

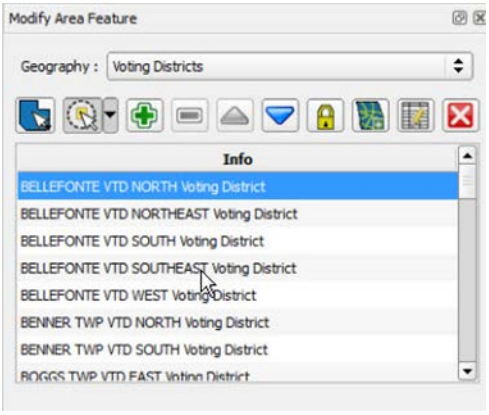
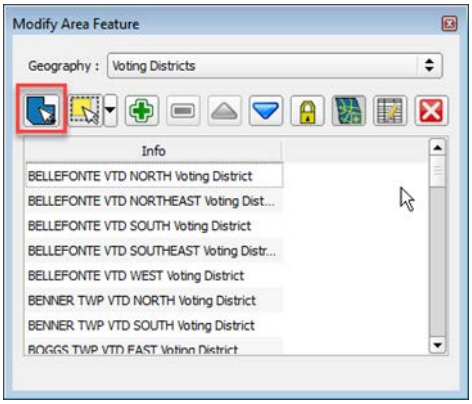
Table 23: Modify Area Feature Tool Buttons and Functions

Button	Function
	Select Target Area allows you to select (target) a feature for editing by clicking on it in the map view.
	Select Features allows you to select features by clicking, drawing a polygon, radius, and by geography
	Add selected faces to the target area.
	Remove selected faces from target area. (This is not available for VTD updates.)
	Select and zoom to previous entity on the list.
	Select and zoom to next entity on the list.

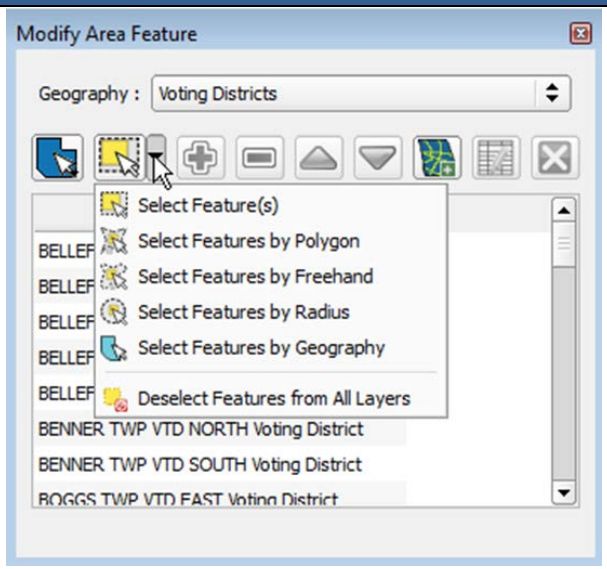
Button	Function
	Add new entity
	Modify attributes of target area.
	Toggle tool that allows the user to “lock” or “unlock” a VTD. When locked, no faces from the VTD can be added to another VTD. When unlocked, faces assigned to VTD can be added to another VTD.

Table 24: Using the Modify Area Feature Tool to Update Area Features

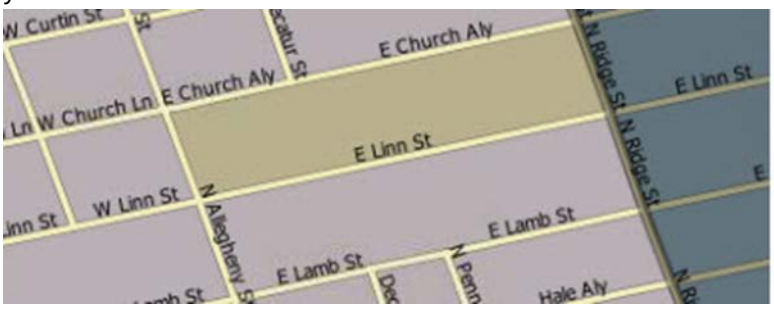
Step	Action and Result
Step 1	Click on the **Modify Area Feature** button in the VTD Toolbar. 
Step 2	Select the type of geography you want to update from the drop-down menu in the **Modify Area Feature tool**.  *All entities in the county of that geography type will appear.*
Step 3	Select the specific area feature you want to update. There are two options. You can either select the area feature from the list in the **Modify Area Feature tool** or use the **Select Target Area tool** found on the **Modify Area Feature** toolbar. In this example, “Voting Districts” is selected as the geography we want to update, and the list of all voting districts in the county is shown. 1. To select the areal feature from the list in the **Modify Area Feature** tool:

Step	Action and Result
	• Double click on the area feature name in the Tool. GUPS will zoom to the area feature on the map and make it active. A single click will make the area feature active, but will not zoom to it on the map.  2. To select the area feature using the Select Target Area  : • Click on the **Select Target Area** button on the **Modify Area Feature** toolbar  • Click on a face within the area feature on the map to make it your target entity.
Step 4	Select the faces on the map that you want to add/remove from the area feature, or use to create a new area feature. In this example, we will add faces to the entity. There are three options: select a face(s) by clicking on the map, select a face by drawing (polygon, freehand, or radius), or select faces by geography. You can access all options in the **Select Features button** drop-down.

Step	Action and Result



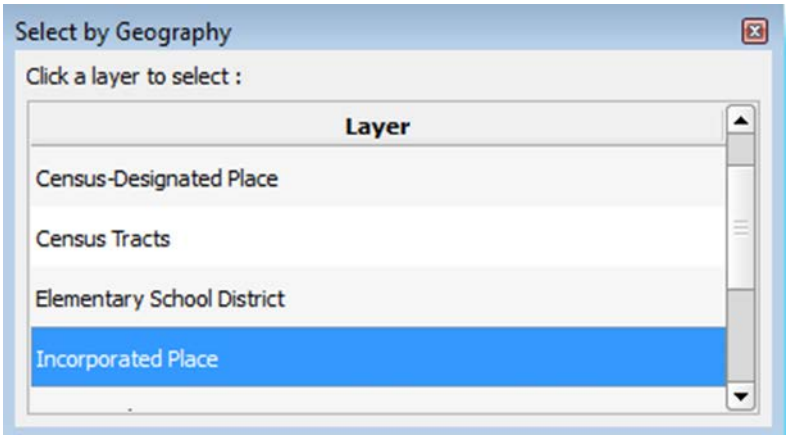
1. Select a face using Select Feature(s)
   - This tool is helpful if you want to individually select faces to add to the target entity.
   - Once you have your target area selected, click on a face on the map to select the face. You can select multiple faces by holding the **CTRL** key as you click on the faces.



2. Select a face by using one of several tools to draw around an area
   - These tools are helpful if you have several faces to add in a particular area.
   - Once you have your target area selected, use one of the several select tools (polygon, freehand and radius) to draw an area and select all the faces within that area. In this example, we used the select feature by radius tool and it selected all the faces at least partially within the circle drawn.

Step	Action and Result

3. Select faces by selecting their geography:
   - This tool selects all the faces that comprise a specific area feature. It is helpful if your target entity is co-extensive with another geographic area. For example, you may want to select an incorporated place and create a new VTD that is coextensive with it. Or, you may want to add all the area of that place to an existing VTD.
   - Once you have your target entity selected, use the **Select by Geography** tool to select all the faces within the following geography types: Block Groups, Census Designated Places, Census Tracts, School Districts (Elementary, Secondary, Unified), Incorporated Places, or Minor Civil Divisions (MCDs).
   - When you choose the Select Feature by Geography from the drop-down list, a new dock-able window will appear with a list of geographic types you can select by. In the screenshot below, we selected Incorporated Place, meaning that we want to select all the faces within some specific incorporated place to either add to or remove from the target entity we are updating.



Click on the specific incorporated place on the map and all the faces will be selected. Then use the add, remove, or create new entity tools described below to add to/remove from/create the area feature you are updating. Please see **Section 8.2.3, Table 27: Creating New VTDs** for an example of how to use select by geography to update a VTD.

Step	Action and Result
Step 5	Once you have faces selected you can use the add area  , remove area  , or add entity  buttons in the **Modify Area** toolbar to add the selected faces to your target area feature, remove the selected faces from the target entity, or create a new entity from the selected faces.

For specific information on updating VTDs using the **Modify Area Feature** tool, see **Section 8.2**.

For specific information on updating area landmarks using the **Modify Area Feature** tool, see **Section 8.4**.

For specific information on updating legal geography using the **Modify Area Feature** tool, see **Section 8.5**.

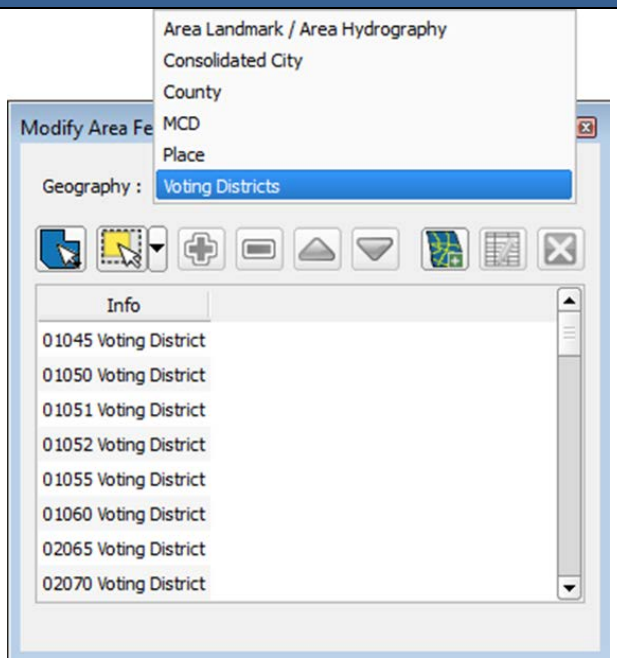
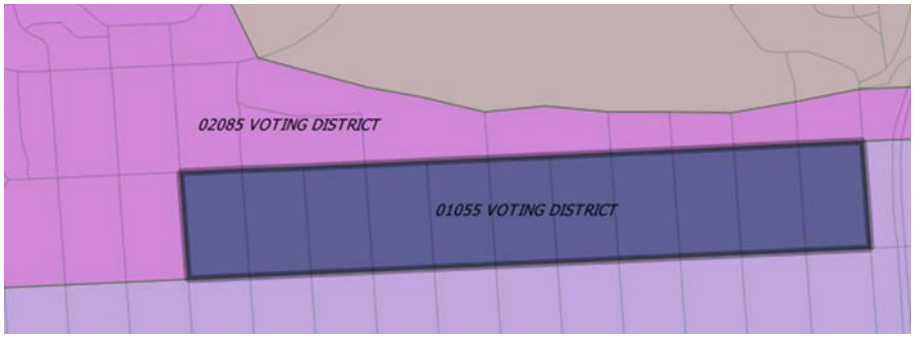
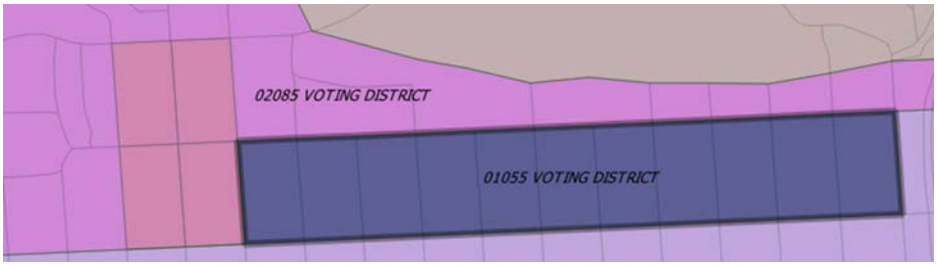
8.2 Updating VTDs

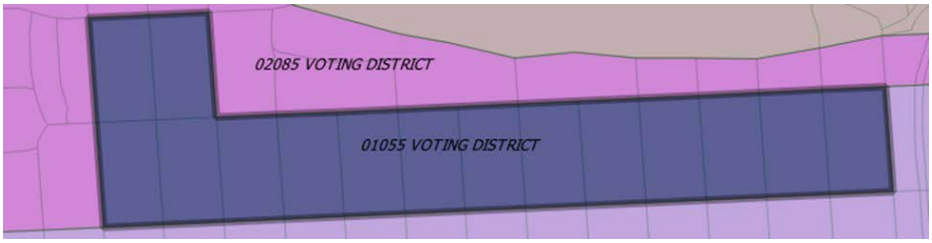
8.2.1 Adding Area to Existing VTDs

Adding or removing area from a VTD 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. Instructions for adding linear features are contained in **Section 8.3.1**.

Table 25: Adding to Existing VTDs

Step	Action and *Result*
Step 1	Click on the **Modify Area Feature** tool.  *The **Modify Area Feature** tool dialog box opens*.
Step 2	In the drop-down window, next to "**Geography:**" select "**Voting Districts**". *A list of voting districts in the county will appear.* Select the VTD you want to update (target) by scrolling through the list and double clicking on the VTD. GUPS will zoom to that VTD on the map. In this example, we will select and add area to **01055 Voting District**.

Step	Action and *Result*
	 
Step 3	In the **Modify Area Feature** tool, **click** the **Select Features** button  to start selecting faces to add to 01055. *The button will darken to signify that it is selected*. On the map, click on the faces that you would like to add to the voting district that you are modifying. A single left click will select one face at a time, while holding "**Ctrl**" and left clicking on faces will select multiple faces at a time. *The selected faces will change in color slightly to signify that they have been selected.* 
Step 4	Click on the **Add Area** button  in the **Modify Area Feature** tool to add the selected faces to the target voting district. The selected faces will change in color to

Step	Action and *Result*
	match that of their new VTD and show that the area has been added to the new district. 
	Note: The **Remove Area** tool for voting districts is disabled. In adding a face from one voting district to another, like in this example, you are effectively removing the area from 02085 and adding it to 01055. Because VTDs should completely cover all the area in the county and not overlap, the only way to remove area from a VTD is to add it to another VTD. You can also delete entire VTDs, which is described in **Section 8.2.5**.

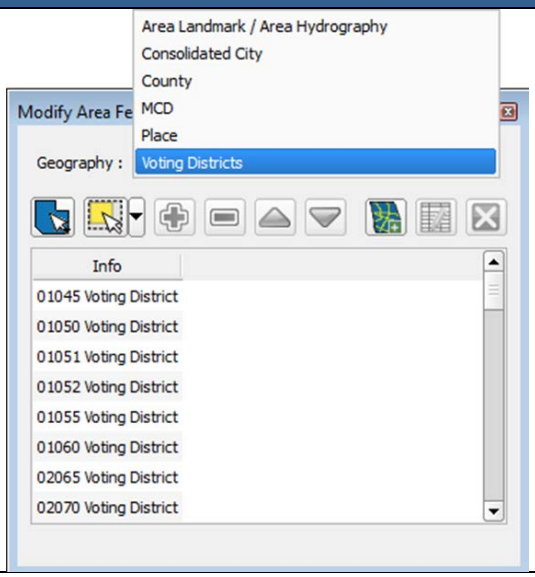
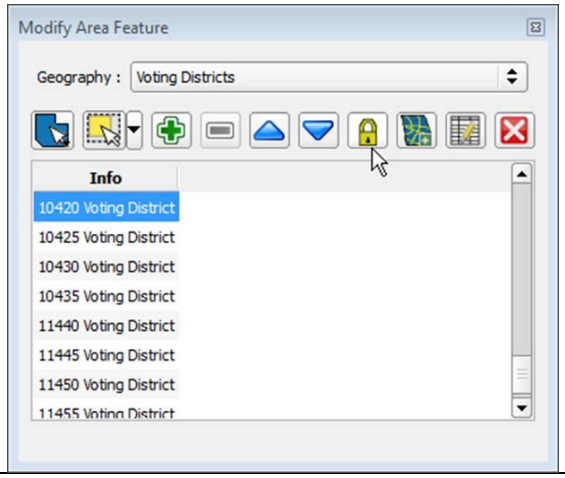
8.2.2 Locking VTDs

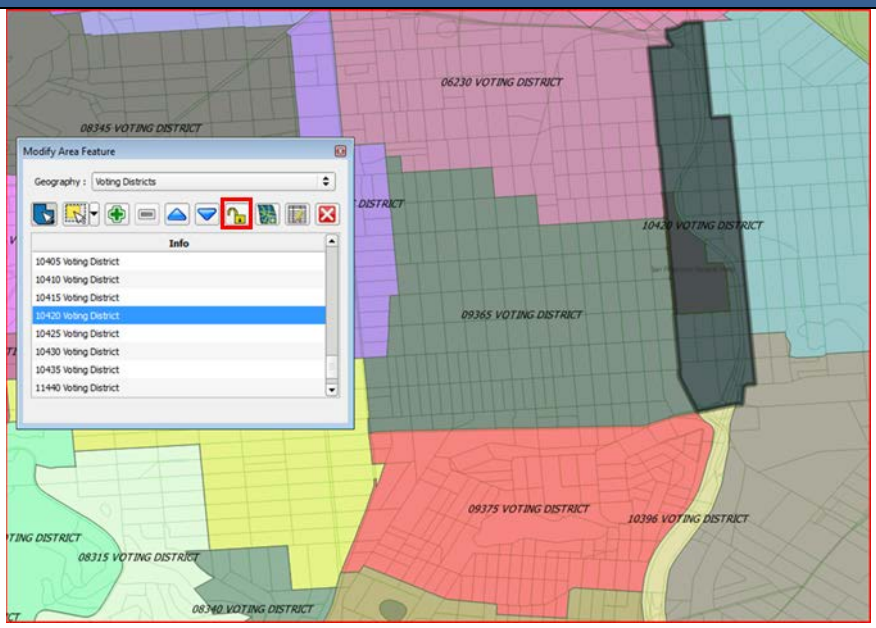
Because when you add area to one VTD it automatically removes it from another VTD, you may want to "**lock**" a VTD to ensure that faces are not inadvertently selected and removed from it when you are adding area to its neighbor VTD.

In this example, we will add area to 09365 Voting District, but some surrounding voting districts will be locked in order to make sure that area is not inadvertently removed from them.

Table 26: Adding to a VTD While Locking Surrounding VTDs

Step	Action and *Result*
Step 1	Click on the **Modify Area Feature** tool.  *The **Modify Area Feature** tool dialog box opens.*
Step 2	In the drop-down window next to **Geography,** select **Voting Districts**.

Step	Action and *Result*
	
Step 3	Select the VTDs that are to remain unchanged by clicking on them in the area features list. You can also select them on the map using the **Select Target Area** button. (**Click** on the **Select Area Target** button  and click on the any part of the VTD in the map view.) 
Step 4	Once a voting district is selected, **click** the **Lock Tool** in the **Modify Area Feature** window to lock the district that is to remain unchanged.

Step	Action and *Result*
	 You will notice the lock toggle button (outlined in red) changes from a closed padlock to an open padlock to signify that that 10420 Voting District has been locked. The button now functions to unlock the VTD. Click to "**unlock**" the VTD.

This screenshot shows faces to the east and southeast of 09375 Voting District that have been selected for addition to 09365 Voting District. Some of the selected faces are currently assigned to locked 10420 Voting District and locked 09375 Voting District. Other selected faces are assigned to unlocked 10396 Voting District, and unlocked 10395 Voting District (in grey, lower right corner, label not shown).

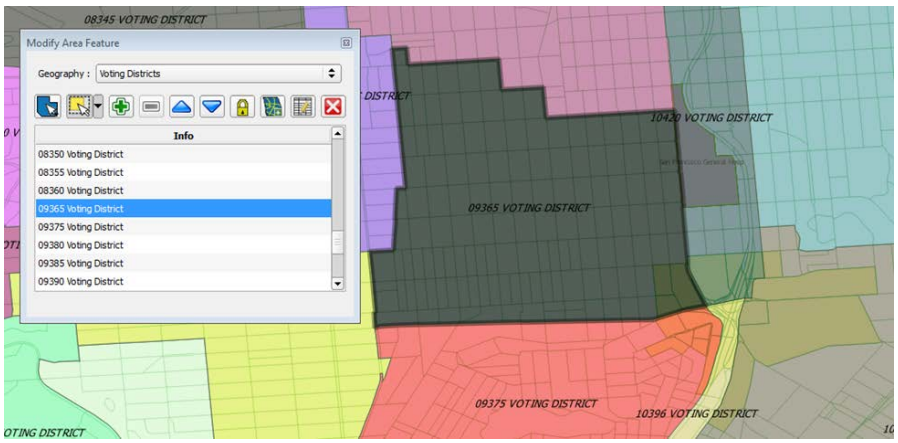


Figure 14. Faces Selected for Addition to 09375 Voting District

After selecting the **Add Area** button, you will notice that only the faces that are not part of the locked VTDs were added to the target 09365 Voting District.

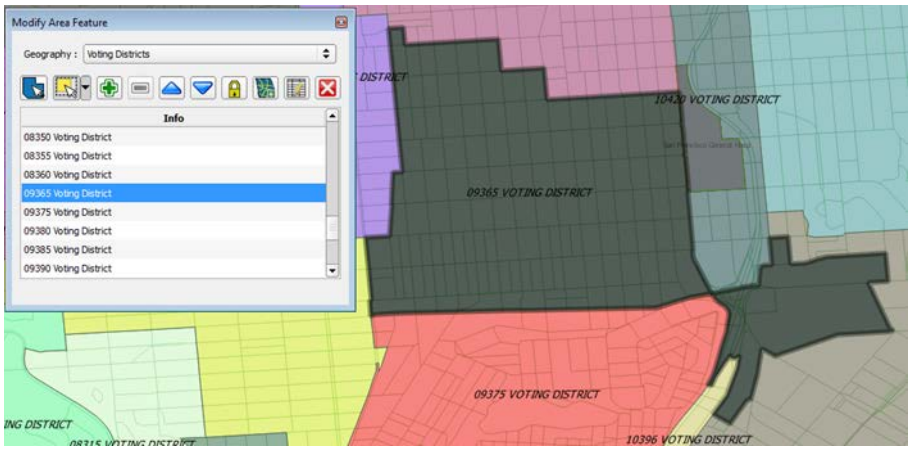


Figure 15. Faces Not Locked Added to 09365 Voting District

If all the faces you select to add to a VTD are assigned to a locked VTD, you will get this notification:

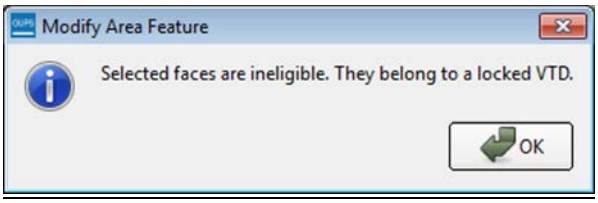


Figure 16: Locked VTD Warning

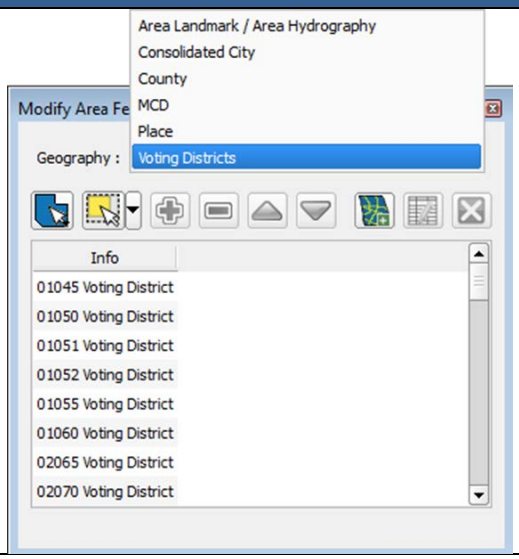
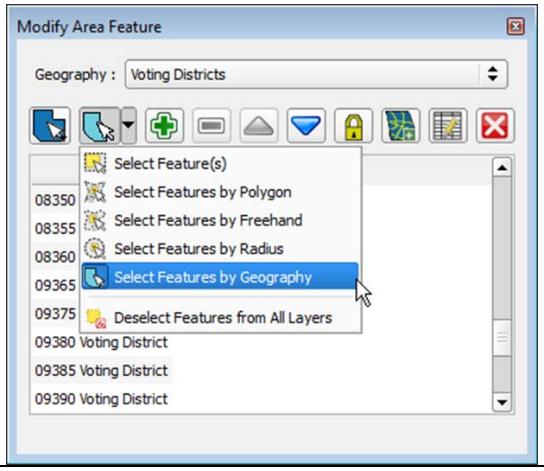
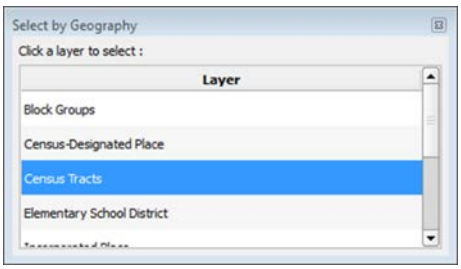
You must unlock the VTD in order to proceed.

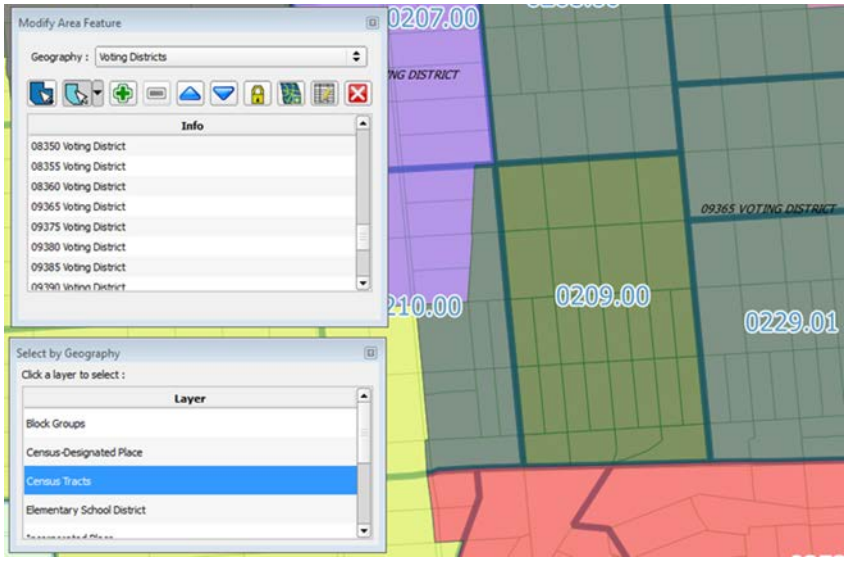
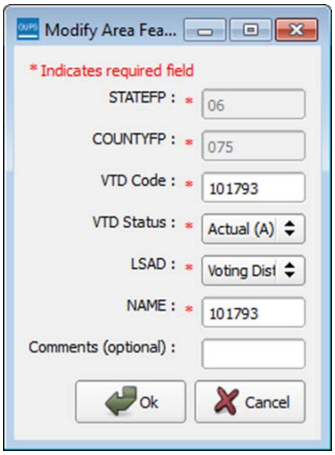
8.2.3 Creating New VTDs

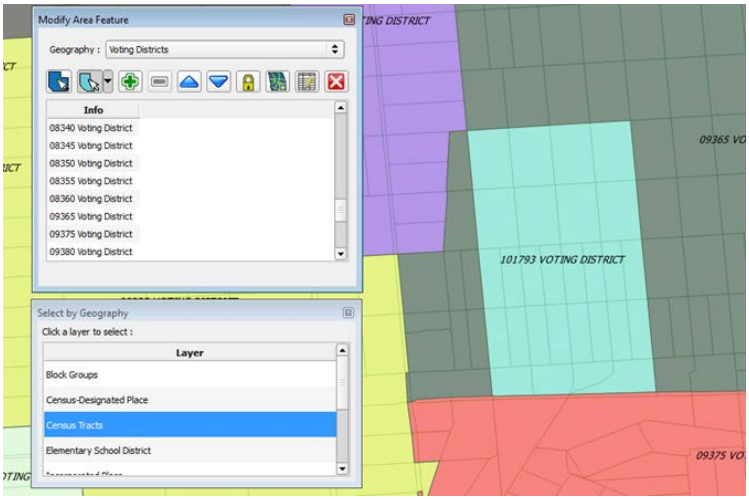
Create VTDs by selecting the faces that comprise the VTD, and then clicking on the Add Entity  button. In this example, we will select the faces to use to create a new VTD using the **Select by Geography** tool.

Table 27: Creating New VTDs

Step	Action and *Result*
Step 1	Click on the **Modify Area Feature** tool.  *The **Modify Area Feature** tool dialog box opens.*
Step 2	In the drop-down window, next to **Geography**: select **Voting Districts**.

Step	Action and *Result*
	
Step 3	Under the **Select Features** button drop-down, choose **Select Features by Geography**. (This example demonstrates using the **Select by Geography** tool. Any selection method can be used.) 
Step 4	*A new **Select by Geography** window will open.* Here you can choose which type of geography you would like to use to select the faces. For this example, we will use census tracts, meaning we will choose a census tract and all the faces in that tract will be selected. Select the type of geography, and in the **Map View** click on a feature of that geography type (census tract in this example). *All the faces within the census tract you selected (**0209.00** in this example) will be selected.* 

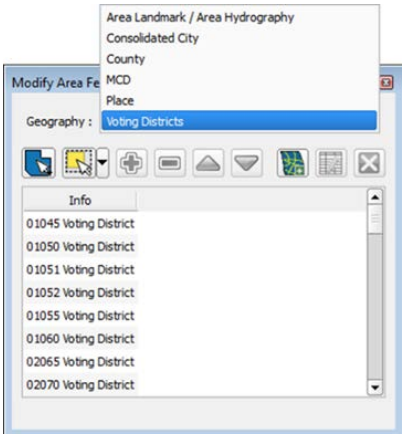
Step	Action and *Result*
	
Step 5	In the **Modify Area Feature** tool, click on the **Add Entity** button  to create a new voting district out of the selected faces/Census Tract.
Step 6	*A new window will appear that requires that you input attribute values for the new voting district.* The fields marked with a red asterisk are required fields.  STATEFP = 2-digit state FIPS code COUNTYFP = 3-digit county FIPS code VTD Code = VTD Code (up to 6 characters) VTD Status = Actual (A) or Pseudo (P). Select Pseudo if the spatial representation is an approximation of how the VTD should be represented, or represents some sort of sub-election geography. This should be a rare occurrence. LSAD = Legal/Statistical Area Description NAME – VTD Name

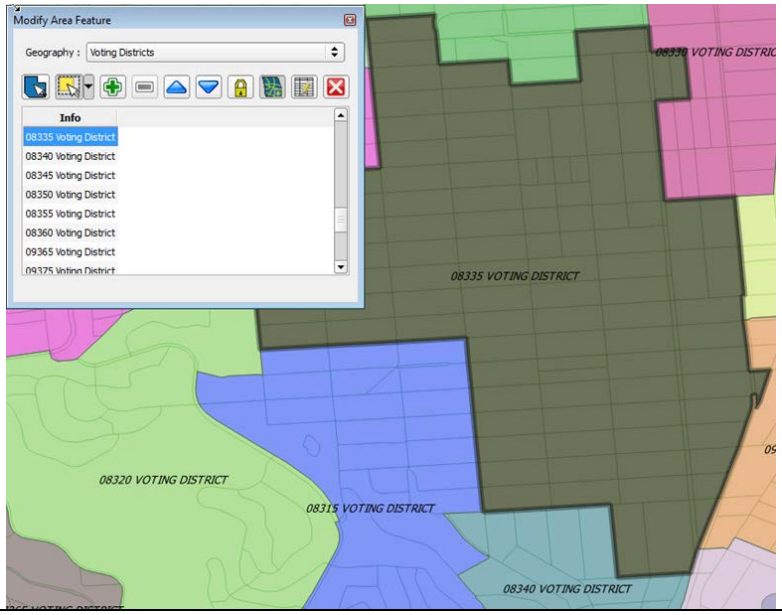
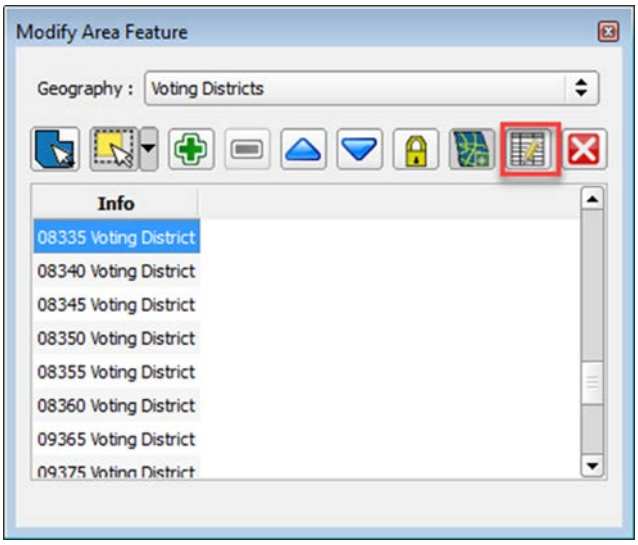
Step	Action and *Result*
	Click "**OK**" to save. The new Voting District appears on the map and in the area features list in the **Modify Area Features** tool. 

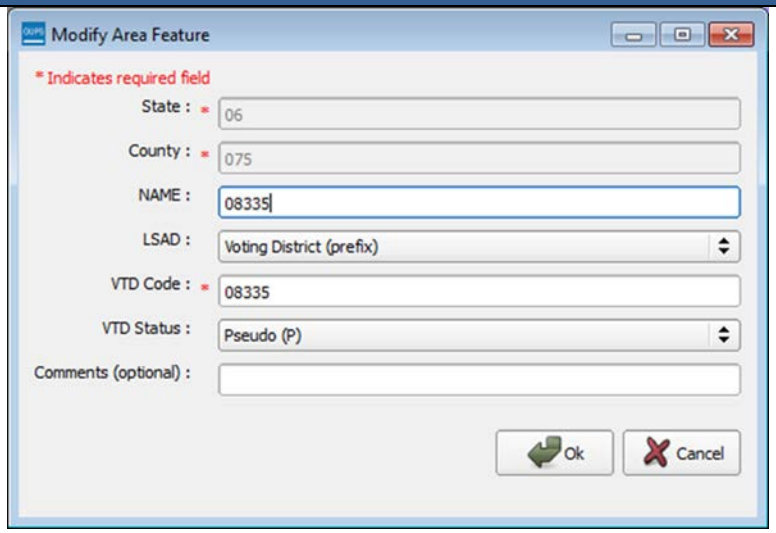
8.2.4 Modifying VTD Attributes

Modify VTD attributes if you want to change the name, code, area description, or other non-spatial attribute of your VTDs.

Table 28: Modifying VTD Attributes

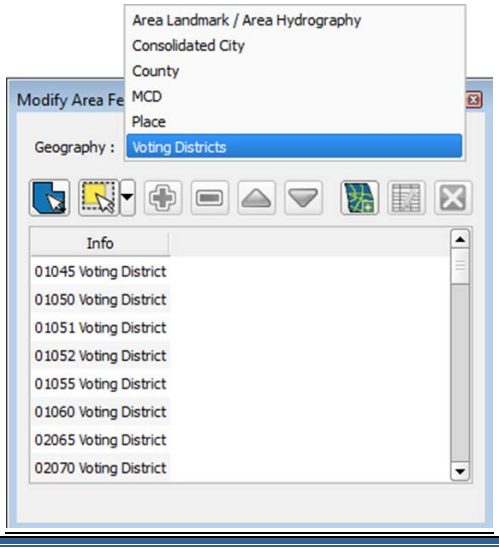
Step	Action and *Result*
Step 1	Click on the **Modify Area Feature** tool.  *The **Modify Area Feature** tool dialog box opens.*
Step 2	In the drop-down window, next to **Geography:** select **Voting Districts**. 

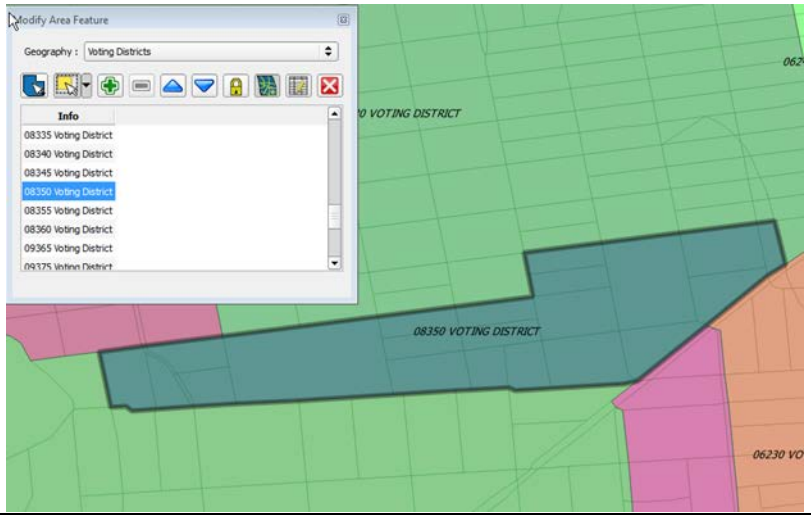
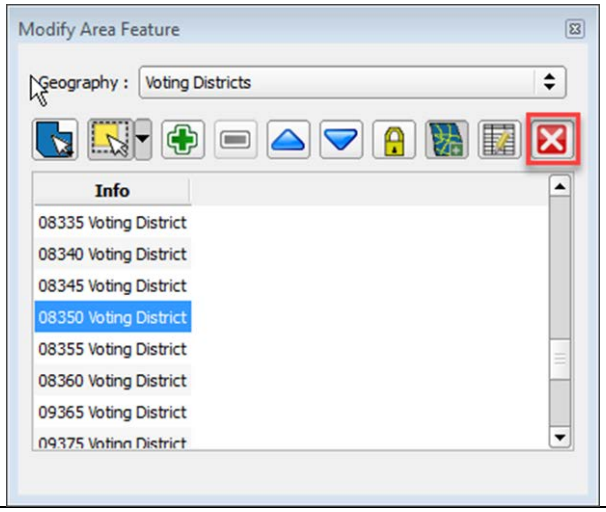
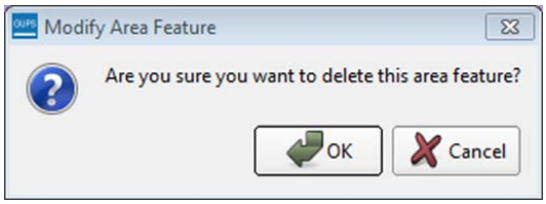
Step	Action and *Result*
Step 3	Activate and navigate to the voting district whose attributes you want to modify by either clicking on it in the **Area Feature** list, or by clicking on the **Target Area** button  and then clicking on the VTD on the map. 
Step 4	Once your voting district is selected, click on the **Change Attributes** button  in the **Modify Area Feature** toolbar.  *A new **Modify Area Feature** window will pop-up.*

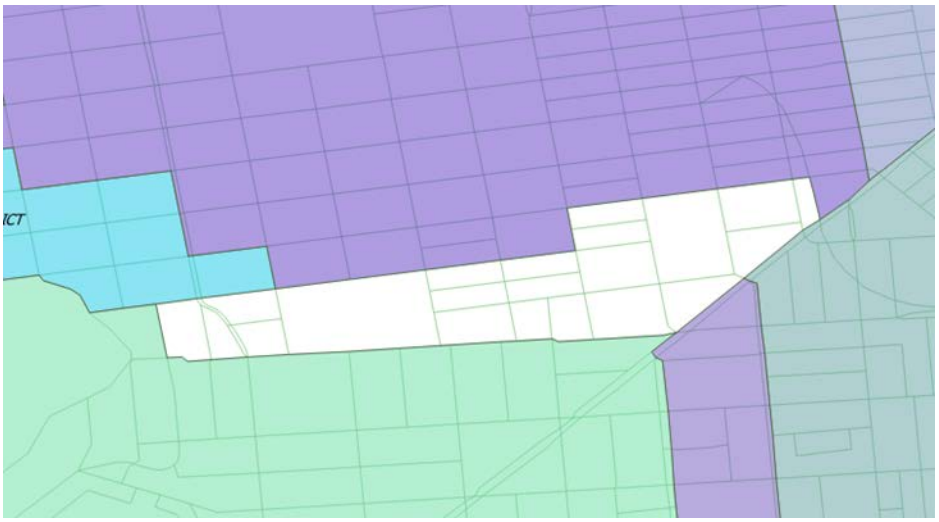
Step	Action and *Result*
	
Step 5	Type over the name or code with the information you want to change it to, or change the LSAD or VTD Status using the dropdowns. Except in rare occasions, VTD Status will be Actual (A). Click **OK** to view changes.

8.2.5 Deleting VTDs

Table 29: Deleting a VTD

Step	Action and *Result*
Step 1	Click on the **Modify Area Feature** tool. 
Step 2	In the drop-down window, next to **Geography:** select **Voting Districts**. 

Step	Action and *Result*
Step 3	Target the voting district you want to delete either clicking on it in the **Area Feature List**, or by clicking on **Target Area** button  and then clicking on the VTD on the map. 
Step 4	Once your voting district is selected, click on the **Delete Area Feature** button in the **Modify Area Feature** tool  . 
Step 5	*A window will appear asking you to confirm that you want to delete the selected area feature.* 

Step	Action and *Result*
	Click "**OK**" to confirm. You will notice on the map, the area (faces) that once was a voting district is now not assigned to any VTD. You can assign the unassigned faces to another voting district at this time, or they will fall out later when you run the **VTD Criteria Review Tool** (See **Section 8.6.1** for more information). 

8.3 Updating Linear Features

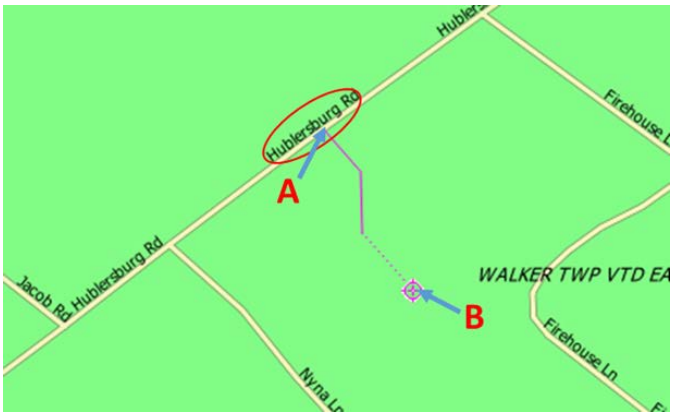
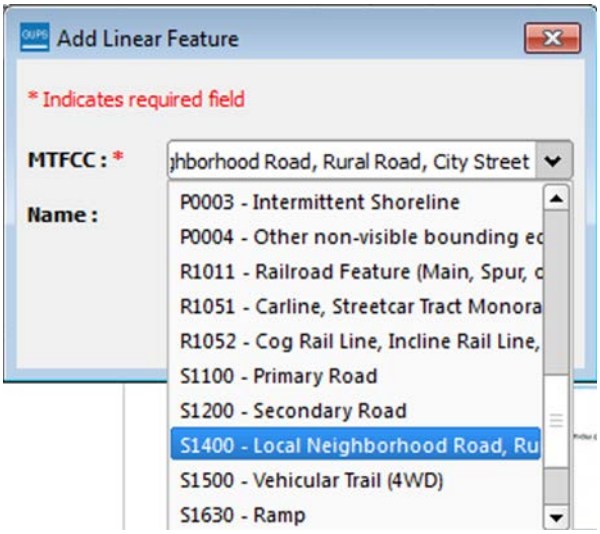
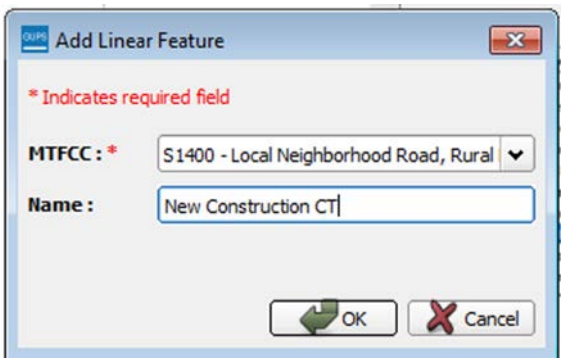
We recommend that you review the linear features in the Census Bureau file to determine whether there are missing features or existing features that should be deleted. You can import your own shapefiles, geodatabases, web mapping services and/or imagery for comparison against Census Bureau data. If you plan to import data for reference purposes, follow the directions for importing user-provided geospatial data and/or web mapping services listed in **Section 6.2.7 Add Data Toolbar**. Another option for automatically adding imagery is to use the **Add Imagery** button on the VTD toolbar.

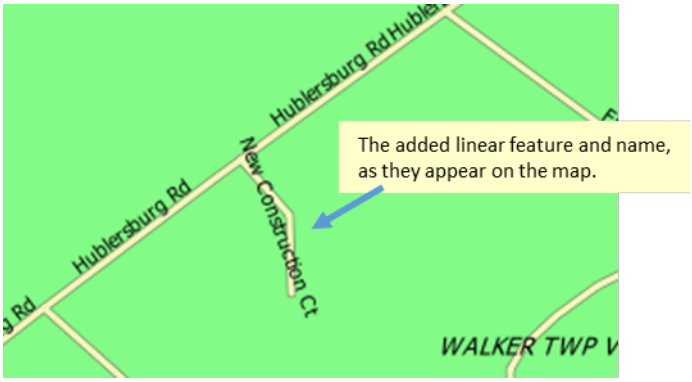
Click **Appendix A, Table 63: Linear Feature Updates Permitted** for the list of feature updates the Census Bureau will accept.

8.3.1 Adding a Linear Feature

Table 30: Adding a Linear Feature

Step	Action and *Result*
Step 1	Navigate in the **Map View** to where you want to add a linear feature.
Step 2	Click on the **Add Linear Feature** button on the VTD toolbar. 

Step	Action and *Result*
Step 3	Digitize the new linear feature. *The cursor will appear in the map as a pink crosshair.* A) Left- click the mouse at the starting point of line and continuing to click at each vertex (shape) point of the line, and B) Right-click the mouse when you have completed the new line. 
Step 4	*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. Note only rail, hydro, and road linear features can be named in GUPS. Refer to **Appendix B** for the list of standardized street type abbreviations and **Appendix C** for MTFCC Descriptions. Click the **OK** button.
Step 5	
Step 6	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 "New Line Segment cannot start and end within 5 ft. of an existing line." opens.* Instead, select the **Modify Linear Features Attributes** button on the VTD toolbar, select the boundary line coincident with the road feature, and after the **Update Attributes** dialog box opens, change the MTFCC to the appropriate road (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.

8.3.2 Splitting a Linear Feature

Splitting a linear feature may be necessary if you need to delete or edit part of a linear feature. You will first need to "split" the linear features so you can select only the part you want to delete or edit.

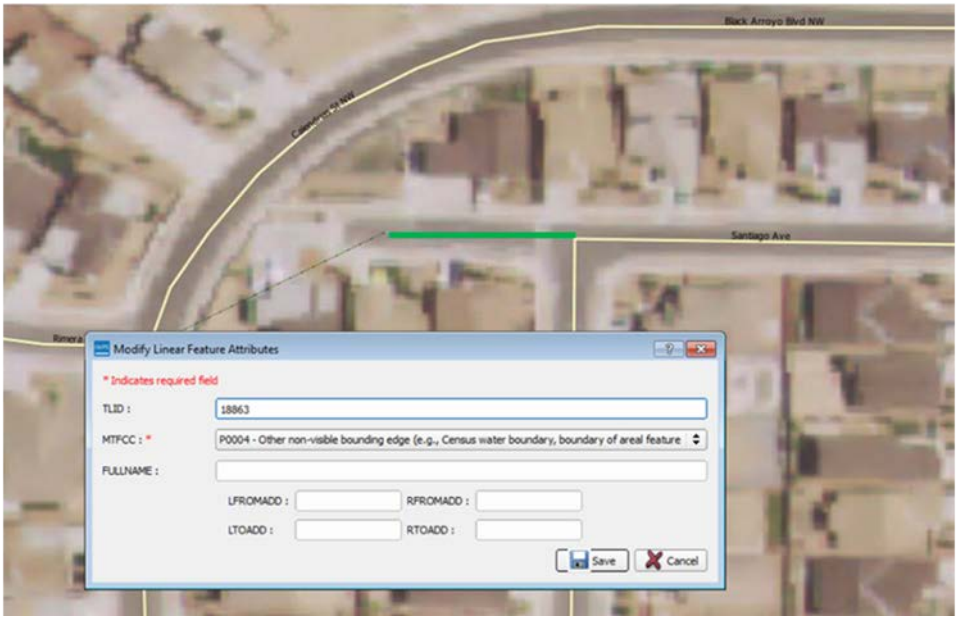
Using the **Split Linear Feature** tool  on the VTD toolbar, you can split a single linear feature into two or more features.

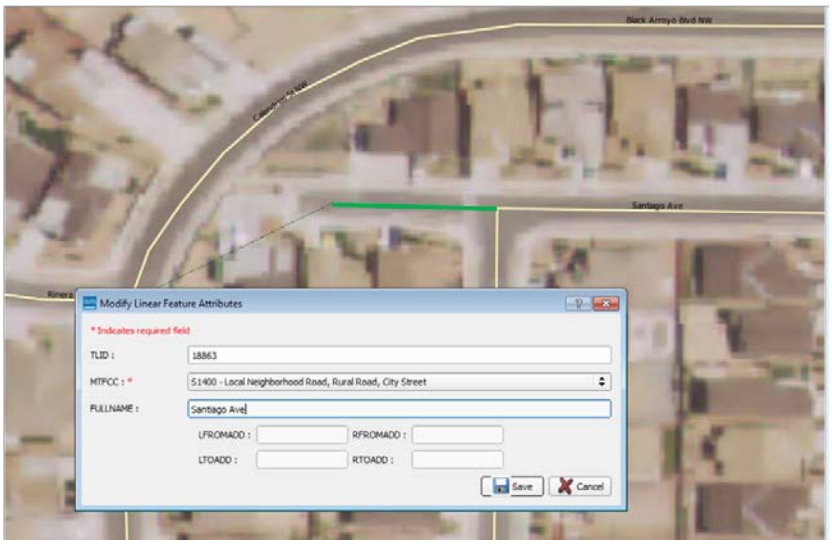
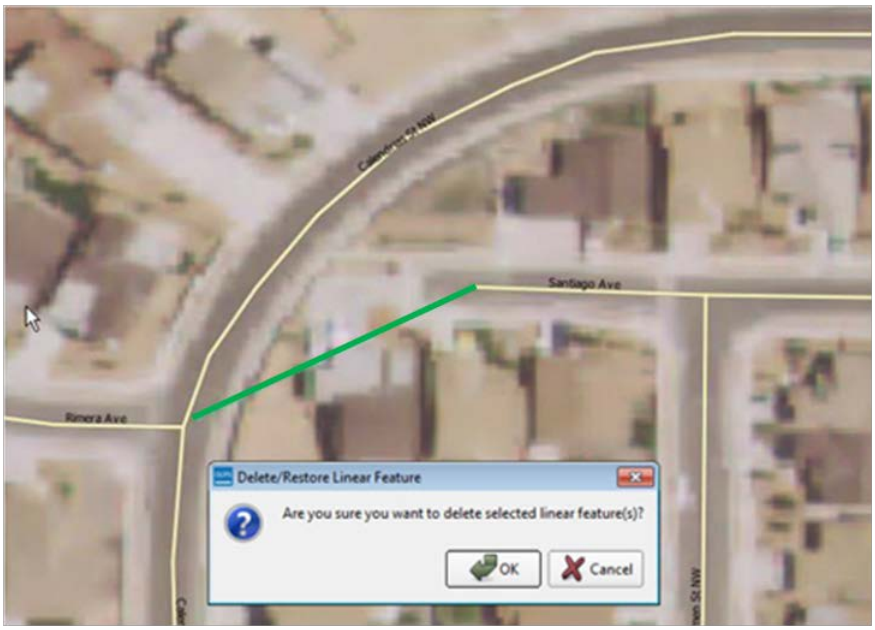
In this example, an existing invisible edge is split so one portion can be modified into a road and the other portion can be flagged for deletion. **Figure 17** shows the linear feature to split and edit.

Figure 17. Linear Feature to Split/Edit

Table 31: Split/Edit a Linear Feature

Step	Action and *Result*
Step 1	Select the **Split Linear Feature** tool from the VTD toolbar.  *The cursor will appear in the map view as a pink crosshair.* 
Step 2	Click on the location where you want to split the linear feature. *There are now two linear features, each with the attribution of the original line*. One portion of the split line will appear highlighted, but note that it may not be the portion that needs to be edited.

Step	Action and *Result*
	
Step 3	Select the linear feature portion you want to modify by clicking on the **Select Tool** in the Standard toolbar.  Left click on the linear feature.
Step 4	Select the **Modify Linear Feature Attributes** tool from the VTD Toolbar.  *The Modify Linear Feature Attributes dialog box will appear.* 

Step	Action and *Result*
Step 5	Change the MTFCC or Name attribute by typing over the existing values in the **Modify Linear Feature Attribute** dialog box. In this example, the linear feature had no name and an MTFCC of P0004 – Other non-visible bounding edge. This edge should now be named Santiago Ave and modified to an S1400- Local Neighborhood Road  Click **Save**.
Step 6	The other portion of the linear feature should be deleted, as it does not exist. Select the other linear feature. Click on the **Linear Feature Delete** tool on the VTD toolbar. 
Step 7	*A pop-up box will appear asking you to confirm that you want to delete the feature*. 

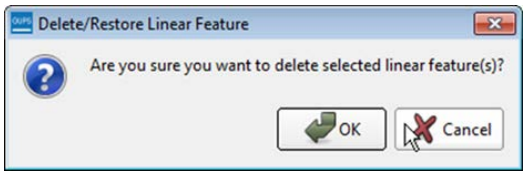
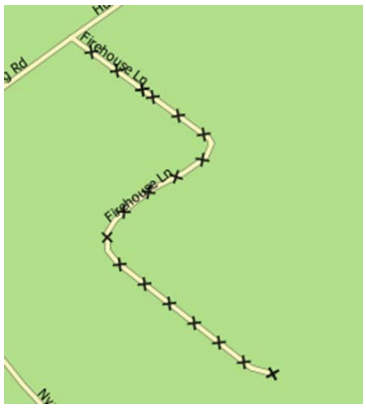
Step	Action and *Result*
Step 8	Click **OK** and the symbology of the linear feature in the map view will indicate one portion is flagged for deletion (symbology is black Xs over the edge) and the other is part of Santiago Ave. 

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 still appear on the GUPS map with a black "x" symbology on top of the feature's original symbology. If you delete a feature that you had added to the project yourself, it will disappear completely from the map.

8.3.3 Deleting a Linear Feature

There are several ways you can delete a linear feature. You can delete one segment or multiple segments or features at a time. As stated in **Section 8.3.2**, if you delete a linear feature that existed in the partnership shapefiles, it will be flagged for deletion pending Census Bureau review. You can also restore the deleted feature. However if you delete a linear feature that you added, the linear feature will be deleted and cannot be restored.

Table 32: Delete a Linear Feature

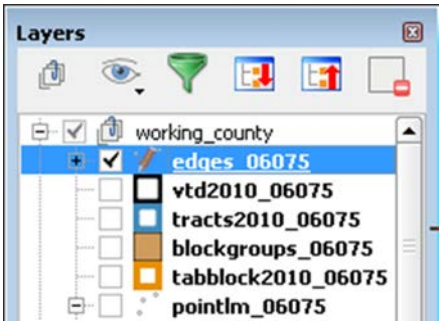
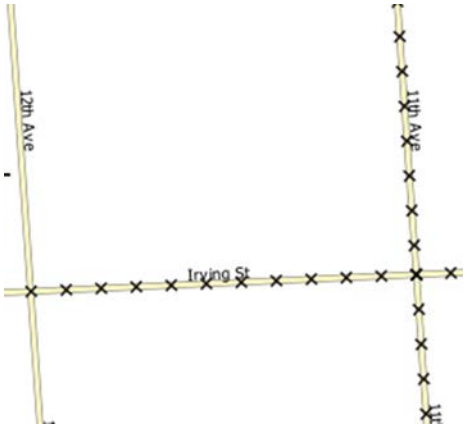
Step	Action and *Result*
Step 1	Click on the ***Delete Linear Feature*** button on the VTD toolbar. 
Step 2	When you activate the **Delete Linear Feature** tool, your mouse cursor will turn into a cross-hair. Hover over the line segment that you would like to delete and left mouse click. In this example, we chose to delete Firehouse Ln.  *The Delete Linear Feature confirmation dialog box opens* asking if you are sure you want to delete the selected features(s).  Click ***OK*** to delete the feature.
Step 3	The feature is flagged for deletion and symbolized in the **Map View** with black Xs.  Another way to delete a linear feature is by using the **Select Features** tool  to draw a selection region over the lines you would like to mark for deletion, and then clicking on the **Delete Linear Feature** tool.

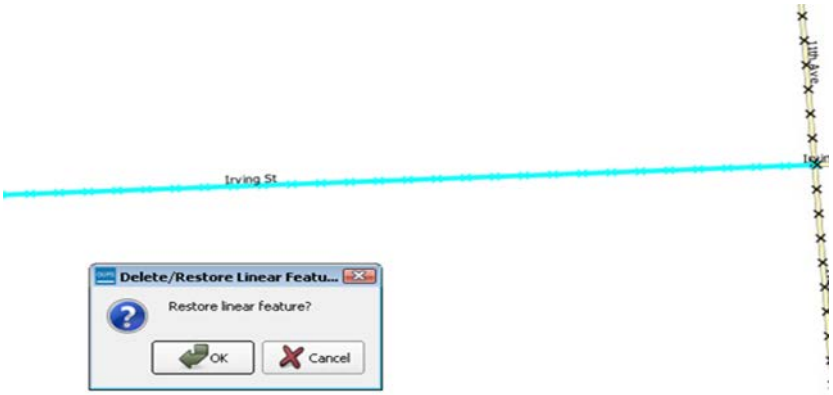
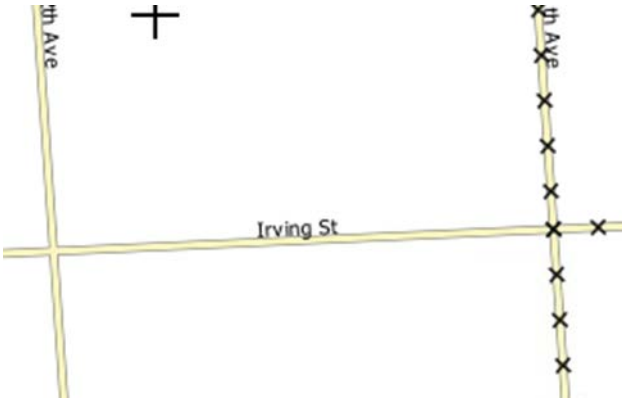
Step	Action and *Result*
	If you delete a feature that you added, meaning the feature was not originally in the Census Bureau partnership shapefile, *GUPS actually deletes the feature*. This occurs because the Census Bureau processes the "changes" from the original file. **You cannot restore a deleted linear feature you added; you will need to add it again if you deleted it in error.**

8.3.4 Restoring Deleted Linear Features

You may delete a linear feature in error and later wish to restore or "un-delete" it.

Table 33: Restore a Linear Feature

Step	Action and *Result*
	You cannot restore a deleted linear feature you added; you will need to add it again if you deleted it in error. You can only restore deleted linear features if they were included in the original Census Bureau provided Partnership Shapefile.
Step 1	Make sure the **Edges** layer is active (checked) in the **Table of Contents**.  Then zoom to the location on the map where the deleted feature is located. 
Step 2	Click on the **Delete Linear Feature tool** in the VTD Toolbar 

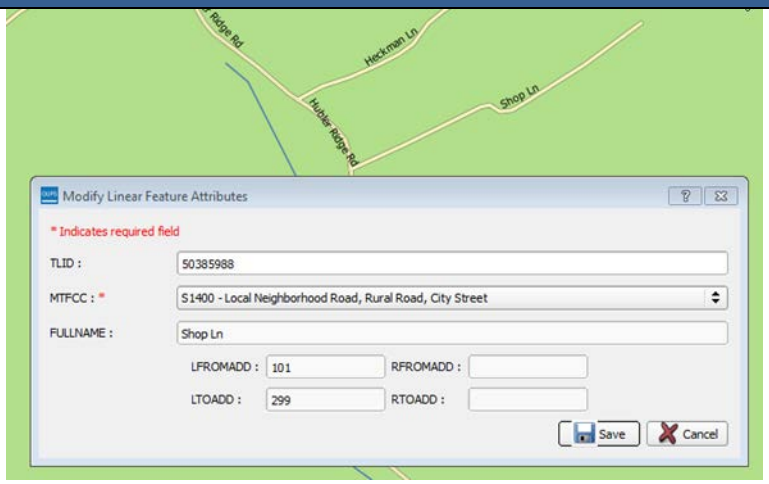
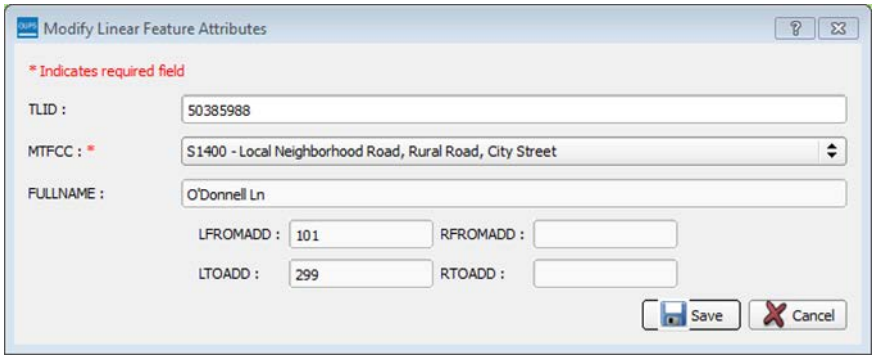
Step	Action and *Result*
Step 2	Left-click on the deleted feature you want to restore. *The deleted feature turns cyan blue (color may vary) and the* ***Delete Linear Feature*** *dialog box opens. The box asks you to confirm that you want to restore the line*.  To restore the linear feature, click the **OK** button.
Step 3	The **Delete Line** symbology is removed from the linear feature in the **Map View** and the line is restored. 

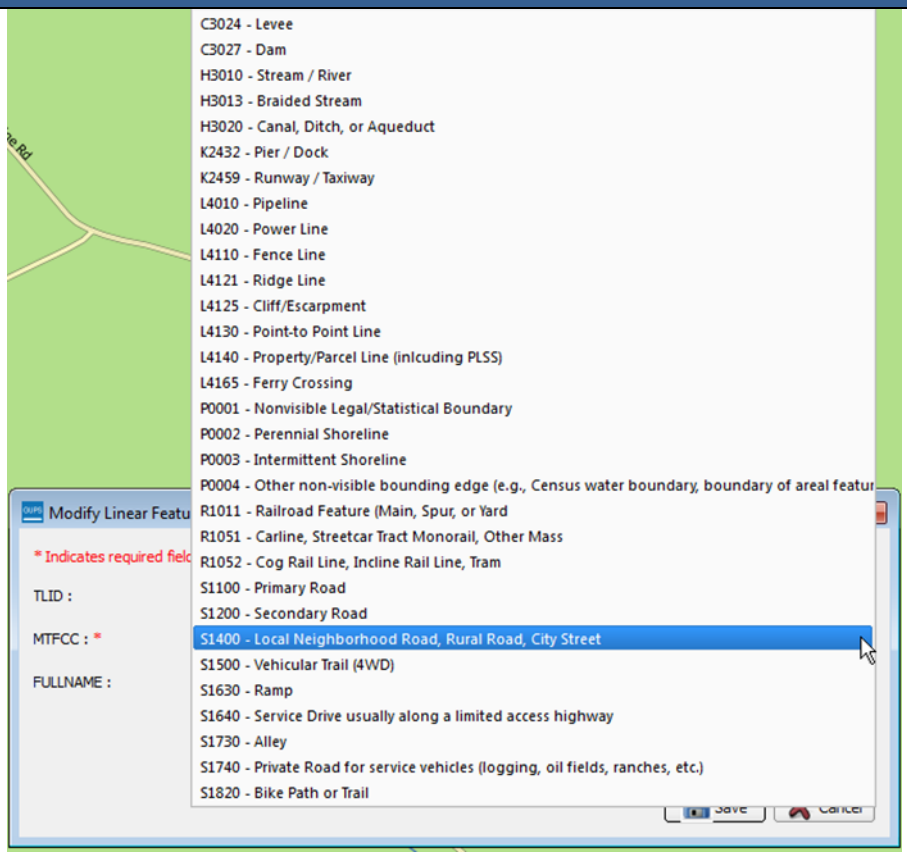
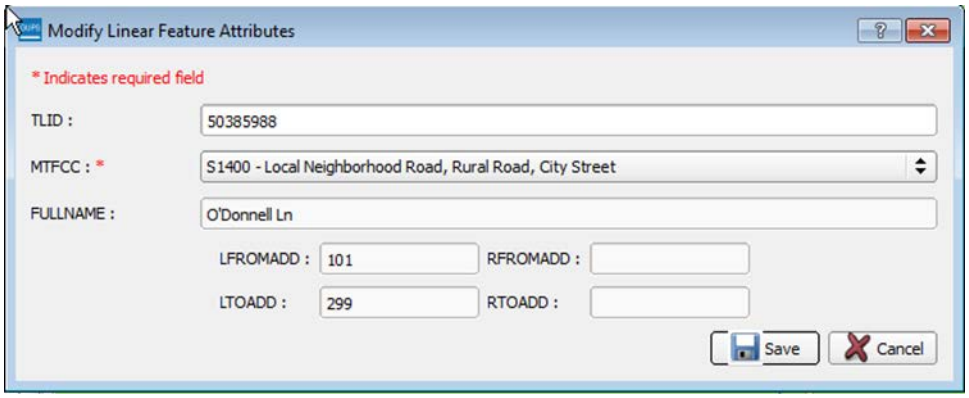
8.3.5 Editing Linear Feature Attributes

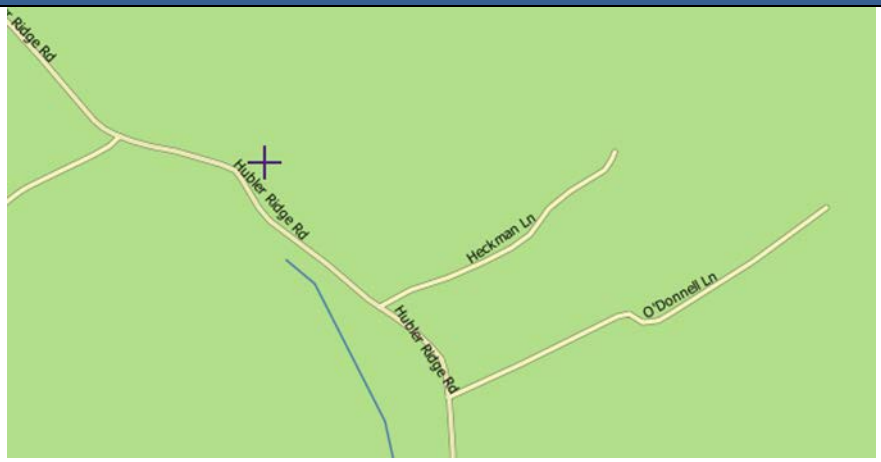
To change the name or the classification of a linear feature, follow the steps in **Table 34**.

Table 34: Edit a Linear Feature Attribution

Step	Action and *Result*
Step 1	Click on the **Modify Linear Feature Attributes** button on the **VTD toolbar**. 
Step 2	Click on the linear feature on the map you want to edit. *The* ***Modify Linear Features Attributes*** *dialog box opens. The* ***Name*** *field populates if the feature is named. If the feature is unnamed, the field is blank. The MTFCC field shows the assigned MTFCC.*

Step	Action and *Result*
	 If there are address ranges assigned to the street segment, they are displayed in the **LTOADD**, **RTOADD**, **LFROMADD**, and **RFROMADD** fields. The Census Bureau accepts, but does not encourage, address range updates, as the Census Bureau has internal processes for updating and maintaining address ranges. If you want to submit address ranges, please contact the CRVRDO at 301-763-4039 for more information.
Step 3	To add or change the name of the linear feature, update the **FULLNAME** field by simply typing in the new name. If the field is already populated, just highlight the existing name and hit **DELETE** or backspace over the name. In this example, we changed the name of Shop Ln to O'Donnell Ln. We did not update the address ranges. 
Step 4	Click on the **MTFCC** drop-down menu to change the MTFCC.

Step	Action and *Result*
	 In this example, the MTFCC does not need to be changed. We also are not changing the address ranges. 
	Click **Save**. *The changes are made and the new name appears in the map view.*

Step	Action and *Result*
	
	Note: Be sure to include the street type (St, Ave, Blvd, etc.) in all street names. **Appendix B** lists the standardized street type abbreviations.

8.4 Reviewing and Updating Area Landmarks

The Census Bureau accepts updates to area landmarks, including hydrographic areas, as part of the Voting District 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, and
- Changing or adding a name to an area landmark or hydrographic area.

Adding or removing area from an area landmark, including area 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. Instructions for adding linear features are contained in **Section 8.3.1**.

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

GUPS displays area landmarks in different symbology depending on categorization, as shown in **Figure 18**. Area landmarks deleted by the user are shown in gray symbology.

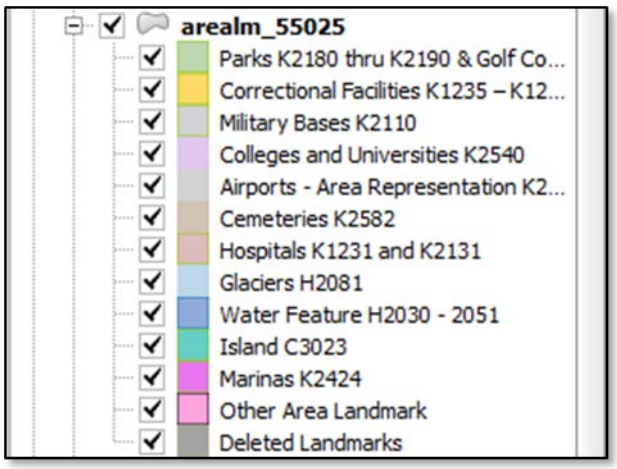
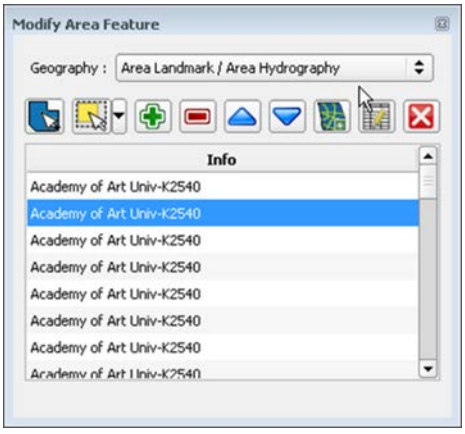


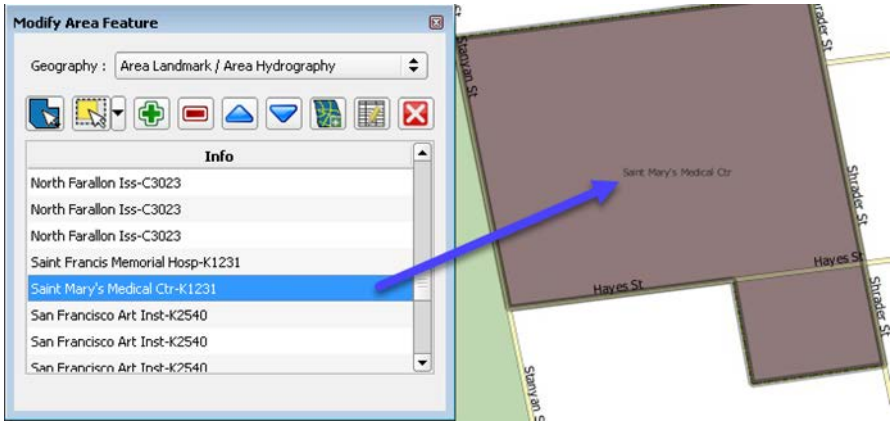
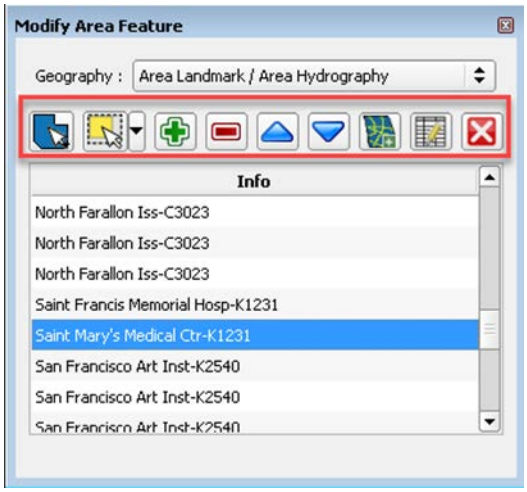
Figure 18. Area Landmark Symbology

There are some restrictions to area landmark updates. **Appendix A, Table 62: Area Landmark Updates Permitted** lists the area landmark updates the Census Bureau will accept.

8.4.1 Reviewing Area Landmarks/Area Hydrography

Table 35: Review Area Landmarks

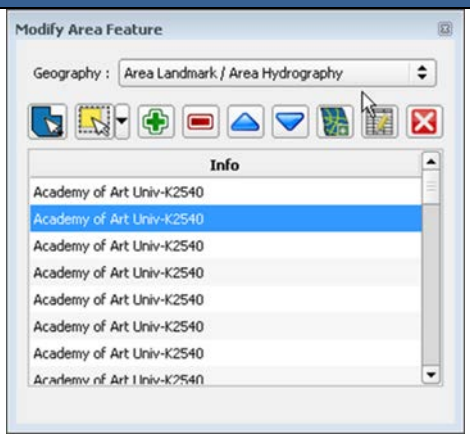
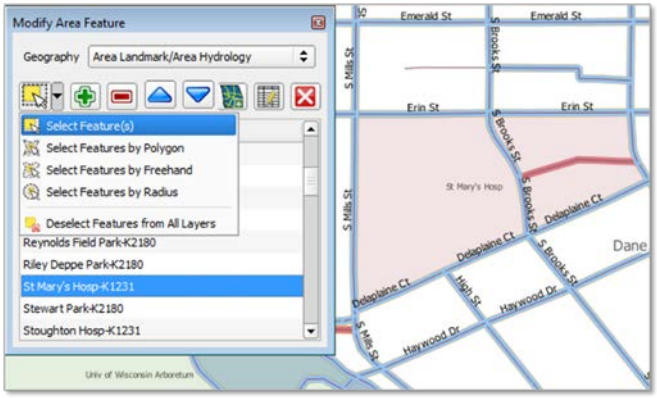
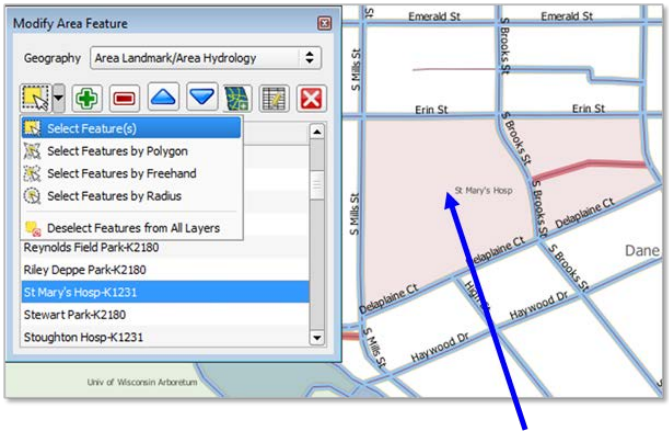
Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the VTD toolbar. 
Step 2	*The **Modify Area Feature** dialog box opens.* Choose **Area Landmark/Area Hydrography** from the Geography drop-down menu. The **Info** window populates with the list of area landmarks and area hydrography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

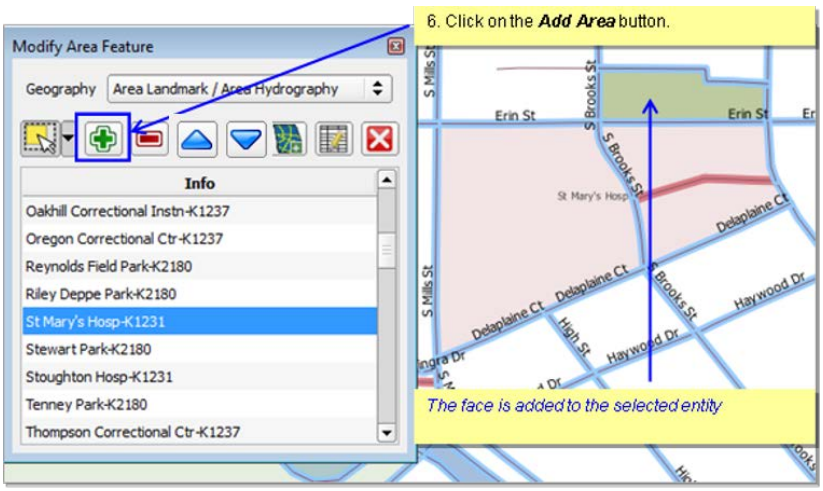
Step	Action and *Result*
Step 3	 Double-click on a row in the list to select a landmark. The map zooms you to the selected landmark (Saint Mary's Medical Ctr-K1231). ***Note:*** *Area landmarks are depicted in different colors based on landmark category.*
Step 4	 You can make changes to the selected area landmark with the tools above the **Info** window.

8.4.2 Adding Area to an Existing Area Landmark/Area Hydrography

Table 36: Add Area to an Area Landmark

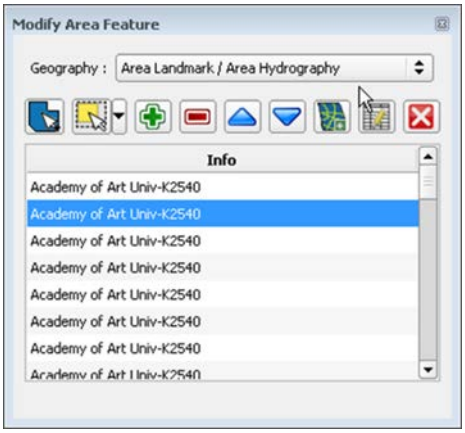
Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the VTDP toolbar. 
Step 2	*The **Modify Area Feature** dialog box opens*. Choose **Area Landmark/Area Hydrography** from the drop-down menu.

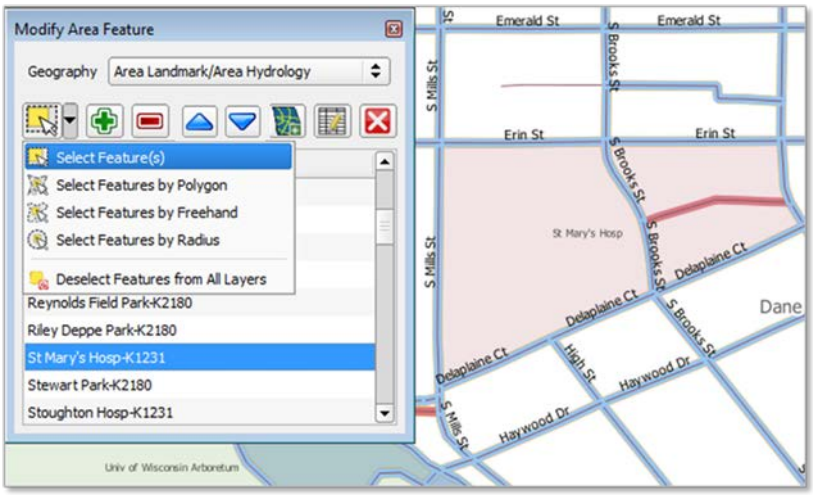
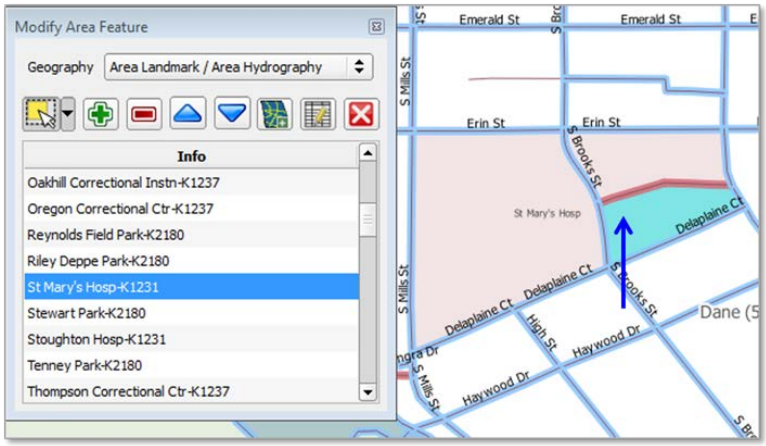
Step	Action and *Result*
	 The **Info** window populates with the list of area landmarks and area hydrography in the county. *Clicking on the blue arrows on the toolbar moves you up and down through the list.*
Step 3	Click on a row in the list to select the landmark to update. Double click to zoom to the selected landmark on the map. (St Mary's Hosp.)
Step 4	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	

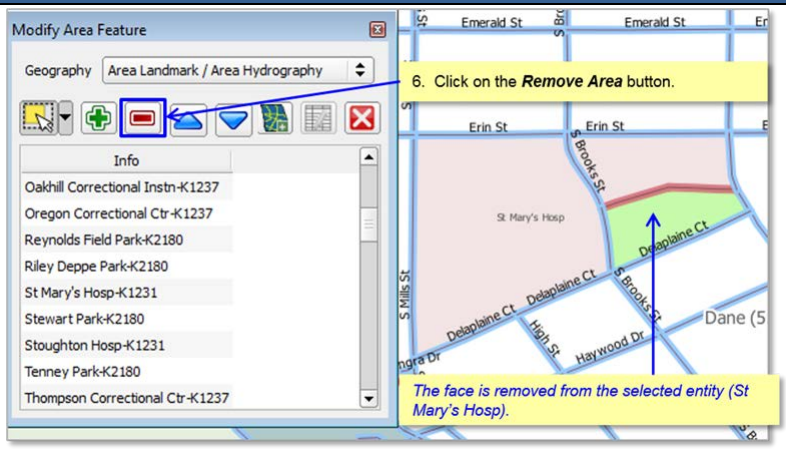
Step	Action and *Result*
	Click on the face(s) on the map you want to add to the area landmark. To add more than one face, click on the first face, hold down the **CRTL** key, and click on the remaining faces you want to add.
Step 6	

8.4.3 Removing Area from an Area Landmark/Area Hydrography

Table 37: Remove Area from Area Landmark/Area Hydrography

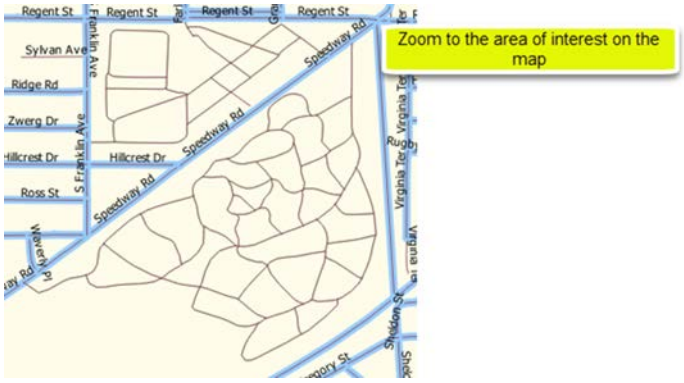
Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the VTDP toolbar. 
Step 2	*The **Modify Area Feature** dialog box opens.* Choose **Area Landmark/Area** Hydrography from the drop-down menu. 

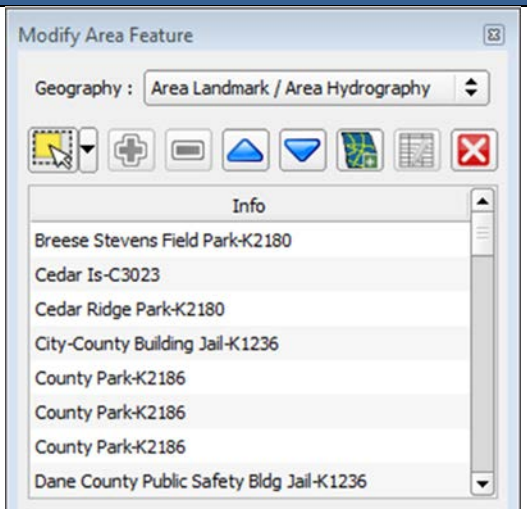
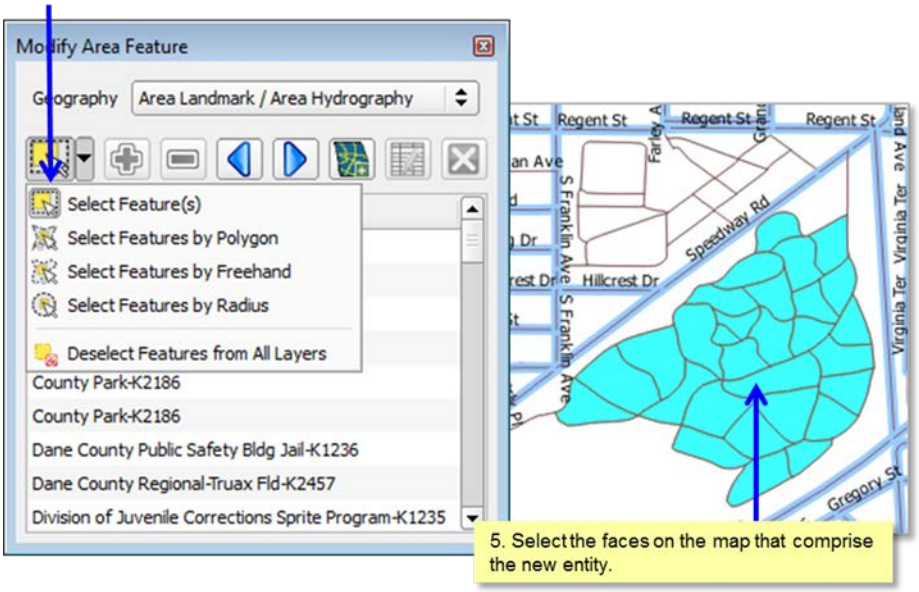
Step	Action and *Result*
	The **Info** window populates with the list of area landmarks and area hydrography in the county. *Clicking on the blue arrows on the toolbar moves you up and down through the list.*
Step 3	Double-click on a row in the list to select the landmark to target for update. The map zooms you to the selected landmark (St. Mary's Hosp.)
Step 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 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. 

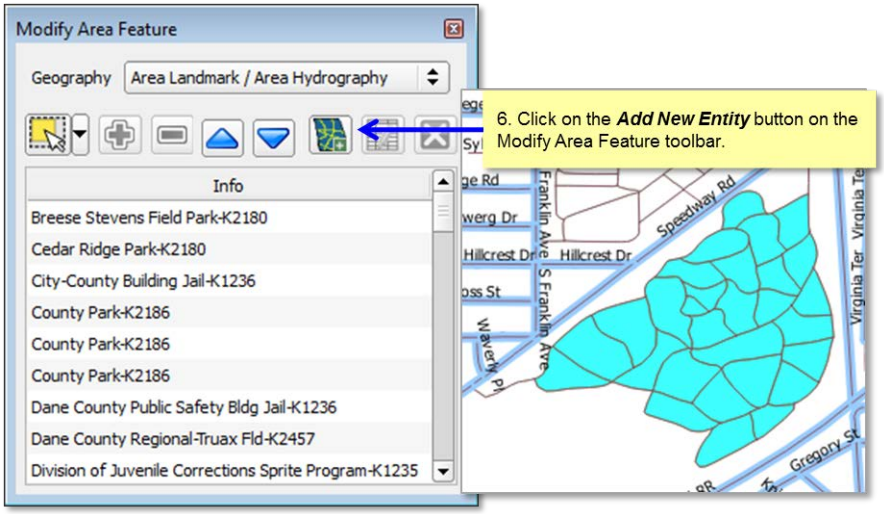
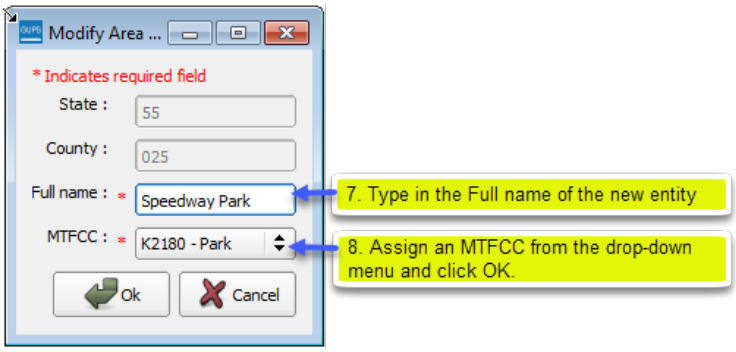
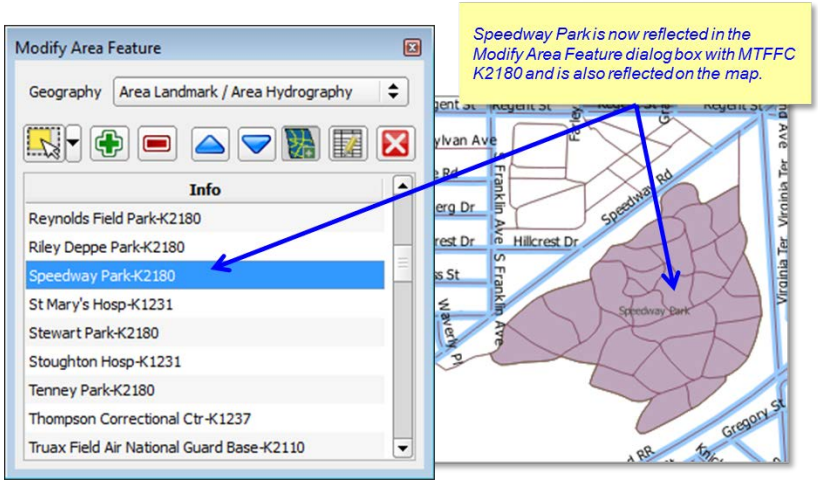
Step	Action and *Result*
	

8.4.4 Creating a New Area Landmark/Area Hydrography

Table 38: Create a New Area Landmark

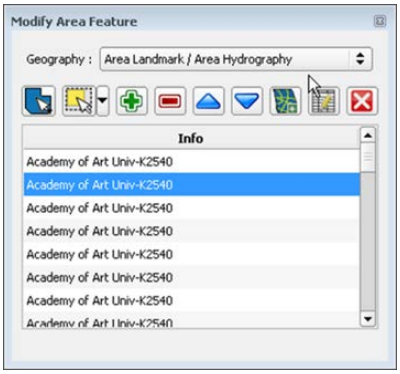
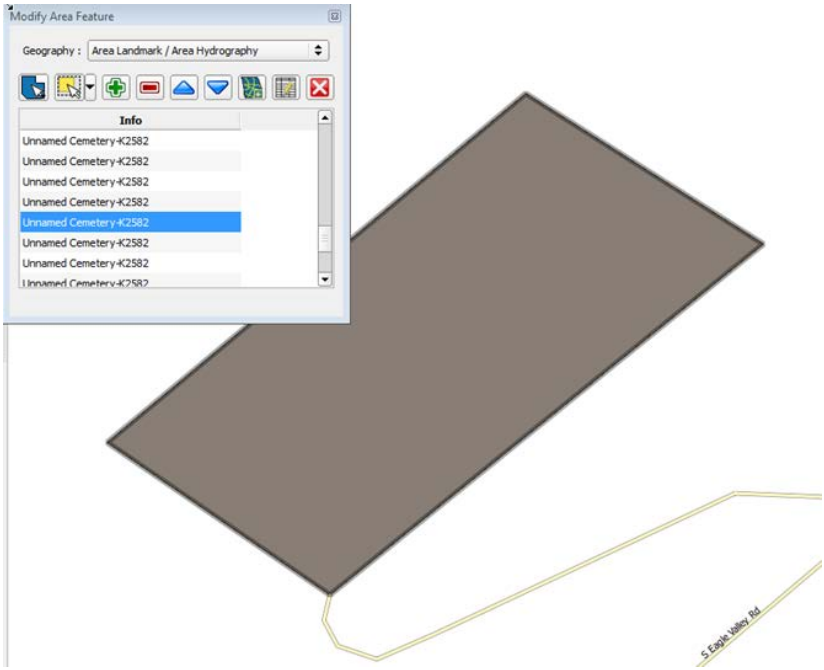
Step	Action and *Result*
Step 1	
Step 2	Click the **Modify Area Feature** button on the VTD toolbar. 
Step 3	*The **Modify Area Feature** dialog box opens.* Choose **Area Landmark/Area Hydrography** from the drop-down menu.

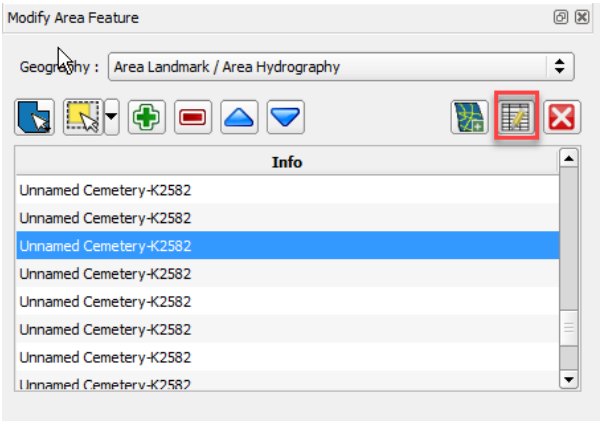
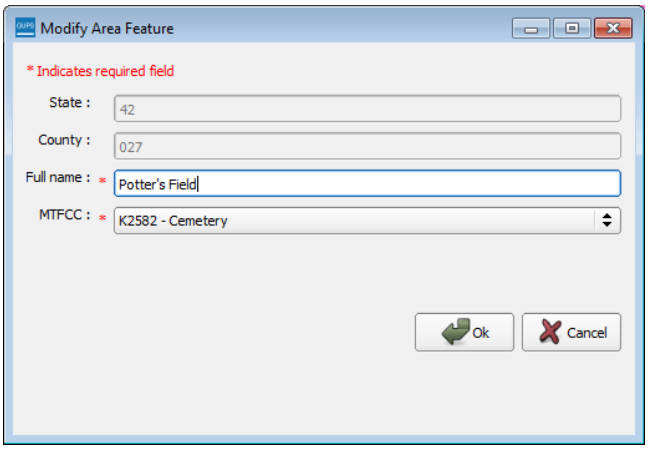
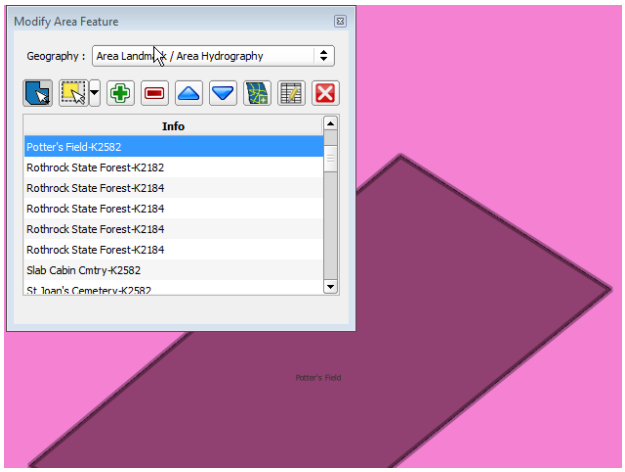
Step	Action and *Result*
	 The **Info** window populates with the list of area landmarks and area hydrography in the county.
Step 4 through Step 5	Click on the **Select Features button** on the toolbar. Choose the selection method from the drop-down menu to add faces (polygons) to create the landmark. 
	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. See **Table 30** for directions on adding a linear feature.

Step	Action and *Result*
Step 6	
Step 7 through Step 8	*The **Add Entity Attributes** dialog box opens. The State and County code fields are pre-populated.* 
Step 9	

8.4.5 Modifying Area Landmark Attributes

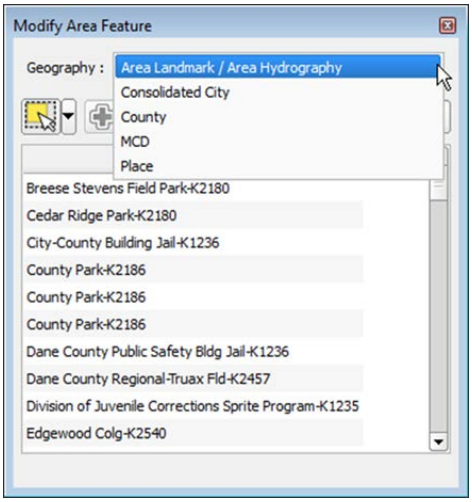
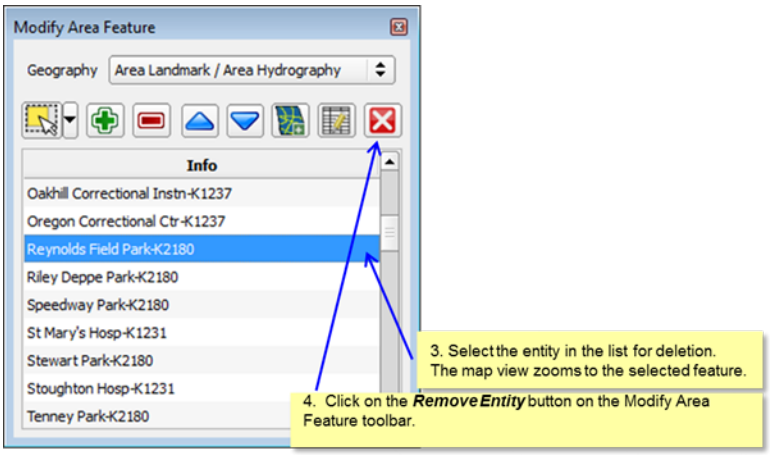
Table 39: Modifying Area Landmark

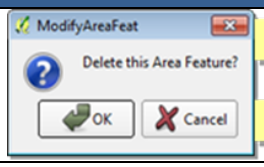
Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the VTDP toolbar. 
Step 2	*The **Modify Area Feature** dialog box opens.* Choose **Area Landmark/Area Hydrography** from the drop-down menu.  *The **Info** window populates with the list of area landmarks and area hydrography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

Step	Action and *Result*
Step 4	Click on the **Change Attributes** button above the info window.  *The **Modify Attributes** dialog box opens.*
Step 5	Type in the new name. You can also select a new MTFCC from the drop-down if appropriate. In this example, the MTFCC will not change. 
Step 6	The new name for the landmark appears on the map in the Info list of area landmarks. 

8.4.6 Deleting Area Landmarks/Area Hydrography

Table 40: Deleting Area Landmarks

Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the VTDP 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 3 through Step 4	Click on the area landmark in the **Info** list to target it for deletion. (Double click on the entity name in the list to target and zoom to it on the map.) Click on the **Remove Entity** button on the **Modify Feature** toolbar. 
Step 5	The **Deletion Confirmation** dialog box opens. Click **OK** to delete the feature.

Step	Action and *Result*
	 *The Deletion confirmation dialog box opens.* 5. Click ***OK*** to delete the feature.

8.5 Legal Boundary Updates

VTD participants may submit legal boundary updates (annexations, deannexations, incorporations disincorporations and boundary corrections) for counties, minor civil divisions, incorporated places, and consolidated cities. Legal boundary changes are annexations, deannexations, incorporations and disincorporations that are created through passage of a law or local ordinance. Boundary corrections are made to address errors in the Census Bureau boundary representation: the entity has not actually changed its boundary, the Census Bureau's representation just needs to be corrected. The Census Bureau will reconcile all legal area boundary submissions with the appropriate local governments as part of our 2018 Boundary and Annexation Survey.

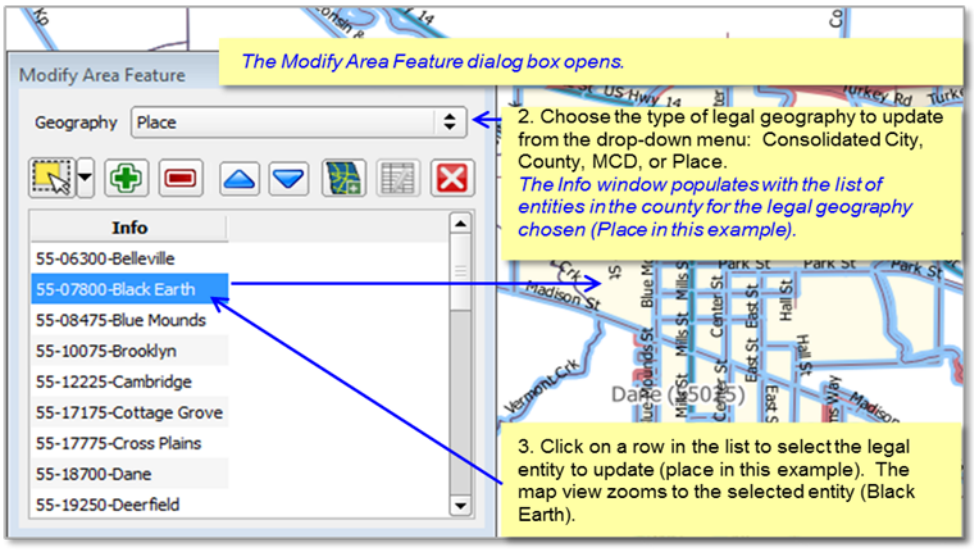
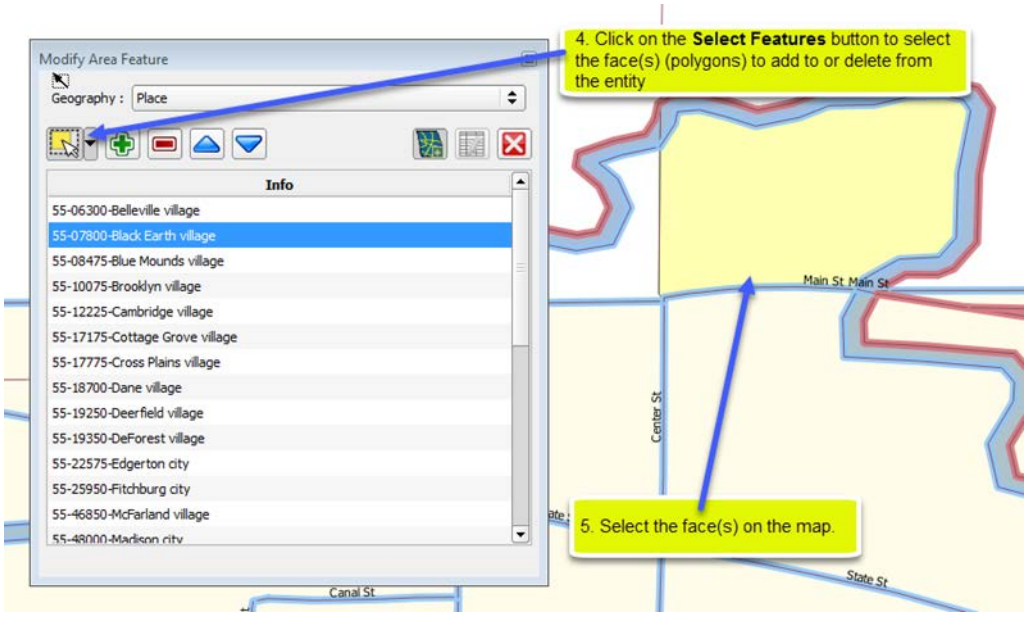
Although legal documentation (effective date, authorization type, and ordinance number) is not required for legal boundary changes submitted through the VTDP, we strongly encourage you to submit the documentation to expedite our ability to reconcile and process any legal changes reported.

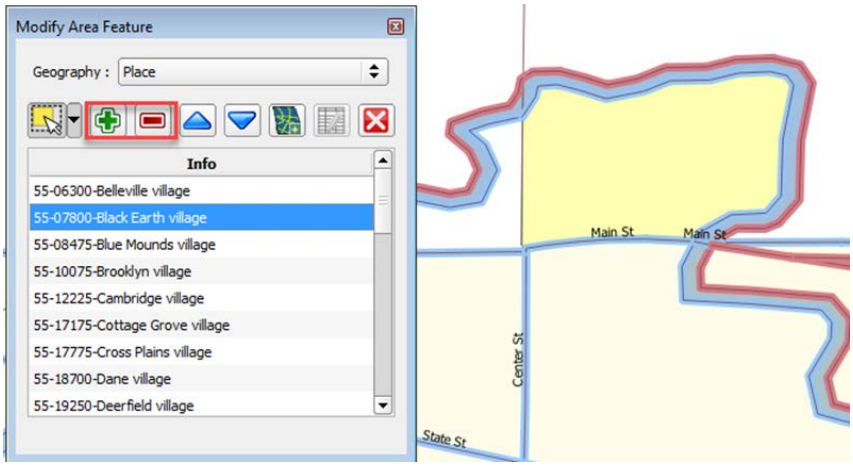
You do not have to provide the legal paperwork for a legal change, just the effective date, authorization type, and documentation number, for the Census Bureau to process a change as a Legal Change.

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. (Boundary corrections do not require legal documentation.) This is for Census Bureau processing purposes. You make this selection in the Select Output Type dialog box by clicking the radio button for *Boundary Correction.*

8.5.1 Adding or Deleting Area to make a Boundary Update (Legal Changes and Boundary Corrections)

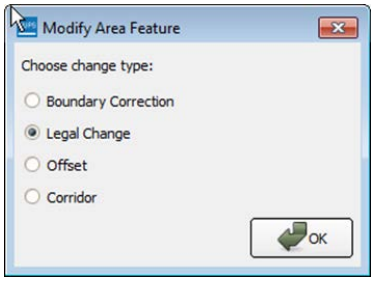
Table 41: Boundary Changes

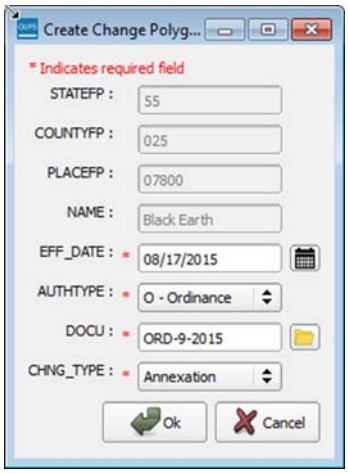
Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the VTD toolbar. 
Step 2 through Step 3	
Step 4 through Step 5	

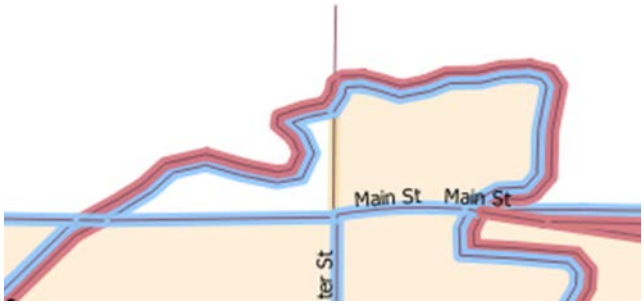
Step	Action and *Result*
Step 6	 On the **Modify Area Feature** toolbar, click the **Add Area** or the **Remove Area** button, as appropriate. For this example, **Add Area** is chosen. At this point, follow the directions for submitting a Legal Change (**Table 42**), or for submitting a Boundary Correction (**Table 43**).
	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. See **Table 30** 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.

8.5.1.1 Submitting Legal Boundary Changes

Table 42: Submit Legal Changes

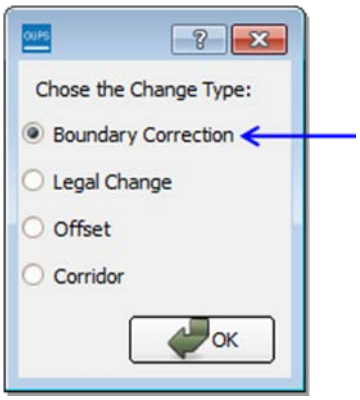
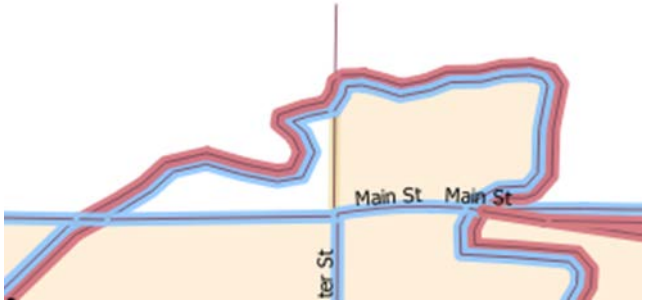
Step	Action and *Result*
Step 1	*The **Choose Change Type** dialog box opens.* Click the **Legal Change** radio button.  Click **OK**.

Step	Action and *Result*
	If you do not plan to provide the legal documentation (effective date authorization type, and documentation number), then choose the **Boundary Correction** radio button, even if the change is technically a legal update.
Step 2	*The **Create Change Polygon** dialog box opens.* The State, County, Place Name, and LSAD fields are prepopulated. Fill in the other necessary information.  a) Fill in the ***Effective Date*** (EFF_DATE) of the change. b) Select the **Authorization Type** (AUTHTYPE) from the drop-down menu: L – Local Law O – Ordinance R – Resolution S – State-Level Action X – Other c) 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. *GUPS automatically populates the **DOCU** field with the file name.* d) Choose the appropriate ***Change Type*** (CHNG_TYPE) from the drop-down menu. e) Click **OK** to save the change. The selected face (polygon) is added to the legal entity.

Step	Action and *Result*
	
	The added face(s) may have a different fill than the rest of the incorporated place. This is because the face is also part of a "vtd18_<ssccc>_changes_incplace" layer, or changes layer, in the **Table of Contents**. This layer is used in Census Bureau processing to tell us what faces need to be updated. If you turn the "**changes**" layer off by unchecking it in the **Table of Contents**, you will see the face is symbolized as part of the place you added it to.

8.5.1.2 Submitting Boundary Corrections

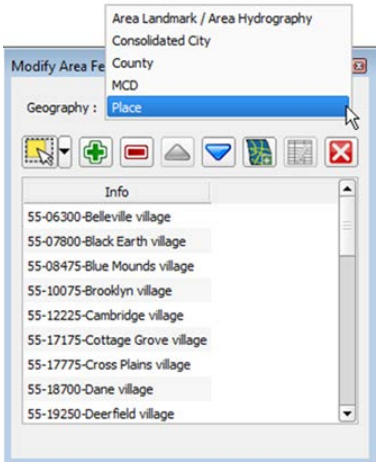
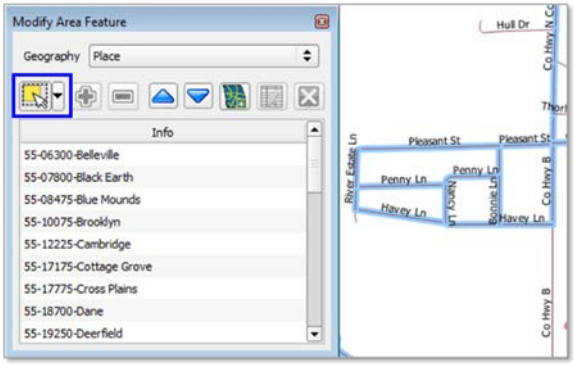
Table 43: Submit a Boundary Correction

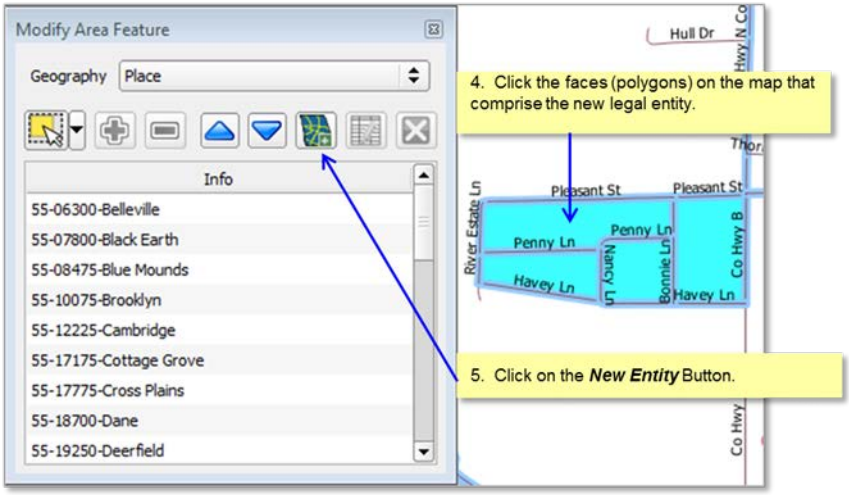
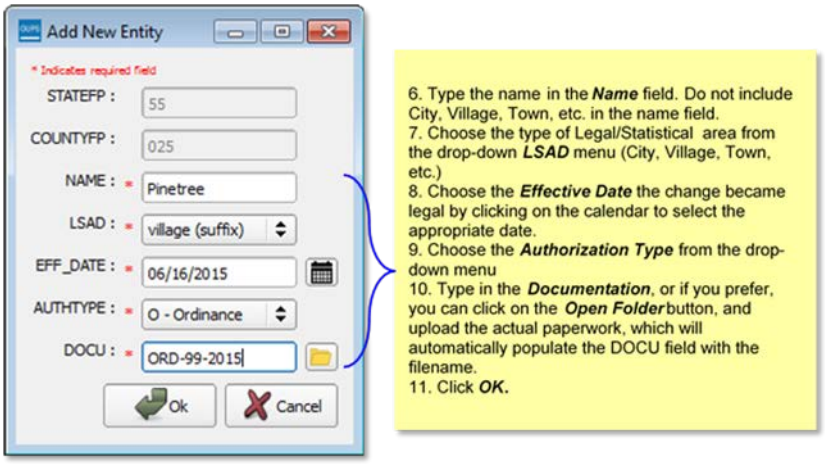
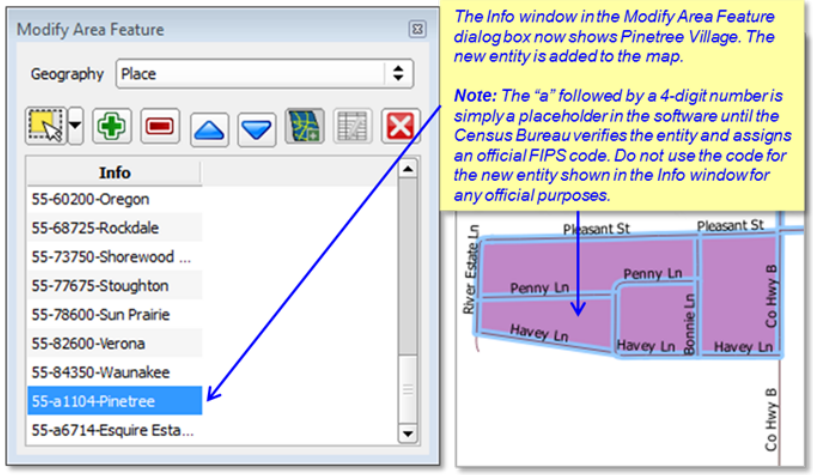
Step	Action and *Result*
Step 1	*The **Choose Change Type** dialog box opens.*  Click the radio button for ***Boundary Correction*. Click OK.**
Step 2	

Step	Action and *Result*
	The selcted face (polygon) is added to the legal entity, with no documentation required, as for a Legal Change.
	The added face(s) may have a different fill than the rest of the incorporated place. This is because the face is also part of a “vtd18_<ssccc>_changes_incplace” layer, or changes layer, in the **Table of Contents**. This layer is used in Census Bureau processing to tell us what faces need to be recoded. If you turn the “changes” layer off by unchecking it in the **Table of Contents**, you will see the face is symbolized as part of the place you added it to.

8.5.1.3 Adding a New Legal Entity

Table 44: Add a New Legal Entity

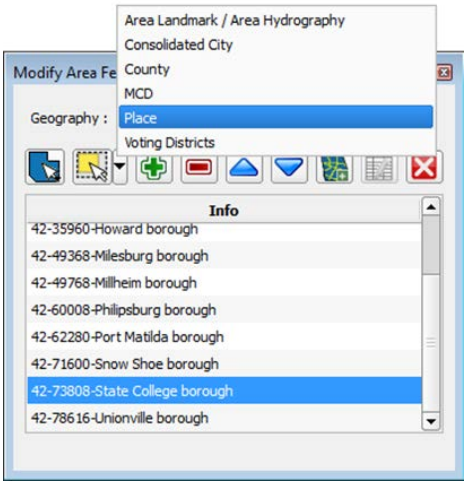
Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the VTD toolbar. 
Step 2	Click on the **Geography** drop-down menu to choose the type of legal entity to add. In this example, we will add a new incorporated place. 
Step 3	Click the **Select Features** button. 

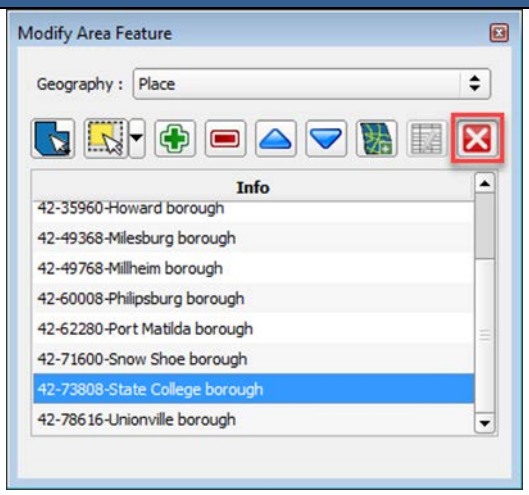
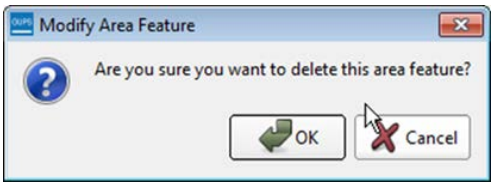
Step	Action and *Result*
Step 4 through Step 5	
Step 6 through Step 11	The **Add New Entity** dialog box opens. 
Step 12	

Step	Action and *Result*
	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.

8.5.1.4 Deleting a Legal Entity

Table 45: Delete a New Legal Entity

Step	Action and *Result*
Step 1	Click the **Modify Area Feature** button on the VTD toolbar. 
Step 2	*The **Modify Area Feature** dialog box opens.* Choose the legal geography to update from the drop-down menu (place, in this example).  *The **Info** window populates with the list of entities in the county for the legal geography chosen.*
Step 3	Click on a row in the list to select (target) the legal entity for deletion. Double click if you want to zoom to the entity on the map.
Step 4	Click the **Remove Entity** button.

Step	Action and *Result*
	
	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	*The **Deletion Confirmation** dialog box opens.*  Click **OK** to delete the entity. *The entity will still appear on the map, but it's symbology will change. It will be flagged for deletion by the Census Bureau.*

8.6 VTD Criteria Check and Change Polygon Review

GUPS provides two tools — the **VTD Criteria Review** tool and **Review Change Polygons** tool -- to help you review and validate the updates you have made during the VTDP.

8.6.1 VTD Criteria Review Tool

The **VTD Criteria Review** Tool performs two types of VTD checks: VTD coverage checks, where it identifies faces not assigned to any VTD, and non-contiguous checks, where it looks for VTDs in multiple pieces. VTD coverage failures are critical data errors that must be fixed before exporting data to the Census Bureau. All faces in a county must be assigned to a VTD or specifically coded as "unassigned." Non-contiguous failures are warnings. The Census would like you to review these non-contiguous VTDs, but recognizes they may be valid.

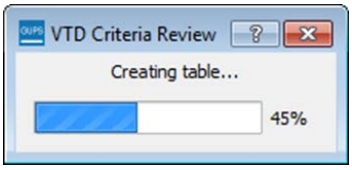
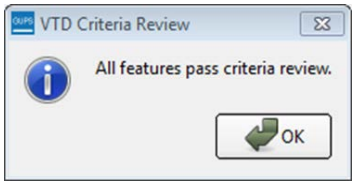
Table 47 explains how to run the **VTD Criteria Review** Tool.

Note: You must run the **VTD Criteria Review** Tool before exporting your file for submission to the Census Bureau. GUPS will not allow you to export your file if you have not run this tool.

Table 46: VTD Criteria Review Tool Error and Warning Messages

Criteria	Error/Warning	Fix/Ignore
VTD Coverage (Unassigned Faces)	Error	Must fix
Non-contiguous	Warning	Fix or Ignore

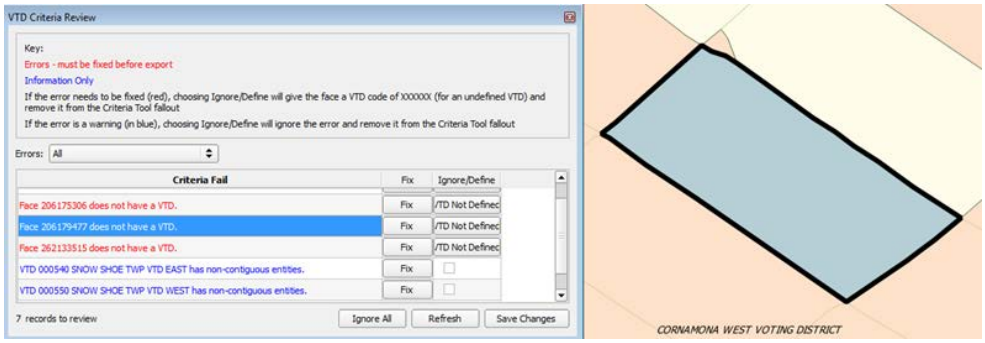
Table 47: The VTD Criteria Review Tool

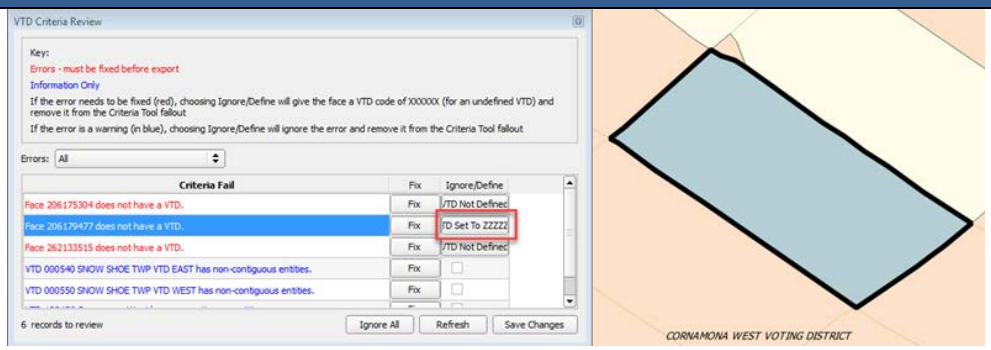
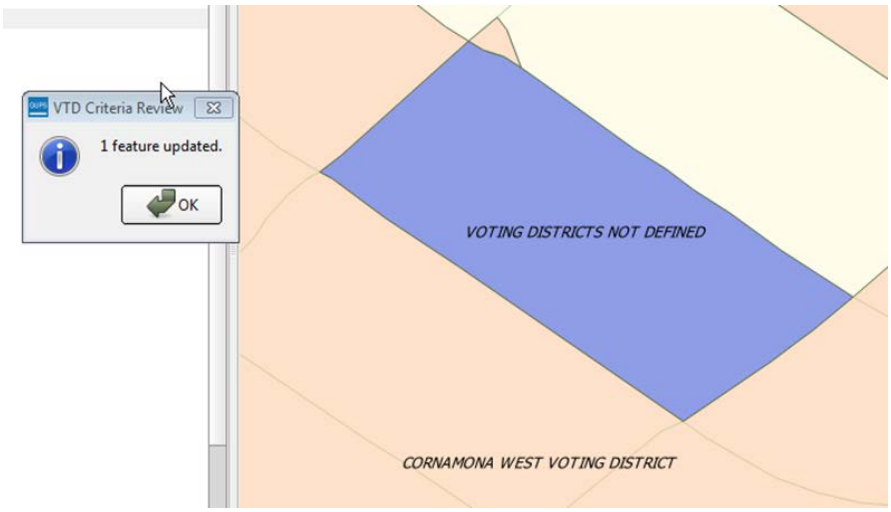
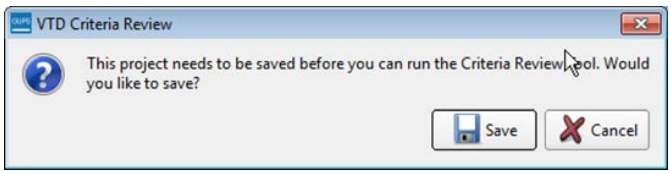
Step	Action and *Result*
Step 1	Begin by selecting the **VTD Criteria Review** tool from the VTD toolbar to start the review.  **Please note that this process may take several minutes to complete.** *Once clicked, the following dialog box will appear indicating the tool's progress in executing all criteria checks.* 
Step 2	If there are no unassigned faces or noncontiguous VTDs, the following dialog box will pop-up. In this scenario, all features have passed the criteria review.  Click **OK.** If errors are identified, a ***VTD Criteria Review*** *table will open and show a list of coverage failure errors (unassigned faces) in red and non-contiguous failure warnings in blue. See* ***Section 8.6.1.1*** *for reviewing and resolving coverage failures, and* ***Section 8.6.1.2*** *for resolving non-contiguous failures.*

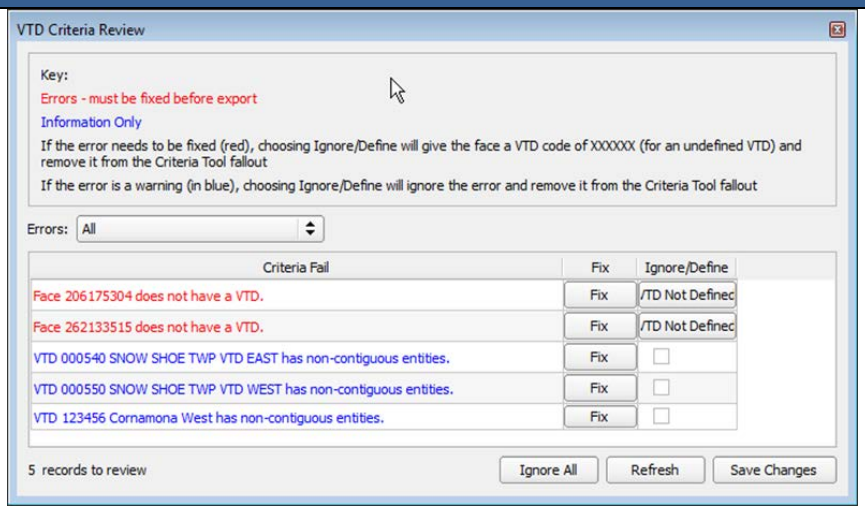
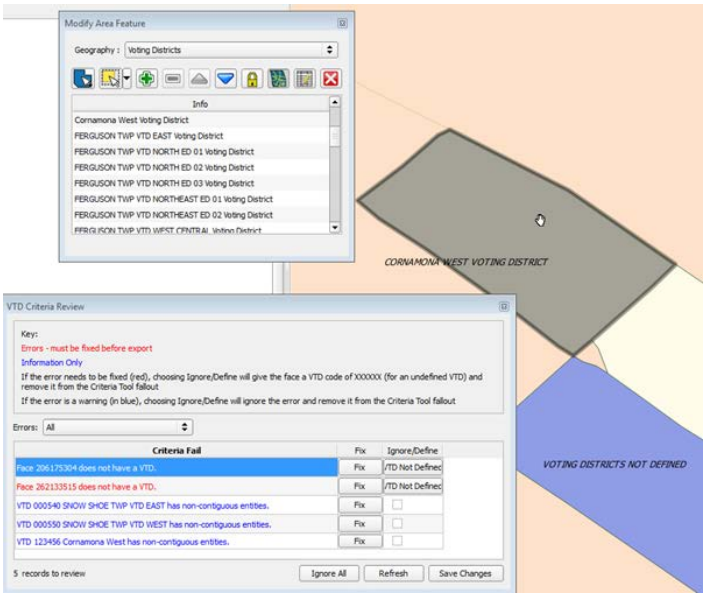
8.6.1.1 VTD Coverage Failures (Unassigned Faces)

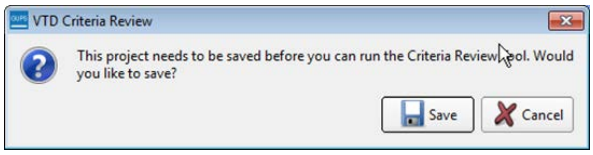
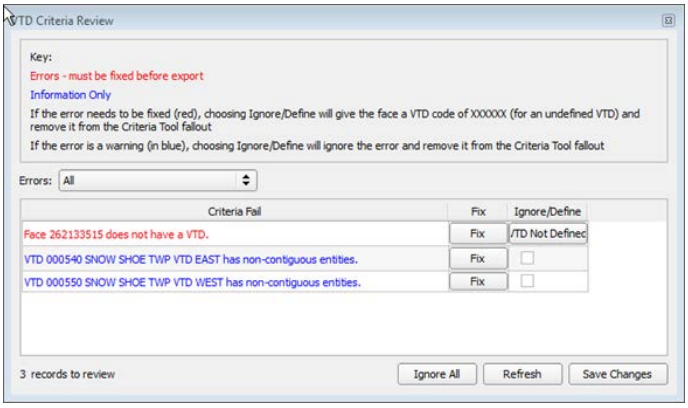
VTD Coverage failures will always appear in red in the **VTD Criteria Review** table, and provide the face ID with the message that the face "does not have a VTD." **You must fix these VTD coverage failures before you can export the file to the Census Bureau. However you can create a Share with Participant File with coverage failures.**

Table 48: Unassigned Faces

Step	Action and *Result*
	Note: You can use the Errors drop-down to filter which types of errors display in the **Criteria Fail Table**.
Step 1	You can address VTD coverage failures in two ways: A. Confirming that the area does not belong to any VTD and assigning it a VTD code of ZZZZZZ (not defined) as described in steps 2- 4 below, **OR** B. Assigning the area to a VTD as described in steps 5- 7. Click on the "**Face does not have a VTD**" message in the **Criteria Fail column** to zoom to that face on the map. 
To keep the area unassigned to any VTD:	
Step 2	To keep the area unassigned to any VTD, click on the "**VTD Not Defined**" button in the **Ignore/Delete column** next to the area. *The text on the button will change to read "VTD Set to ZZZZZZ." (ZZZZZZ is the code the Census Bureau assigns to area not part of any VTD.)* **Assigning the ZZZZZZ code to faces should only be done sparingly.**

Step	Action and *Result*
	 Click **Save Changes** in the lower right corner of the **VTD Criteria Review dialog** box.
⚠	Clicking "**Refresh**" will cause the VTD Criteria Review to run again, which can take several minutes. You may wish to fix/define multiple or all failures before refreshing.
Step 3	Click **Refresh**. *A dialog box will appear telling you how many features were updated and the face(s) in the map view will be labeled "**VOTING DISTRICTS NOT DEFINED**."* 
Step 4	Click **OK**. *If more features need to be addressed, the **VTD Criteria Review** dialog box appears to tell you the project needs to be saved before running the **Criteria Review Tool**.* Click **Save** and the project will save and the **VTD Criteria Review** tool will run again.  *The face you assigned to ZZZZZZ no longer appears in the Criteria Fail list*.

Step	Action and *Result*
	 Address other failures as needed.
To assign area to an existing VTD or create a new VTD:	
Step 5	To assign the area to a VTD, click on the "**Fix**" button next to the failure. Selecting the **Fix** button will bring up the **Modify Area Feature** tool. At this time, you have to decide if you want to add the face to an existing VTD (See **Section 8.2.1**) or create a new VTD (See **Section 8.2.3**).  Once addressed, the failure will not disappear from the Criteria Fail list until you click the **Refresh** button at the bottom of the dialog box.
⚠	Clicking **Refresh** will cause the VTD Criteria Review to run again, which can take several minutes. You may wish to fix/define multiple or all failures before refreshing.
Step 6	Click **Refresh.**

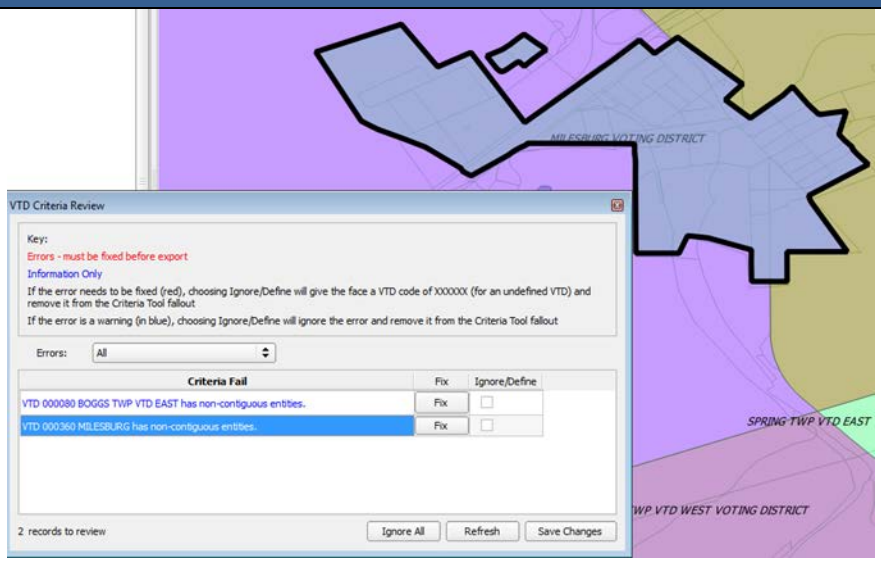
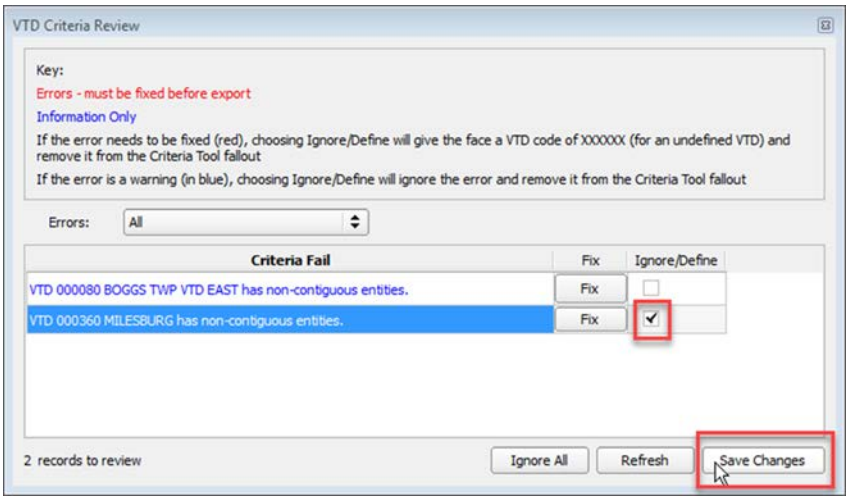
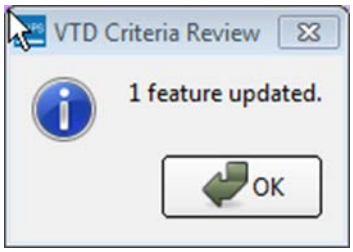
Step	Action and *Result*
	*The **VTD Criteria Review dialog box** appears to tell you the project needs to be saved before running the **Criteria Review Tool**.* Click **Save** and the project will save and the **VTD Criteria Review** tool will run again. 
Step 7	*The **VTD Criteria Check** reruns, and the face you assigned to an existing VTD no longer appears in the Criteria Fail list.* 

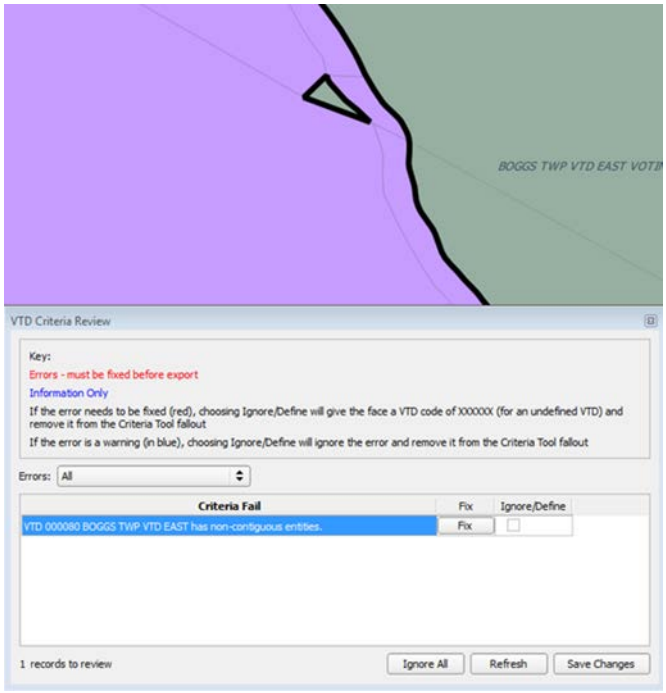
8.6.1.2 Non-Contiguous VTD Failures

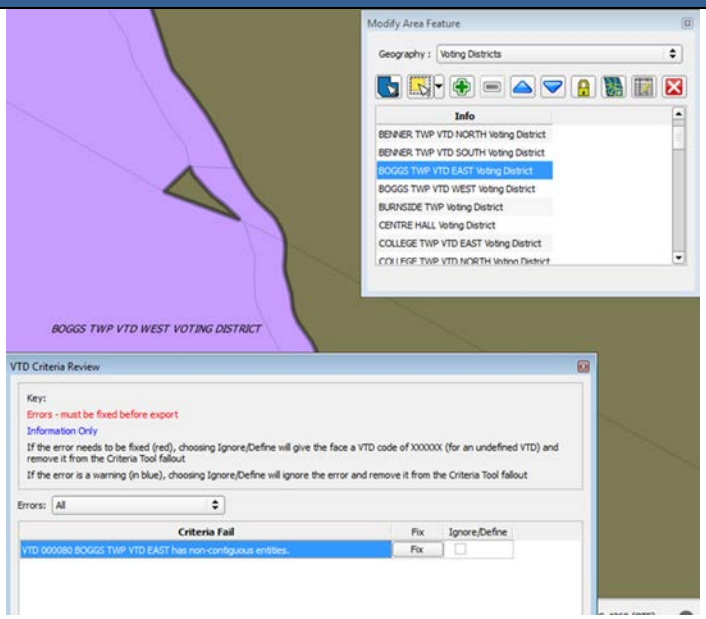
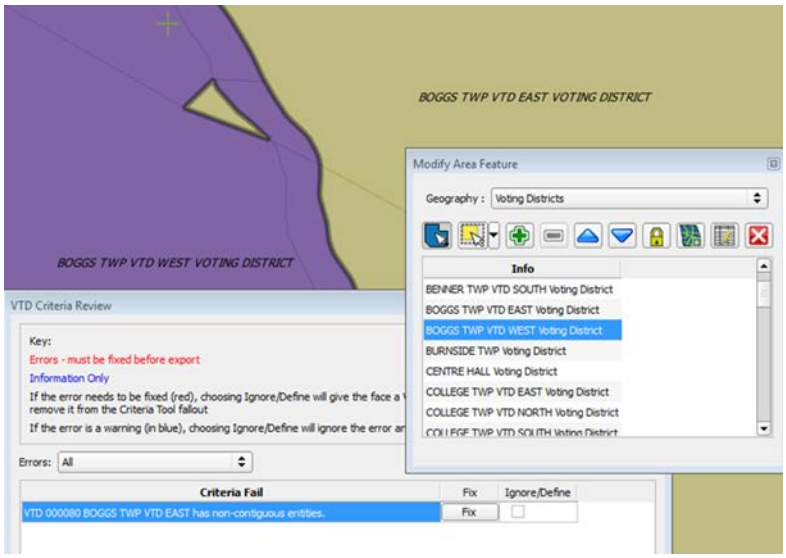
Non-contiguous VTDs appear in blue in the **VTD Criteria Review table,** and provides the names of VTDs with non-contiguous pieces. Non-contiguous failures are warnings and are not required to be reviewed or fixed before sending your file to the Census Bureau, because, while rare, some VTDs may legitimately be non-contiguous. Non-contiguous entity warnings can be useful if, for example, you have created a new VTD but have missed selecting some faces from other existing VTDs.

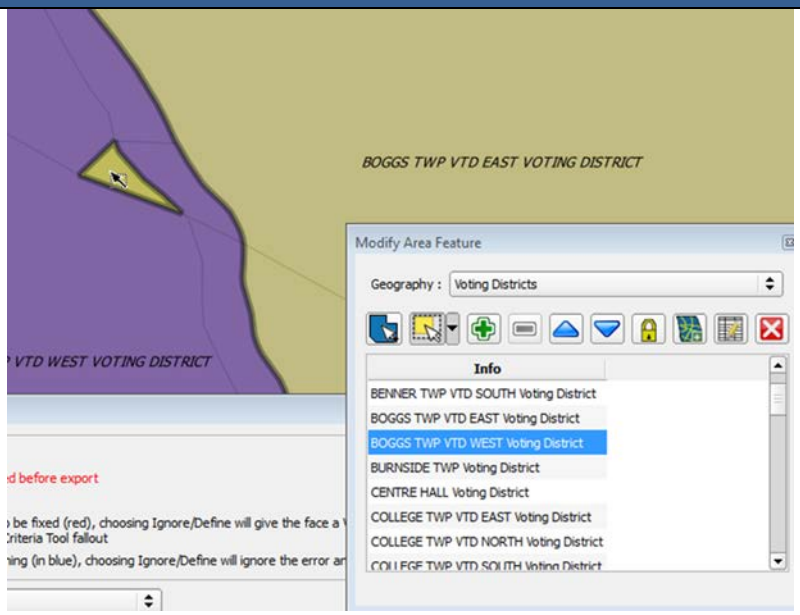
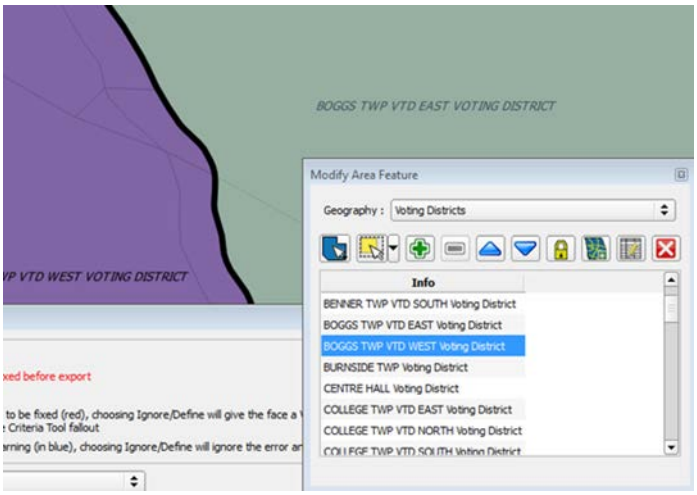
Table 49: Addressing Non-Contiguous VTDs

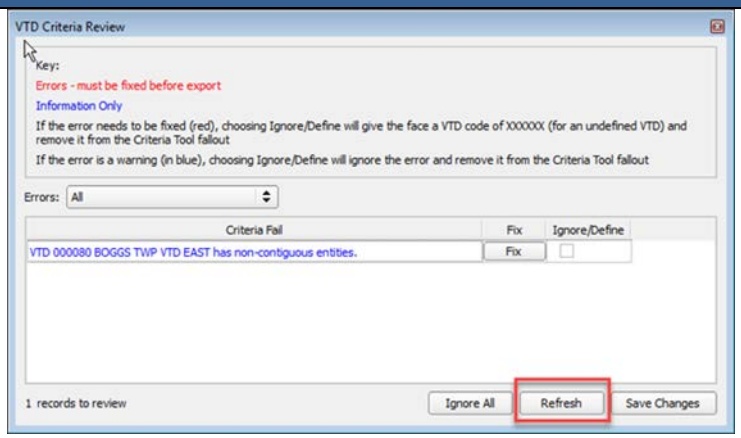
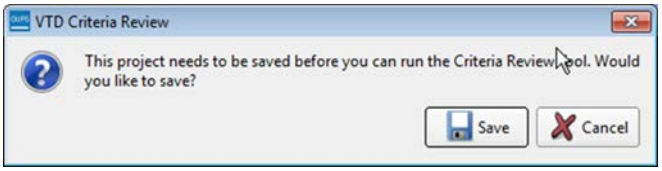
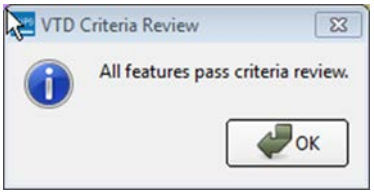
Step	Action and *Result*
Step 1	After running the **VTD Criteria Check** the **VTD Criteria Review dialog box** appears. You can address the non-contiguous VTDs in two ways: **Ignore** (described in Steps 2 through 4) or **Fix** by assigning a face(s) to another VTD (described in Step 5 through 10).
Step 2	Click on the **VTD has non-contiguous entities** failure in the Criteria Fail column to zoom to the VTD with the failure.

Step	Action and *Result*
	
Step 3	If you determine the VTD should be non-contiguous, as we have in this example for the MILESBURG VTD, check the **box** in the **"Ignore/Define" column**. Click "**Save Changes**" in the bottom right of the **VTD Criteria Review dialog box**. 
Step 4	A pop-up message will appear indicted that you have updated the feature.  Click **OK**.

Step	Action and *Result*
⚠	Clicking **Save Changes** will cause the **VTD Criteria Review tool** to close. You will have to rerun it to see additional failures. You may wish to just check the "**Ignore**" box and work on other failures before clicking **Save Changes,** as running the tool can take several minutes.
Step 5	If you determine the VTD should not be non-contiguous and realize you need to correct a digitizing error, as we have with BOGGS TWP VTD EAST, you can use the **Modify Areas Feature** tool to fix the problem. Click on the **VTD has non-contiguous entities** failure in the **Criteria Fail column** to zoom to the VTD with the failure. *GUPS will zoom you to the extent of the entire VTD*. You may have to zoom in further to find the non-contiguous piece(s). 
Step 6	In this example, it appears that when adding area to the BOGGS TWP VTD West VTD (in purple) from BOGGS EAST TWP VTD (in brown), a face was missed from the selection. Click the **Fix** button next to the failure in the **Criteria Fail list**. The **Modify Area tool** opens and BOGGS TWP VTD EAST is the target VTD as indicated by the shading and that it is highlighted in the Info box of the **Modify Area Feature tool**. GUPS may zoom back out to the extent of the active VTD, so you may need to zoom back in to the area you want to correct.

Step	Action and *Result*
	
Step 7	Because this face needs to be added to BOGGS TWP VTD WEST VTD to correct the problem, make that VTD the target layer, either by selecting it in the **Info List** in the **Modify Area Feature tool**, or clicking the "**Select Target Area**" button in the **Modify Area Feature tool** and then clicking on BOGGS TWP VTD WEST on the map. 
Step 8	In the **Modify Area Feature tool**, click on the **Select Feature Tool** and then click on the face that needs to be added to BOGGS TWP VTD WEST on the map.

Step	Action and *Result*
	
Step 9	Click on **Add Area** button in the **Modify Area tool** to add the face to the target VTD (BOGGS TWP VTD WEST).  *The face is now assigned to the correct VTD.*
Step 10	In the **VTD Criteria Review tool**, click on the **Refresh** button.

Step	Action and *Result*
	
Step 11	You will get a pop-up telling you the project needs to be saved before re-running the **Criteria Review Tool**. Click **Save**.  Because that was the last failure we had to resolve, a pop-up appears stating that **all features pass criteria review**.  Click **OK**.

8.6.2 Reviewing Change Polygons

You will be required to run this QC Tool if you make any legal boundary updates. The tool checks for commonly made digitizing errors.

Note: VTD edits can be viewed in this tool but the tool is not required for VTD QC.

Table 50: Review Change Polygons

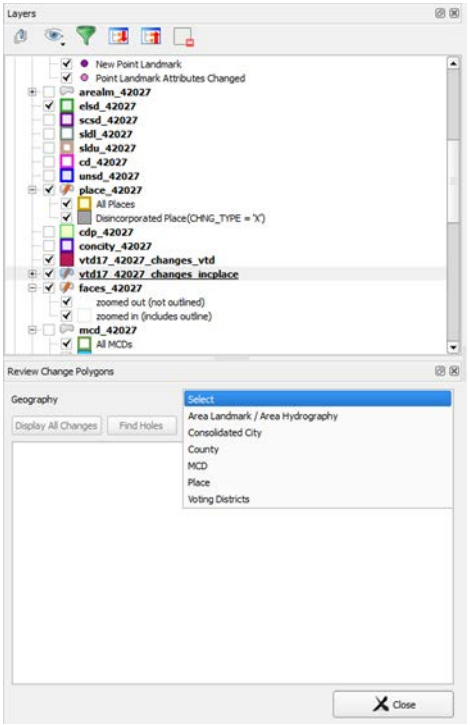
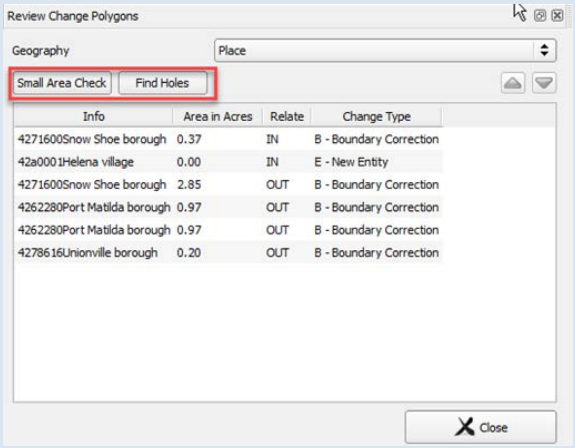
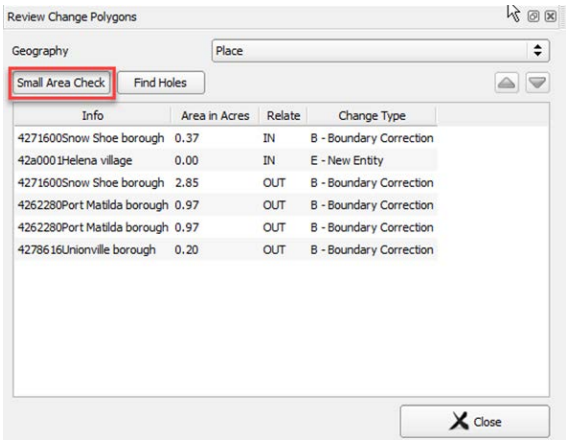
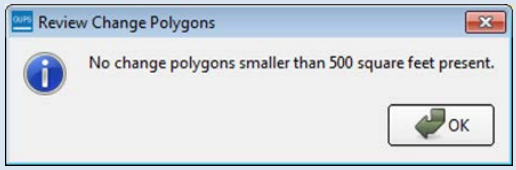
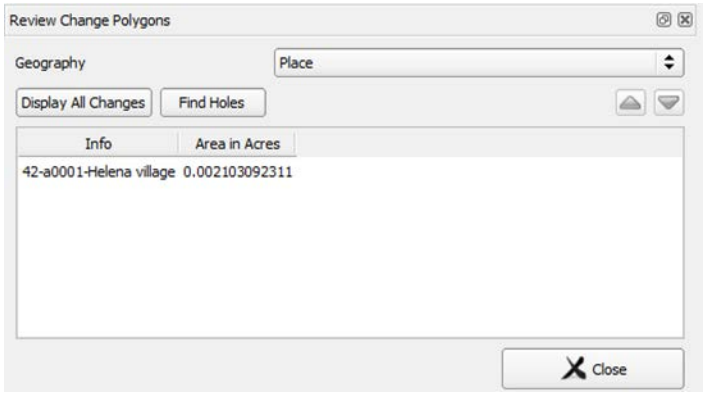
Step	Action and *Result*
Step 1	Click on the **Review Change Polygons** button on the VTD Toolbar. 
Step 2	*The **Review Change Polygons** box opens directly below the **Table of Contents** window*. The dialog box can be undocked and moved anywhere on the page. Choose the geography you want to review from the **Geography** drop-down menu. 
	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. See **Table 51** for instructions on running the **Small Area Check**, and for instructions on running the **Find Holes** check. 

Table 51: Conducting the Small Area Check

Step	Action and *Result*
Step 1	Click the "**Small Area Check**" button. This check identifies any change polygon less than 500 square feet, which are too small to be reported and may indicate a delineation error. 
	*If there are no change polygons smaller than 500 square feet, the message below pops up.* Click the **OK** button and repeat the **Small Area Check** for each of the other types of geography on the drop-down menu for which you created change polygons. 
Step 2	*If there are change polygons smaller than 500 square feet, they appear in the **Info** window along with their **Area in Acres**.* Note that the **Small Area Check** button is replaced with the **Display All Changes** button, which allows you to toggle back to see all change polygons in the list. 
Step 3	Click on a row in the list. *The map view zooms you to the change polygon and the Delete Change Polygon button is activated.* Click the **Delete Change Polygon** button

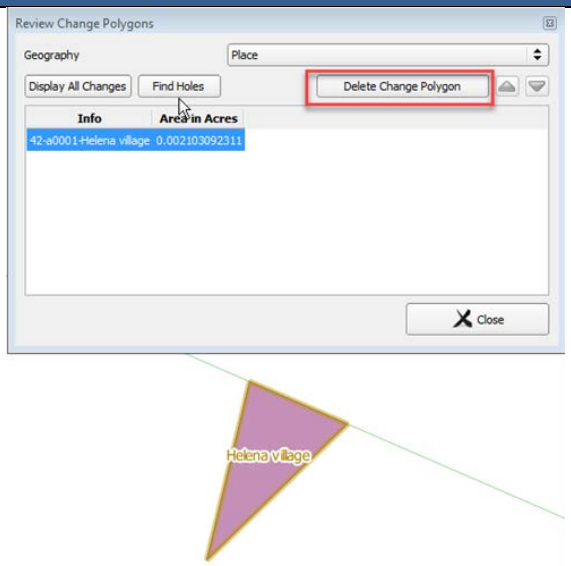
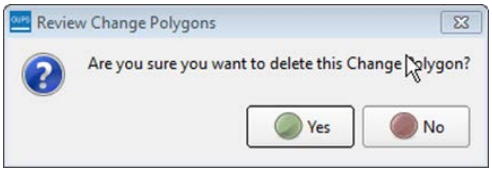
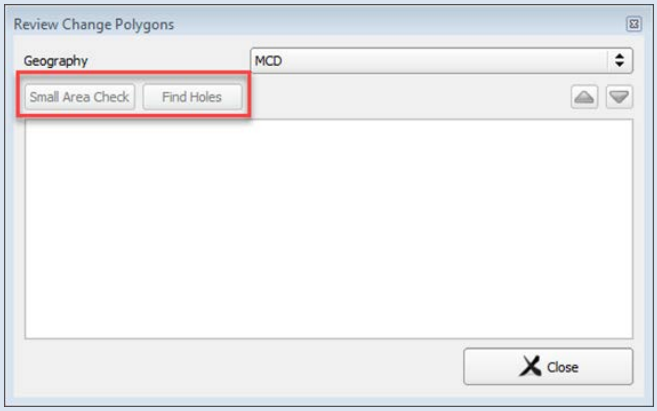
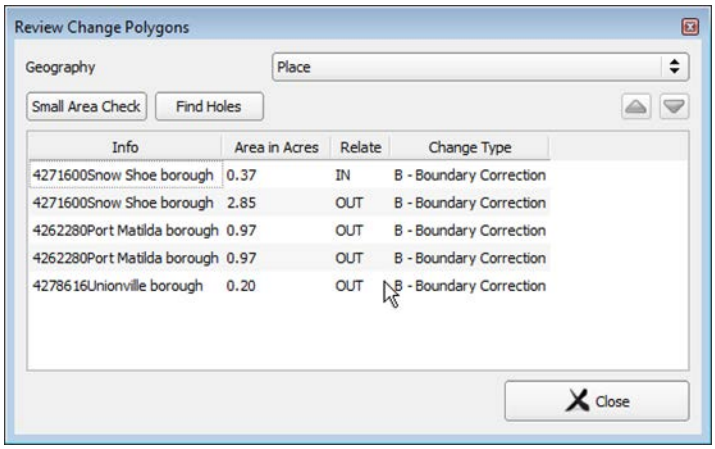
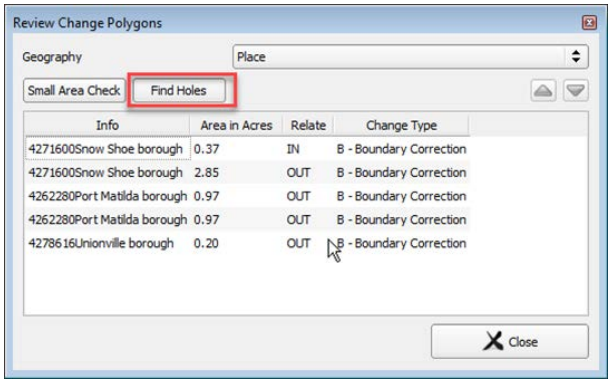
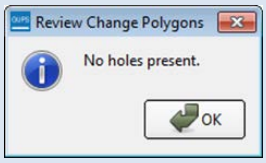
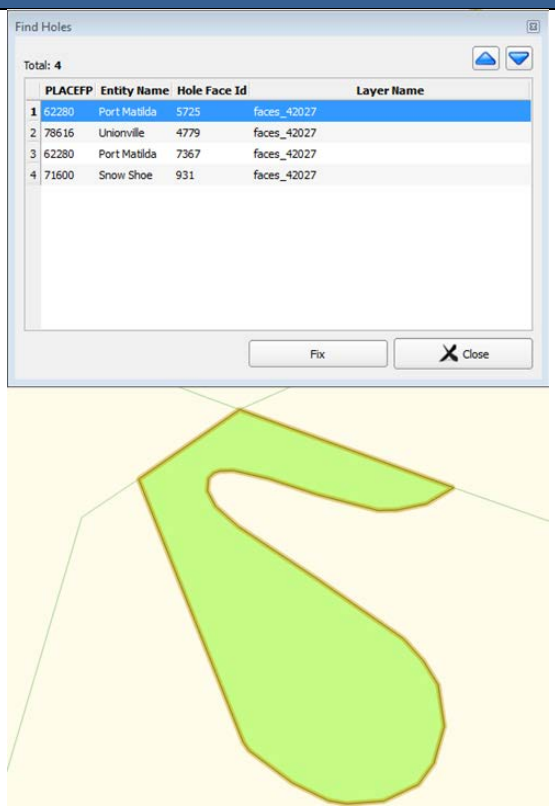
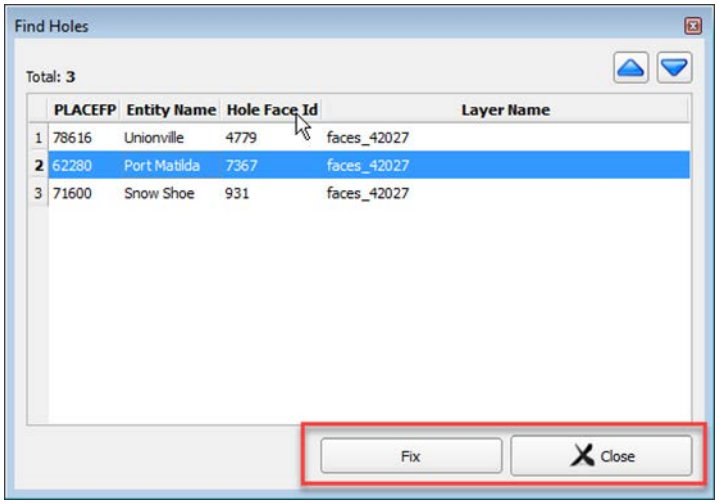
Step	Action and *Result*
	
Step 4	The **Review Change Polygons dialog box** opens for deletion confirmation. Click the **Yes** button. The polygon is removed from the list, the map, and the attribute table. 
Step 5	Repeat the steps above for each geography type for which you created change polygons. Click on the drop-down menu to choose another geography type.
	GUPS lets you know whether you have created change polygons for a geography type. The **Small Area Check** and **Find Holes** buttons are grayed out and unavailable for selection if no change polygons were created for a particular geography type. In this example, MCD was selected and both buttons are grayed out, so we know there were no change polygons created for MCDs. 

Table 52: Conducting the Find Holes Check

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 VTD toolbar again), choose the Geography type for the review from the drop-down menu. *The info window again populates with all the change polygons.* 
Step 2	Click the **Find Holes** button. 
	If there are no holes, you receive the message below in the Review Change Polygon dialog box. Click the **OK** button. 
Step 3	If there are holes, the **Find Holes dialog box** opens directly under the **Table of Contents**. The number of holes is listed in the dialog box. The change polygons representing the holes populates in the window. Click on a change polygon in the list to zoom to it on the map.

Step	Action and Result
	
Step 4	Click on the **Fix** button to delete the change polygon if the hole in the geography should not exist. The face will be assigned to the place surrounding it. If it is a legitimate change (an enclave, for example) and not due to a digitizing error, move to the next item in the list for review, or if you are done reviewing the holes, click the **Close** button 

8.7 Managing Data Files and Sharing Projects and Work

GUPS includes a number of tools to assist users in managing their files and sharing projects with liaisons, designees, other colleagues, and the Census Bureau.

8.7.1 GUPS Data Settings Tool

The **GUPS Data Settings** Tool (**Figure 19**) is found on the Standard Toolbar. In earlier versions of GUPS, this tool was known as the GUPS Clean Up Tool, and allowed you to delete all the files associated with a GUPS project if you need to start your project over. The Tool has been expanded to a) allow you to change the working directory where you store your GUPS folder, and b) display the location of your files, which is helpful if you need to send the Census Bureau any log files or other files needed to troubleshoot any issues. **Section 8.7.1.1** describes how to change your working directory using the tool. **Section 8.7.1.2** describes the GUPS Clean Up. The tool also includes an "Explore" button, explained in **Section 8.7.1.2.4**, which will automatically open up file explorer to your GUPS folder locations.

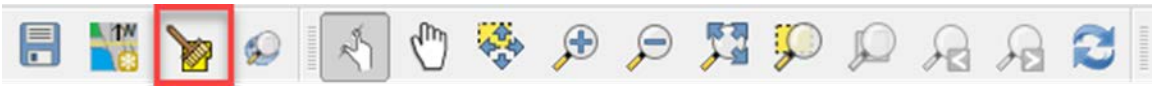


Figure 19. GUPS Data Settings Tool

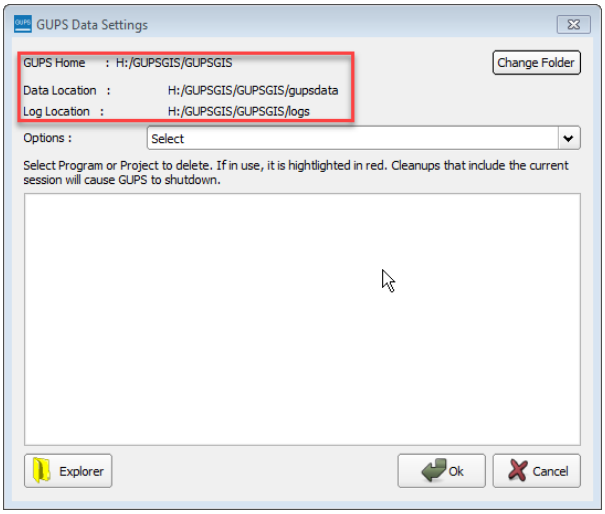
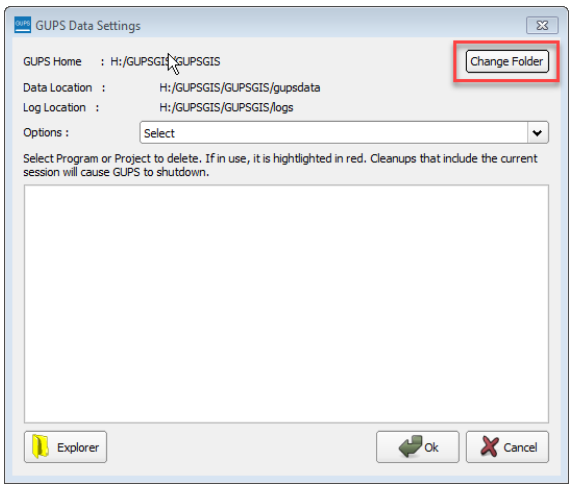
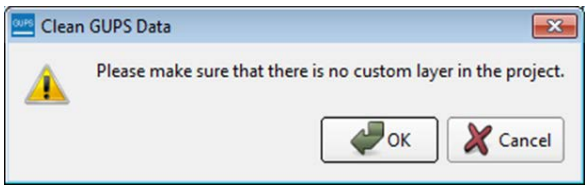
8.7.1.1 Changing the Working Directory

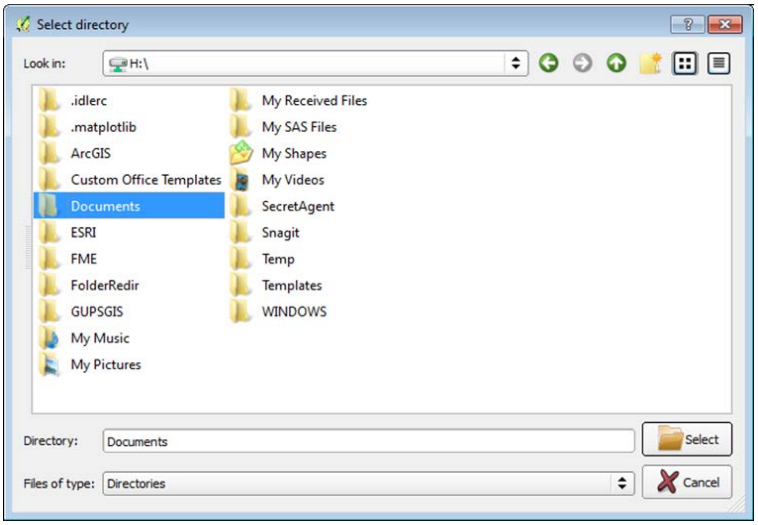
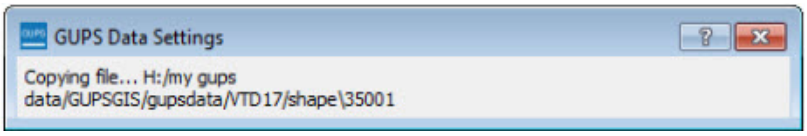
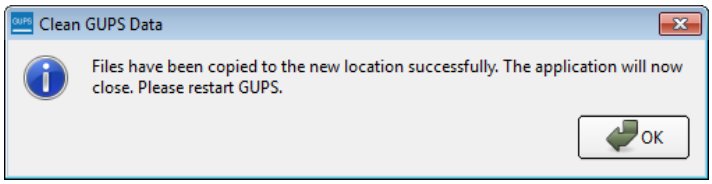
When you first open GUPS after installing the software, GUPS creates a GUPSGIS folder where your GUPS files are saved. Changing the **Working Directory** allows you to change the location of this folder. This can be helpful if you have space restrictions or personal preferences for where you store your files.

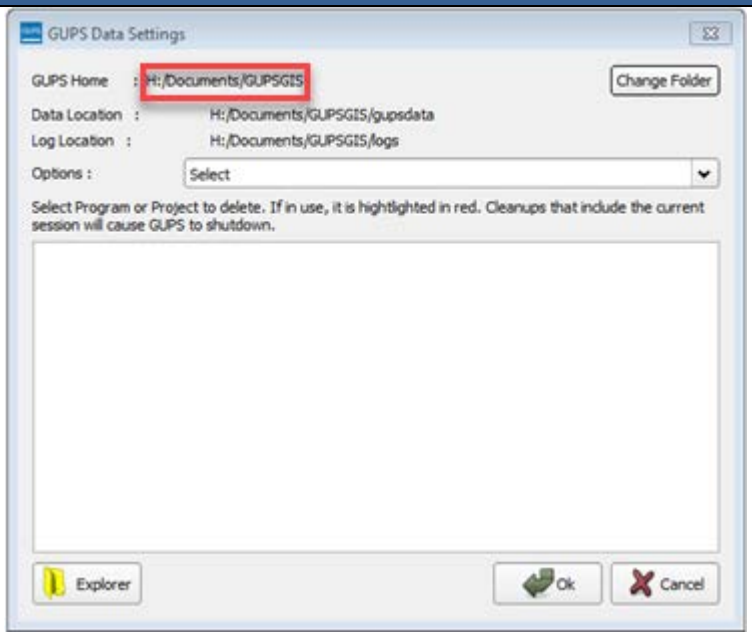
Note: To change the location of your GUPS folder, you cannot have an existing project open. You must close all projects first in order to change the working directory.

Table 53: Changing your GUPS Working Directory

Step	Action and *Result*
Step 1	Making sure you do not have a project currently open, click on the **GUPS Data Setting** button in the Main Tool Bar. 

Step	Action and *Result*
	*The **GUPS Data Setting** dialog box opens. You can see at the top of the dialog box, your current Home Directory where your GUPSGIS folder is currently located.* 
Step 2	Click the **Change Folder** button in the **GUPS DATA SETTINGS** tool.  *A notification dialog box will pop-up to remind you of any custom layers that you may have in your project.* Custom layers are any data that are stored in a folder that is not the GUPSGIS data folder. If you have, for example, any non-Census shapefile layers stored in another folder location, those files will not be copied through this action. 
Step 3	Click **OK**. *The Select Directory dialog box appears.*

Step	Action and *Result*
Step 4	In the Select Directory dialog box, choose the location for your new working directory. In this example, the **Documents** folder has been chosen as the new location for the GUPSGIS data folder. Click the **Select** button. 
Step 5	*GUPS will display a status message to indicate that it is moving the folders and contents of those folders to the new directory*. 
Step 6	*Once all files have been copied, GUPS will then display a final notification informing you that the move was successful and that you will need to restart GUPS.* 
Step 7	To confirm that the working directory has been changed, open the **GUPS Data Settings** tool and check to make sure the correct location is showing in the **GUPS Home** line at the top of the dialog box.

Step	Action and *Result*
	
⚠	If GUPS displays error messages when you are attempting to move your files, please check to make sure you have permissions to move files to that directory and that there is sufficent space to store the files.

8.7.1.2 Cleaning GUPS Data

The **GUPS Data Setting** Tool also allows you to delete all the files associated with a GUPS project(s) if you want to start over. You can access the **GUPS Data Setting** Tool on the **Standard Tool Bar** before or after you open a project. (Note that the tool bars might look slightly different depending on whether you have a project open or not.)

Figure 20. GUPS Data Setting Tool Located on the Standard Tool Bar

The **GUPS Data Settings** tool (**Figure 21**) offers you three clean data options: **Clean by Project**, **Clean by Program**, and **Clean All GUPS Data**.

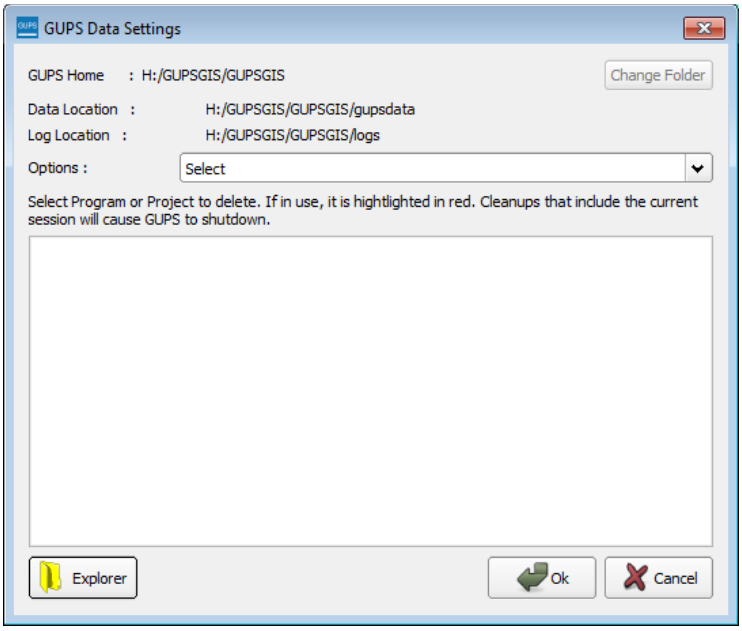


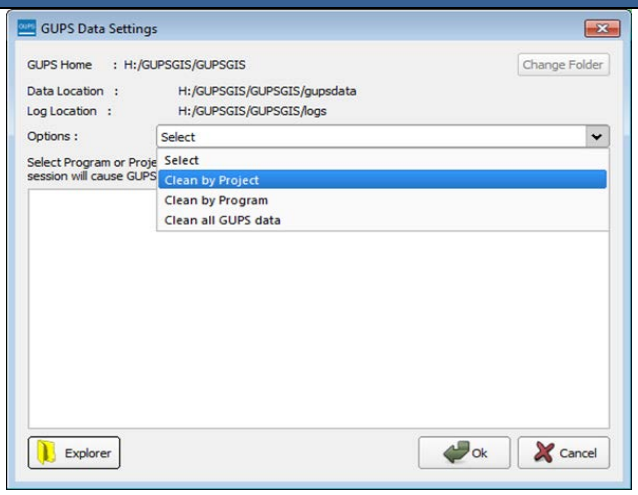
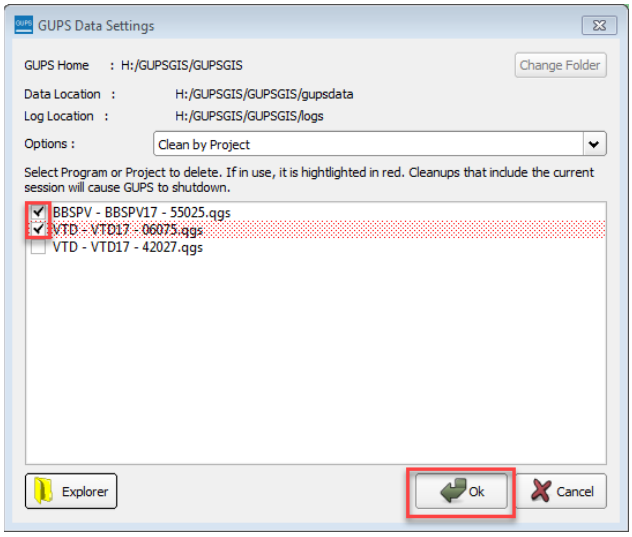
Figure 21. GUPS Data Settings Window

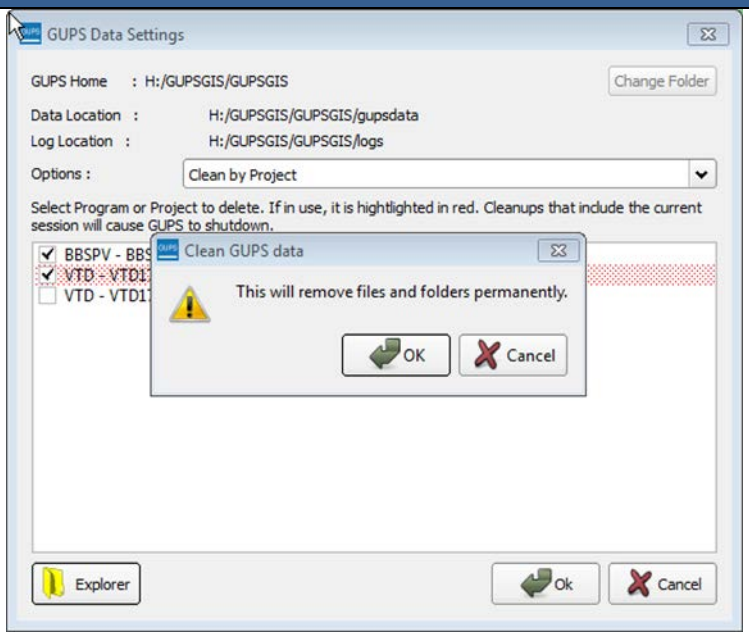
8.7.1.2.1 Cleaning by Project

If you have created multiple projects, **Clean by Project** allows you to delete data/files per project. This can be useful if you have a single project that you may no longer need or you want to download the original Census Bureau data without any of the edits that you might have made for that project.

Table 54: Cleaning GUPS Data by Project
(Deleting All GUPS Data Associated with a Project)

Step	Action and *Result*
Step 1	Click on the **GUPS Data Settings** Tool.  *The **GUPS Data Settings** dialog box opens.*
Step 2	From the **Options** drop-down menu, select **Clean by Project**. Click **OK**.

Step	Action and *Result*
	 *A list of all of your GUPS projects will appear.* The red dotted highlight indicates a project that is currently open in GUPS.
Step 3	Select the checkbox next to the project(s) you want to delete and select **OK**.  *A warning message will appear reminding you that all files and folders associated with the project(s) will be permanently deleted*.

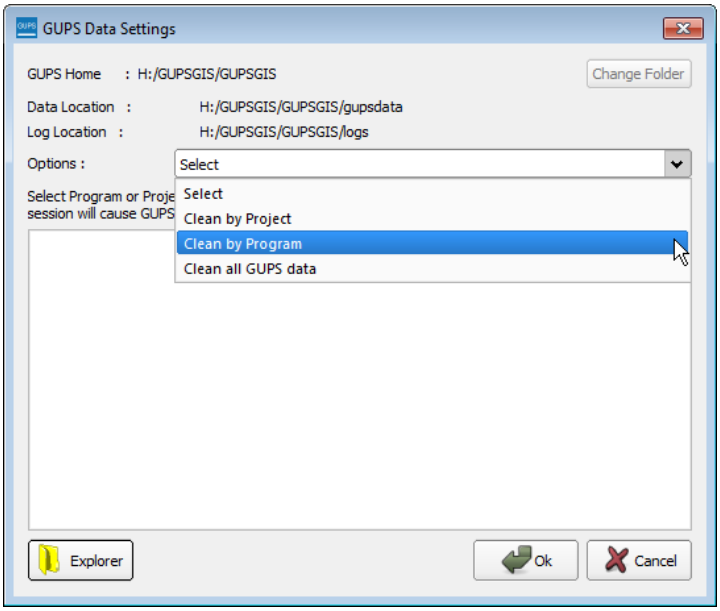
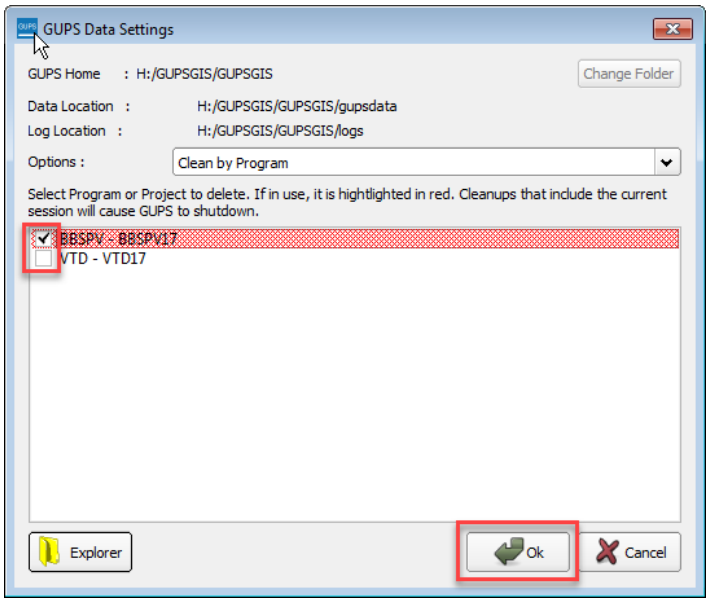
Step	Action and *Result*
	 Click **OK**. If you deleted a project that was open, GUPS will automatically shut down and all files and data associated with that project will be deleted. If you delete a project that is not open, the dialog and warning box will disappear. **We recommended that you restart GUPS by closing the program and reopening it, to ensure that all data and files associated with the project are deleted.**

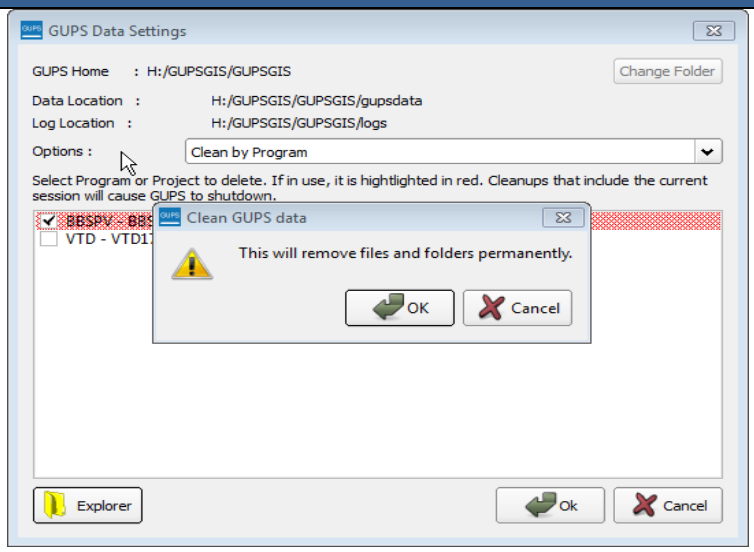
8.7.1.2.2 Clean by Program

If you would rather delete all projects associated with a certain program, you can opt to choose to **Clean by Program**. This will delete all projects associated with a single program. You might find this useful if you had worked on other Census Bureau programs that used GUPS, such as the BBSP for example, and want to delete old projects associated with that program.

Table 55: Cleaning GUPS Data by Program

Step	Action and *Result*
Step 1	Click on the **GUPS Data Settings** Tool.  *The **GUPS Data Settings** dialog box opens.*

Step	Action and *Result*
Step 2	From the **Options** drop-down menu, select **Clean by Program**. Click **OK**.  *A list of all of Programs you have projects associated with appears*. The red dotted highlight indicates a program that has a project currently open.
Step 3	Select the checkbox next to the program(s) whose projects you want to delete and then select **OK**.  *A warning message will appear reminding you that all files and folders associated with the project(s) for this program will be permanently deleted.*

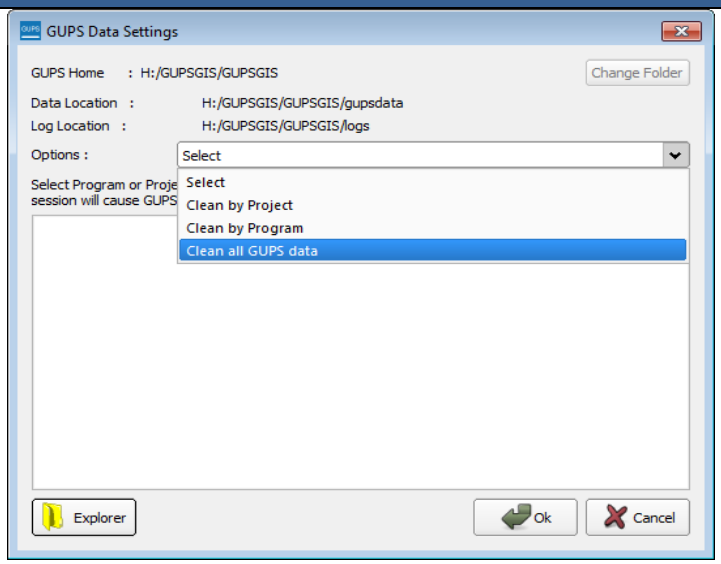
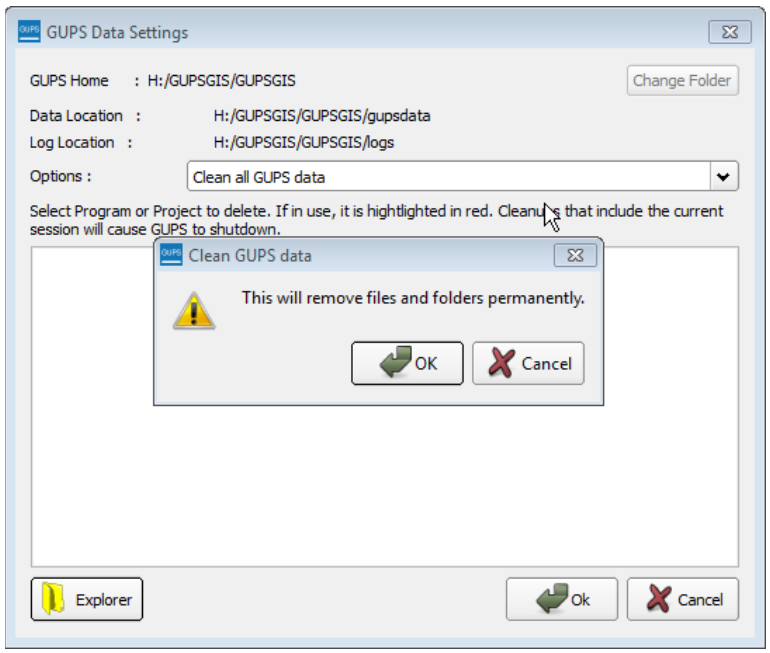
Step	Action and *Result*
	 Click **OK**. If you deleted by program, and a project for that program was open, GUPS will automatically shut down and all files and data associated with projects for that program will be deleted. If you delete by program and do not have a project for that program open, the dialog and warning box will disappear. **We recommended that you restart GUPS by closing the program and reopening it, to ensure that all data and files associated with the projects are deleted.**

8.7.1.2.3 Cleaning All GUPS Data

You may wish to delete all GUPS data and folders associated with all of your programs and projects. The **Clean All GUPS Data** will delete all GUPS data that is located in the GUPGIS data folder in your home directory. This will permanently delete all files and folders, so once the tool has run, files and folders cannot be recovered.

Table 56: Cleaning All GUPS Data

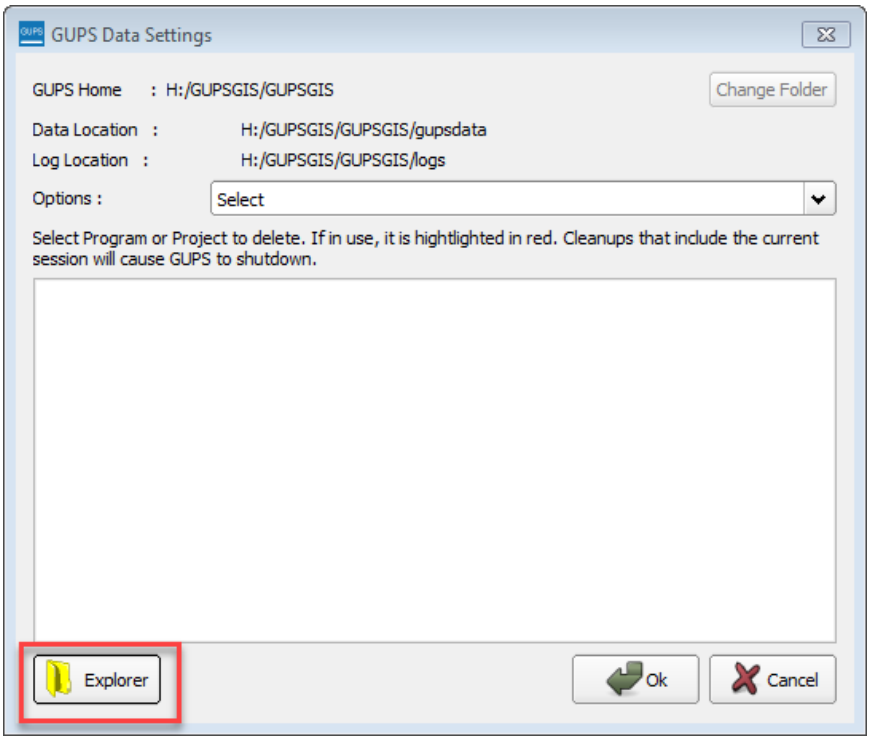
Step	Action and *Result*
Step 1	Click on the **GUPS Data Setting Tool**.  *The **GUPS Data Settings** dialog box opens.*
Step 2	From the **Options** drop-down menu, select **Clean all GUPS Data**.

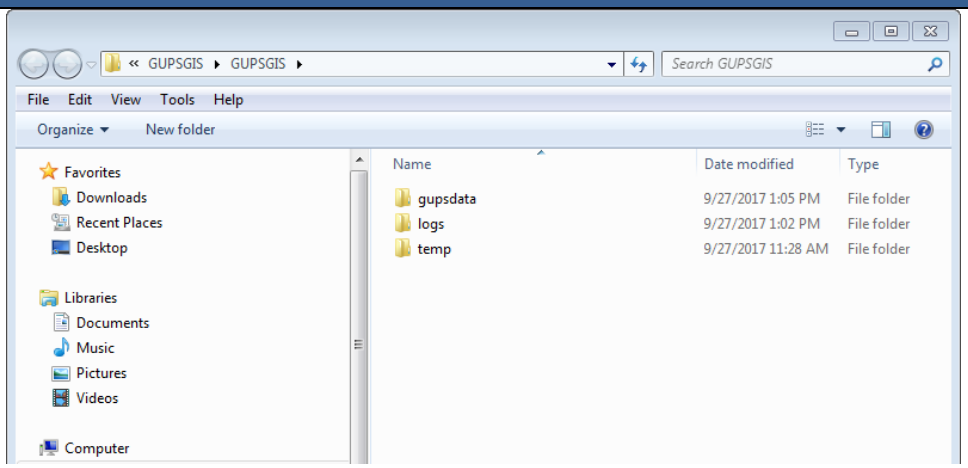
Step	Action and *Result*
	 Click **OK**. A warning message will appear reminding you that all files and folders associated with the project(s) for this program will be permanently deleted. 
Step 3	Click **OK**. *GUPS will shut down and all files and data associated with all of your GUPS projects will be deleted.*

8.7.1.2.4 Opening Your GUPS Folder with the Explorer Button

The **GUPS Data Settings** tool also includes an **Explorer** button, which will open file explorer on your computer to the location of your GUPS files.

Table 57: Opening GUPS with the Explorer Button

Step	Action and *Result*
Step 1	Click on the **GUPS Data Setting Tool**.  The **GUPS Data Settings** dialog box opens.
Step 2	In the bottom left hand corner, click on the **Explorer** button.  *File Explorer will open the folder where your GUPSGIS data folders are located.*

Step	Action and *Result*
	

8.7.2 Exporting a VTD Tabular Equivalency File

This export option, described in **Table 59** allows you to export either the current VTD layer you are working on or the 2010 VTD layer provided by the Census Bureau, as a tabular (2010 Census Block) equivalency file. This gives you the opportunity to share the file with others in a format other than as a shapefile.

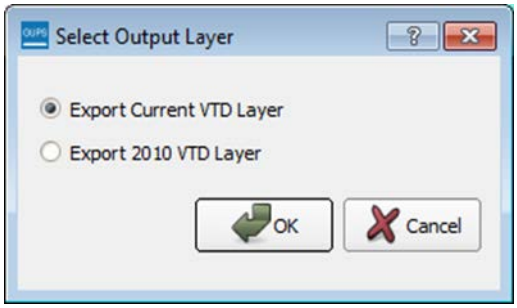
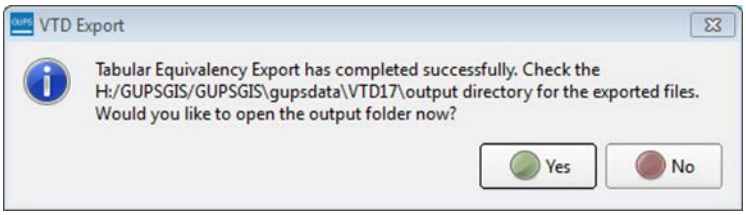
When you export your layer as a tabular equivalency file, GUPS creates three comma delimited TEF versions: Simple, GEOID, and Extended GEOID. The headers (fields) for each of these TEF versions and an example format are shown in **Table 58** below.

- Simple TEFs have the state codes, county codes, tract codes, block codes, voting district codes and name information separated from each other by commas.
- GEOID (Geographic Identification Code) TEFs have the state, county, tract, and block codes concatenated into one 15 digit code (the GEOID), separated by a comma from the VTD code and separated by another comma from the name information.
- Extended TEFs have the state, county, tract, block, and Voting District codes concatenated into one 21 digit code (the Extended GEOID), separated by a comma from the name information.

Table 58: TEF Version and Example Formats

Tabular File	Headers	Example format
Simple TEF	ST, COU, TRACT, BLOCK, VOTING DISTRICT, NAMELSAD	01, 001, 000001, 0001, 000001, Example Voting District
GEOID TEF	GEOID (ST+COU+TRACT+BLOCK), Voting District, NAMELSAD	010010000010001, 000001, Example Voting District
Extended TEF	Extended GEOID (GEOID+ VTD), NAMELSAD	010010000010001000001, Example Voting District
ST=2 digit state code, COU=3 digit county code, TRACT=6 digit tract code, BLOCK=4 digit 2010 tabulation block code, VOTING DISTRICT=6 character VTD code, NAMELSAD=the (up to) 120 character name combined with the legal/statistical area definition (LSAD).		

Table 59: Export to Tabular Equivalency File

Step	Action and *Result*
Step 1	Click on the **Export to Tabular Equivalency File** button on the VTD Toolbar.  *The **Select Output Layer** dialog box appears.*
Step 2	Choose whether you want to export the Current VTD Layer (will include your VTD updates) or the 2010 VTD layer provided by the Census Bureau.  *A dialog box will appear stating that your export completed successfully and where it was saved.* 

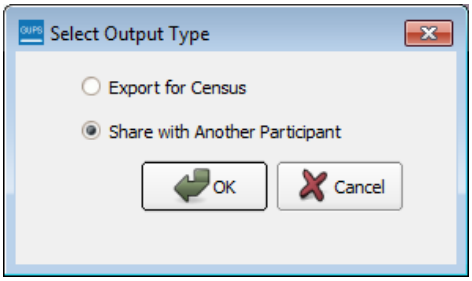
Step	Action and *Result*
Step 3	If you want to open the folder where the TEF was saved, click Yes. Click No to close the dialog box and continue working on our project.
	Note: To open the TEF in GUPS, see **Section 7.3**.

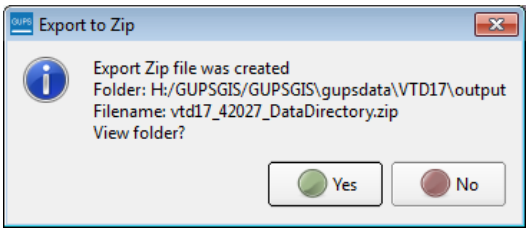
8.7.3 Exporting Project as a ZIP File to Share with Another Participant

Export file to share with another participant is useful if you complete your VTD updates and want to send the results to a co-worker or the RDP Liaison for review before sending to the Census Bureau. Export to Share with Another Participant does not require all errors to be resolved and will export all the files for the entire project, including all of the reference files and the files with changes, into a zip file.

Note: See **Section 6.1 Table 8** for instructions on importing a Share with Participant zip file into GUPS for further review.

Table 60: Exporting a Zip File to Share with another Participant

Step	Action and *Result*
Step 1	Click the ***Export to Zip*** button on the VTD Toolbar. 
Step 2	*The **Select Output Type** dialog box opens.*  Click the **Share with Another Participant** radio button and then the **OK** button. ***Note:** It may take several minutes for the GUPS to create the zip file.*
Step 3	The Zip File Output dialog box opens. Your file directory in the message will look similar to this.

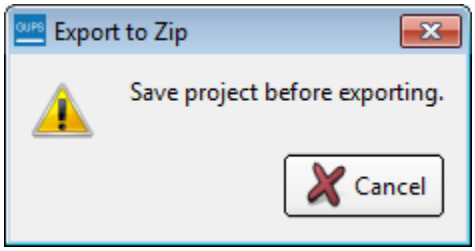
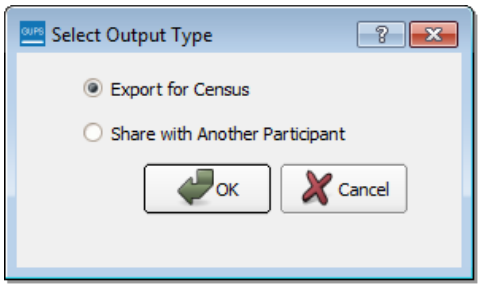
Step	Action and *Result*
	Note: Files created using the **Export to Census** radio button will have the naming convention **vtd18_<ssccc>_DataDirectory.zip, where ssccc is the state and county code**.  Click the ***Yes*** button to view the directory folder or the ***No*** button if you do not want to view the directory. **Note:** The screenshot shows the file name beginning with "vtd17," but for VTDP, it will begin with vtd18.
Step 4	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 VTD are stored in the directory: **\GUPSGIS\gupsdata\VTD18\output**. (The home directly will differ depending on the drive where you installed the software or specified your GUPS directory.)
⚠	Do not save the ***vtd18_<ssccc>_DataDirectory.zip*** files you receive from your designees in the \shape folder in the directory *C:\Users\<username>\GUPSGIS\gupsdata\vtd\shape*. You must save zip files in a different directory on your computer for GUPS to recognize and import the zip files.

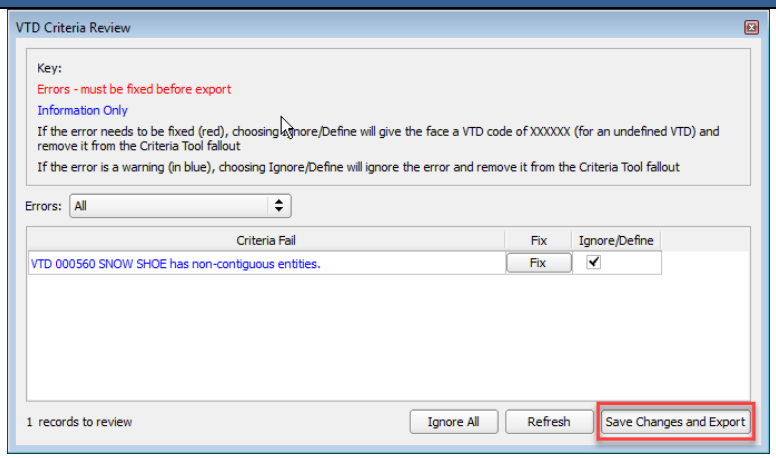
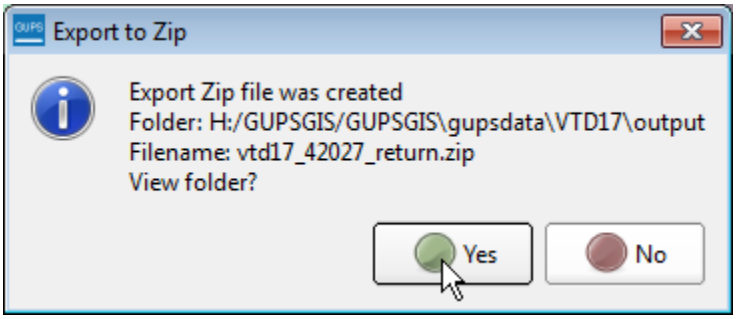
8.7.4 Exporting Project as Zip File to Submit to the Census Bureau

Export Project to Submit to the Census Bureau will package the necessary GUPS files (change files) and create a zip file that you will submit to the Census Bureau as described in **Section 9**. You are required to run the **VTD Criteria Check** and the **Review Change Polygons** tools before you can submit. **Table 61** below describes the steps for creating zip files and submitting them to the Census Bureau.

Table 61: Creating VTD Submission for the Census Bureau

Step	Action and *Result*
ℹ	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 VTD 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

Step	Action and *Result*
	project by clicking on the **Save** button on the Standard toolbar. Click the **Export to Zip** button again. 
Step 3	*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*
Step 4	*The **VTD Criteria Check** and the **Change Polygon Review** will run in the background.* *If GUPS does not find any failures, the **Zip File Output** dialog box appears* (Go to Step 5). *If GUPS finds any failures, the **VTD Criteria Check** dialog box and/or the **Review Change Polygons** dialog box will appear.* Refer to **Section 8.6** for instructions on resolving these failures. You must resolve the failures before you can proceed with exporting the file to Census. After addressing the **VTD Criteria Review failures** during the export process, you can click on the **Save Changes and Export** button in the lower right. This will return you to the exportation process. (When just running the **VTD Criteria Review** tool outside of the Export process, the button in the **Criteria Review** dialog box says **Save Changes**.)

Step	Action and *Result*
	
Step 5	*The **Zip File Output** dialog box opens.* Your file directory in the message will look similar to this, with the exception of the filename. Files created using the **Export to Census** radio button will have the naming convention **vtd18_<ssccc>_return.zip**.  Click the **Yes** button to view the directory folder or the **No** button if you do not want to view the directory. **Note:** The screenshot shows the file name beginning with “vtd17,” but in VTDP, the file name will begin with “vtd18.”
Step 6	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 VTD are stored in the directory: **\GUPSGIS\gupsdata\VTD18\output**. (The home directory will differ depending on the drive where you installed the software or specified your GUPS directory.) **Note:** Files created using the **Export to Census** radio button will have the naming convention **vtd18_<ssccc>_return.zip**. Submit files to the Census Bureau using the instructions in **Section 9 File Submission through SWIM.**

Section 9. File Submission through SWIM

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 will only accept files submitted by the State RDP Liaison. If a county, agency, or contractor is performing work on behalf of the state, the State RDP Liaison must 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.

If you have submitted files for BBSP or BBSPV, use the same SWIM 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.

9.1 Login Page

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

If you already have a SWIMM Account:

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

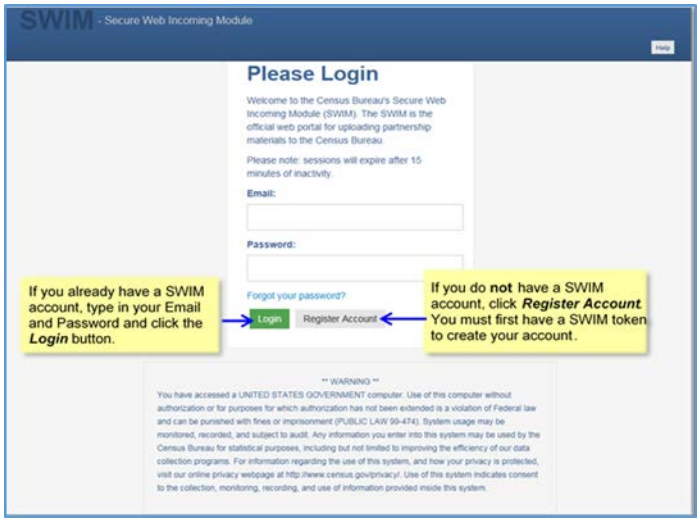


Figure 22. SWIM Login Screen

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 23.
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.

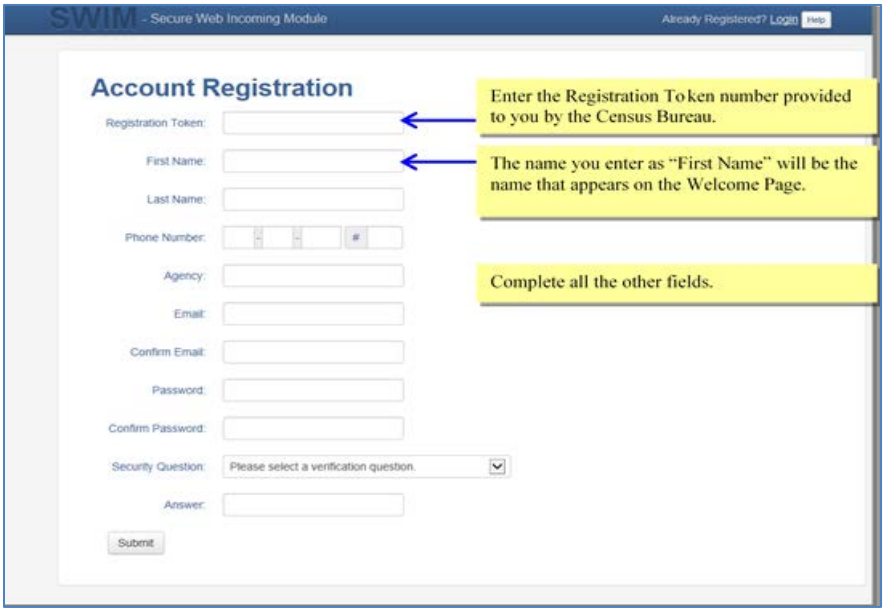


Figure 23. SWIM Account Registration Screen

9.2 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 24** depicts the Welcome Page if you have not yet uploaded any files. **Figure 25** depicts the Welcome Page appearance after you have uploaded files.

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

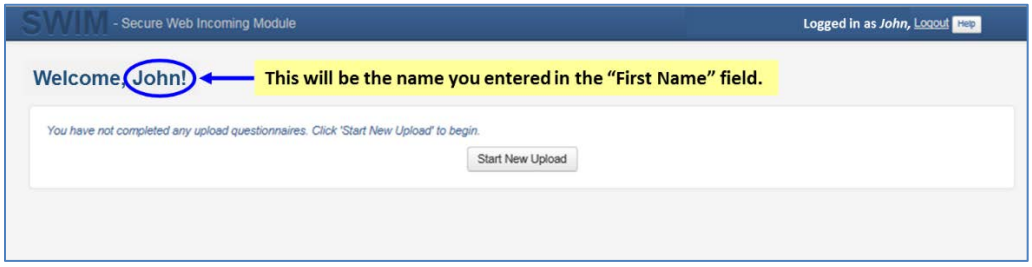


Figure 24. SWIM Welcome Page (no previous files uploaded)

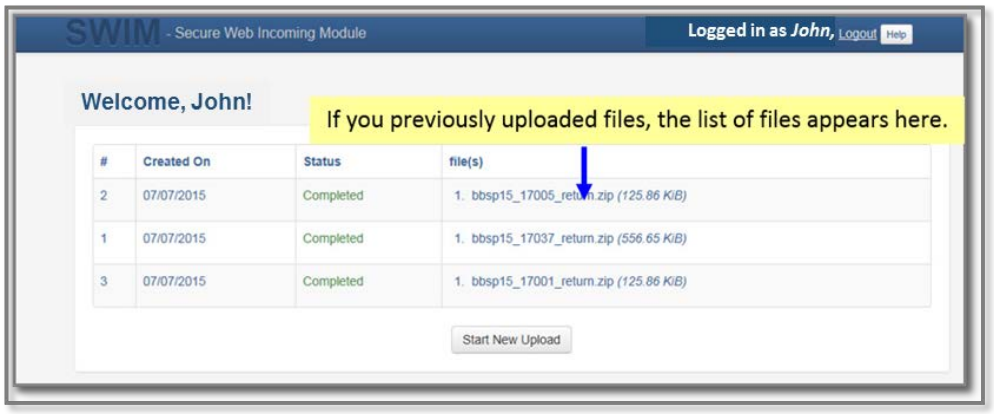


Figure 25. SWIM Welcome Page (files previously uploaded)

9.3 Geographic Program Page

The Geographic Program Page, shown in **Figure 26**, allows you to select the partnership program for which you are submitting data.

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

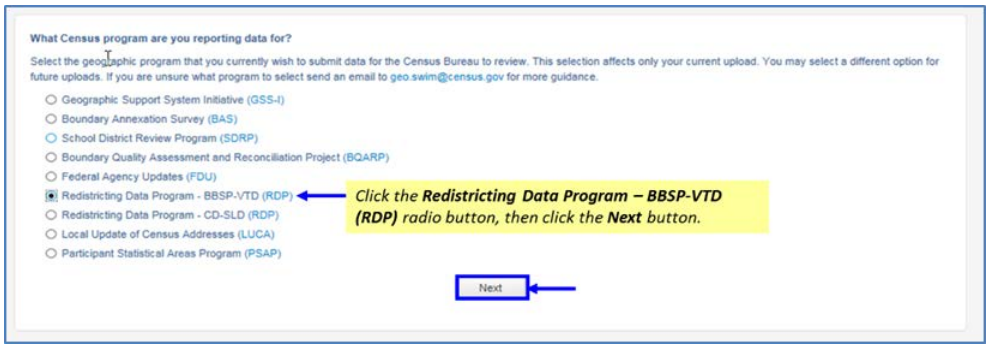


Figure 26. SWIM Geographic Program Page

9.4 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 27**.

4. From the drop-down list, click on your **State** name.
5. Click on the **Next** button.

Figure 27. SWIM Select a State Page (for BBSP-VTD)

9.5 Select a Zip File to Upload

Figure 28 depicts the file upload page for the Redistricting Data Program. The GUPS will automatically create a separate zip file for each county.

8. Click on the **+ Add File** button.
9. Navigate to the directory on your computer to choose the zip file to upload.
10. Complete the **Comments** box, including pertinent information about data projection or supporting documentation.
11. Click on the **Next** button.

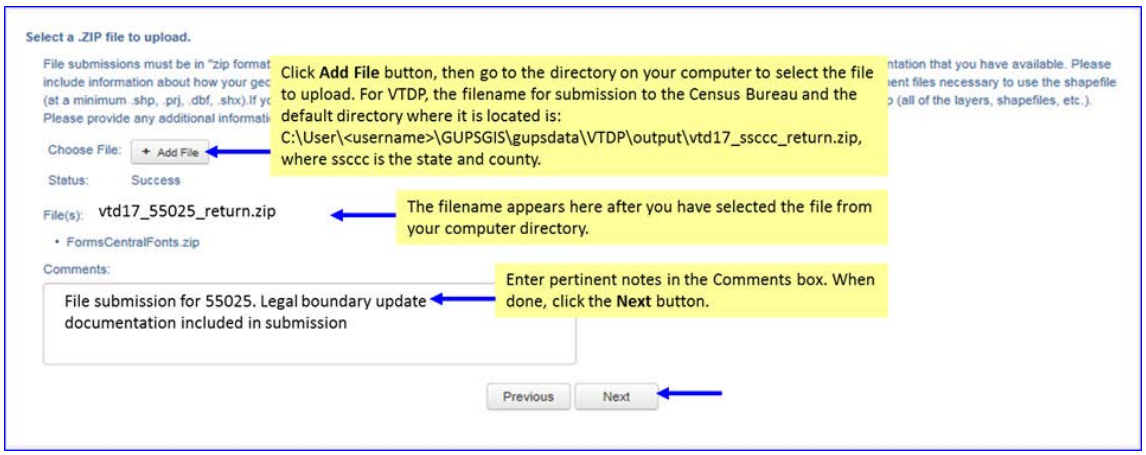


Figure 28. SWIM Select a Zip File to Upload Page

Note: The screenshot shows the file name beginning with "vtd17," but in VTDP it will begin with "vtd18."

9.6 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.

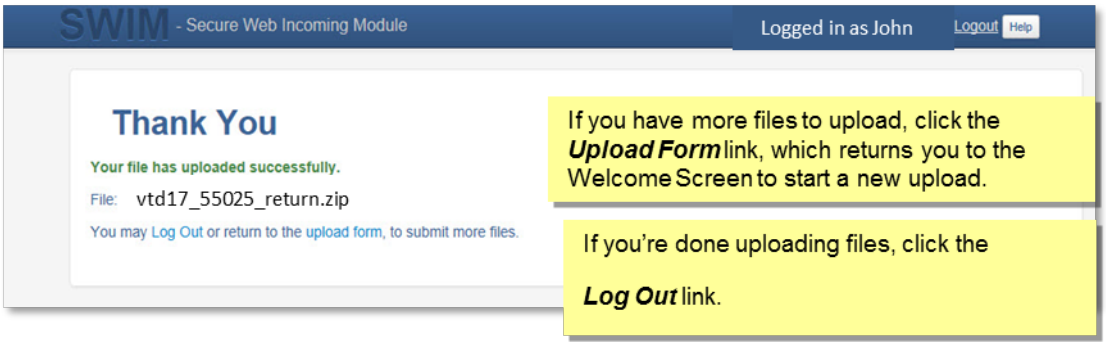


Figure 29: SWIM Thank You Page

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.

Table 62: 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
K2190	Other Park, Forest, or Recreation Area (quasi-public, independent park, commission, etc.)
K2424	Marina

MTFCC	DESCRIPTION
K2457	Airport - Area Representation
K2540	University or College
K2561	Golf Course
K2582	Cemetery

Table 63: Linear Feature Updates Permitted

*These features are only accepted as adds when used as a boundary for geographic area or as a suggested block boundary.

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
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

MTFCC	DESCRIPTION
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

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 64: Street Type Abbreviations

Street Name Type	Standard Abbreviation
ALLEY	ALY
ANEX	ANX
ARCADE	ARC
AVENUE	AVE
BAYOU	BYU
BEACH	BCH
BEND	BND
BLUFF	BLF
BLUFFS	BLFS
BOTTOM	BTM
BOULEVARD	BLVD
BRANCH	BR
BRIDGE	BRG
BROOK	BRK
BROOKS	BRKS
BURG	BG
BURGS	BGS
BYPASS	BYP
CAMP	CP
CANYON	CYN
CAPE	CPE
CAUSEWAY	CSWY
CENTER	CTR
CENTERS	CTRS

Street Name Type	Standard Abbreviation
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
ESTATES	ESTS
EXPRESSWAY	EXPY

Street Name Type	Standard Abbreviation
EXTENSION	EXT
EXTENSIONS	EXTS
FALL	FALL
FALLS	FLS
FERRY	FRY
FIELD	FLD
FIELDS	FLDS
FLAT	FLT
FLATS	FLTS
FORD	FRD
FORDS	FRDS
FOREST	FRST
FORGE	FRG
FORGES	FRGS
FORK	FRK
FORKS	FRKS
FORT	FT
FREEWAY	FWY
GARDEN	GDN
GARDENS	GDNS
GATEWAY	GTWY
GLEN	GLN
GLENS	GLNS
GREEN	GRN
GREENS	GRNS
GROVE	GRV
GROVES	GRVS
HARBOR	HBR
HARBORS	HBRS

Street Name Type	Standard Abbreviation
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
LOOP	LOOP
MALL	MALL

Street Name Type	Standard Abbreviation
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
PLAIN	PLN
PLAINS	PLNS

Street Name Type	Standard Abbreviation
PLAZA	PLZ
POINT	PT
POINTS	PTS
PORT	PRT
PORTS	PRTS
PRAIRIE	PR
RADIAL	RADL
RAMP	RAMP
RANCH	RNCH
RAPID	RPD
RAPIDS	RPDS
REST	RST
RIDGE	RDG
RIDGES	RDGS
RIVER	RIV
ROAD	RD
ROADS	RDS
ROUTE	RTE
ROW	ROW
RUE	RUE
RUN	RUN
SHOAL	SHL
SHOALS	SHLS
SHORE	SHR
SHORES	SHRS
SKYWAY	SKWY
SPRING	SPG
SPRINGS	SPGS
SPUR	SPUR

Street Name Type	Standard Abbreviation
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
VILLAGES	VLGS
VILLE	VL

Street Name Type	Standard Abbreviation
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 65: 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.
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.

MTFCC	Feature Class	Feature Class Description
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-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

MTFCC	Feature Class	Feature Class Description
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, 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

MTFCC	Feature Class	Feature Class Description
		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.
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.

MTFCC	Feature Class	Feature Class Description
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.
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]

MTFCC	Feature Class	Feature Class Description
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.
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.

MTFCC	Feature Class	Feature Class Description
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 park, commission, etc.)	A place or area set aside for recreation or preservation of a cultural or natural resource and under the administration of some other type of government or agency such as an independent park authority or commission.
K2191	Post Office	An official facility of the U.S. Postal Service used for processing and distributing mail and other postal material.
K2193	Fire Department	Fire Department.
K2194	Police Station	Police Station.
K2195	Library	Library.
K2196	City/Town Hall	City/Town Hall.
K2400	Transportation Terminal	A facility where one or more modes of transportation can be accessed by people or for the shipment of goods; examples of such a facility include marine terminal, bus station, train station, airport and truck warehouse.
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.

MTFCC	Feature Class	Feature Class Description
K2455	Seaplane Anchorage	A place where an airplane equipped with floats for landing on or taking off from a body of water can debark and load.
K2456	Airport—Intermodal Transportation Hub/Terminal	A major air transportation facility where travelers can board and exit airplanes and connect with other (i.e. non-air) modes of transportation.
K2457	Airport—Statistical Representation	The area of an airport adjusted to include whole 2000 census blocks used for the delineation of urban areas
K2458	Park and Ride Facility/Parking Lot	A place where motorists can park their cars and transfer to other modes of transportation.
K2459	Runway/Taxiway	A fairly level and usually paved expanse used by airplanes for taking off and landing at an airport.
K2460	Helicopter Landing Pad	A fairly level and usually paved expanse used by helicopters for taking off and landing.
K2540	University or College	A building or group of buildings used as an institution for post-secondary study, teaching, and learning. [including seminary]
K2543	School or Academy	A building or group of buildings used as an institution for preschool, elementary or secondary study, teaching, and learning. [including elementary school and high school]
K2545	Museum, Visitor Center, Cultural Center, or Tourist Attraction	An attraction of historical, cultural, educational or other interest that provides information or displays artifacts.
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.

MTFCC	Feature Class	Feature Class Description
L4140	Property/Parcel Line (Including PLSS)	This feature class may denote a nonvisible boundary of either public or private lands (e.g., a park boundary) or it may denote a Public Land Survey System or equivalent survey line.
L4150	Coastline	The line that separates either land or Inland water from Coastal, Territorial or Great Lakes water. Where land directly borders Coastal, Territorial or Great Lakes water, the shoreline represents the Coastline. Where Inland water (such as a river) flows into Coastal, Territorial or Great Lakes water, the closure line separating the Inland water from the other class of water represents the Coastline.
L4165	Ferry Crossing	The route used to carry or convey people or cargo back and forth over a waterbody in a boat.
P0001	Nonvisible Linear Legal/Statistical Boundary	A legal/statistical boundary line that does not correspond to a shoreline or other visible feature on the ground.
P0002	Perennial Shoreline	The more-or-less permanent boundary between land and water for a water feature that exists year-round.
P0003	Intermittent Shoreline	The boundary between land and water (when water is present) for a water feature that does not exist year-round.
P0004	Other non-visible bounding Edge (e.g., Census water boundary, boundary of an areal feature)	A bounding Edge that does not represent a legal/statistical boundary, and does not correspond to a shoreline or other visible feature on the ground. Many such Edges bound area landmarks, while many others separate water features from each other (e.g., where a bay meets the ocean).
R1011	Railroad Feature (Main, Spur, or Yard)	A line of fixed rails or tracks that carries mainstream railroad traffic. Such a rail line can be a main line or spur line, or part of a rail yard.
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

MTFCC	Feature Class	Feature Class Description
		would be included in this feature class, as would (depending on the region of the country) some unpaved roads.
S1500	Vehicular Trail (4WD)	An unpaved dirt trail where a four-wheel drive vehicle is required. These vehicular trails are found almost exclusively in very rural areas. Minor, unpaved roads usable by ordinary cars and trucks belong in the S1400 category.
S1630	Ramp	A road that allows controlled access from adjacent roads onto a limited access highway, often in the form of a cloverleaf interchange. These roads are unaddressable and do not carry a name in MAF/TIGER.
S1640	Service Drive usually along a limited access highway	A road, usually paralleling a limited access highway that provides access to structures along the highway. These roads can be named and may intersect with other roads.
S1710	Walkway/Pedestrian Trail	A path that is used for walking, being either too narrow for or legally restricted from vehicular traffic.
S1720	Stairway	A pedestrian passageway from one level to another by a series of steps.
S1730	Alley	A service road that does not generally have associated addressed structures and is usually unnamed. It is located at the rear of buildings and properties and is used for deliveries.
S1740	Private Road for service vehicles (logging, oil fields, ranches, etc.)	A road within private property that is privately maintained for service, extractive, or other purposes. These roads are often unnamed.
S1750	Internal U.S. Census Bureau use	Internal U.S. Census Bureau use.
S1780	Parking Lot Road	The main travel route for vehicles through a paved parking area.
S1820	Bike Path or Trail	A path that is used for manual or small, motorized bicycles, being either too narrow for or legally restricted from vehicular traffic.
S1830	Bridle Path	A path that is used for horses, being either too narrow for or legally restricted from vehicular traffic.
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 66** lists the shapefile layer name and the geography each layer represents. **Table 67** through **Table 100** list the data table for each of the layers listed in **Table 66**, with the attribute fields, their length, type, and description.

Table 66: 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
Point Landmarks	County only	Pointlm

SHAPEFILE LAYER	GEOGRAPHIC LEVEL	<LAYER> NAME
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 67: 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
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.

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 68: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 69: 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
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 70: 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
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 71: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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
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 72: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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	(√ (4πA/P2), where A=Area of block & P = Perimeter of block
BLKSZIND	1	String	Block Size Indicator

Table 73: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 74: 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 75: 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
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 76: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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
LSY	4	String	Legislative Session Year
NAME	100	String	Name
VINTAGE	2	String	Vintage updated with returned data
FUNCSTAT	1	String	Functional Status

Table 77: State Legislative Districts (Lower/House)

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
RELTYPE3	2	String	Relationship Type 3

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 78: 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
VINTAGE	2	String	Vintage updated with returned data
NAME	100	String	Name

Table 79: 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 80: 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
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 81: Census Blocks - Census 2010

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP10	2	String	FIPS 2010 State Code
COUNTYFP10	3	String	FIPS 2010 County Code

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 82: 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 83: 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

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

Table 84: 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 85: 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
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 86: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 87: 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 88: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 89: 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 90: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 91: 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
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
VTDFLG	1	String	2010 block boundary suggestion
CBBFLG	1	String	Planned 2020 block boundary
VTD_2020	1	String	VTD Participant suggested 2020 Census block boundary
CHNG_TYPE	2	String	Type of linear update

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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 92: 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 93: 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
CHNG_TYPE	1	String	Type of Area Update
HYDROID	10	String	Hydrography Identification Number
RELATE	120	String	Relationship description
JUSTIFY	150	Char	Justification

Table 94: 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 95: Topological Faces - Geographic 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

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
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
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 96: Topological Faces - Area Landmark Relationships

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

Table 97: Topological Faces - Hydrography Area Relationships

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

Table 98: 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 99: 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

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

Table 100: Voting Districts

ATTRIBUTE FIELD	LENGTH	TYPE	DESCRIPTION
STATEFP	2	String	FIPS State Code
COUNTYFP	3	String	FIPS County Code
VTDST	6	String	Voting District Code
NAMELSAD	100	String	Name with translated LSAD
VTDI	1	String	Voting District Indicator
LSAD	2	String	Legal/Statistical Area Description
CHNG_TYPE	2	String	Type of Area Update
ORIG_NAME	100	String	Original VTD Name
ORIG_CODE	6	String	Original VTD Code
RELATE	120	String	Relationship
NAME	100	String	Voting District Name
VINTAGE	2	String	Vintage updated with returned data
FUNCSTAT	1	String	Functional Status
JUSTIFY	150	String	Justification
MTFCC	5	String	MTFCC Code

APPENDIX E Acronyms

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

Table 101: Acronyms

ACRONYM	EXPLANATION
BAS	Boundary and Annexation Survey
BAG	Block Area Grouping
BBSP	Block Boundary Suggestion Project
CBBFLG	Census Block Boundary Flag
CRT	Criteria Review Tool
CRVRDO	Census Redistricting & Voting Rights Data Office
FIPS	Federal Information Processing Standard
GNIS	Geographic Names Information System
GUPS	Geographic Update Partnership Software
MAF	Modify Area Feature
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
RDP	Redistricting Data Program
SWIM	Secure Web Incoming Module
TEF	Tabular Equivalency File
URL	Uniform Resource Locator
VTD	Voting District
VTDP	Voting District Project

APPENDIX F VTD Participation Support

Direct all questions, regarding the Voting District Project, both procedural and GUPS technical questions, to:

Census Redistricting & Voting Rights Data Office: (301) 763-4039; rdo@census.gov.

Direct technical questions regarding SWIM to: geo.swim@census.gov.

APPENDIX G Switch to BBSP Style Button

Changes the symbology of the edges if you want to do BBSP work in your VTD module.

Click this icon  in order to toggle between the two symbology.

Table 102: Switch to BBSP Style

Step	Action and *Result*
Step 1	Starting with a project open: 
Step 2	Click the **Switch to BBSP style** button on the BBSP toolbar. 
Step 3	The symbology of the edges changes, allowing you to do BBSP work with the BAS symbology in the VTD module (it just makes it easier and matches how GUPS looks for BBSP/BBSPV). Note that the Switch to BBSP style button has changed names to **Switch to VTD style**. 
Step 4	When you have completed the BBSP work, click on the **Switch to VTD style** button to return to the VTD module.

Step	Action and *Result*