Hazus Comprehensive Data Management System (CDMS) User Guidance

April 2019

FEMA

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1 Introduction

Welcome to the Hazus Comprehensive Data Management System (CDMS). CDMS is a Hazus support tool that allows users to move data to and from Hazus state datasets. Hazus is a natural hazard modeling application that estimates the social and economic impacts from hurricanes, floods, earthquakes, and tsunamis. Hazus provides tools to users to assess the impacts of various mitigation strategies that can be used to help address the issues created by hazards.

Hazus uses hazard damage information to estimate direct dollar losses for:

- Buildings
- Lifelines
- Regional economy

In addition, Hazus can answer questions such as:

- Will building code modifications minimize losses?
- Will levee or flow regulation structures protect properties?

Hazus focuses on two major areas of damage and loss estimation: infrastructure-related damage and population impacts. The three keys to a successful Hazus analysis are credible hazard data, credible damage functions, and credible inventory. The third key is the domain of CDMS. Users can use CDMS to update the default Hazus inventory data with local and expert-influenced data that will make the loss estimations more credible.

The purpose of CDMS is to provide a uniform approach to importing and managing Hazus datasets.

The system supports a variety of methods to help users manage information, including:

- Site-specific inventory data (e.g., Essential Facilities, User-Defined Facilities [UDFs]).
- Aggregated general building stock data (e.g., building counts by tract, square footage, exposure).
- Building-specific data.

CDMS validates user data to ensure that the data are Hazus compliant. CDMS prevents faulty data from entering the Hazus state datasets. The user must make sure the datasets that are produced or edited outside Hazus maintain an appropriate level of integrity. Much of this effort is related to ensuring that the data exported from Hazus have been updated correctly (e.g., appropriate domains, values, formats) and that any data originating outside Hazus are brought into compliance (e.g., required fields, modeling values).

CDMS is not intended to eliminate the need to prepare data prior to integration into the Hazus data structure. CDMS is simply a tool to streamline the data integration process. There are no data maintenance tools (editing or viewing) in CDMS. Data update and management occurs outside of CDMS, and then CDMS is used to update the default Hazus state datasets.

Significant user enhancements have been introduced to CDMS in the Hazus version 4.2 release, including:

- All state databases were reprojected from North American Datum of 1983 (NAD83) to the World Geodetic System 1984 (WGS84), and all dasymetric census block geometries were repaired.
- The fields of **Landslide Susceptibility Category**, **Liquefaction Susceptibility Category**, **Soil Type**, and **Water Depth** were added to the **Data Field Matching** screen, and defaults are provided when the Advanced Engineering Building Module (AEBM) or UDF data are being imported.
- CDMS will now filter hazard-specific fields when a hazard type is selected for data import; this avoids flood fields being visible for earthquake data import, etc.
- Required fields for **Transportation**, **Utilities**, and **UDF** now display in the same font color as required fields in other data types.
- The **NumStories** field now displays correctly as a required field.
- Counties in Alaska, Louisiana and South Dakota received new names in the census; databases were updated with the correct names.
- Cities and counties that share the same name are now differentiated with a “city” notation after the city name.
- An error message now displays when users attempt to load data from one state into another.
- Default replacement costs are provided for **Building** and **Contents** when a user imports AEBM or UDF data that have null values for these fields. **Building** and **Content Cost** are calculated using the Hazus methodology from the Hazus Flood Technical Manual Inventory Chapter 3, including the use of income ratio to adjust Single Family Dwelling (RES1) replacements costs.
- Default estimates of the number of **Day** and **Night** occupants based on relationships between number of occupants related to building area and occupancy types are provided when a user imports AEBM data with null values for those fields.
- A divide by zero error was resolved during import of COM10 occupancy data in AEBM.
- The **EQ Building Type** field no longer displays twice when importing site-specific data.
- CDMS can be used to import User Defined Inventory Data for tsunami anyalsis. UDF tables are updated within the State Database in Hazus, using the enhanced CDMS UDF interface. The design of **Tsunami UDF** utilizes attributes that are already part of the earthquake- and flood-specific UDF tables.

1.1 Site-Specific Inventory Data

The site-specific inventory has various capabilities allowing the user to import, update, query, export, and delete data:

- Import/update inventory data from a user provided file: MS Excel Spreadsheet (.xls), MS Access database (.mdb), Esri shapefile (.shp), and Esri personal geodatabase file (.mdb).
- Import/update inventory data from a Hazus Study Region.
- Query/export inventory data to an MS Excel spreadsheet or an Esri personal geodatabase.
- Delete inventory data.

1.2 Aggregated General Building Stock Data

The aggregate general building stock data allows the user to capture and update combined datasets, including:

- Update aggregate data from a user-provided file containing individual building or parcel data in MS Excel spreadsheet (.xls), MS Access database (.mdb), Esri shapefile (.shp), and Esri personal geodatabase file (.mdb) formats.
- Update aggregate data from information that has already been summarized according to existing Hazus data structures (e.g., **Demographics**, **Square Footage by Census Block**).
- Update aggregate data from a Hazus Study Region.
- Update aggregate data from information in the building-specific data model of CDMS.

1.3 Building-Specific Data

CDMS allows users to import, update, query, and export specific data associated with building information:

- Import building-specific data into the building-specific data model for refinement and tracking.
- Update and aggregate the general building stock from building-specific data.
- Query/export state data by county, census tract, or census block in MS Excel (.xls) or Esri personal geodatabase (.mdb) formats.

1.4 Data Transfer

CDMS supports the transfer of data into and out of a state dataset and offers validation of new data brought into the system. Figure 1-1 is an example of CDMS functionality.

Figure 1-1: CDMS Functionality

Updating Hazus Inventory Data
Example: Quarterly Update of Essential Facilities

- Schools
- Police Stations
- Fire Stations
- Medical Care Facilities
- Emergency Operations Centers

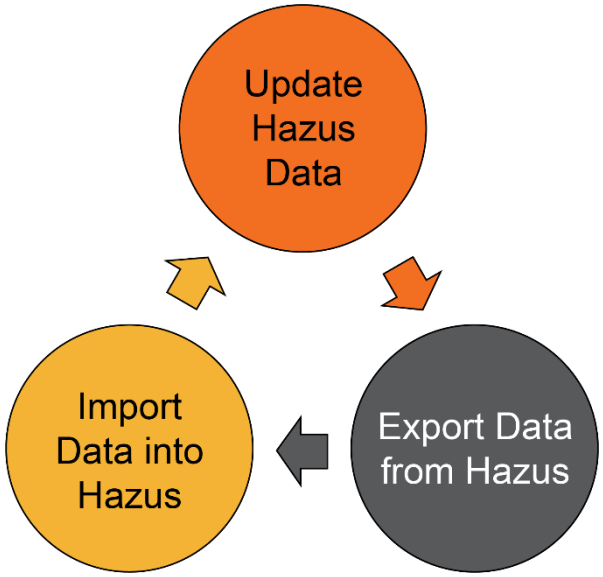
Export data from Hazus using CDMS and distribute to local agencies for update

Agencies **update the data** using available tools (MS Excel, MS Access, GIS)

Import the updated data into the CDMS Data Repository

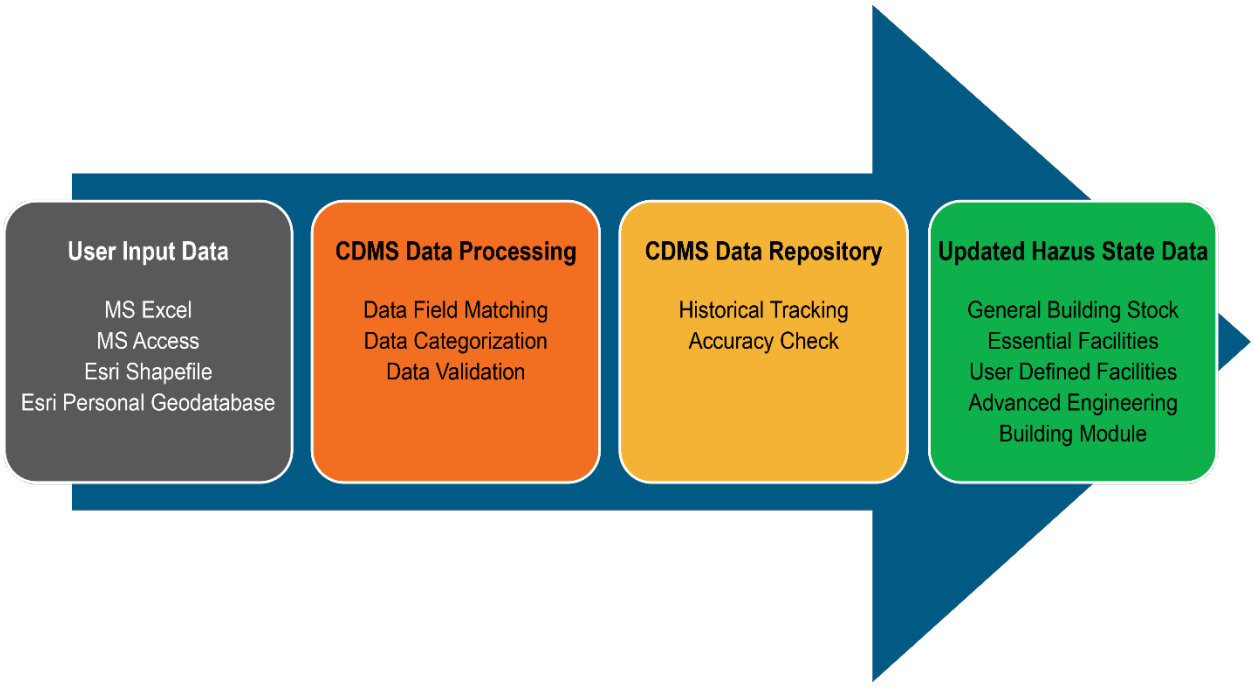
Use the updated Essential Facilities data in a **new Hazus analysis**

Package the updated Hazus data and distribute to other Hazus users



CDMS is designed for the existing Hazus data structure. As outlined in Figure 1-2, the CDMS system will accept information in a variety of user-supplied formats. CDMS contains field matching and validation routines to allow the user to control data import. Once validation occurs, data are maintained within the **CDMS Repository** until the user requests that the data be merged with the Hazus database for their state.

Figure 1-2: Workflow for Updating Hazus Data Using CDMS



2 CDMS Menu Options and General Functionality

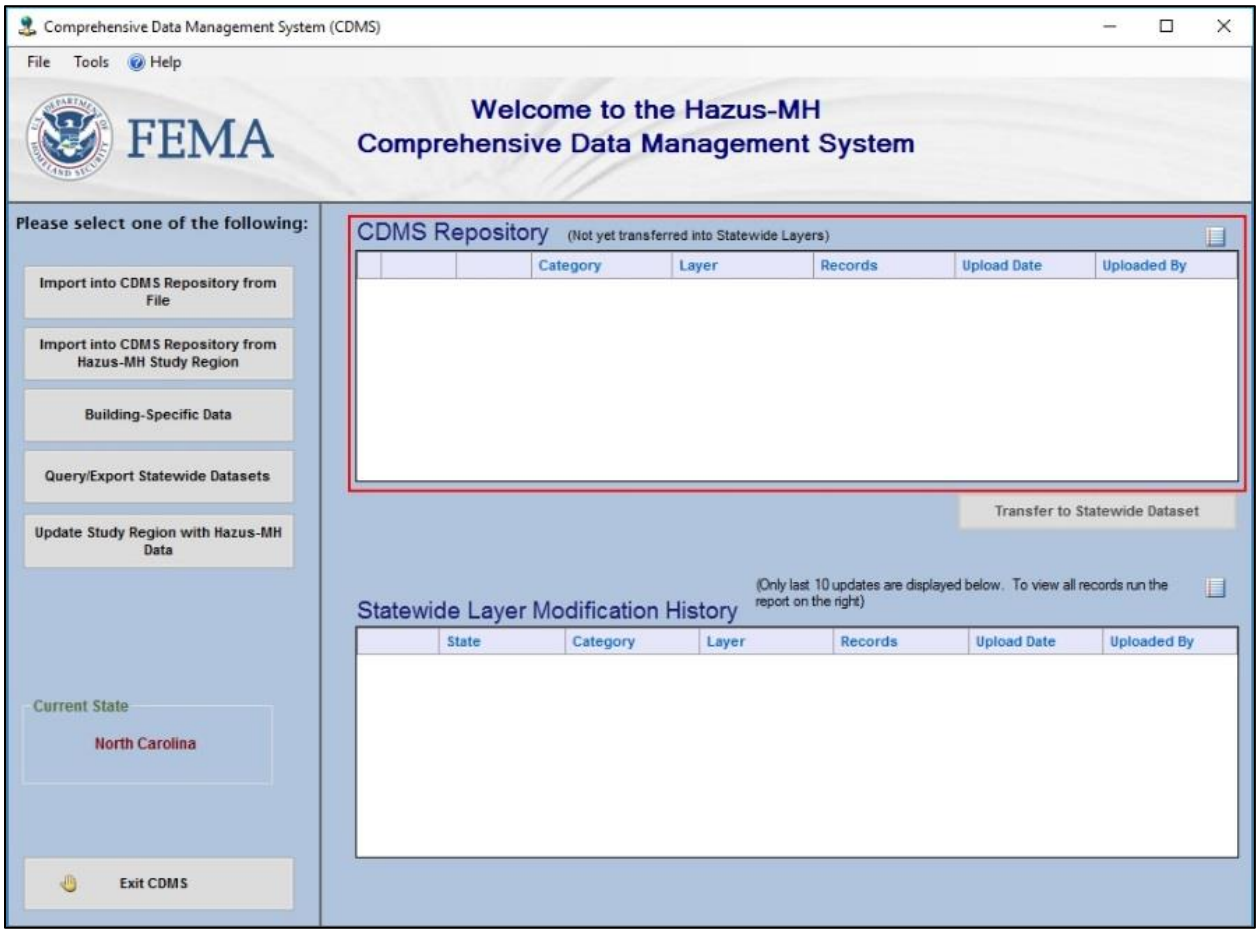
The CDMS application installs with the Hazus software. To launch CDMS, from the Windows Start button, choose **All Programs** > **FEMA Risk Assessment System** > **CDMS** or double click the desktop icon.

The **CDMS Home** screen serves as the central location from which data modification activities can be started. Once launched, the **CDMS Home** screen can be returned to from any screen in the system. The **CDMS Home** screen items include:

- CDMS Repository.
- Statewide Layer Modification History.
- Functionality options buttons.

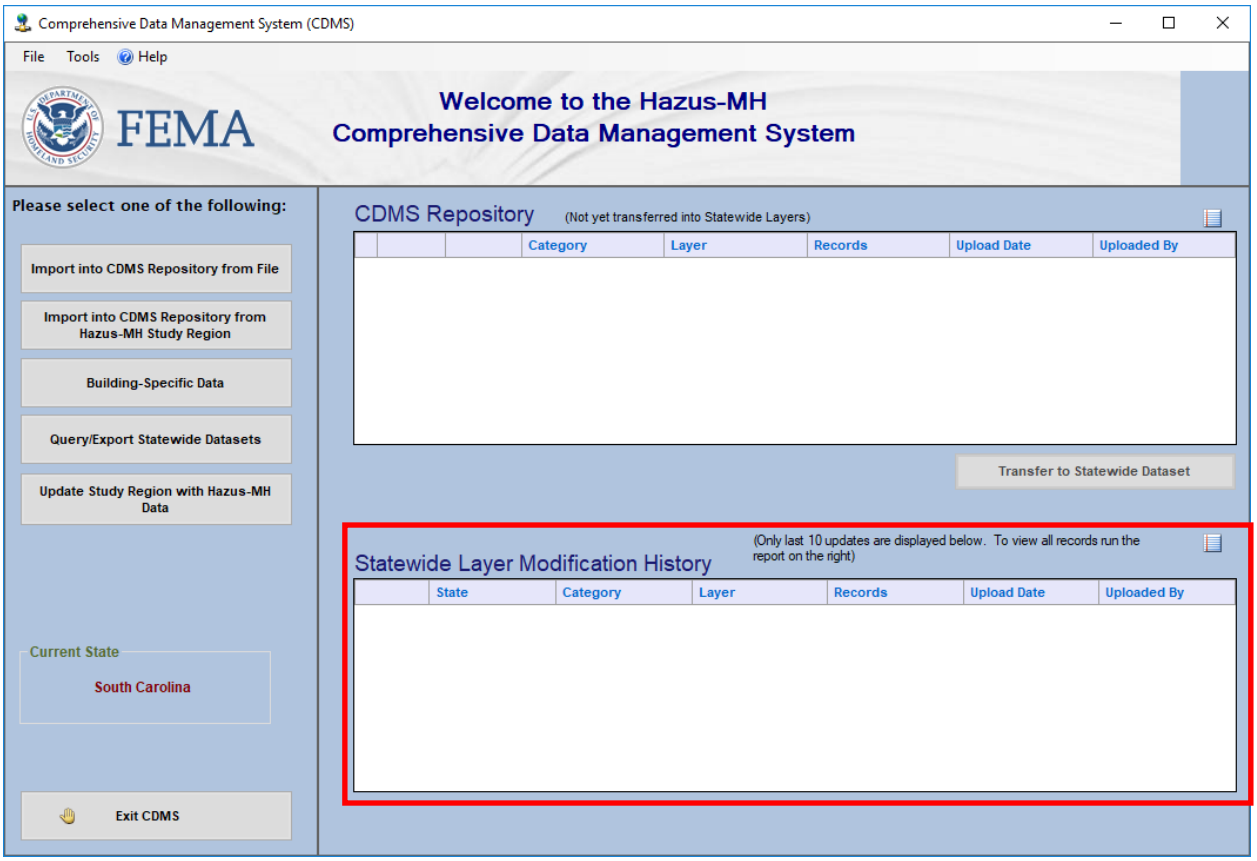
The **CDMS Repository**, as shown in the top half of the **CDMS Home** screen in Figure 2-1, stores any user data that have been imported and converted to the Hazus data structures. Data visible in this window have not yet been merged or transferred to a Hazus state dataset.

Figure 2-1: CDMS Repository



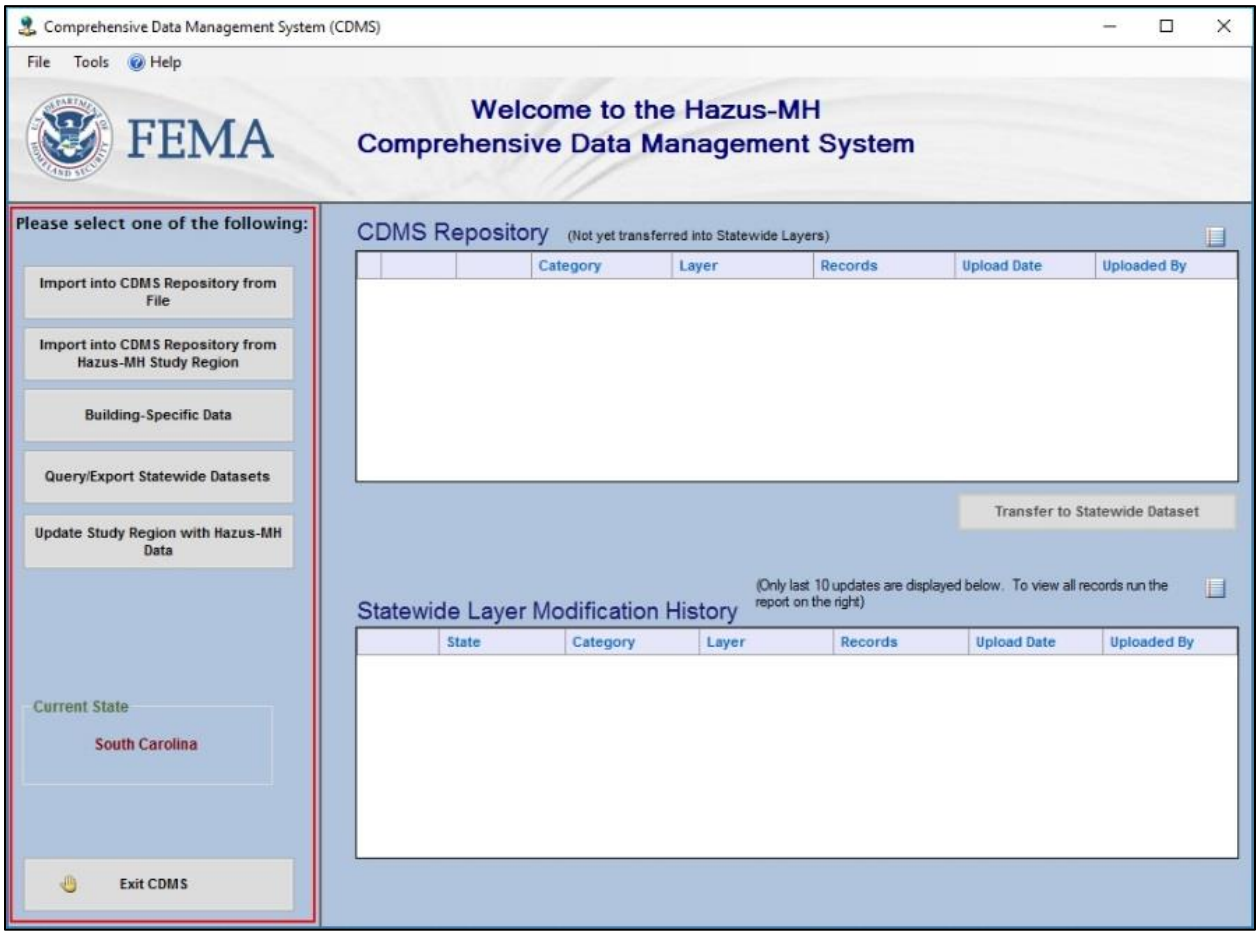
The **Statewide Layer Modification History** is in the bottom half of the **CDMS Home** screen, as shown Figure 2-2. This window is where the data appear after the data have been merged with a Hazus state dataset.

Figure 2-2: Statewide Layer Modification History



The left side of the **CDMS Home** screen contains five functionality buttons that allow navigation to other system functionality. The **Current State** and the **Exit CDMS** buttons are also displayed in this part of the **CDMS Home** screen (Figure 2-3).

Figure 2-3: CDMS Functionality Options



2.1 General Functionality

The menu bar contains items related to general system functionality: **File**, **Tools**, and **Help**.

2.1.1 File Menu

The **File** menu offers three ways to exit the system:

- Select **File** > **Exit** to exit CDMS (Figure 2-4).
- Select the **Exit CDMS** button.
- Select the **X** button in the upper right of the application.

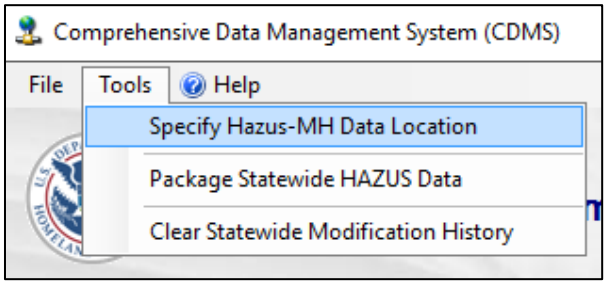
Figure 2-4: File Menu

2.1.2 Tools Menu

The **Tools** menu contains system actions and options (Figure 2-5):

- **Specify Hazus Data Location**.
- Package Statewide Hazus Data.
- Clear Statewide Modification History.

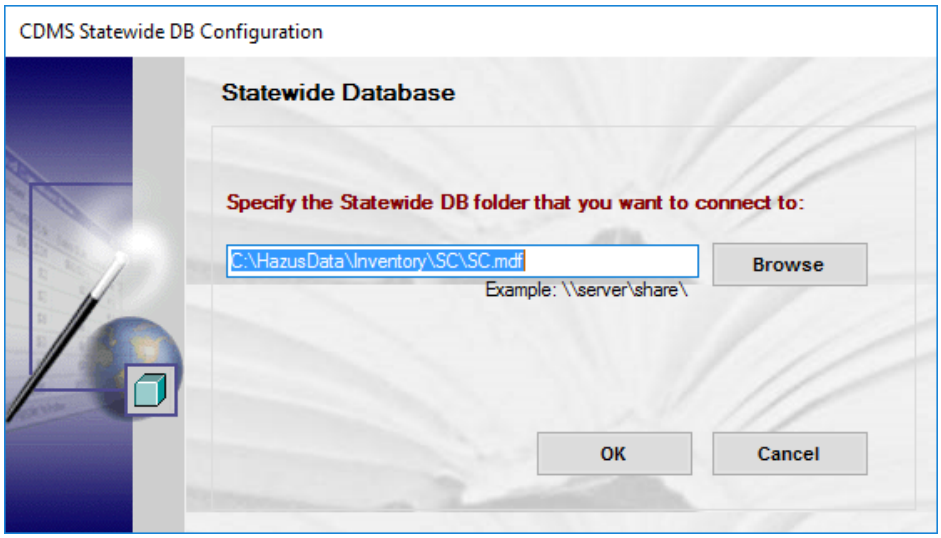
Figure 2-5: Tool Menu



2.1.3 Specify Hazus Data Location

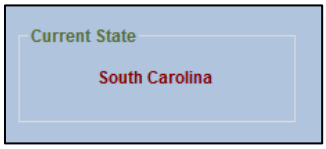
The first time CDMS is launched, the system will not have a specified Hazus state dataset. If a state has been specified, it will appear in the **Current State** area on the left side of the **CDMS Home** screen. If no state has been specified, a label will appear and will state "**Please Select Hazus Statewide Data Location**." Hazus organizes data on a state-by-state basis. CDMS will only work with one Hazus state dataset at once. Select the **Tools** option and then select **Specify Hazus Data Location**. A new form will open and ask the user to specify a statewide database folder, as shown in Figure 2-6. Connect to a folder by entering the folder name or by clicking the **Browse** button, choosing the folder, and clicking the **OK** button.

Figure 2-6: Statewide Database



CDMS will inspect the selected directory to verify that the state database is valid. When the system has completed the verifications, the state name for the specified directory will appear under **Current State** on the left side of the **CDMS Home** screen (Figure 2-7).

Figure 2-7: Current State



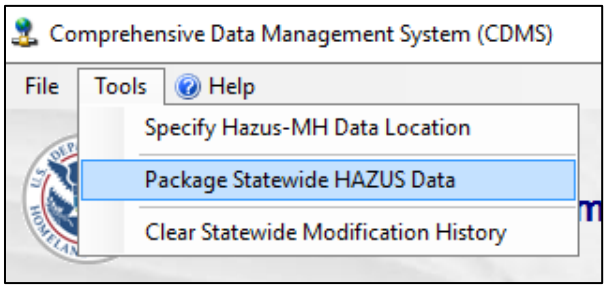
Now modifications can be performed on the Hazus state data. CDMS will retain the connection to the selected state data location until the data path points to another state data folder.

2.1.4 Package Statewide Hazus Data

Hazus state datasets can be packaged in a zip file format for easy distribution to other users or for backup. Users can only package the state specified in **Current State**.

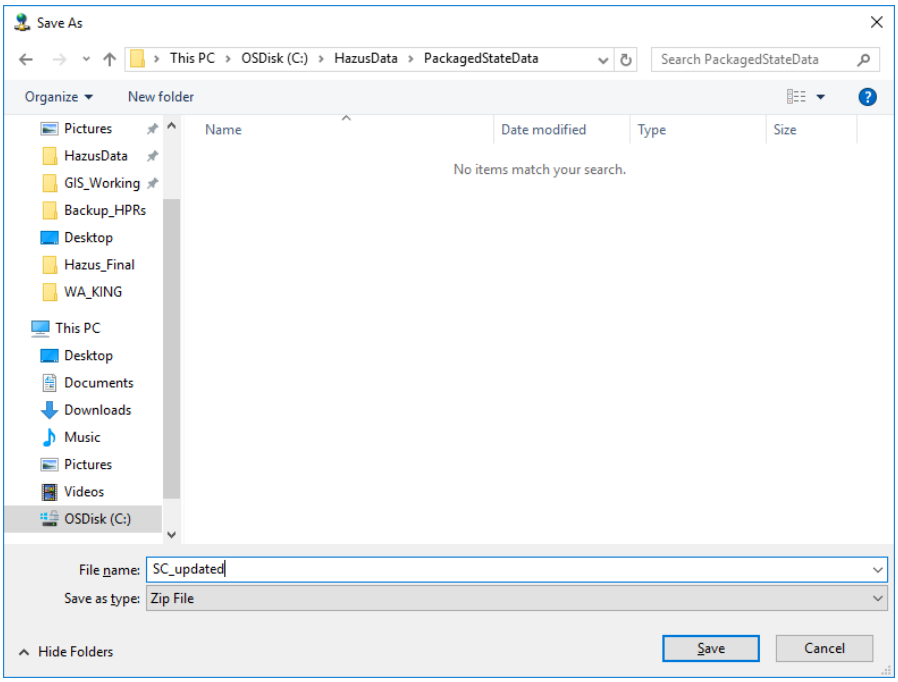
To package statewide data files, select **Tools** from the menu at the top of the screen and select **Package Statewide Hazus Data** (Figure 2-8).

Figure 2-8: Package Statewide Hazus Data



A new window will appear in which a zip file name (Figure 2-9) must be entered. Enter the name of the zip file and specify the folder in which it will be saved. Click the **Save** button and the window will close. The data will be saved to the specified folder, and a confirmation message will appear.

Figure 2-9: Package State Data File Window

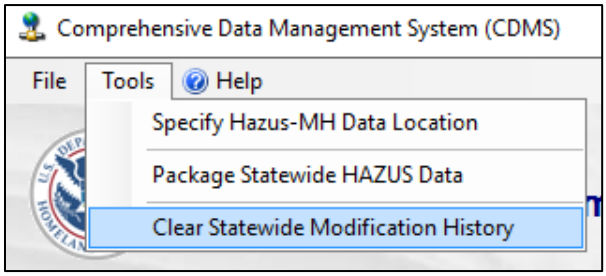


2.1.5 Clear Statewide Layer Modification History

CDMS tracks the history of updates made to Hazus state datasets. As data are updated in CDMS and transferred to Hazus statewide datasets, a log will be available from the **CDMS Home** screen under the title **Statewide Layer Modification History**. This history is kept until the statewide data location is changed or the **Clear Statewide Modification History** menu item is used to remove it. The **CDMS Home** screen will refresh with all of the data removed from the page.

To clear the statewide modification history, select **Tools** from the menu at the top of the screen and select **Clear Statewide Modification History** (Figure 2-10). Clearing the Statewide Modification History is required for the user to change from one state to another. Clearing the history does not delete any data the user has updated for their current state. It simply removes the entries from the history so a new state can be worked on.

Figure 2-10: Clear Statewide Modification History

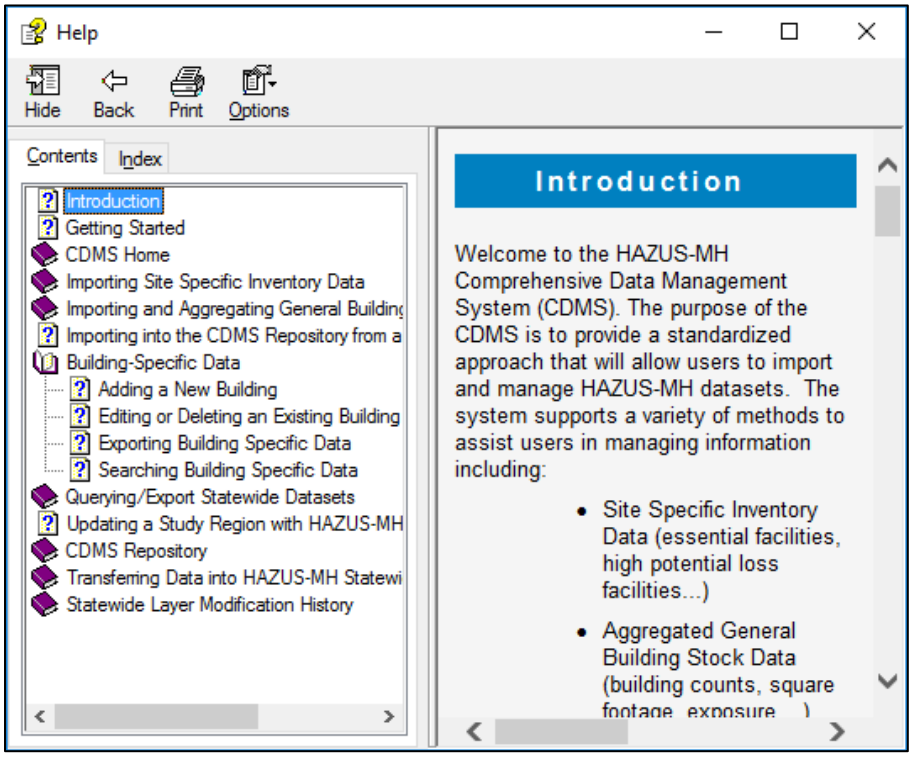


2.1.6 Help Menu

CDMS provides an online help menu with information that is provided in this document to help with navigating through and performing data update operations.

To access the Help system, select **Help** > **Contents** (Figure 2-11).

Figure 2-11: Help Menu



3 Importing Site-Specific Inventory Data

The accuracy of the Hazus-provided default site-specific inventory varies considerably by category and state. Site-specific inventory data originated from a multitude of national sources. The vintage of each dataset is provided in accompanying metadata files inside each Study Region. The *CDMS Data Dictionary* is a valuable resource because it can demonstrate how to update state databases. The import function of CDMS allows inventory data to be imported, validated, and converted into a format that can be merged into Hazus state datasets.

Site-specific facilities that Hazus analyzes vary with each model. For example, bridges are analyzed in the earthquake model but not the hurricane model. The variations by model can help determine how to prioritize the inventory categories that need to be updated for each model. There is considerable interest in modeling buildings in Hazus. The most common workflow uses building locations that have been clipped to the hazard boundaries (e.g., 500-year flood boundary). These flood-prone buildings are imported into Hazus as UDFs. A UDF is a type of site-specific data. Very few UDF records come with Hazus, although starting with Hazus version 4.2, partially developed UDF data can be imported and CDMS will populate the remaining attributes with default values based on user-supplied building square footage and occupancy class. User-supplied data can be collected, classified, and imported into a Hazus state dataset using CDMS. More specific information can be located in the Hazus Earthquake User Manual and/or the Hazus Earthquake Technical Manual.

Site-specific inventory data should be imported when updating individual records such as Essential Facilities, High Potential Loss Facilities, and UDFs. For earthquake analysis, AEBM information with occupancy type, earthquake building type, and earthquake design level can also be imported.

The workflow for importing site-specific inventory is:

- Select a source data file.
- Specify the destination category.
- Define source data parameters.
- Match fields.
- Identify validation issues.
- Categorize data.
- View the results in the **CDMS Repository**.

3.1 Selecting a Source Data File

From the **CDMS Home** screen:

- Click the **Import into CDMS Repository from File** button (Figure 3-1).
- Specify a source file by clicking the **Browse** button and selecting a source file (Figure 3-2).
- Click the **Open** button to import the file (Figure 3-3).

Figure 3-1: Repository Import

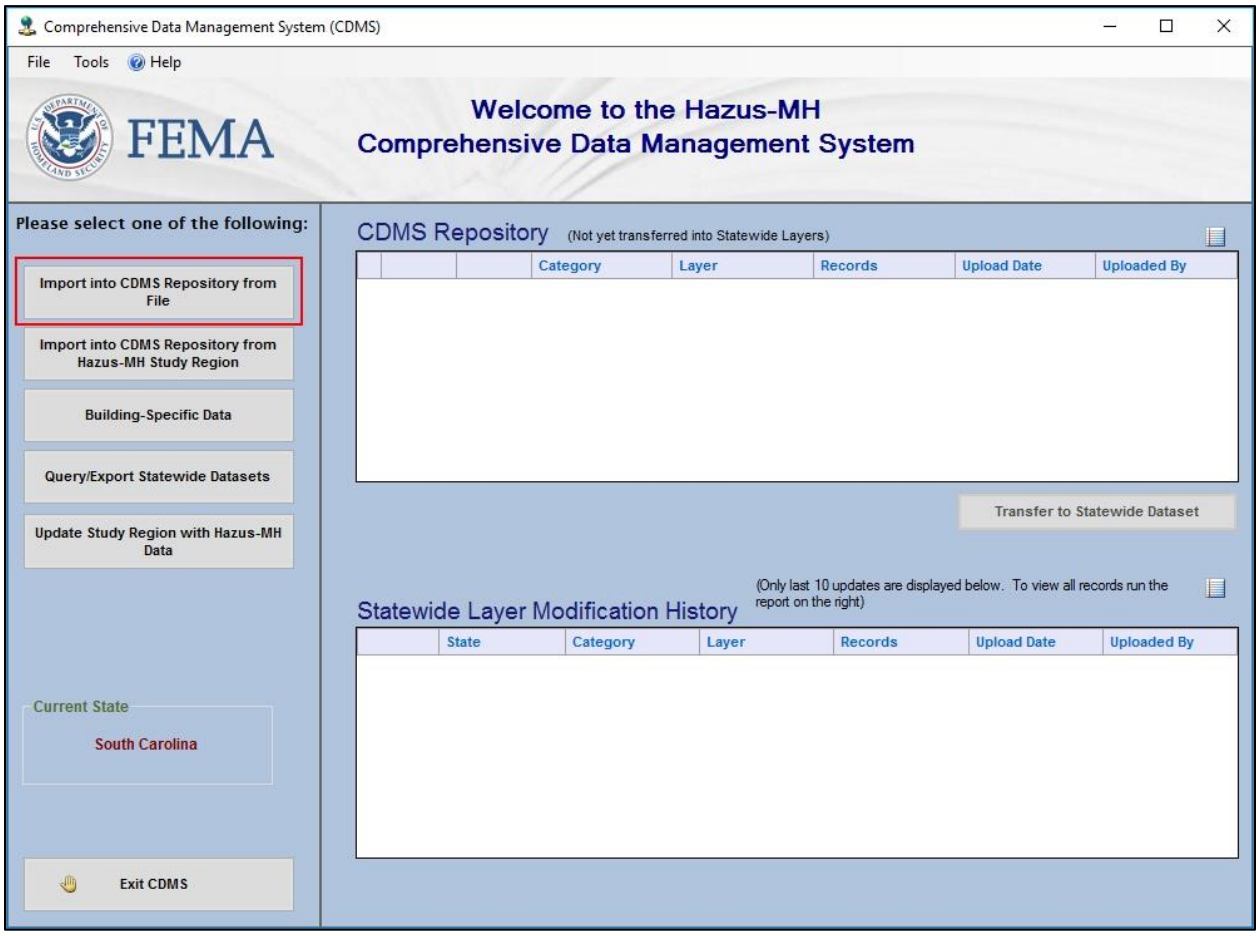


Figure 3-2: File Import into Repository

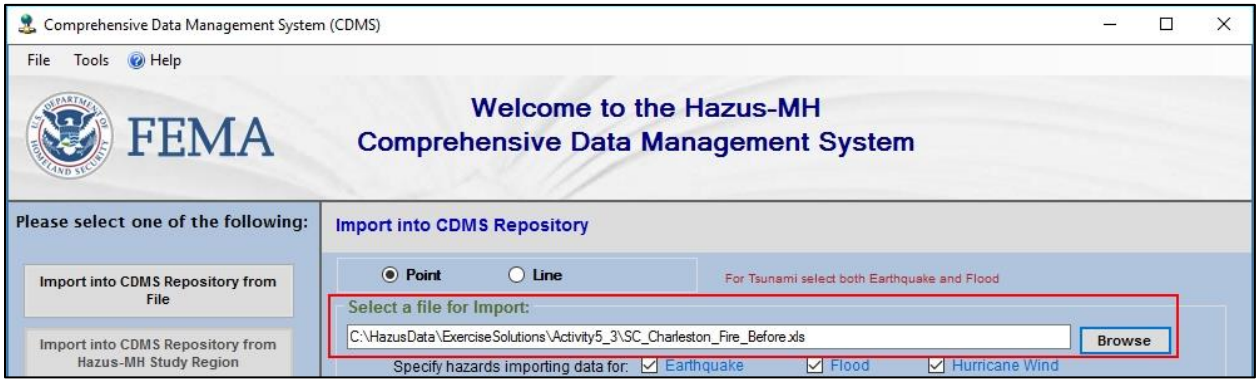
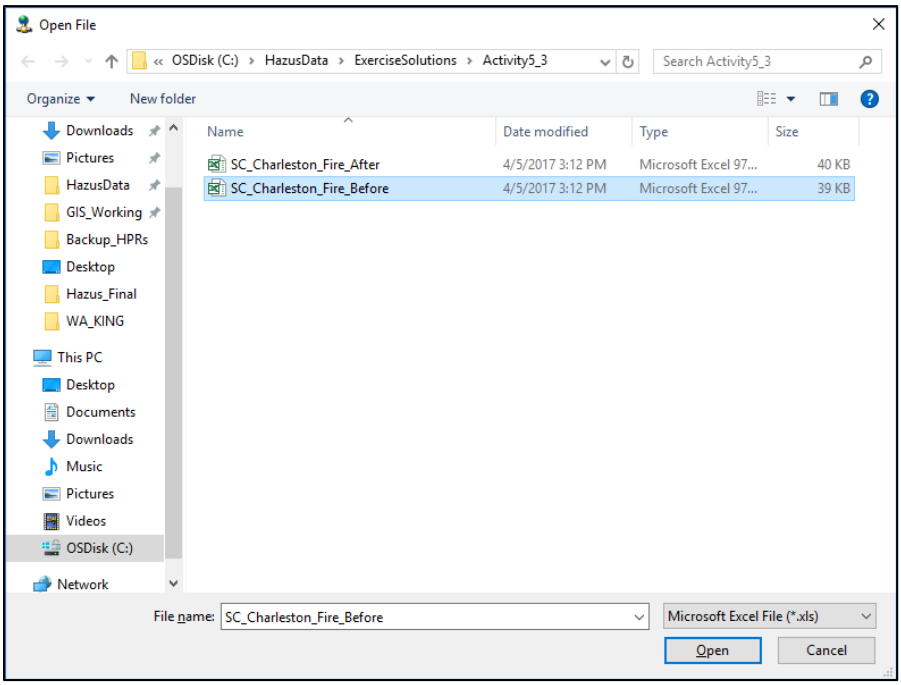
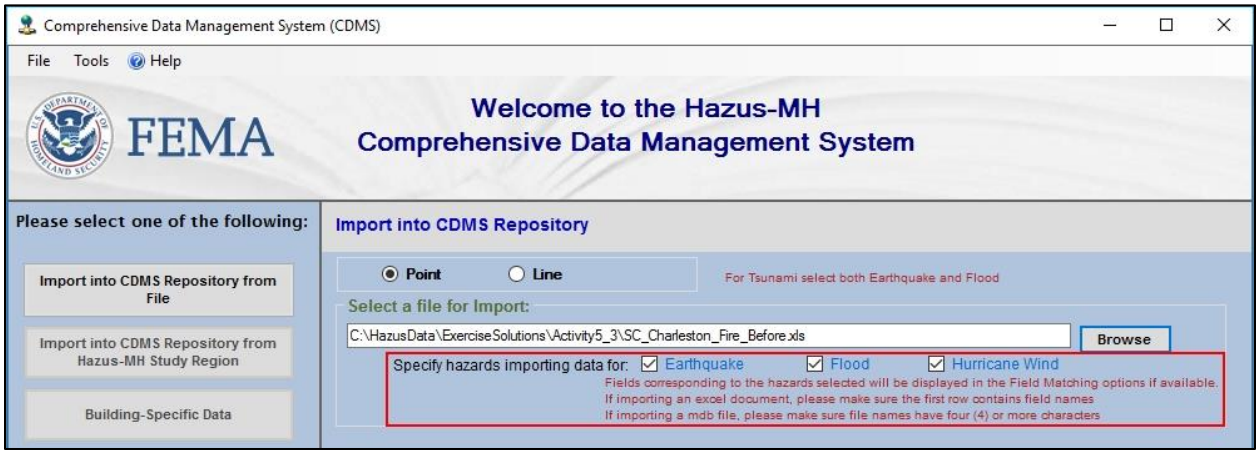


Figure 3-3: Open File to Import into Repository



One or more hazards also need to be selected by clicking the check box (or boxes) under the file path, as shown Figure 3-4, to limit updates to partial information for a dataset. Based on the hazards that are selected, additional hazard-specific structure vulnerability attributes are needed. By default, all three hazards are selected, but one or more can be deselected before continuing.

Figure 3-4: Select Hazard for Import Data



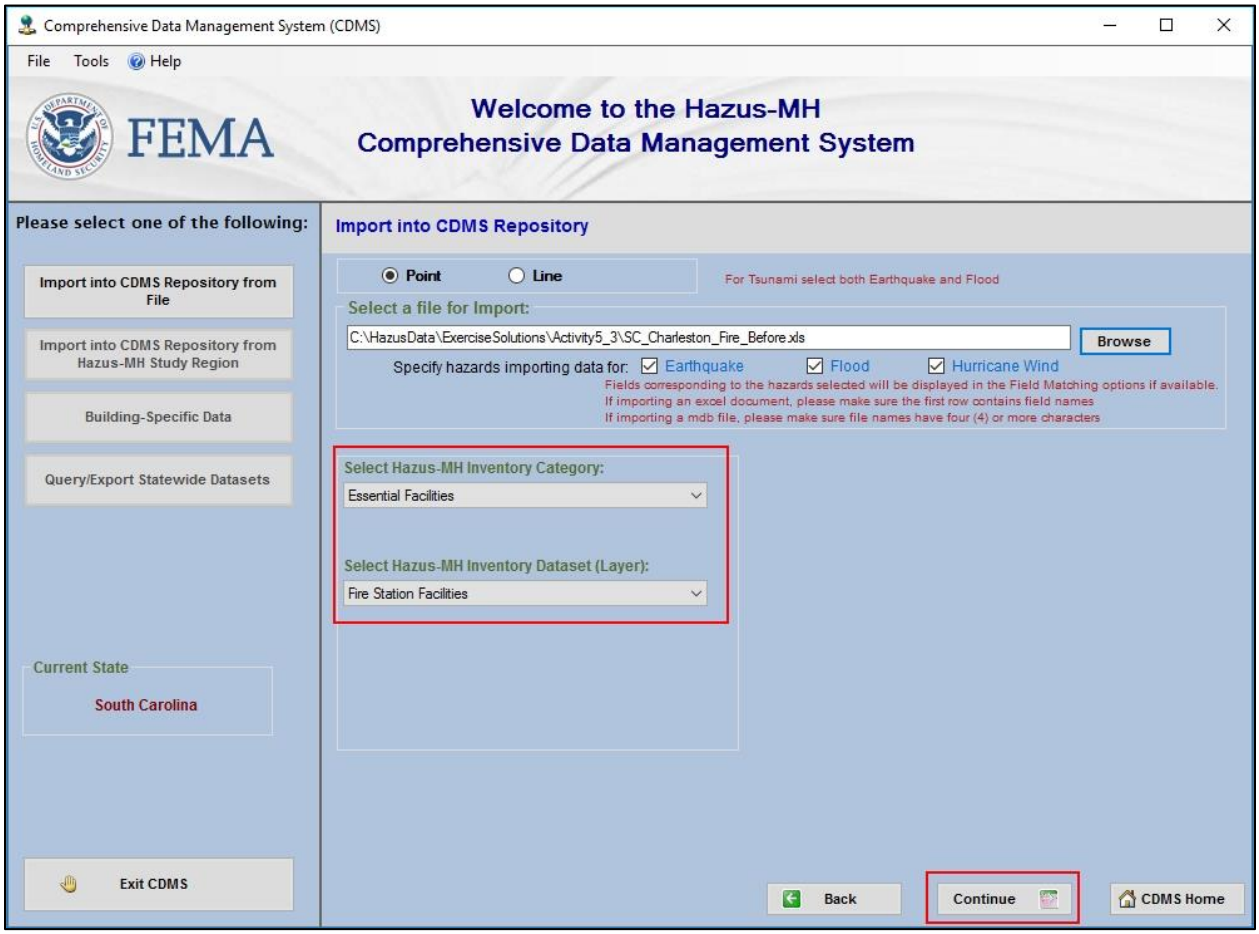
3.2 Specifying the Destination Category

A destination must be specified for each imported file. The destination is determined according to which inventory category and dataset are selected (Figure 3-5).

To import site-specific inventory data, a site-specific inventory category (e.g., Essential Facilities, Transportation Systems) must be selected:

- Select a category from the **Select Hazus Inventory Category** dropdown list.
- Select a dataset from the **Select Hazus Inventory Dataset (Layer)** drop down list.
- Click **Continue** at the bottom of the screen to move to the next page.

Figure 3-5: Select Inventory Category

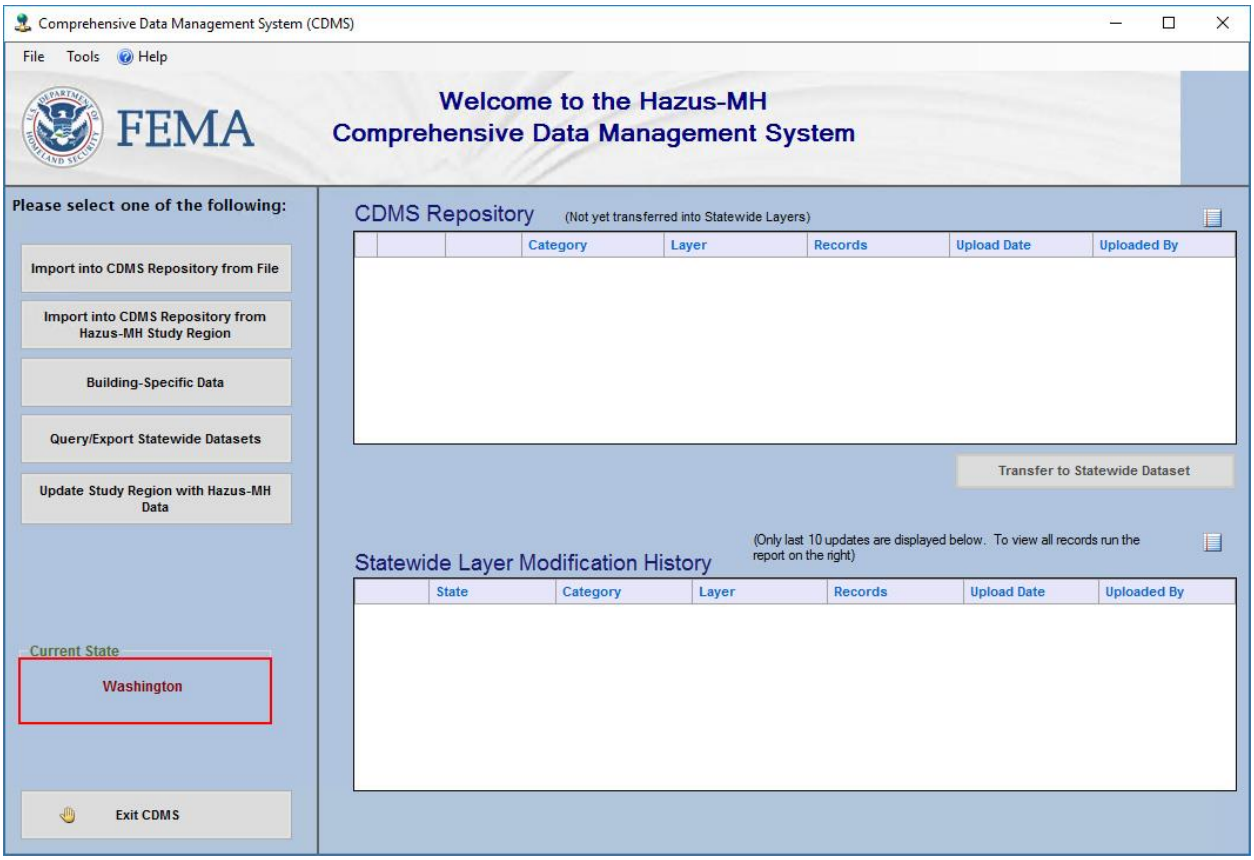


NOTE: Use the Back button to go back and update information as needed. Also use the CDMS Home button to navigate back to the primary navigation screen as needed.

3.3 User-Defined Facilities Data Import

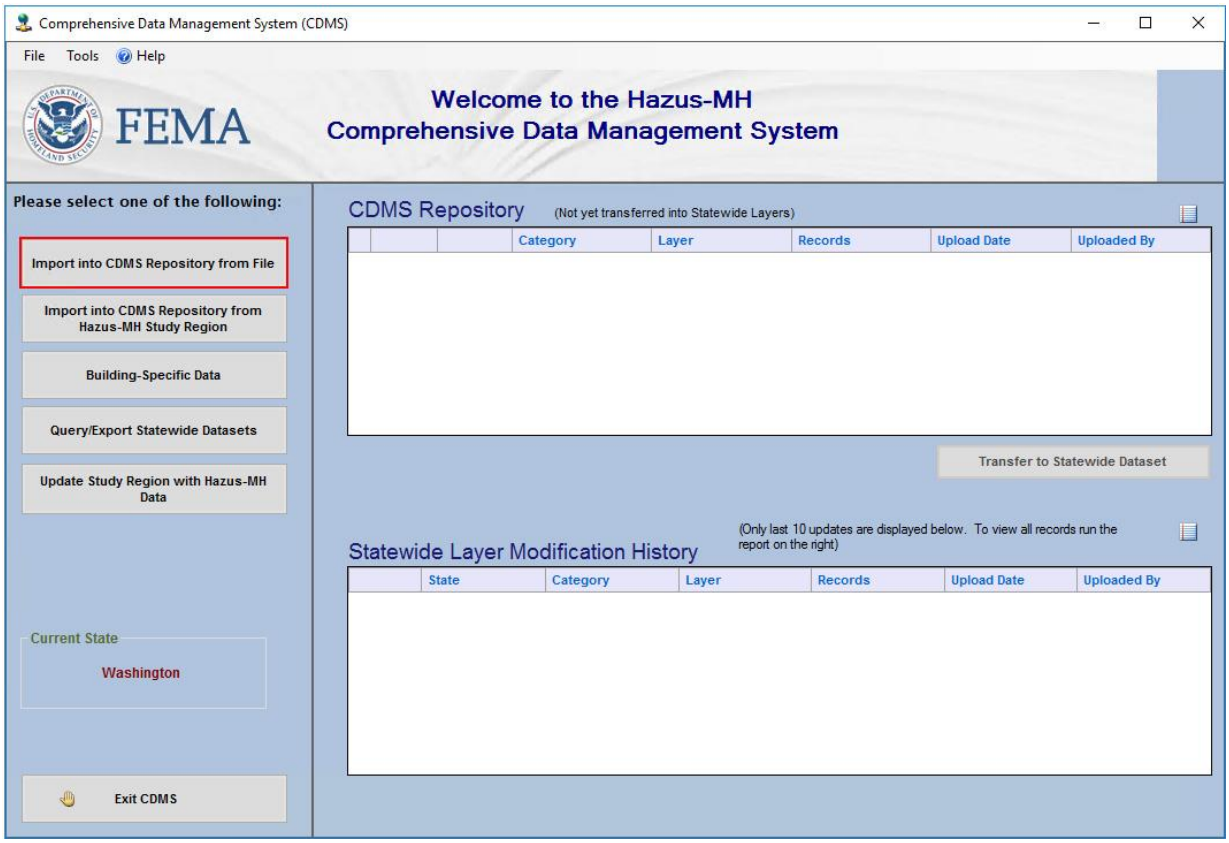
To launch CDMS from the Windows Start button, choose **All Programs** > **FEMA Risk Assessment System** > **CDMS** or double click the desktop icon. Set the **Current State** using **Tools** > **Specify Hazus Data Location** (Figure 3-6).

Figure 3-6: Set the Current State



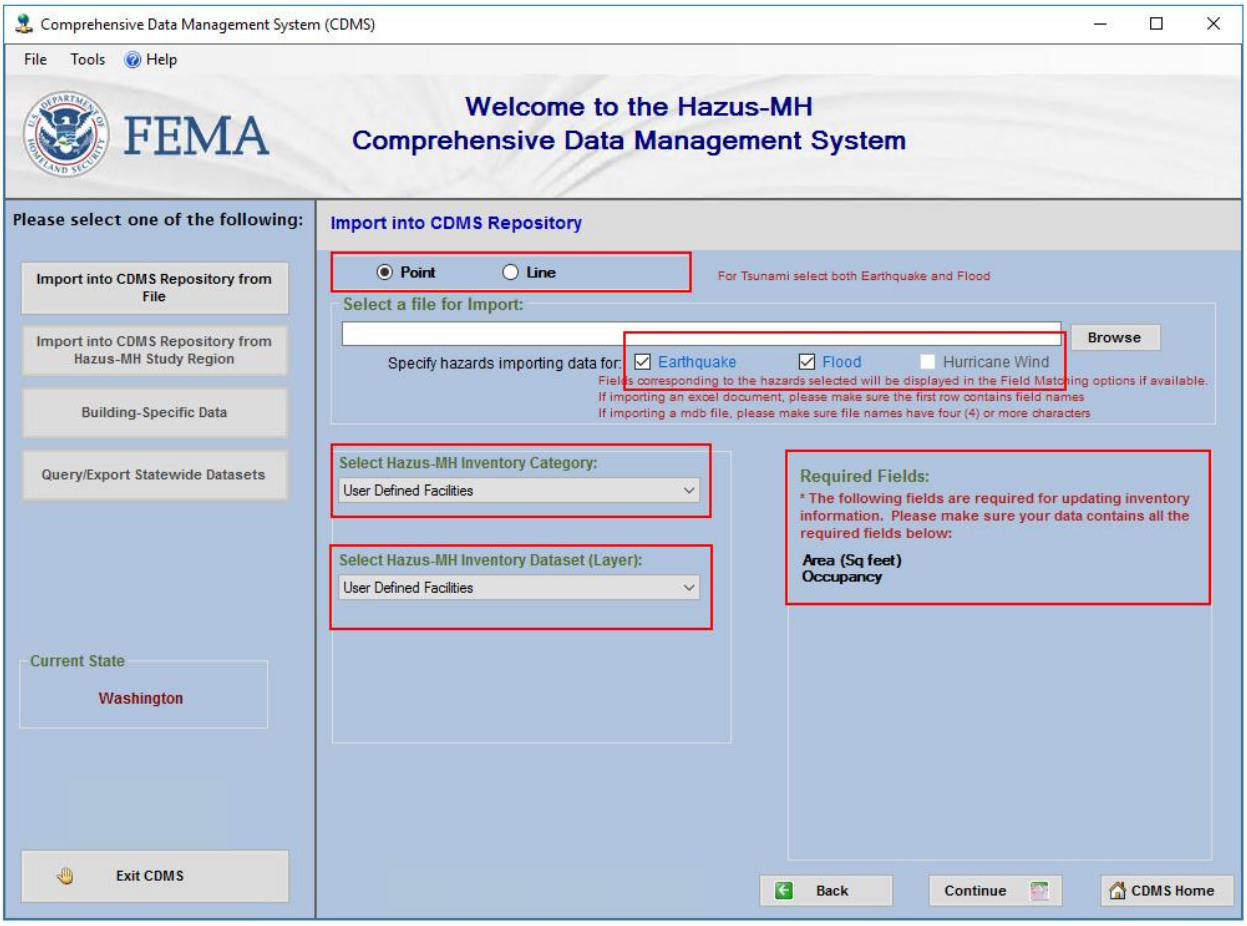
Click **Import into CDMS Repository from File** (Figure 3-7).

Figure 3-7: Selection of CDMS Repository from File into CDMS



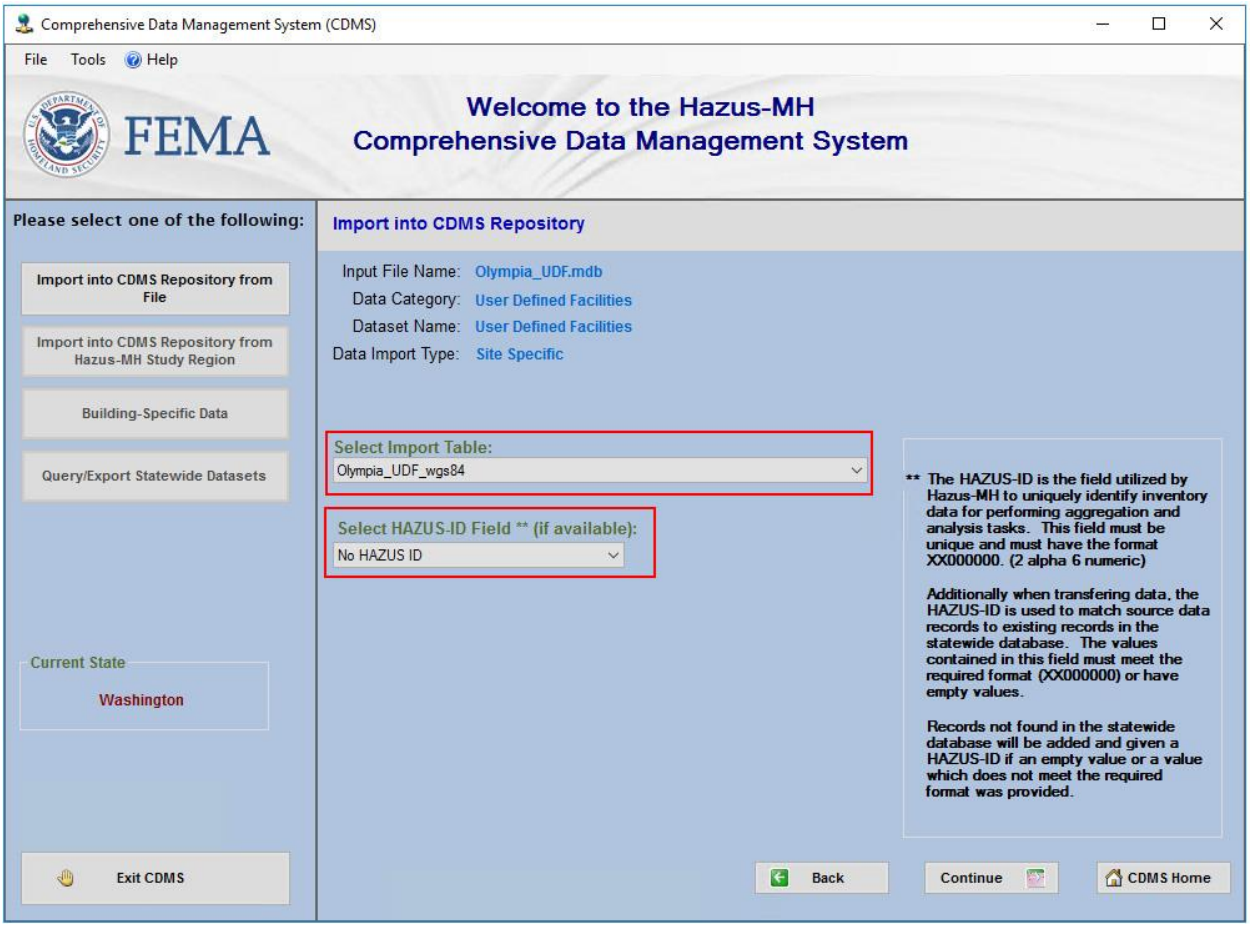
The **Import into CDMS Repository** window will appear (Figure 3-8). The default data type is **Point**. Click the **Line** radio button if needed to change the data type. Click the **Browse** button to select the database that contains the UDF feature class. The data format must be MS Access .mdb, MS Excel .xls, or Esri Shapefile .shp. The default Hazus Inventory Category will be **User-Defined Facilities** as will the default Hazus Inventory Dataset. Please note the minimum required fields (**Area [Sq feet]** and **Occupancy**) before attempting to import data. Including additional fields with local data will omit the populating of default values and result in more accurate model results.

Figure 3-8: Import CDMS Repository File



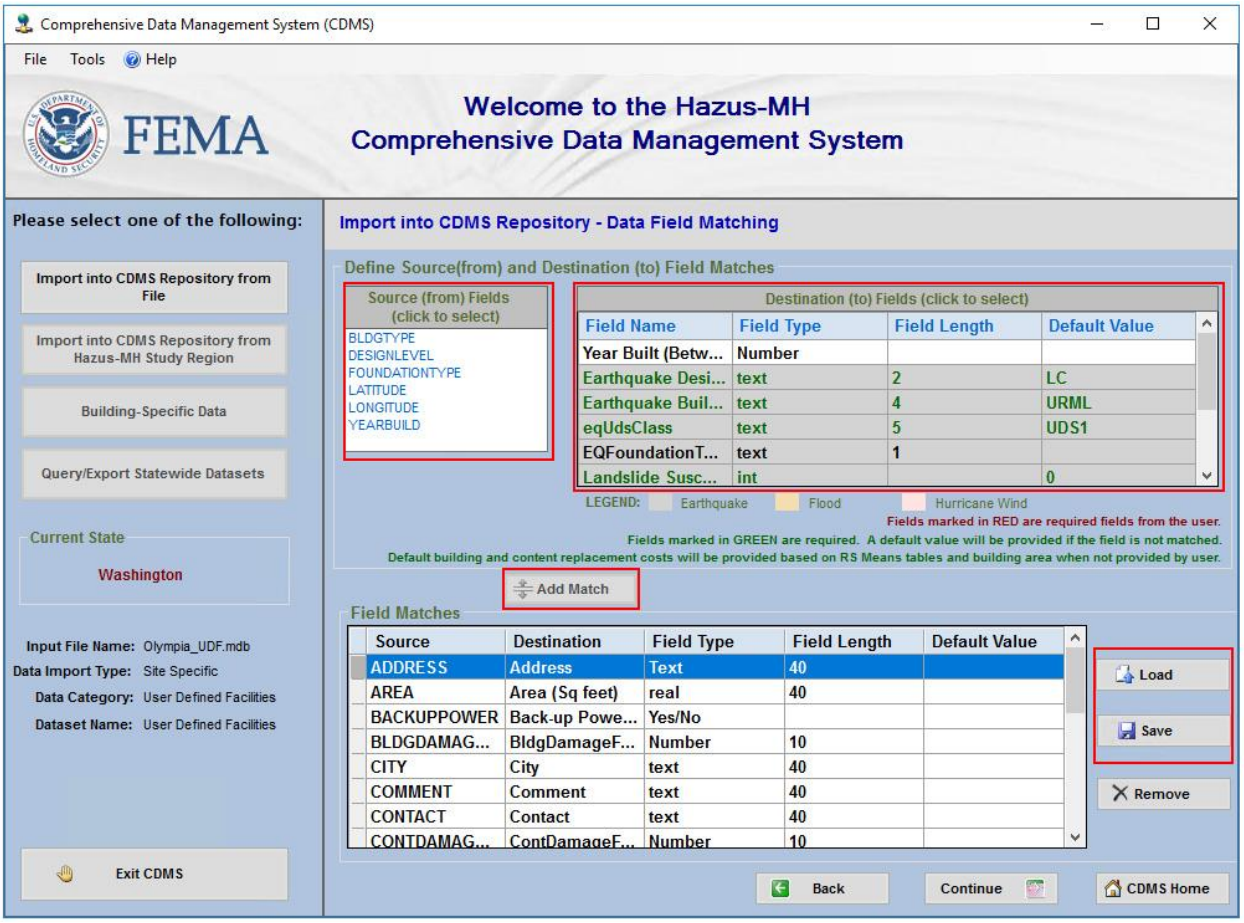
On the next screen (Figure 3-9), select the UDF feature class from the **Select Import Table** dropdown. If a unique field in the feature class is needed, that field can be selected from the **Select Hazus-ID Field** dropdown. Otherwise, use the No HAZUS ID option and CDMS will insert a unique value. Click **Continue**. If the data have not been projected to WGS84, an error message may appear.

Figure 3-9: Selection of File to Import



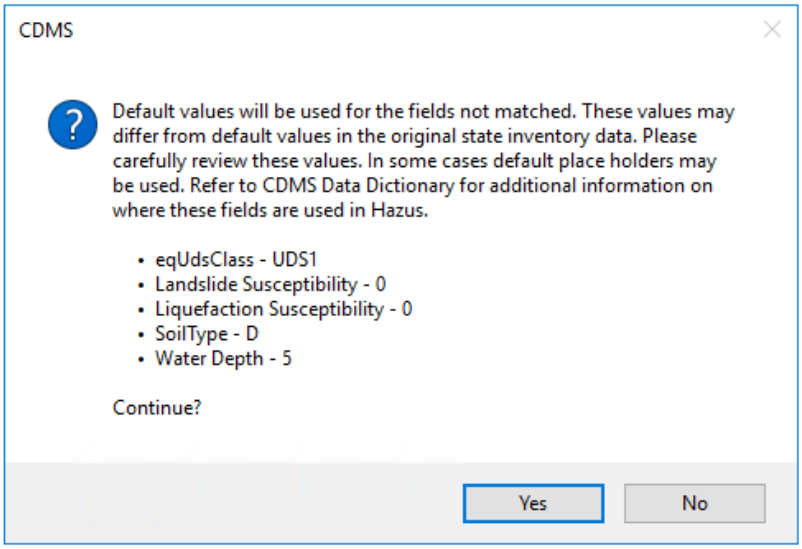
CDMS will automatically map fields that have the same name in the source and destination tables (Figure 3-10). The remaining fields must be mapped. Fields shown in red text in the destination table are required and must be supplied by the user. If the fields in green are not supplied by the user, CDMS will enter standard Hazus default values. Typically, the more data the user supplies, the more accurate the resulting dataset. To map the fields, select a value in the source and destination tables and click **Add Match**. Once the field mapping process is complete, click the **Save** button. If a mapping scheme has already been saved, it can be used by clicking the **Load** button. All mappings will be moved to the **Field Matches** table. Click **Continue** when finished.

Figure 3-10: Data Field Matching



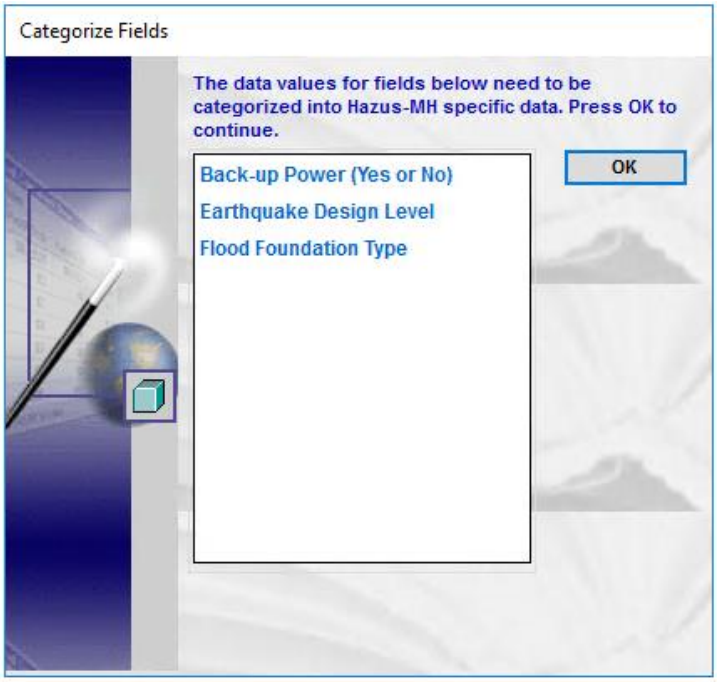
A message box will appear (Figure 3-11) indicating which fields were not supplied with user data and as a result will be populated with default values. Click **Yes** to continue.

Figure 3-11: CDMS Default Value Validation



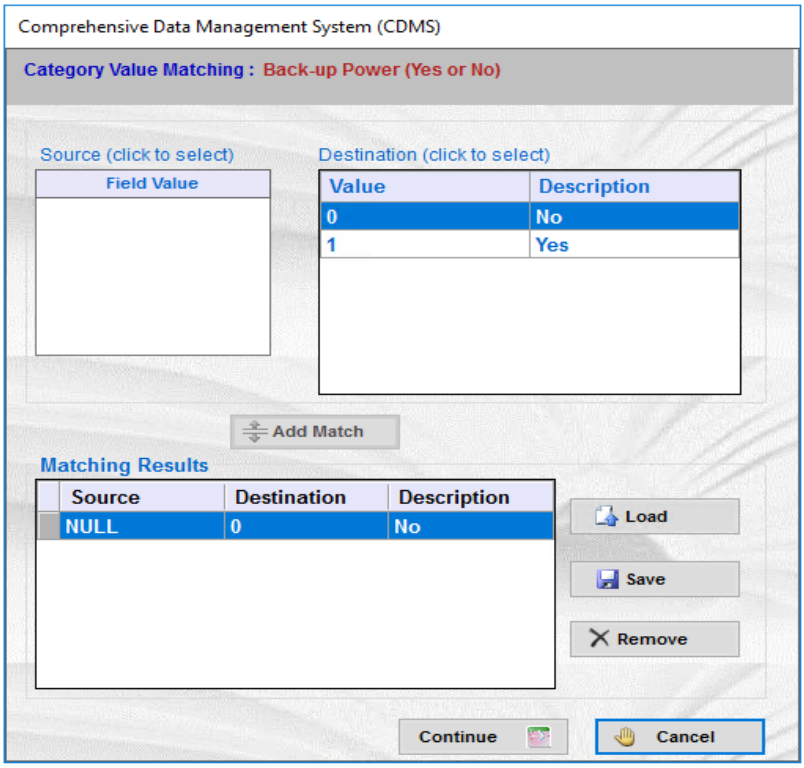
A **Categorize Fields** message will appear (Figure 3-12). Some of the fields that were supplied with data will need to be categorized into Hazus-specific data. If the data that have been imported already use Hazus-compatible attributes, the categorization will be automatic. Click **OK** to continue.

Figure 3-12: Message Box for Missing Fields



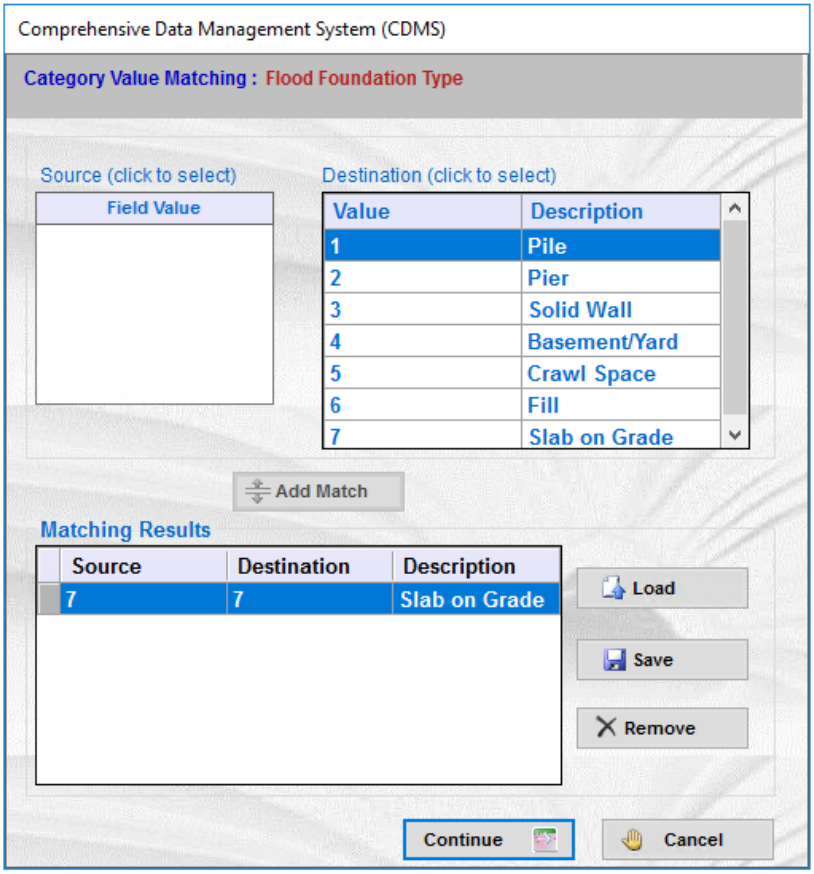
A **Category Value Matching** window will appear (Figure 3-13). To categorize the data, select a value from the **Source** box and then select the corresponding value in the **Destination** table. Click **Add Match**. When all fields are categorized, click **Continue**.

Figure 3-13: CDMS Back-Up Category Value Matching



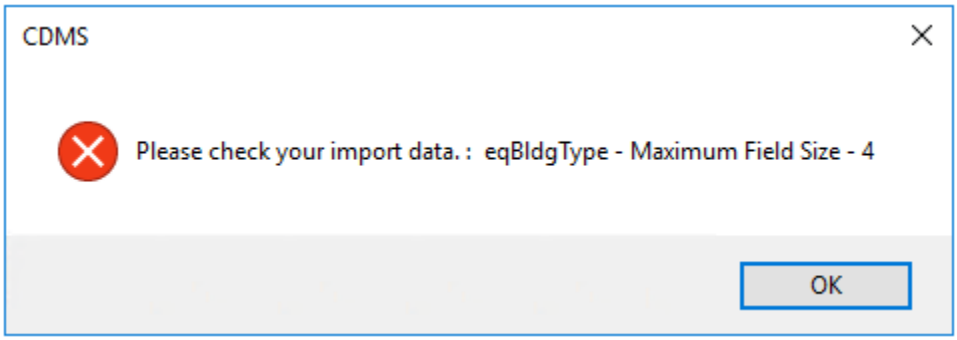
In the example shown in Figure 3-14, the values in the import feature class were already attributed to meet the Hazus requirements for Flood Foundation Type. The field box in Figure 3-14 is empty, indicating that CDMS could move the attributes to the matching result box. Click **Continue** when done.

Figure 3-14: CDMS Flood Foundation Type Value Matching



When the mapping process is complete, CDMS will check all of the data that are to be imported. If any errors are discovered, an error message will appear (Figure 3-15) indicating which data need to be corrected to continue. Click **OK**.

Figure 3-15: CDMS Import Data Error



CDMS will generate an Error Report if CDMS detects an error in the data. The Error Report, shown in Figure 3-16, will help determine the errors. Once all of the errors have been resolved through data validation, the import process can continue.

Figure 3-16: CDMS Validation Error Report

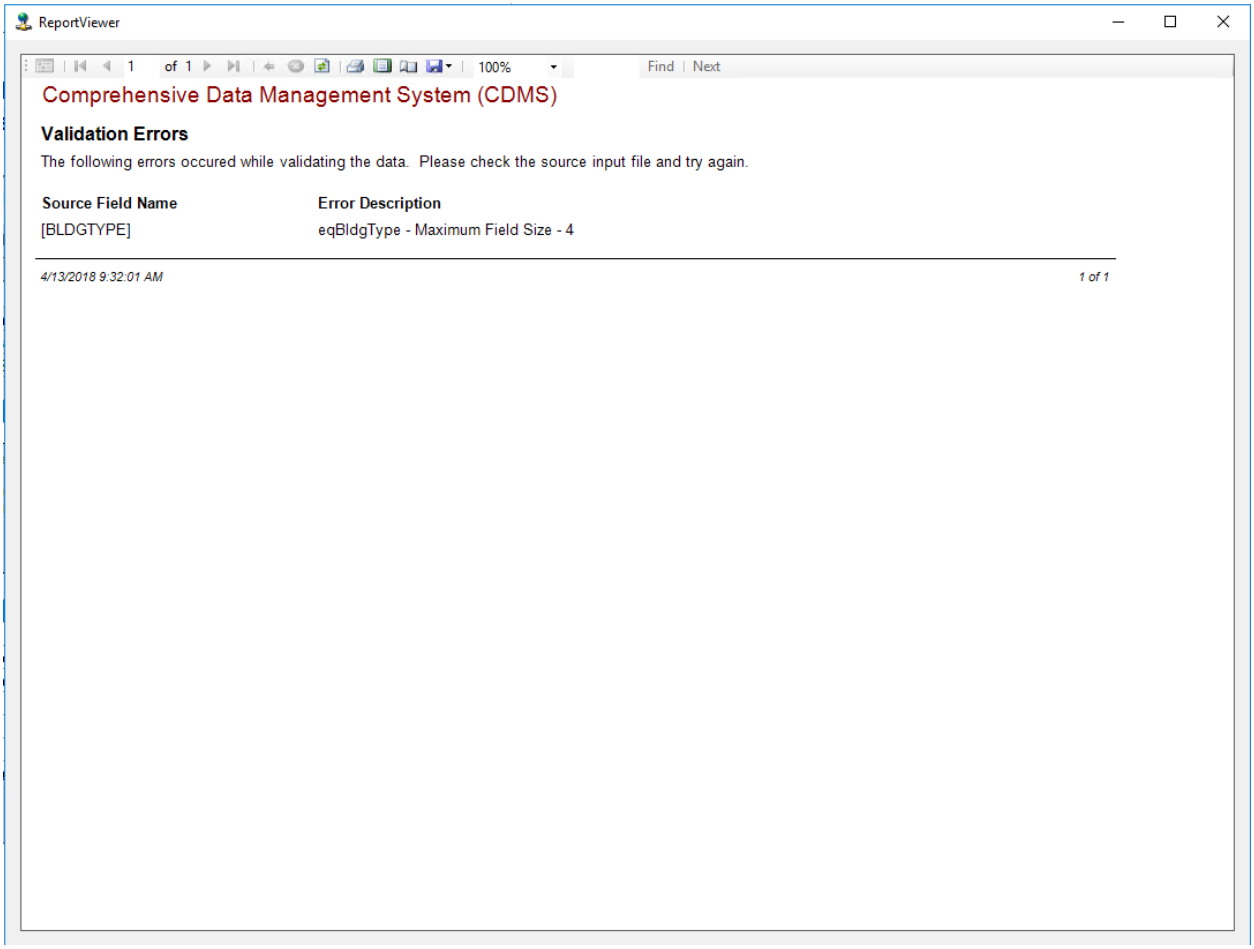
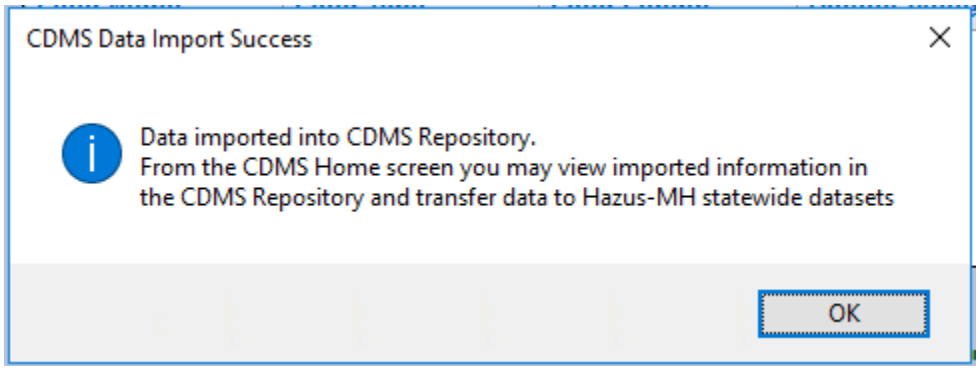
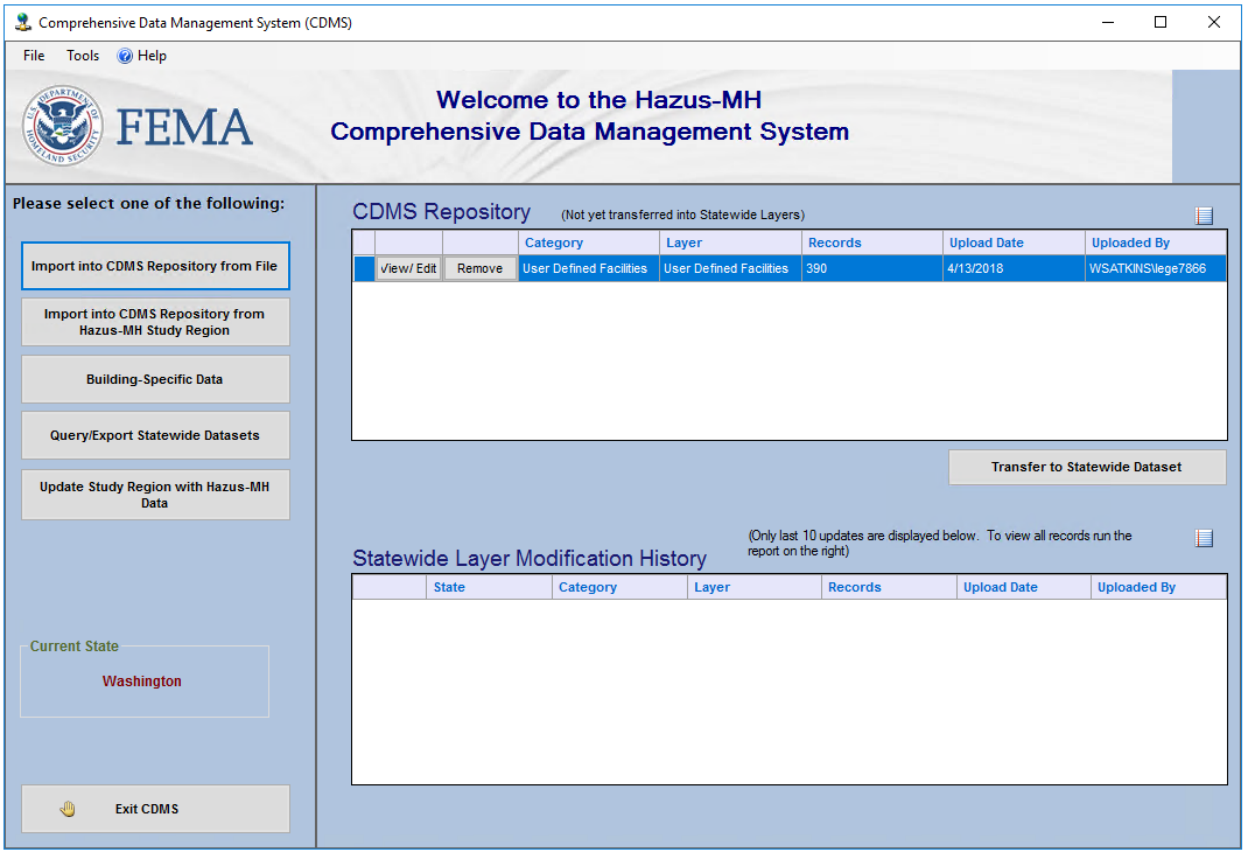


Figure 3-17: CDMS Data Import Success



Once the import process is complete, CDMS will return to the **CDMS Home** screen and the newly imported UDF layer will be listed in the CDMS Repository (Figure 3-18). To use the UDF layer in a Hazus region, it will need to be transferred to a state database. The transfer process is discussed in Section 10.

Figure 3-18: CDMS Repository Data View



3.4 Developing UDF Data

The methods used to create UDF data can vary from person to person and depend on the type of data and on the format that users are provided. The following is a high-level overview of how UDF data can be created.

NOTE: With the release of CDMS 4.2, the only values that the user must provide are building area and occupancy type.

Users often use tabular data from a city or county tax assessor's office, in addition to a separate spatial dataset that can be either address points or parcels, when creating UDF data. The assessor's data typically contain many useful data points, such as parcel ID, occupancy, building area, year built, building cost, number of stories, and construction type. The address or parcel data may have a few fields, but the most useful field, **parcel ID**, can be used to join the two datasets.

3.4.1 UDF Data Creation Steps

To create UDF data:

1. Obtain data containing tabular building information and spatial location.
2. Review data to gain an understanding of the contents.
3. Join tabular data to the spatial location data using a common field, often **parcel ID**.
4. It can be helpful to add the fields from Table 3-1 after performing the join. This will make the field mapping in CDMS go more smoothly.
5. Transfer the values from the supplied data to the newly created fields. At a minimum, the user must supply occupancy type and building area. If the area is not provided and the spatial data are building footprints, the area may be obtained by using the area of the footprint.
6. Follow the CDMS UDF import process described in Section 3.3.

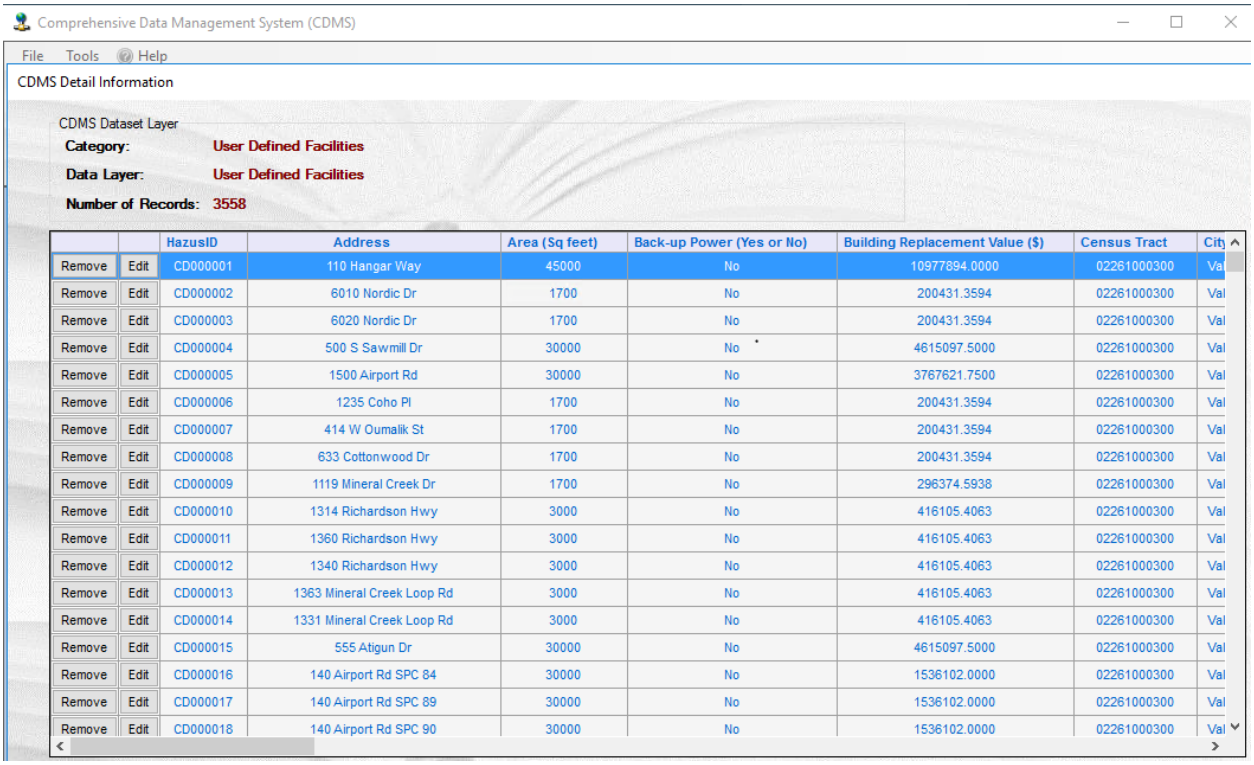
Table 3-1: Sample CDMS Data Schema

Field Name	Type	Size*	Field Name	Type	Size*
CONTACT	Text	40	LONGITUDE	Double	16
NAME	Text	40	COMMENT	Text	40
ADDRESS	Text	40	CONTENTCOST	Float	8
CITY	Text	40	DESIGNLEVEL	Text	1
STATE	Text	2	FOUNDATIONTYPE	Text	1
ZIPCODE	Text	40	FIRSTFLOORHT	Double	8
PHONENUMBER	Text	47	SHELTERCAPACITY	Short	2
OCCUPANCY	Text	5	BLDGDAMAGEFNID	Text	10
YEARBUILD	Short	2	CONTDAMAGEFNID	Text	10
COST	Float	8	INVDAMAGEFNID	Text	10
BACKUPPOWER	Text	1	FLOODPROTECTION	Long	4
NUMSTORIES	Short	1	SOILTYPE	Text	5
AREA	Float	4	LQFSUSCAT	Short	
BLDGTYPE	Text	15	LNDSUSCAT	Short	
LATITUDE	Double	16	WATERDEPTH	Double	

*Size is based on type: text – character amount; numbers (float, double, short) – number of digits in the value

Figure 3-19 displays some of the records from a sample import. Notice that the **Building Replacement Value** column is populated even though these values were not included in the import table. CDMS is able to attribute some fields by deriving the value from other attributed fields based on some default Hazus calculations.

Figure 3-19: Sample Output After Import



		HazusID	Address	Area (Sq feet)	Back-up Power (Yes or No)	Building Replacement Value ($)	Census Tract	City
Remove	Edit	CD000001	110 Hangar Way	45000	No	10977894.0000	02261000300	Val
Remove	Edit	CD000002	6010 Nordic Dr	1700	No	200431.3594	02261000300	Val
Remove	Edit	CD000003	6020 Nordic Dr	1700	No	200431.3594	02261000300	Val
Remove	Edit	CD000004	500 S Sawmill Dr	30000	No	4615097.5000	02261000300	Val
Remove	Edit	CD000005	1500 Airport Rd	30000	No	3767621.7500	02261000300	Val
Remove	Edit	CD000006	1235 Coho Pl	1700	No	200431.3594	02261000300	Val
Remove	Edit	CD000007	414 W Oumalik St	1700	No	200431.3594	02261000300	Val
Remove	Edit	CD000008	633 Cottonwood Dr	1700	No	200431.3594	02261000300	Val
Remove	Edit	CD000009	1119 Mineral Creek Dr	1700	No	296374.5938	02261000300	Val
Remove	Edit	CD000010	1314 Richardson Hwy	3000	No	416105.4063	02261000300	Val
Remove	Edit	CD000011	1360 Richardson Hwy	3000	No	416105.4063	02261000300	Val
Remove	Edit	CD000012	1340 Richardson Hwy	3000	No	416105.4063	02261000300	Val
Remove	Edit	CD000013	1363 Mineral Creek Loop Rd	3000	No	416105.4063	02261000300	Val
Remove	Edit	CD000014	1331 Mineral Creek Loop Rd	3000	No	416105.4063	02261000300	Val
Remove	Edit	CD000015	555 Atigun Dr	30000	No	4615097.5000	02261000300	Val
Remove	Edit	CD000016	140 Airport Rd SPC 84	30000	No	1536102.0000	02261000300	Val
Remove	Edit	CD000017	140 Airport Rd SPC 89	30000	No	1536102.0000	02261000300	Val
Remove	Edit	CD000018	140 Airport Rd SPC 90	30000	No	1536102.0000	02261000300	Val

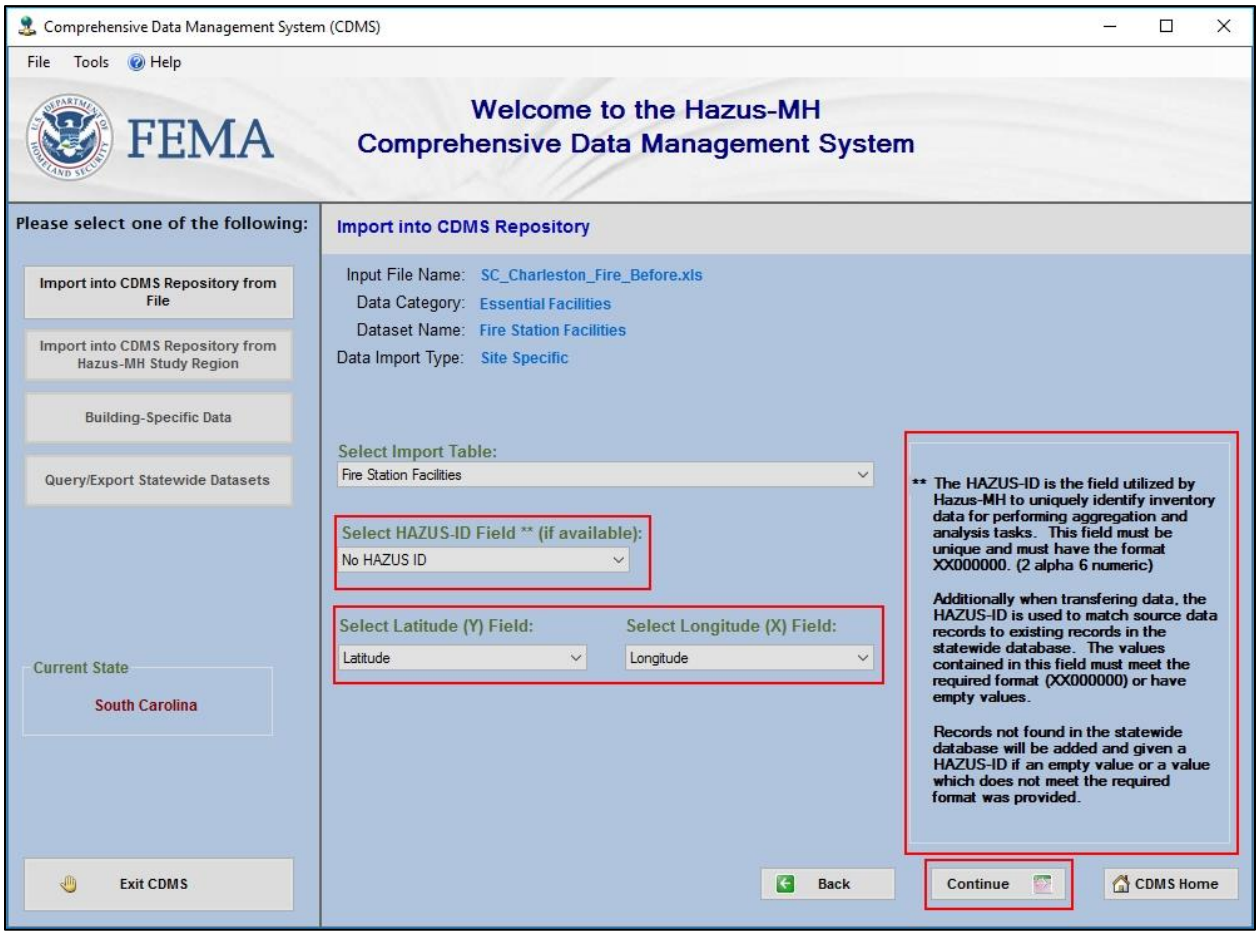
3.5 Defining Source Data Parameters

After specifying the file location, inventory category, and inventory dataset, parameters for the source data must be defined before the system can import the file. Options for the source data parameters depend on what type of file is chosen for import. If an Esri personal geodatabase or an Esri shapefile is chosen, the only parameter that can be chosen is the **Hazus ID**. Otherwise, the **Latitude** and **Longitude** fields must be specified in the data.

NOTE: All Hazus default inventory data are projected to WGS84. Please ensure that all user input data for CDMS are in the same coordinate system.

CDMS will automatically select the import table for the data if the data are provided as an Esri shapefile. With other data types, such as MS Excel or MS Access, many worksheets or data tables may exist. Select the correct source import table from the **Select Import Table** dropdown and continue to the **Select HAZUS-ID Field** as shown in Figure 3-20. The **HAZUS-ID** field is very important to CDMS. This field is used by the system to match records being uploaded to existing records in the Hazus state datasets. If there is no **HAZUS-ID** field, select the **No HAZUS-ID** option in the dropdown. For the **No HAZUS-ID** option, all records will be treated as new information and will be added to the statewide Hazus datasets. Once the parameters have been defined, click **Continue**.

Figure 3-20: Define Source Data Parameters



3.6 Matching Fields

CDMS requires the user to match the import data file source fields to the fields that reside in the Hazus data. The **Data Field Matching** screen shown in Figure 3-21 allows this to occur.

The **Source Fields** box on the left lists fields from the source file. The **Destination Fields** box on the right lists the fields in the Hazus data. The system will automatically match the fields that have the same name and same characteristics. Auto-matches need to be verified and need to match the remaining fields, if applicable.

To add the field matches to the **Field Match** list at the bottom of the screen, select one field from the **Source Fields** box and its match from the **Destination Fields** box. Click the **Add Match** button as shown in Figure 3-21.

Fields with **red** text:

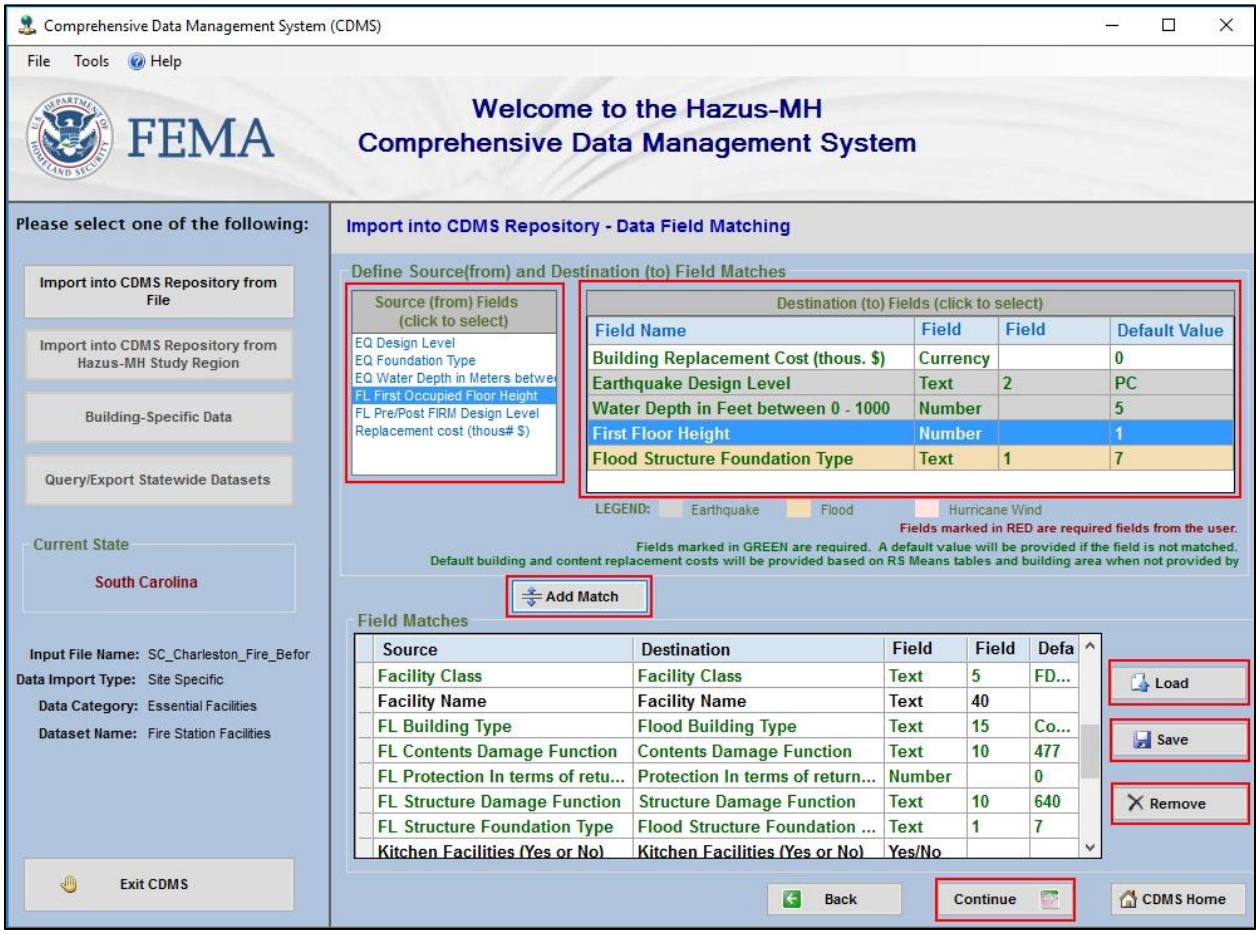
- Required.
- Must be matched before continuing.

Fields with **green** text:

- Required.
- If a field cannot be matched, a default value is inserted.
- Values may differ from the original state inventory data default values.
- Carefully review each value.
- In some cases, default placeholders may be used.

Refer to the CDMS Data Dictionary for additional information on where these fields are used in Hazus. Once all known matches have been made, the import process can continue.

Figure 3-21: Field Matching



To the right of the list of **Field Matches** are three buttons: **Load**, **Save,** and **Remove**. Click the **Load** button to use a saved set of field matches for similar data. A window will appear, and the file to import must be selected. Once a file has been selected, the data will be loaded into the system, and the data will be seen in the **Field Matches** list. A file that was saved with the same category and dataset must be selected; otherwise, the data will not be valid and the user will get an error message.

To save a list of field matches, click the **Save** button and then specify a file name. Once the list is saved, it can be used with another file that has the same category and dataset.

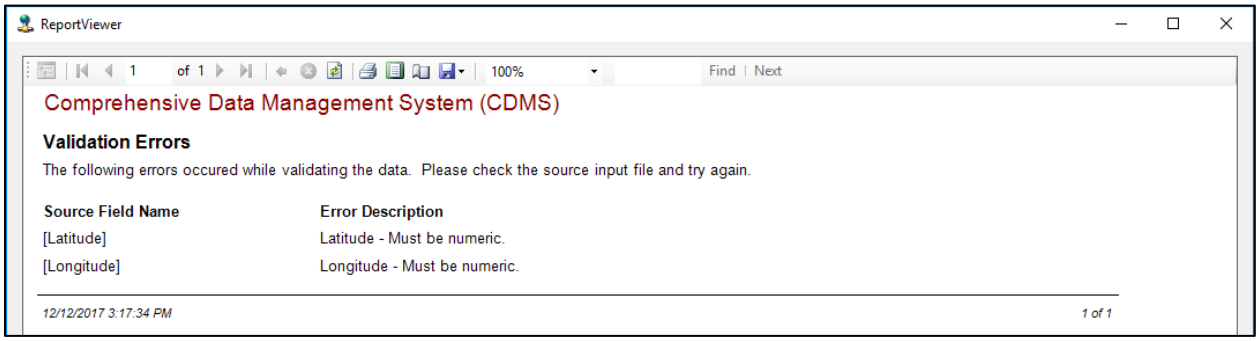
If a match needs to be removed from the list, select the match and click the **Remove** button.

Once all known fields have been matched, click the **Continue** button to continue the import process.

3.7 Validation Issues

When data are imported into the CDMS, the data are validated. The validation process confirms that the imported data match the CDMS requirements and ensures that all required fields have a value and the fields match correctly. If any data fail validation, CDMS will generate an error report (Figure 3-22) identifying the validation errors. Correction of all validation errors and re-validation of the data must be completed before the file can be imported properly.

Figure 3-22: Matching Field Validation

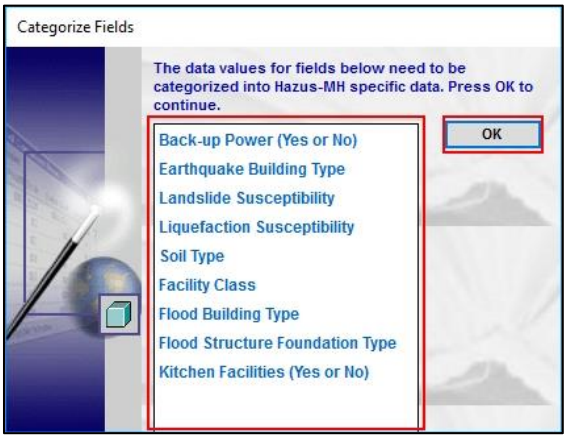


3.8 Data Categorization

After all fields have been matched for a source file being imported, some fields may need to be categorized into Hazus-specific data. Once the data have been imported, a window will appear with the list of fields that require categorization.

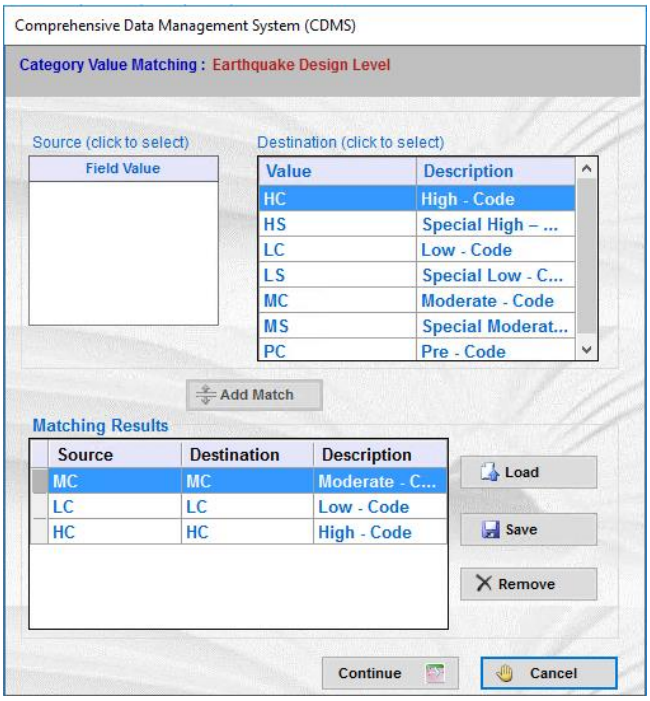
Click **OK** to continue.

Figure 3-23: Data Categorization



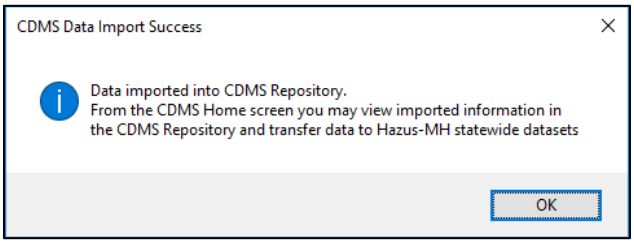
A **Category Value Matching** window (Figure 3-24) will appear for each separate field categorization. The categorization window will be in the same format as the **Data Field Matching** screen (Figure 3-21). Select a field from the **Source** box on the left and a corresponding field from the **Destination** box on the right. Click the **Add Match** button (Figure 3-24). Once the field has been matched, click the **Continue** button.

Figure 3-24: Category Value Matching



Follow the same steps for each field requiring categorization. Once all fields have been categorized, a window will appear stating that the data were imported successfully (Figure 3-25). Click **OK**. When the import process completes, the system will return to the **CDMS Home** screen, and the new data will be listed in the **CDMS Repository**.

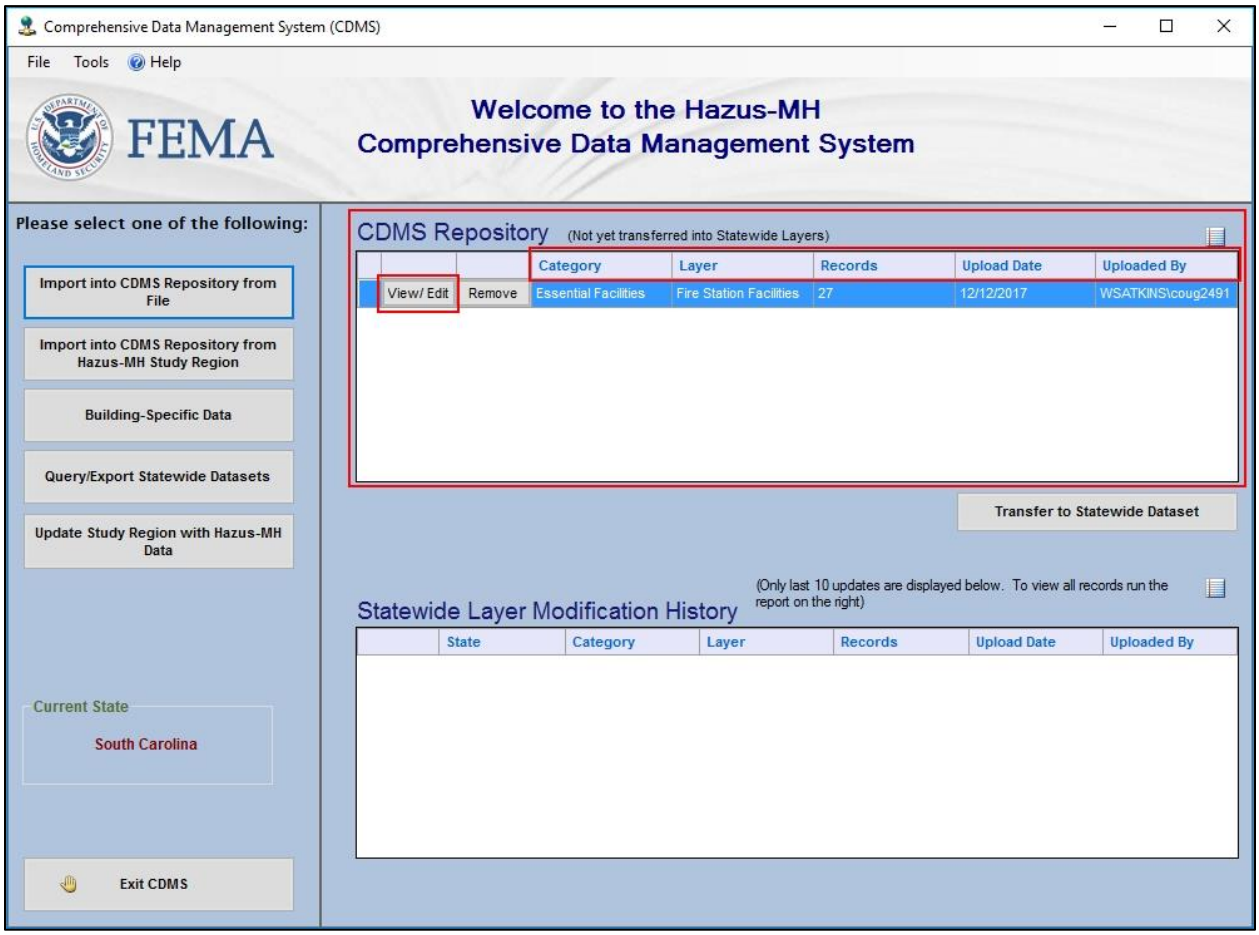
Figure 3-25: Data Import Success



3.9 Viewing the Results in the CDMS Repository

Once data have been imported into CDMS, the dataset will be listed in the **CDMS Repository** on the **CDMS Home** screen (Figure 3-26). The **Category**, **Layer**, **Records Affected**, **Upload Date** and **Upload By** columns will be shown. To view individual data layers, click the **View** button on the left. To remove individual data layers, click the **Remove** button.

Figure 3-26: Result View



4 Importing and Aggregating General Building Stock Data

This section describes how data may be imported into the **CDMS Repository** and summarized to provide aggregated data to Hazus statewide datasets.

The three possible inputs for generating aggregated data are:

- Providing pre-aggregated data from a file.
- Importing site-specific data to aggregated data.
- Utilizing information in the existing building-specific data area within CDMS.

4.1 Providing Pre-aggregated Data from a File

A file with information that has already been aggregated at the census block or tract level may be provided, and the system can provide a straight conversion into existing Hazus aggregate tables.

The tables that may be updated are:

- Agriculture Inventory by County Federal Information Processing Standards (FIPS).
- Building Counts by Census Block/Tract.
- Building Square Footage by Census Block/Tract.
- Demographics by Census Block/Tract.
- Exposure Content by Census Block/Tract.
- Structure Exposure by Census Block/Tract.
- Vehicles – Day Inventory by Census Block.
- Vehicles – Night Inventory by Census Block.

NOTE: Providing pre-aggregated data from a file is ideal when users have maintained their data at the census block or tract level.

If users already have pre-aggregated data, users can convert their data to the **CDMS Repository** with minimal effort using the following steps:

- Select **Import into CDMS Repository from File** in the **CDMS Home** screen (Figure 4-1).
- Select the **Browse** button to find a file for data import (Figure 4-1).
- Select the **Open** button (Figure 4-2) and the folder path will appear in the indicated area on the screen (Figure 4-1). The user must also choose one or more hazards using the check boxes under the file path (Figure 4-1). If state is a Hurricane Region state, all three hazards will automatically be selected since aggregated data do not depend on hazard-specific information.
- Move down to the **Select Hazus Inventory Category** (Figure 4-1 and Figure 4-2).

Figure 4-1: Select Import into Repository from File

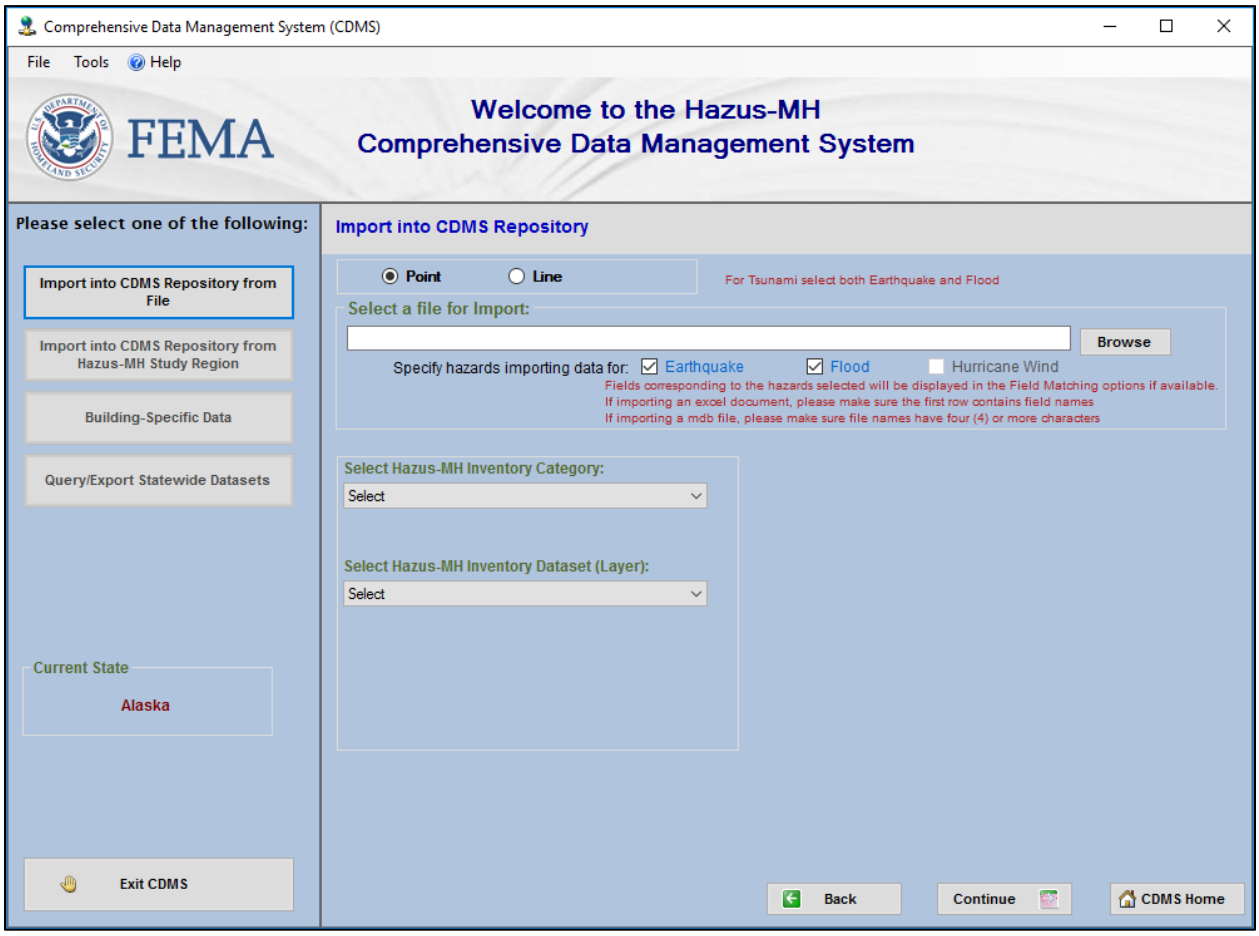
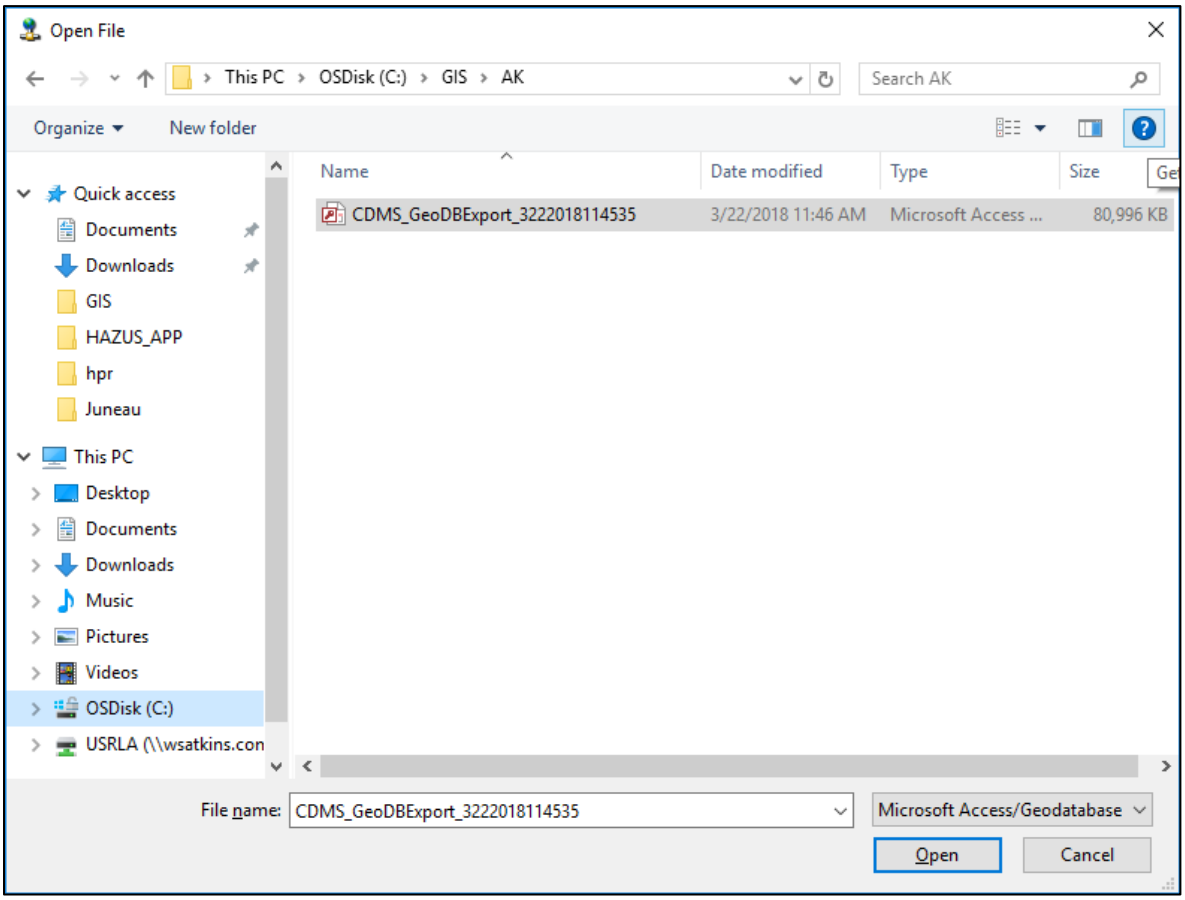


Figure 4-2: Open File in Repository

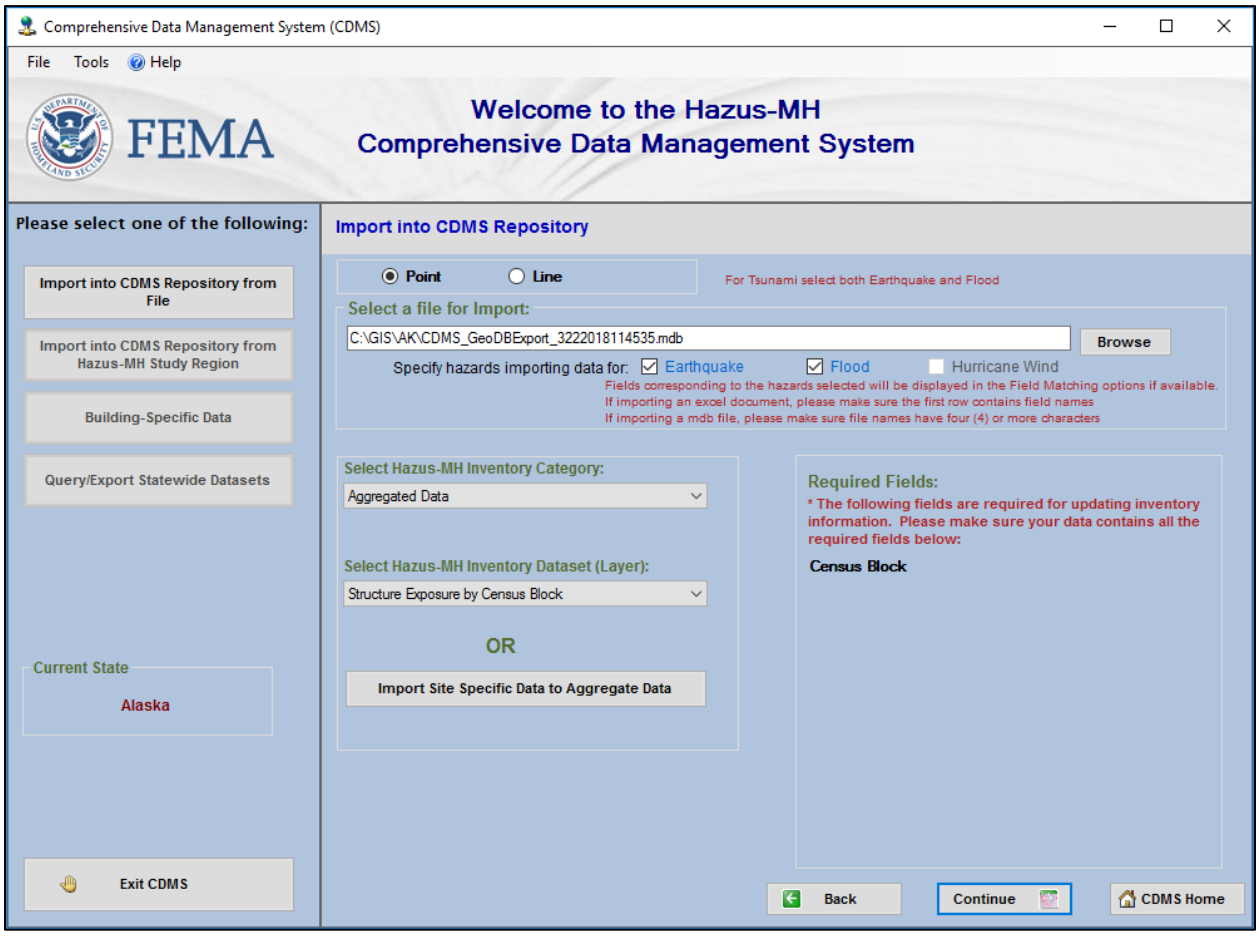


4.1.1 Specifying the Destination

Ensuring that specific data are attributed to a certain inventory category, the user must specify the destination of the dataset, as follows:

- Select Aggregated Data from the **Select Hazus Inventory Category** dropdown list (Figure 4-3).
- Select an Inventory Dataset from the **Select Hazus Inventory Dataset** dropdown list (Figure 4-3).
- **Required Fields**, if any, will be listed in the lower right of the screen. Select the **Continue** button to continue with the import process (Figure 4-3).

Figure 4-3: Specifying the Destination of Data

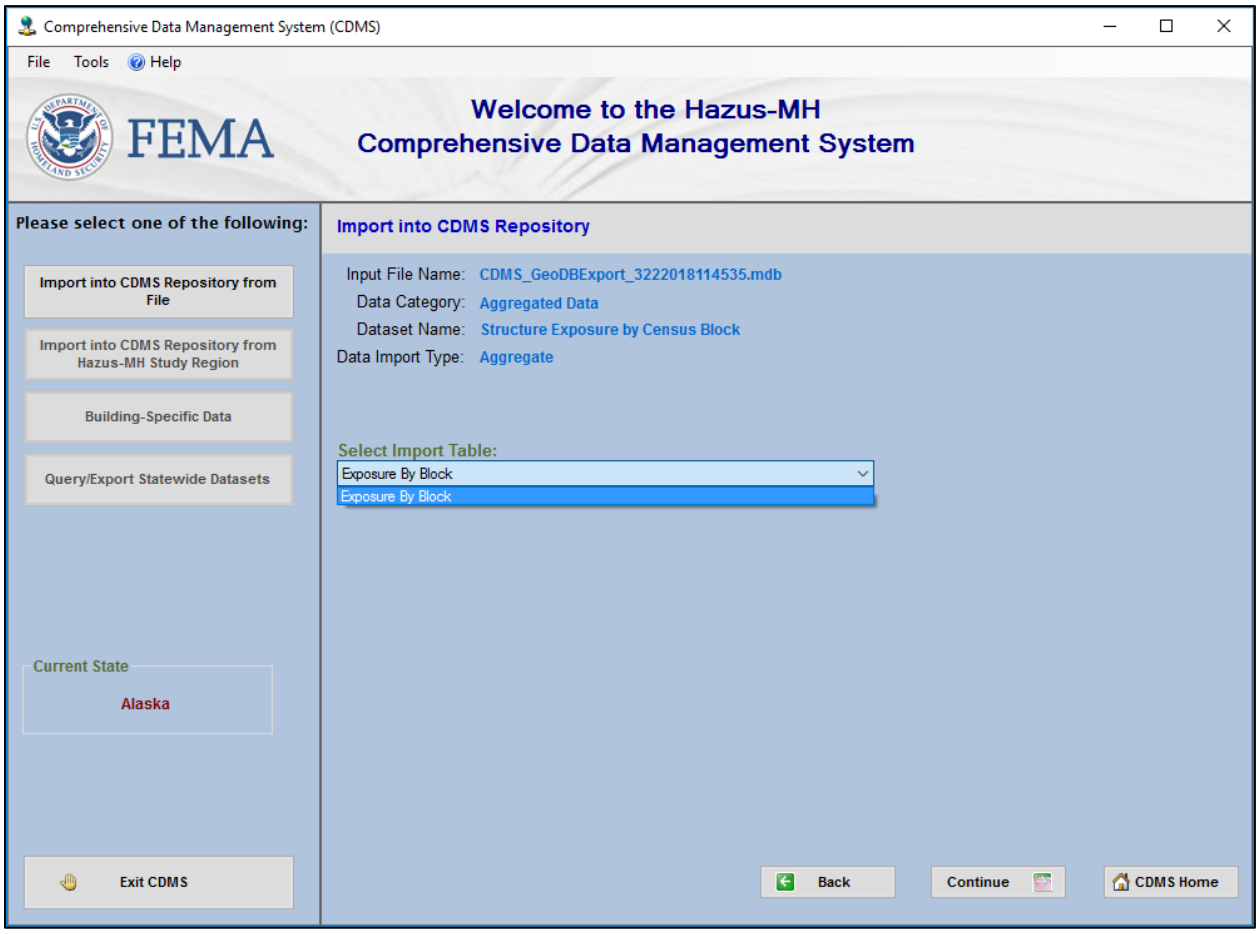


4.1.2 Selecting the Import Table

If the user imports a shapefile, the Import Table will be selected automatically. If an MS Access or Excel File is chosen, the user will have a choice of worksheets or tables to use for the import process.

- Select the **Import Table** from the dropdown list (Figure 4-4).
- Select the **Continue** button (Figure 4-4).

Figure 4-4: Select Import Table

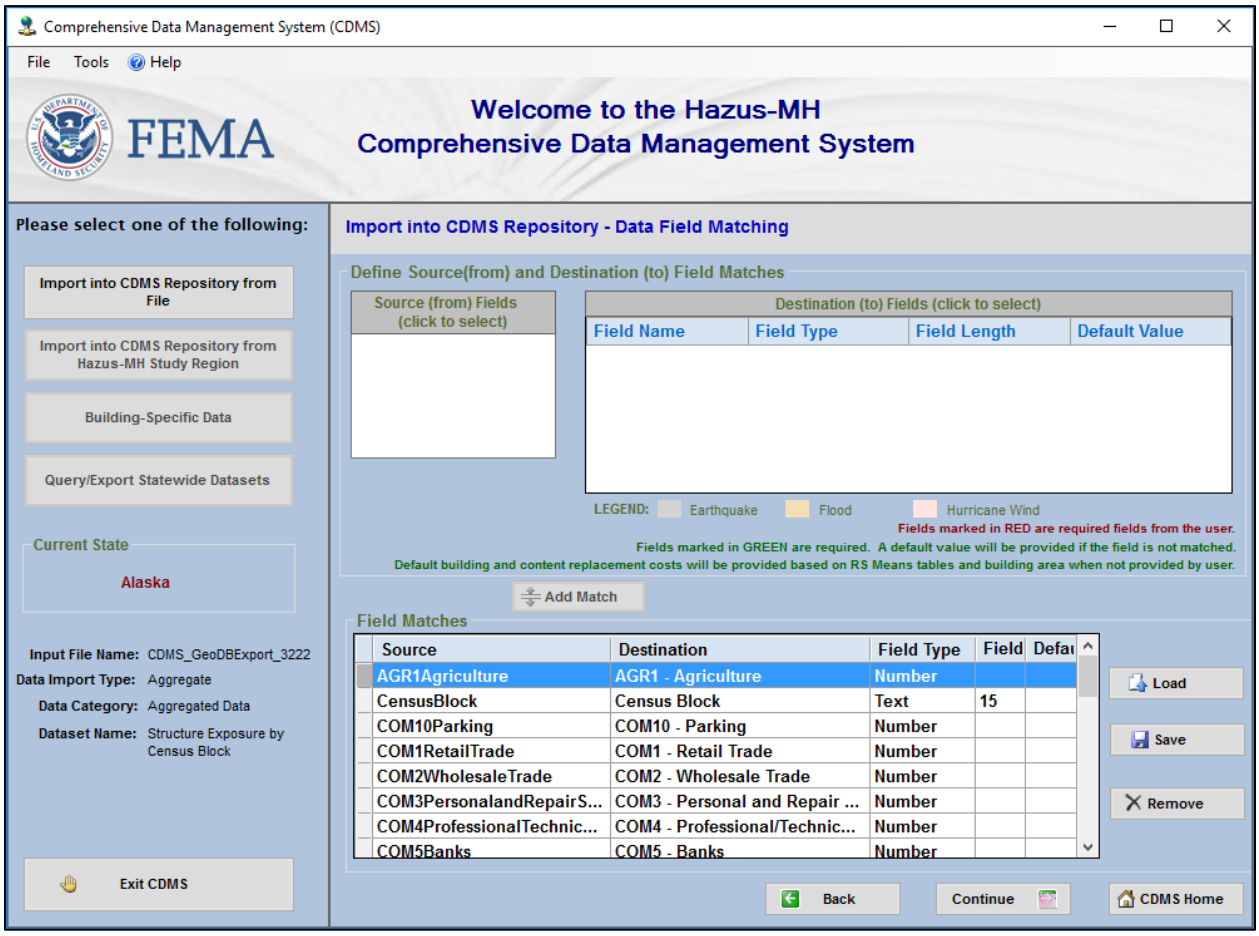


4.1.3 Matching Fields

Because data are distributed in the Hazus database by occupancy type (e.g., RES1 [Single Family Dwelling], RES2, [Mobile Home] COM1 [Retail Trade], COM2 [Wholesale Trade]), the user must provide field matching to make sure that the source/destination field pairs are correct.

The Field Matches section of Figure 4-5 has a source list on the left with a list of fields from the source file and a destination list on the right that lists the fields that are in the Hazus database. The system automatically matches fields with the same name and same characteristics. The user must match the rest of the fields by selecting one field from the source list and its match from the destination list (Figure 4-5).

Figure 4-5: Matching Fields Import



After selecting a field from both lists, add the field's matches to the list at the bottom of the screen by selecting the **Add Match** button.

Fields with **red** text:

- Required.
- Must be matched before continuing.

Fields with **green** text:

- Required
- If a field cannot be matched, a default value will be provided

Once all known matches have been made, the user can continue the import process as follows:

- Select Source Field.
- Select Destination Field.
- Select **Add Match** button.

The **Load**, **Save** and **Remove** buttons, are right of the list of field matches (Figure 4-5). The **Load** button is used if there is a saved set of field matches the user wants to load into the system to use for the chosen data. Once the **Load** button has been selected, a new window will appear, and the user will need to select a file to import. Once a file has been chosen, the data will be loaded into the system, and the file will appear in the list of field matches. When loading the file, the user must choose a file that was saved with the same category and dataset. Otherwise, the data will not be valid, and the user will get an alert message.

The **Save b**utton is used to save a list of field matches. The user must give the list a file name. Once the list is saved, it can be used with another file that has the same category and dataset.

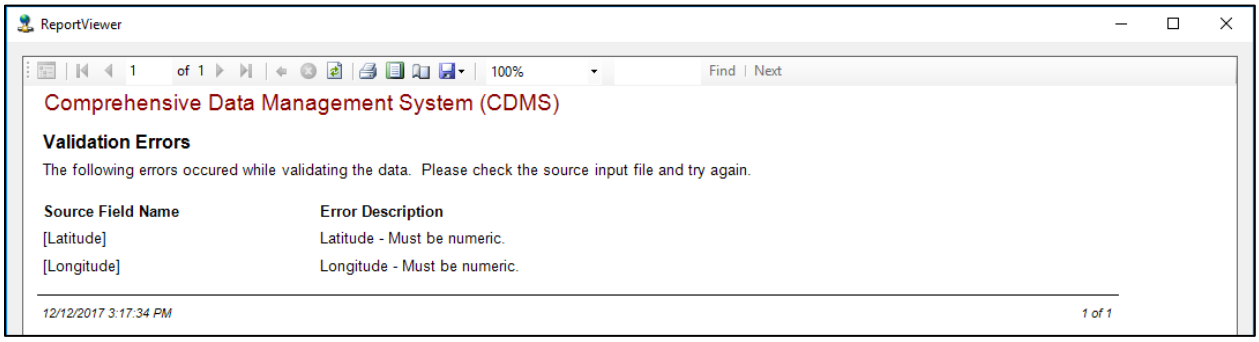
The **Remove** button is used to remove match from the list for any reason. The user selects the match and then selects the **Remove** button.

Once all known fields have been matched, the user must select the **Continue** button to continue with the import process (Figure 4-5).

4.1.4 Validating Data

When data are imported into CDMS, a validation process ensures that all required fields have a value and that the fields match correctly. If any data fail validation, a report showing the validation errors if any will appear (Figure 4-6). If a validation error occurs, the user must fix the error before the file can be imported properly.

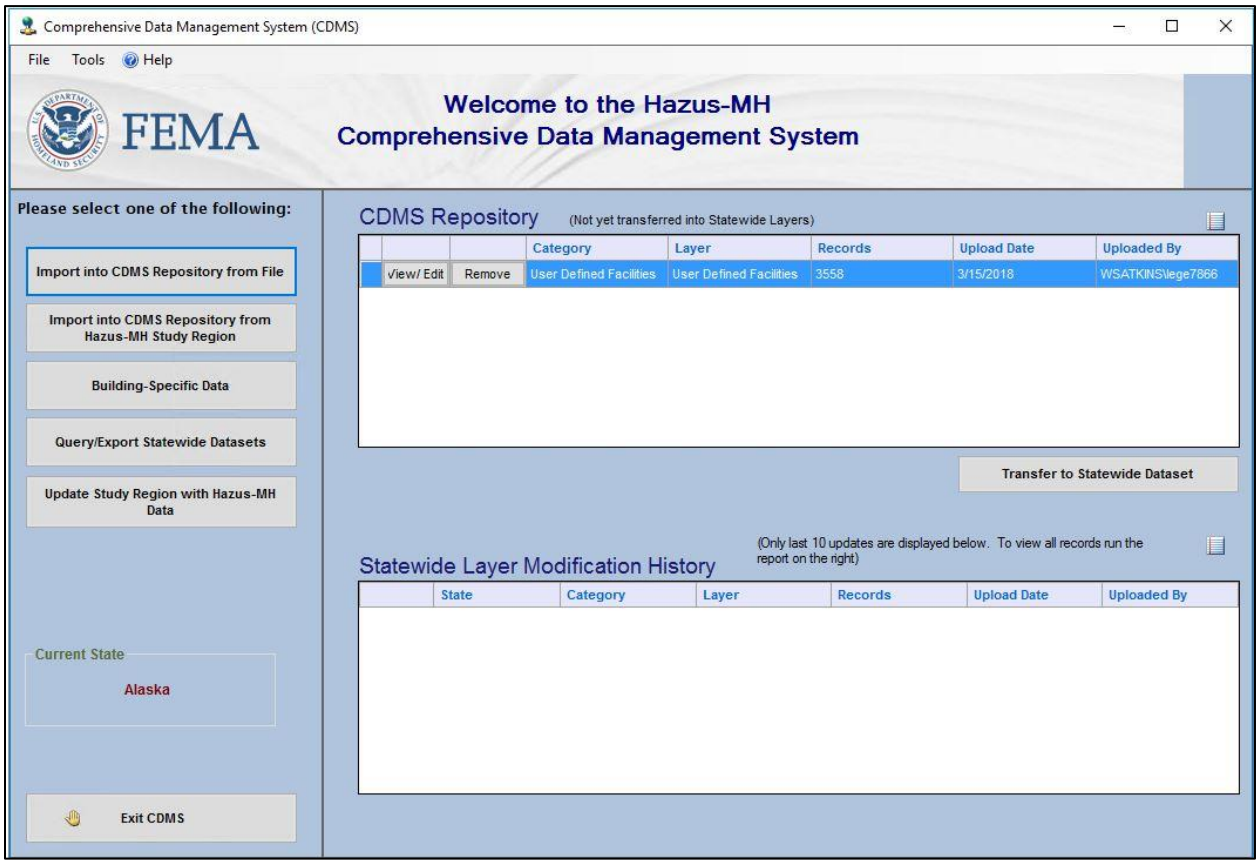
Figure 4-6: Matching Field Import Data Validation



4.1.5 Viewing the Results in the CDMS Repository

Once data have been imported into CDMS, the data will appear in the **CDMS Repository** on the **CDMS Home** screen (Figure 4-7). The **Category**, **Layer**, **Records Affected**, **Upload Date,** and **Upload By** columns will be shown on the **CDMS Home** screen. To see individual data layers, select the **View/Edit** button.

Figure 4-7: View Results in the Repository



4.1.6 Importing Site-Specific Data to Aggregated Data

Users may want to import information in one or more of the following file formats: Esri shapefile, Esri personal geodatabase, MS Access, and MS Excel. When the user specifies the path for the input file, the system will navigate the user through the field mapping and categorization process and validate the data according to Hazus field data types.

Transfer the data into the **CDMS Repository** tables as follows:

- Building Counts by Census Block/Tract.
- Building Square Footage by Census Block/Tract.
- Structure Exposure by Census Block/Tract.
- Exposure Content by Census Block/Tract.

NOTE: Importing site-specific data to aggregated data is ideal when users have a building/parcel file with necessary structural and hazard data.

4.1.7 Utilizing Information in the Existing Building-Specific Data Area in CDMS

The **utilizing information in the existing building-specific data area in CDMS** function allows users to export data from their building-specific data and import the data into the repository using the **Importing Site-Specific Data to Aggregate Data** function. CDMS will

perform field mapping, categorization, and validation before placing aggregated data into the **CDMS Repository**.

NOTE: The utilization information in the existing building-specific data CDMS function is ideal when users have a building/parcel file without necessary structural and hazard data. The user may import information into building-specific data, update structural and hazard data, and then aggregate the data.

4.2 Providing Building/Parcel Data from a File

It is important to note that the user can increase the accuracy of Hazus information by providing building- or parcel-specific data. The user can incorporate the data using a source data file.

4.2.1 Selecting a Source Data File

To select a source data file, take the following steps in the **CDMS Home** screen:

- Select **Import into CDMS Repository from File** (Figure 4-8).
- Select the **Browse** button to find a source data file.
- Select the **Open** button (Figure 4-9) and the folder path will appear in the indicated area on the screen (Figure 4-8). The user may also choose one or more hazards using the check boxes under the file path.

Figure 4-8: Select Source Data File

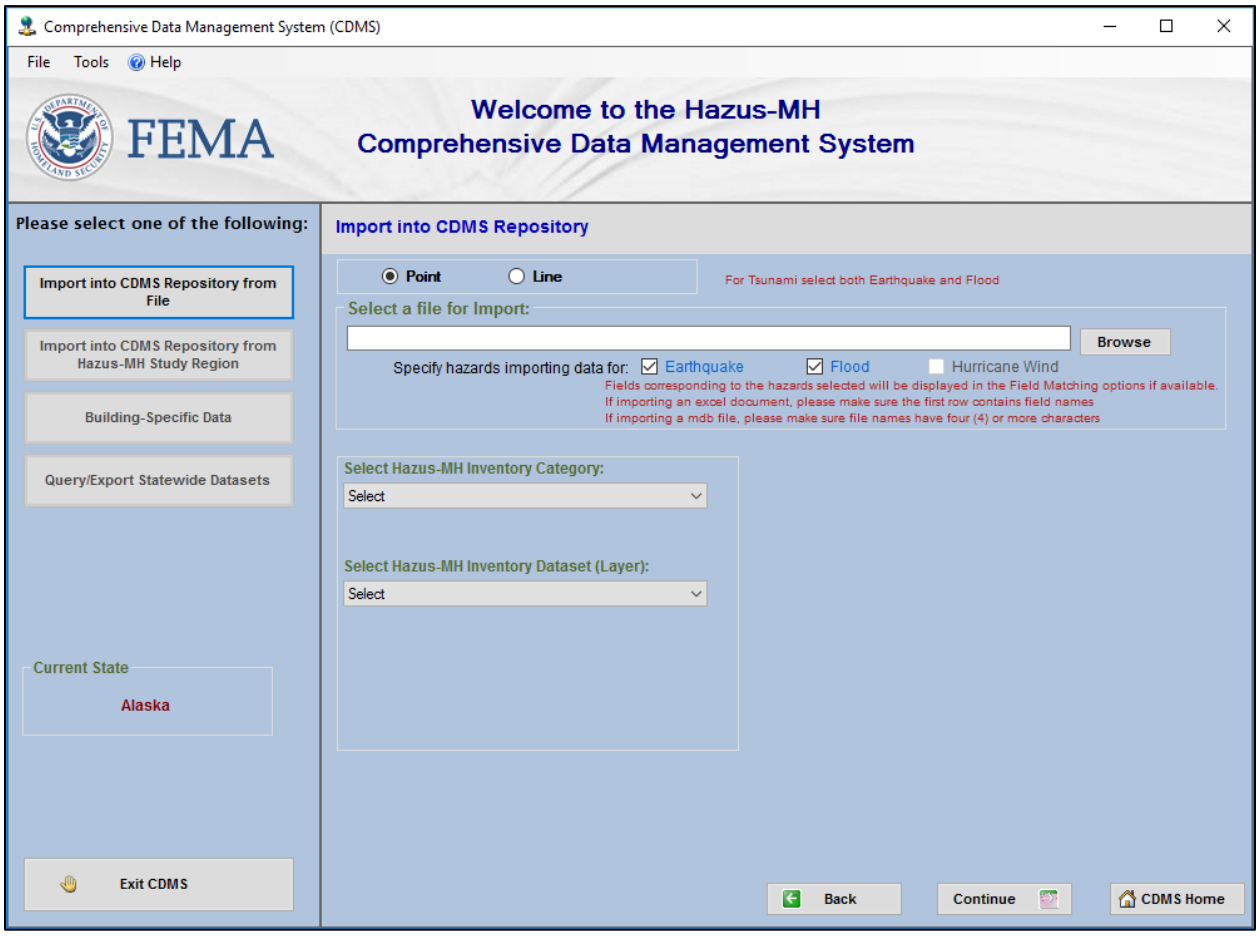
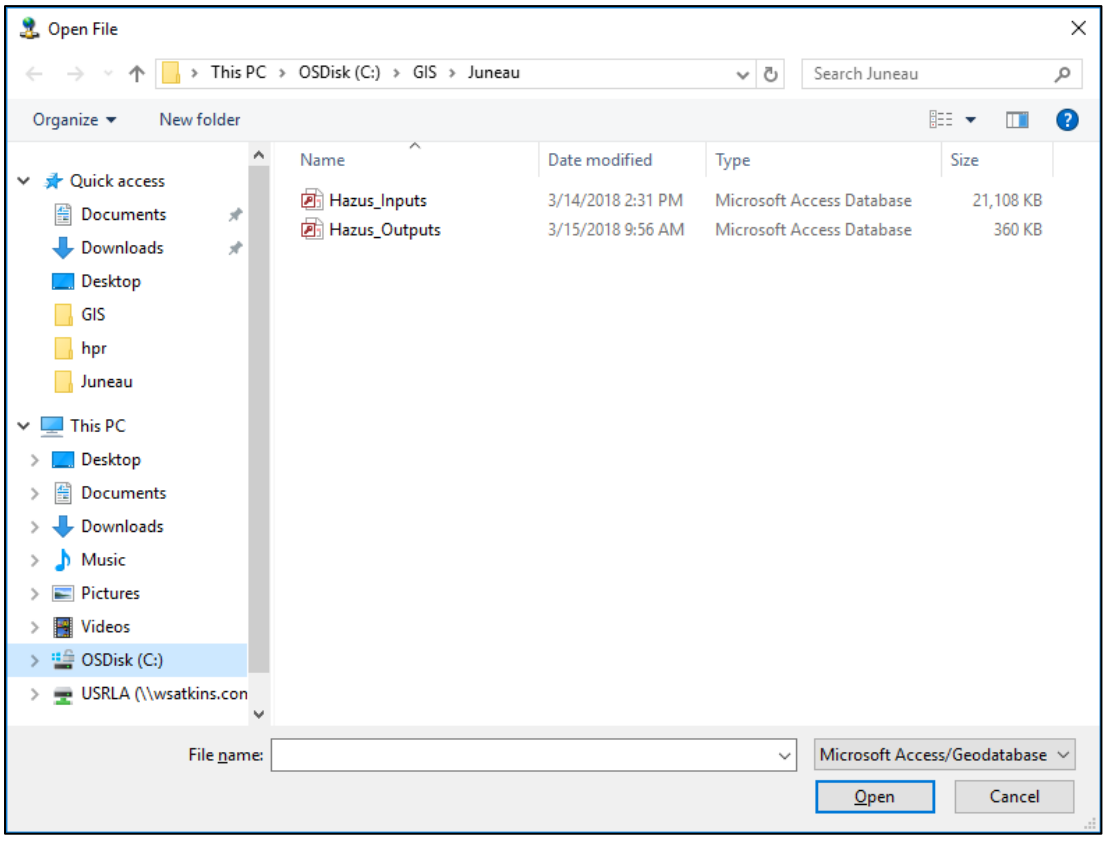


Figure 4-9: Open Source Data

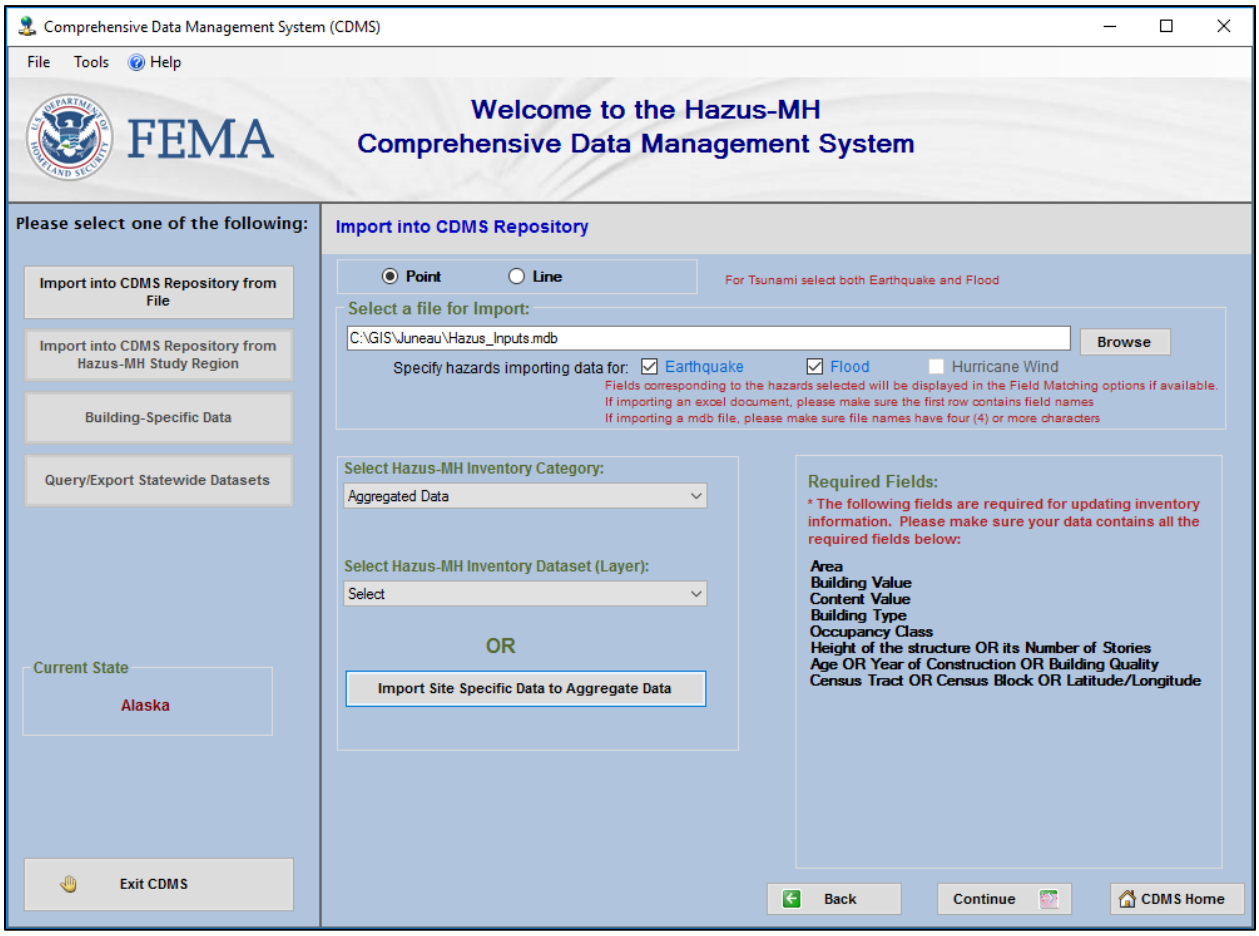


4.2.2 Specifying the Destination

To ensure that data are imported into CDMS correctly, the user must specify the destination of the data file, as follows:

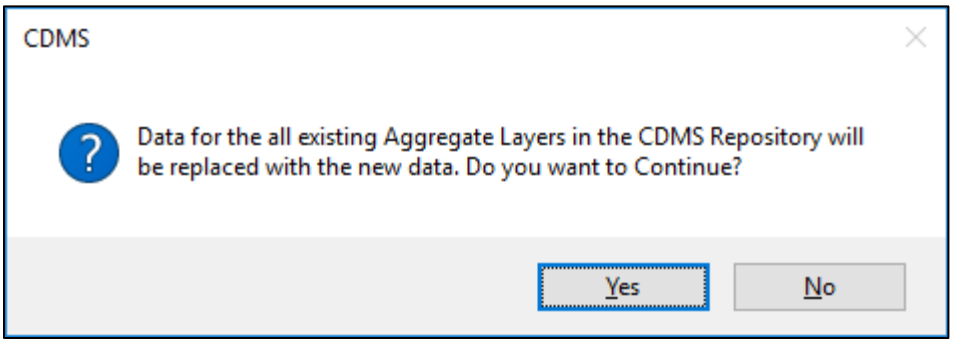
- Select Aggregated Data from the **Select Hazus Inventory Category** dropdown list (Figure 4-10).
- Select the **Import Site-Specific Data to Aggregate Data** button.
- Review the Required Fields that are listed to make sure the information is in the data files.
- Select the **Continue** button.

Figure 4-10: Data Destination



If aggregate data are already in the **CDMS Repository**, a warning message will appear telling the user that any existing data in the **CDMS Repository** will be replaced with the new data (Figure 4-11). The user should transfer any existing aggregated data to the statewide Hazus database before continuing. The user must choose the **Yes** button to continue with the import process or **No** to cancel the process.

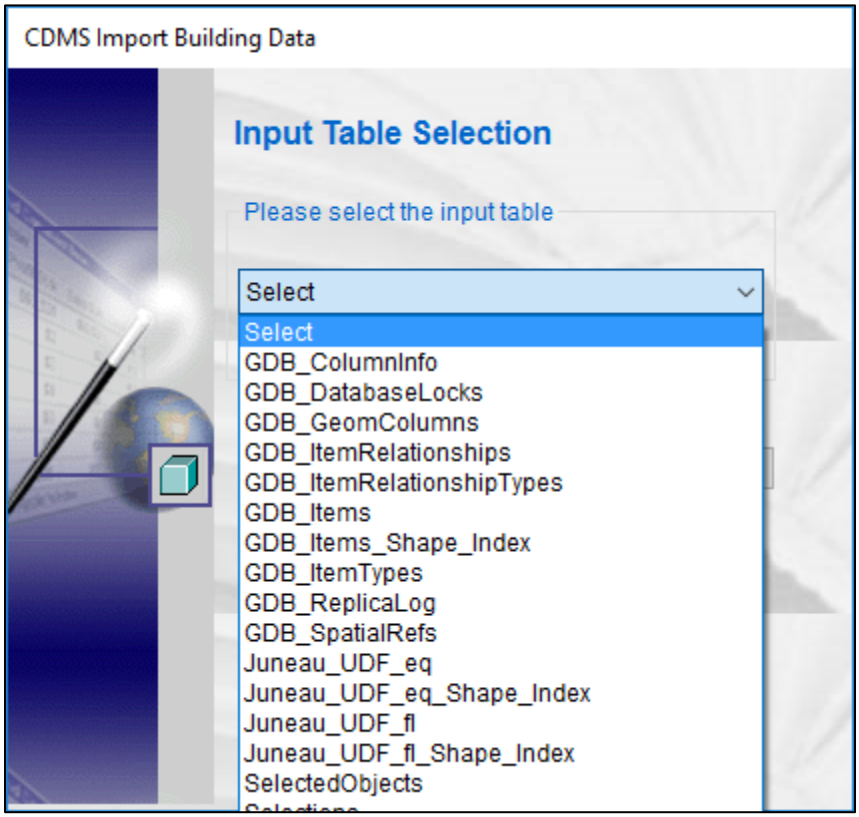
Figure 4-11: Repository Replacement Notification



Once **Yes** option is chosen, the window shown in Figure 4-12 will appear. In the window, the user must select an input table. If a user imports a shapefile, the **Import Table** will be selected

automatically. In the Import Building Data screen, the user must select the table the user wants to import into CDMS. If an MS Access or Excel File is chosen, the user will have a choice of worksheets or tables to use for the import process.

Figure 4-12: Import Building Data



4.2.3 Matching Fields

The **CDMS Home** screen will have a source list on the left with a list of fields from the source file and a destination list on the right that lists the fields that are in the Hazus database (Figure 4-13). The system will automatically match the fields with the same name and same characteristics. The user must match the rest of the fields by selecting one field from the source list and its match from the destination list.

After selecting a field from both lists, add the field's matches to the list at the bottom of the screen by selecting the **Add Match** button (Figure 4-13).

Fields with **red** text:

- Required.
- Must be matched before continuing.

Fields with **green** text:

- Required.

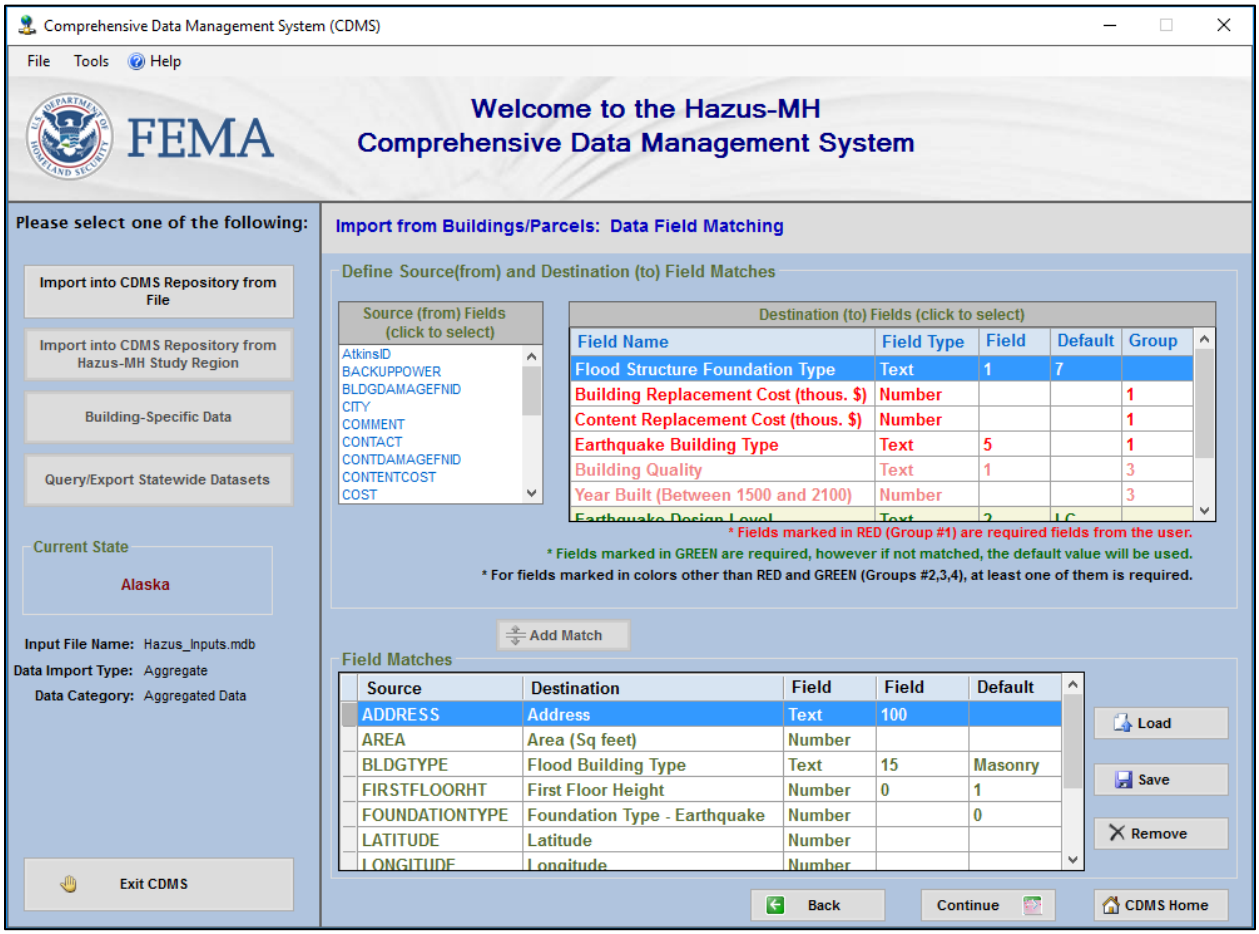
- If a field cannot be matched, a default value will be provided.

Once all known matches have been made, the user can continue the import process, as follows:

- Select Source Field.
- Select Destination Field.
- Select **Add Match** button.

Fields are also color coded according to the groupings of information required for the aggregation process (Figure 4-13). The user must supply at least one field in each color grouping (e.g., **Building Quality** and **Age** and **Year of Construction** are in purple; the user must provide at least one of these fields to continue).

Figure 4-13: Building Data Matching Files



The **Load**, **Save** and **Remove** buttons, are right of the list of field matches (Figure 4-13). The **Load** button is used if there is a saved set of field matches the user wants to load into the system to use for the chosen data. Once the **Load** button has been selected, a new window will appear, and the user will need to select a file to import. Once a file has been chosen, the data will be loaded into the system, and the file will appear in the list of field Matches. When loading

the file, the user must choose a file that was saved with the same category and dataset. Otherwise, the data will not be valid, and the user will get an alert message.

The **Save** button is used to save a list of field matches. The user must give the list a file name. Once the list is saved, it can be used with another file that has the same category and dataset.

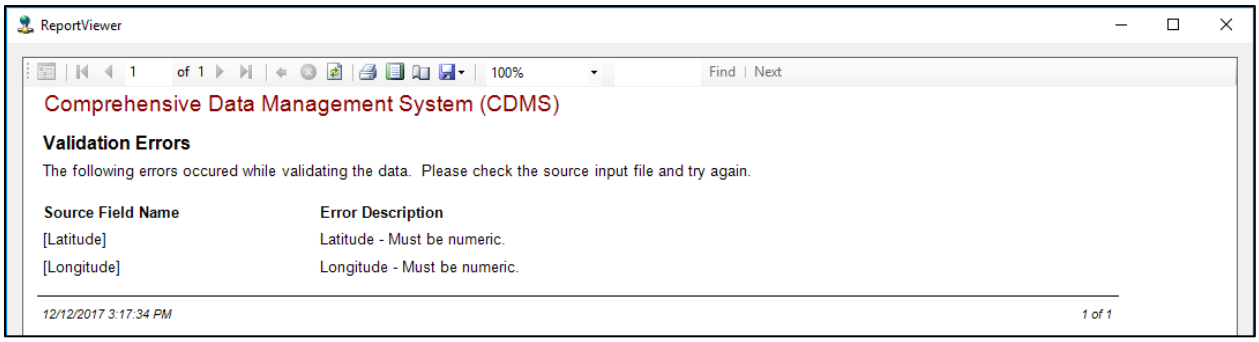
The **Remove** button is used to remove a match from the list for any reason. The user selects the match and then selects the **Remove** button.

Once all known fields have been matched, the user must select the **Continue** button to continue the import process (Figure 4-13).

4.2.4 Validating Data

When data are imported into CDMS, a validation process ensures that all required fields have a value and that the fields match correctly. If any data fail validation, a report showing the validation errors will appear (Figure 4-14). If a validation error occurs, the user must fix the error before the file can be imported properly.

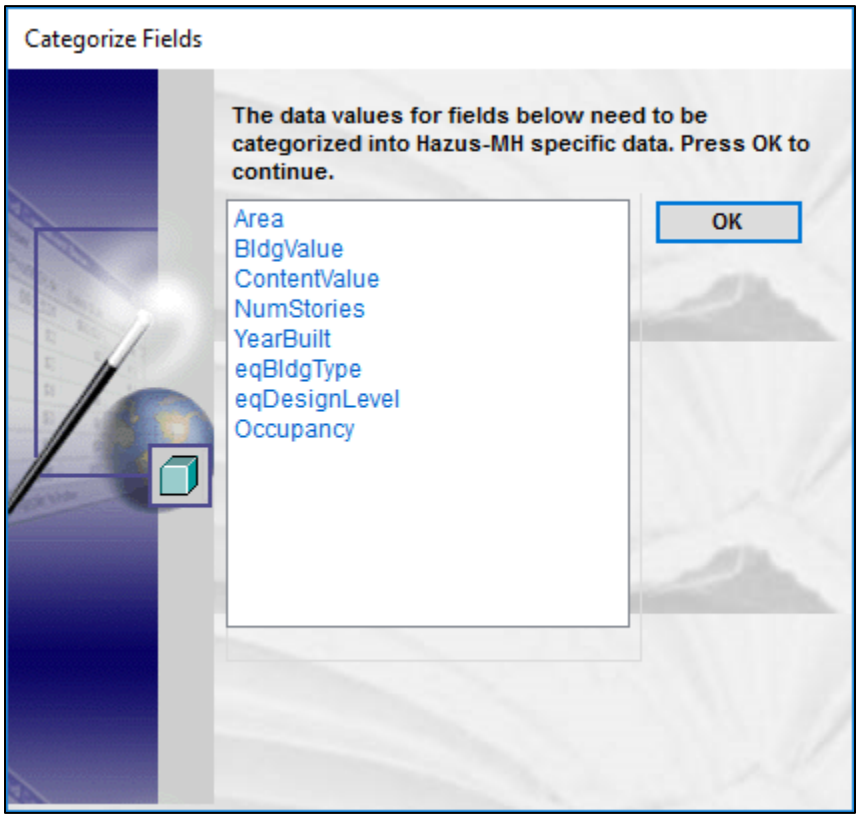
Figure 4-14: Building Data Validation



4.2.5 Categorizing Data

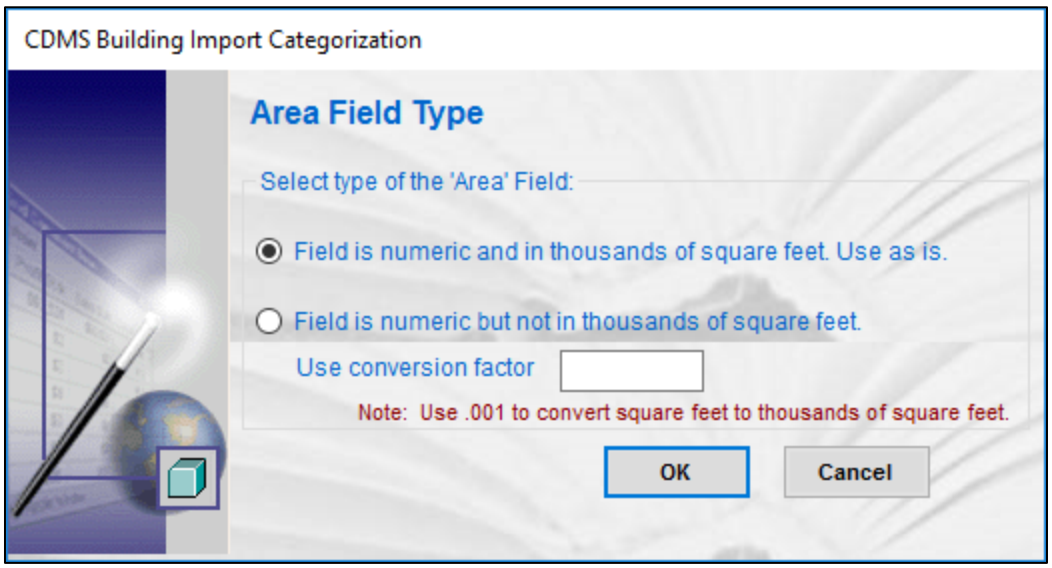
After the fields for the data being imported have been matched, some fields may need to be categorized into Hazus-specific data. The window shown in Figure 4-15 will appear and will have a list of fields that need to be categorized. Select the **OK** button to continue with the categorization process.

Figure 4-15: Data Categorization



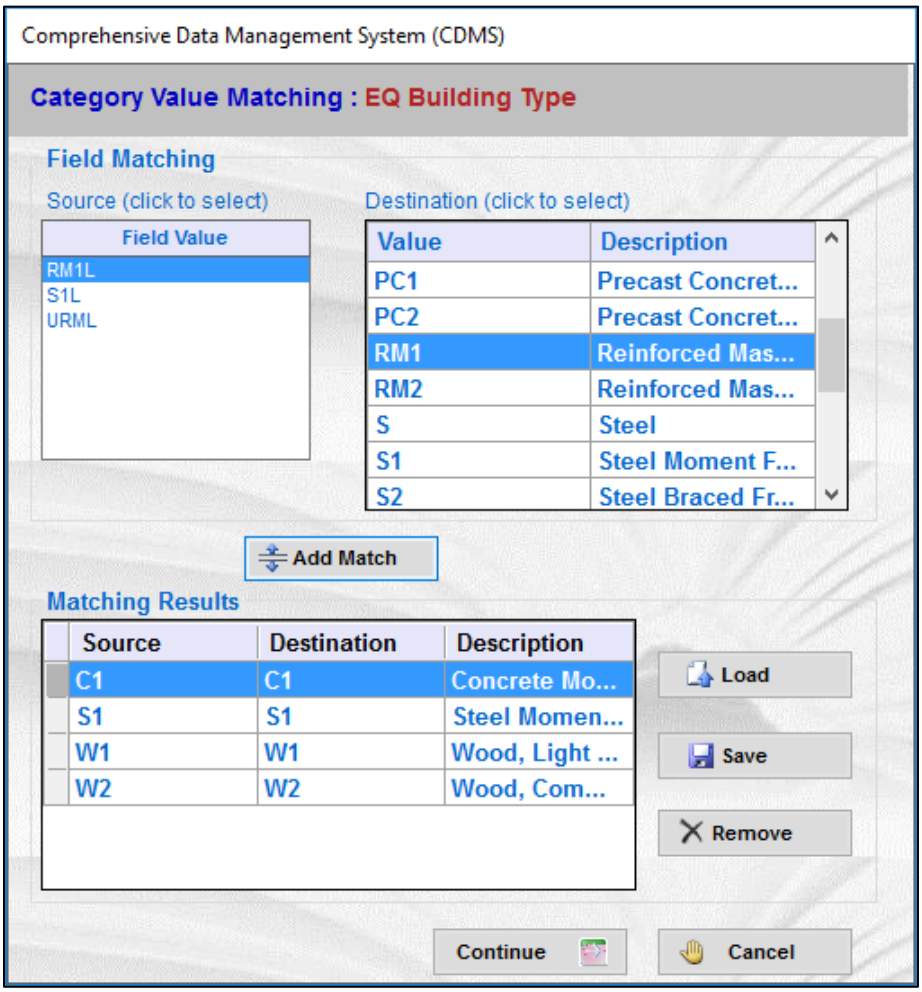
Part of the categorization process is converting data in source fields to Hazus-required values. For Area, Building Value, Contents Value, Number of Stories, and Year Built, the conversion screen will ask the user to verify the format of the data. The Area Field Type (area conversion) screen is shown in Figure 4-16.

Figure 4-16: Area Field Type



For Area, Building Type, and Occupancy Class, a window will appear for value categorization (Figure 4-17). The categorization window is in the same format as the field matching screen. The user will choose a value from the source list and a value from the destination list and select the **Add Match** button. Once each value on the screen has been matched, the user will select the **Continue** button.

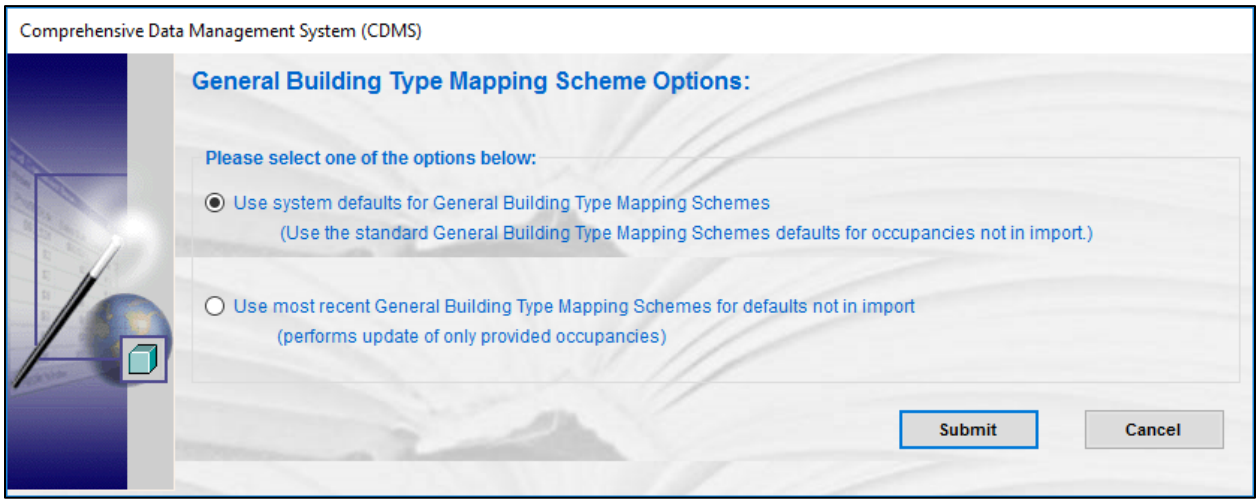
Figure 4-17: Building Category Matching



The next field categorization screen will appear, and the user will follow the same steps as in the previous window. The user will continue until all fields have been categorized. At that point, a final screen will appear and will allow the user to make choices regarding the General Building Type Mapping schemes (Figure 4-18).

The default choice uses system defaults for any occupancy categories the user does not provide. Another choice now allows users to use the most recent General Building Type mapping scheme values for defaults. Making this choice will only update the default data in the provided occupancy categories and simulate no change in the non-provided occupancy categories.

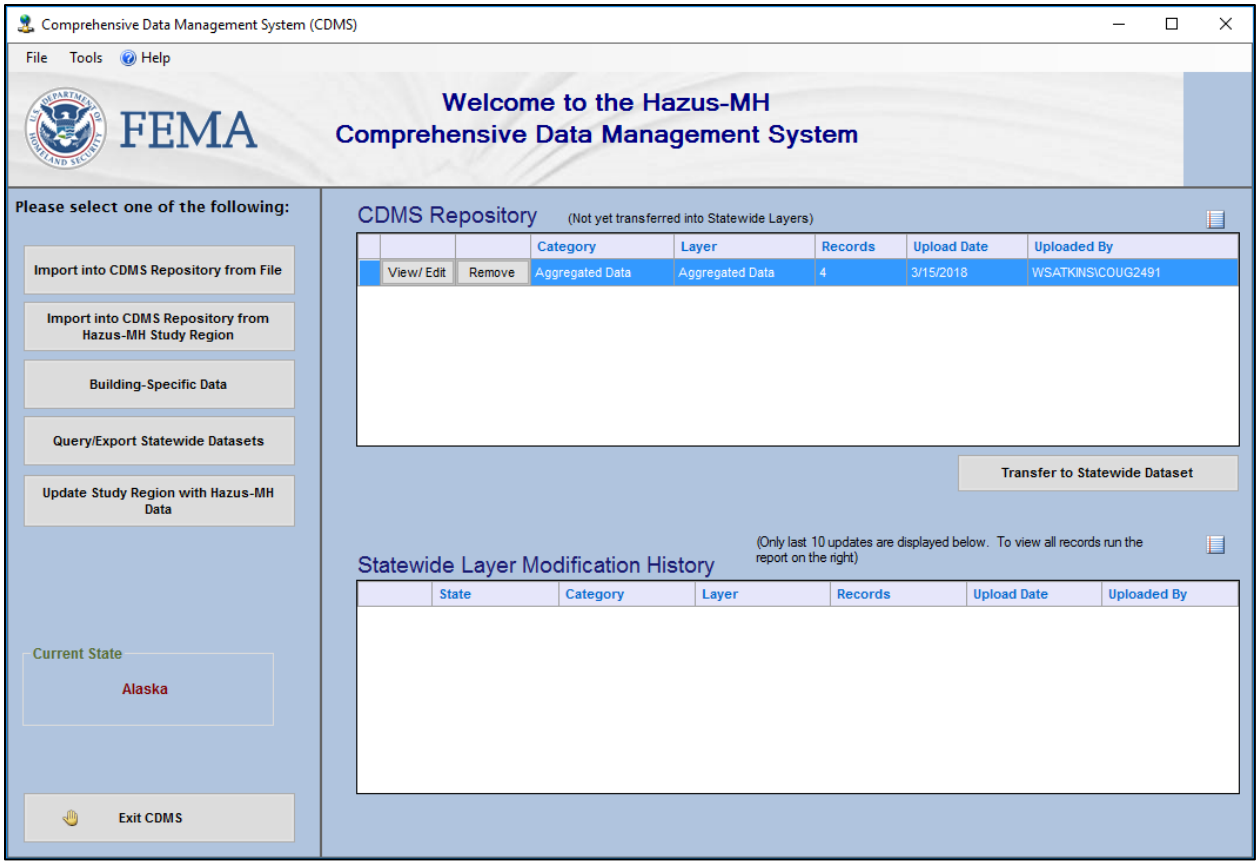
Figure 4-18: General Building Type Mapping Scheme Options



4.2.6 Viewing the Results in the CDMS Repository

After aggregated data have been processed, the data will appear in the **CDMS Repository** on the **CDMS Home** screen (Figure 4-19). The **Category**, **Layer**, **Records Affected**, **Upload Date,** and **Upload By** columns will be shown on the **CDMS Home** screen. To see individual data layers, select the **View/Edit** button.

Figure 4-19: Viewing Repository Results

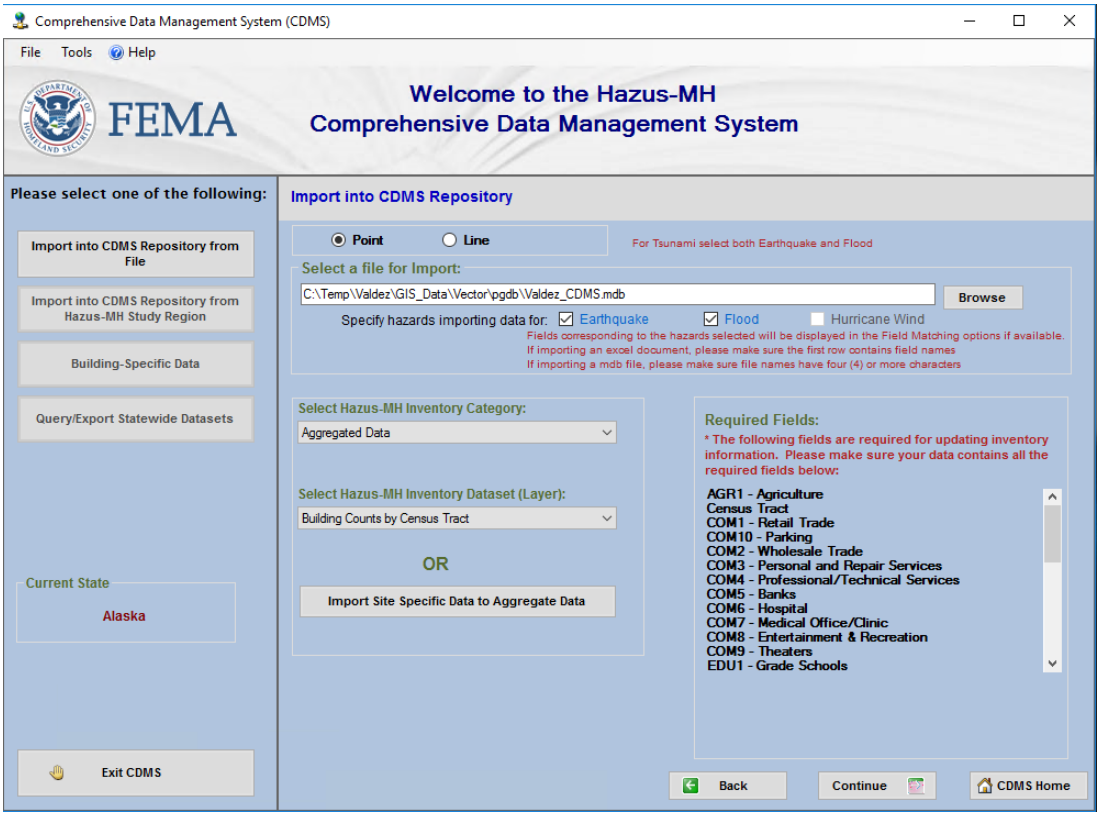


4.2.7 Aggregating Building-Specific Data

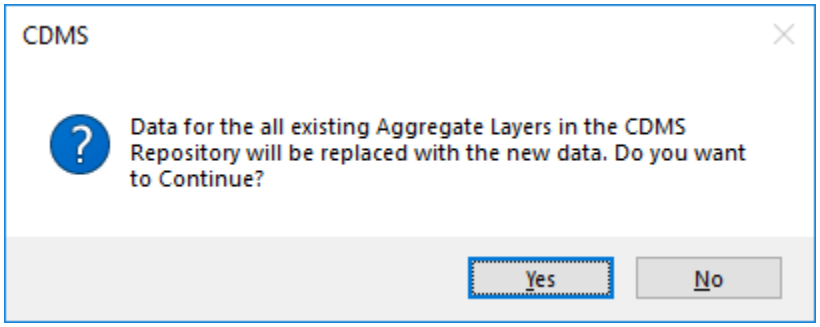
Building-specific data are data that are created and/or modified in CDMS as follows:

- From the Building-Specific Data screen, select the **Export Table** button. To aggregate the data, reimport the data into CDMS by clicking on the **Importing Site-Specific Data to Aggregate Data** button.

Figure 4-20: Importing Site-Specific Data to Aggregate Data

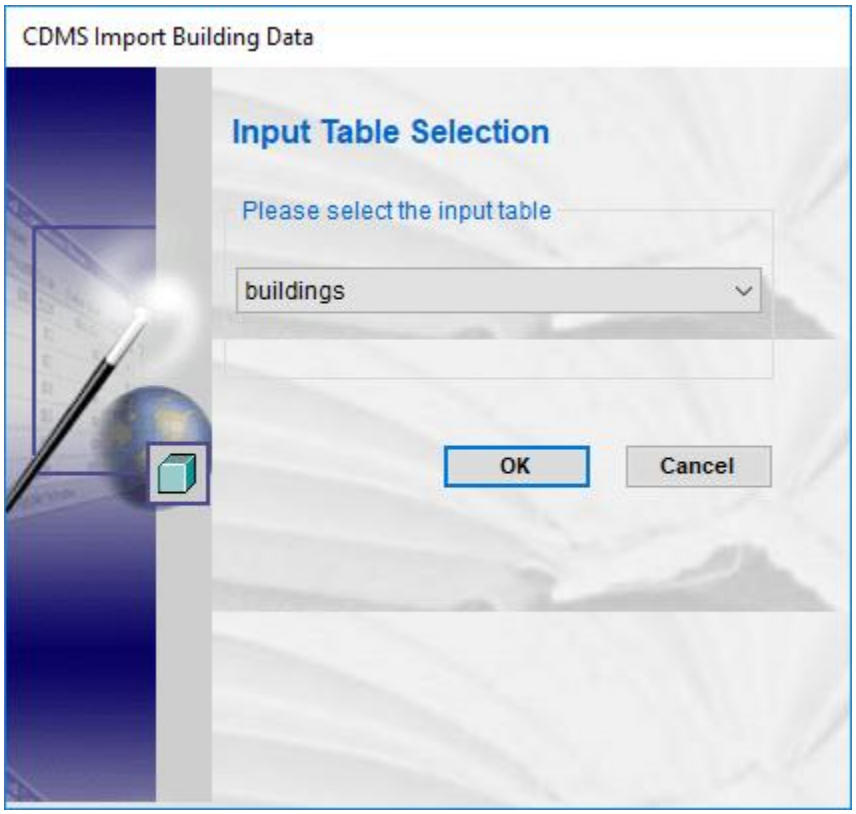


- When this message appears, click Yes.



- Select the input table in the following dialog and then match the fields to import the table.

Figure 4-21: Input Table Selection

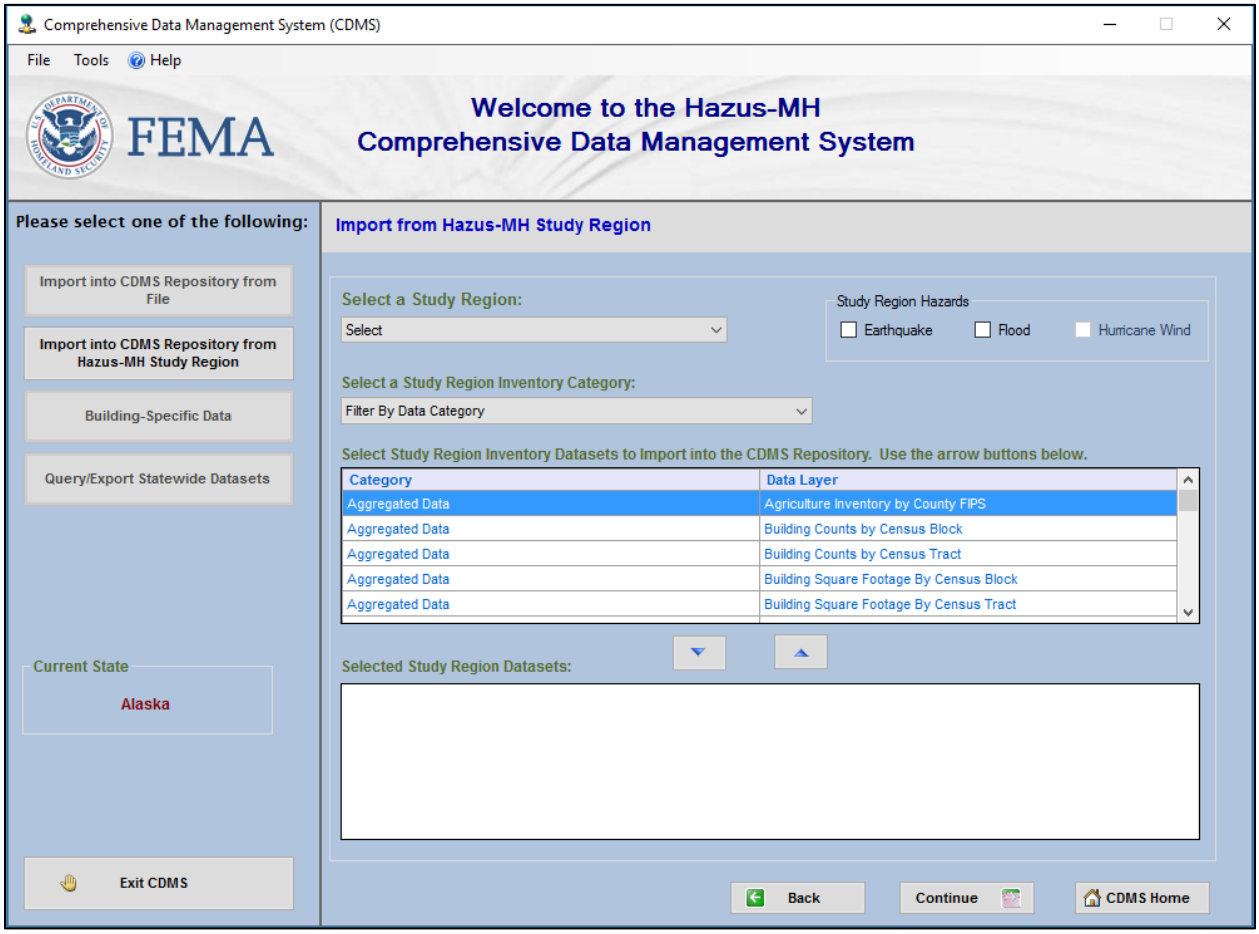


5 Importing into the CDMS Repository from a Hazus Study Region

CDMS can connect to a Hazus Study Region and import data from that Study Region into the statewide Hazus dataset. This is especially useful if the user has added new features to his or her Study Regions and would like to merge the features with the state data.

- Select the **Import into CDMS Repository from Hazus Study Region** button in the **CDMS Home** screen (Figure 5-1).

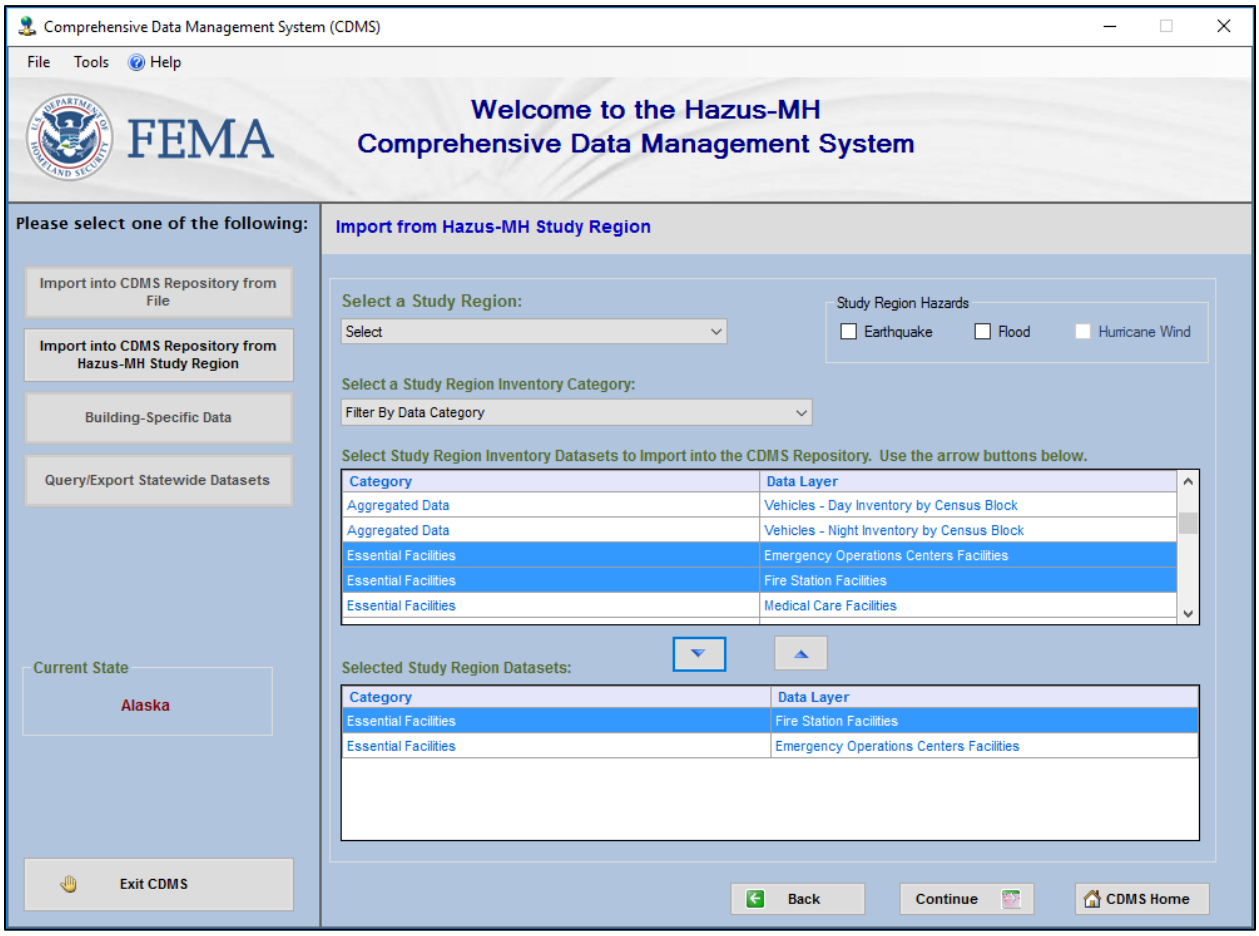
Figure 5-1: Import Hazus Study Region



When the Study Region import screen opens:

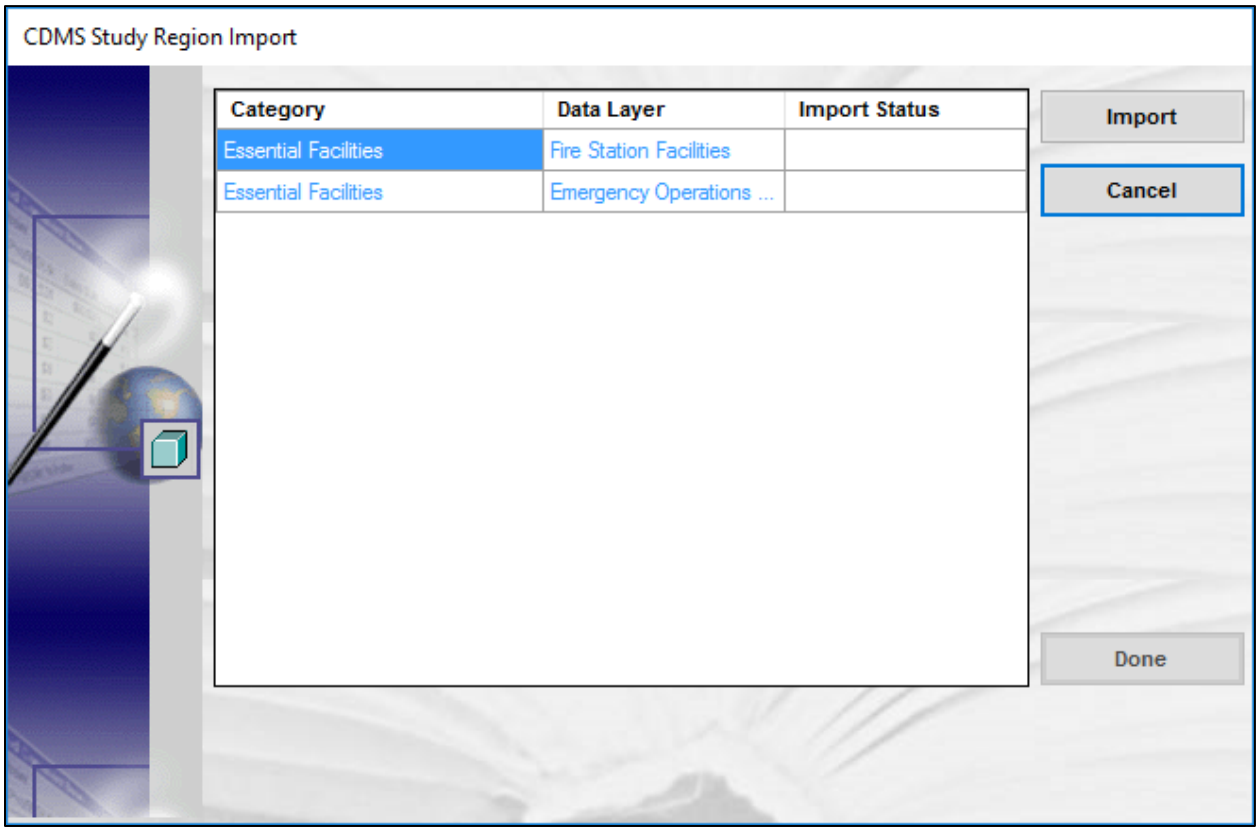
- Select a Study Region from the dropdown list (Figure 5-2). **Study Region Hazards** will show which hazards were selected for the Study Region
- Select a **Study Region Inventory Category** from the dropdown list (e.g., Essential Facilities).
- Select the **Study Region Inventory Category Datasets** from the listing and use the arrow buttons to move them to the Selected Study Regions listing.
- Select the **Continue** button at the bottom of the screen to move to the next screen.

Figure 5-2: Study Region Inventory Category Datasets



A window will appear with a list of the data layers chosen by the user. Select the **Import** button to finish the import process (Figure 5-3). When the data have finished importing, a message will appear in the **Import Status** column letting the user know that the import is complete. When all data layers have been imported, the **Done** button in the bottom right corner of the screen will become active and can be selected.

Figure 5-3: CDMS Import Status



6 Building-Specific Data

Building-specific data can be entered manually or imported via site-specific import routines. This function is useful when data need to be refined before aggregation.

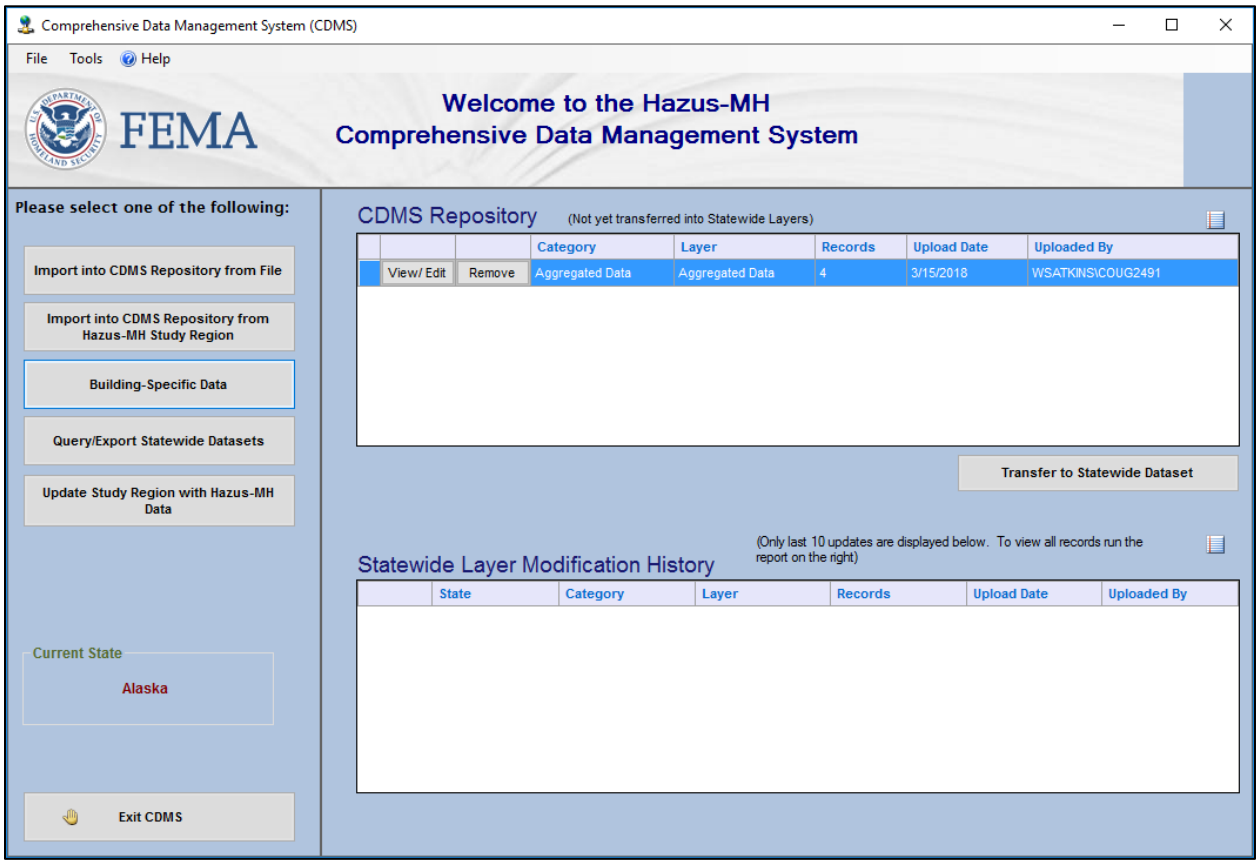
The following actions are described in Chapter 6:

- Adding a New Building.
- Editing or Deleting an Existing Building.
- Exporting Building-Specific Data.
- Searching Building-Specific Data.

6.1 Adding a New Building

To add a new building, first select the **Building-Specific Data** button on the left in the **CDMS Home** screen (Figure 6-1).

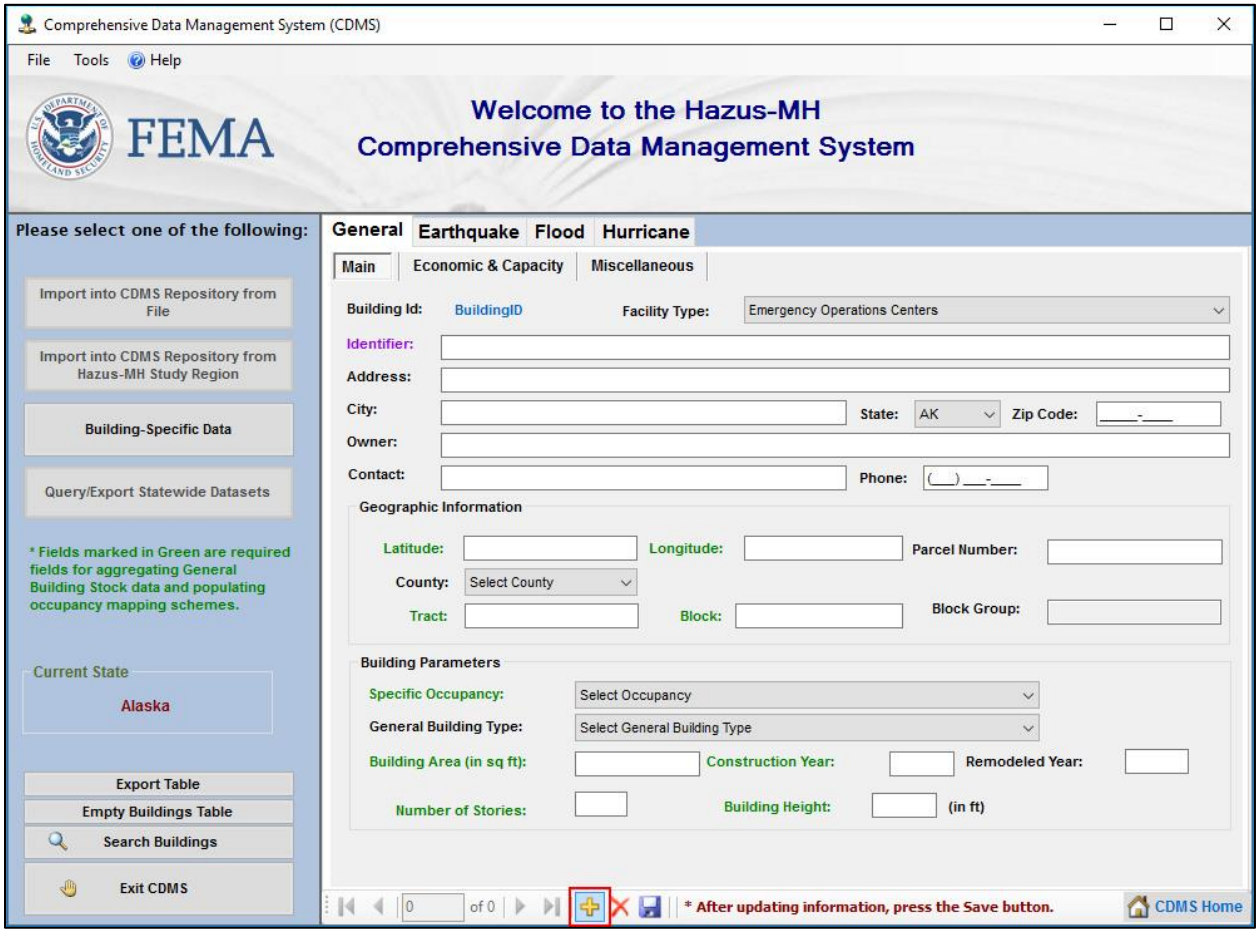
Figure 6-1: Adding a New Building



The screen that appears will have four tabs at the top of the screen: **General, Earthquake, Flood,** and **Hurricane** (Figure 6-2)**.** Each tab contains subtabs with detailed information for the

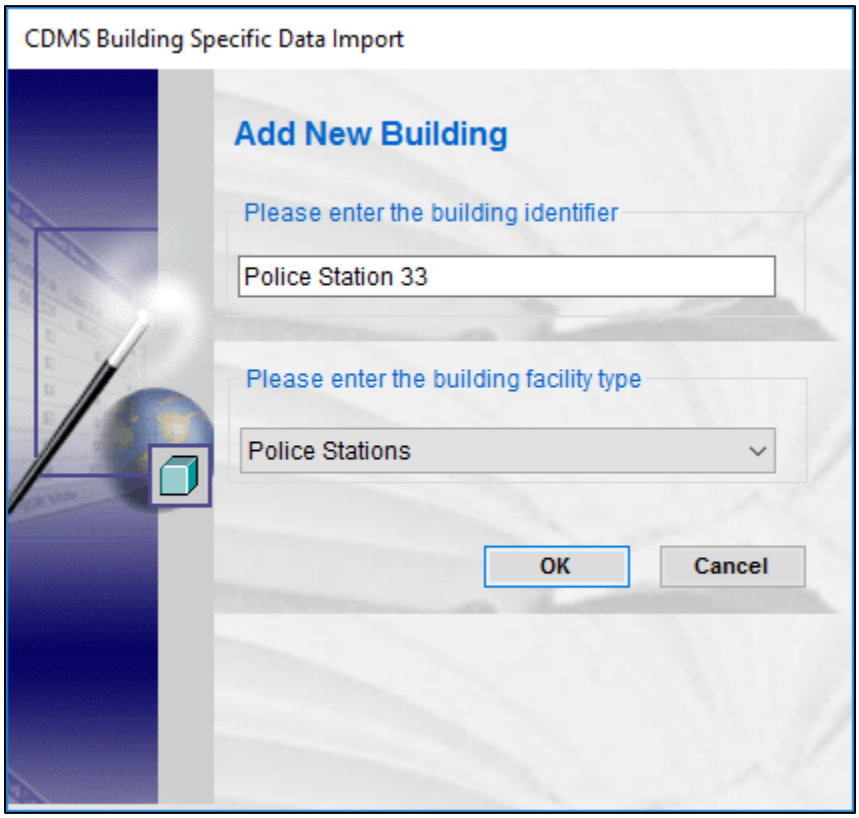
main tab. Select the Add new button at the bottom of the screen to add a new building record (Figure 6-2).

Figure 6-2: Building a New Record



- A window will appear. Enter a building identifier, select a building facility type from the dropdown list, and then select the OK button (Figure 6-3).
- The window will close, and the new building will be shown on the screen. Edit the current information for the building if needed and save it.

Figure 6-3: Add New Building



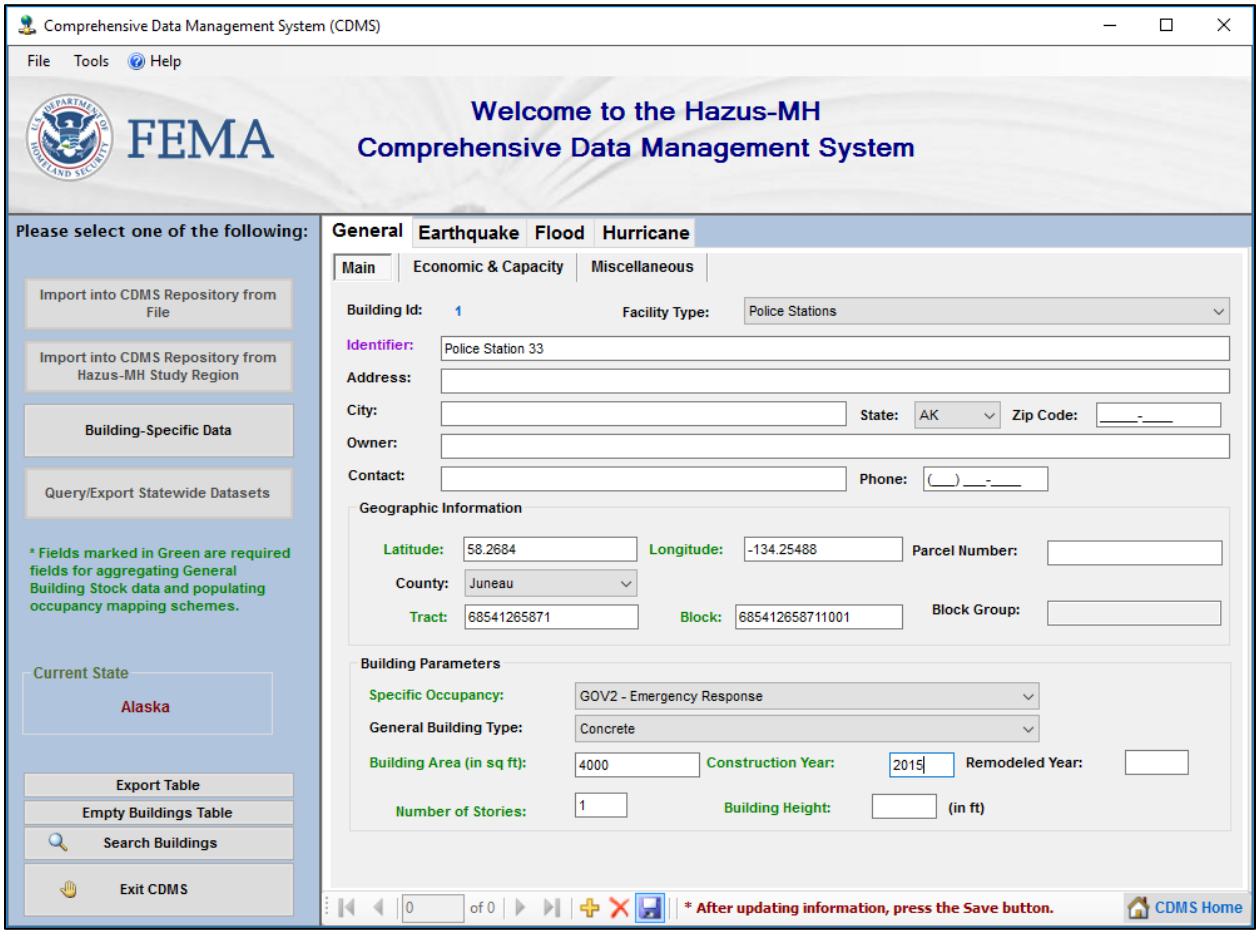
6.2 Editing or Deleting an Existing Building

To edit an existing building in the **Building-Specific Data** section:

- Select the **Building-Specific Data** button from the menu on the left side of the **CDMS Home** screen (Figure 6-4).
- Select a different building using the left and right arrows.
- Select the **Save** button when information has changed for a building.
- Select the **Delete** button to remove the current record.

The new or changed information will be saved in the system and available for modification or deletion if necessary.

Figure 6-4: Editing or Deleting an Existing Building

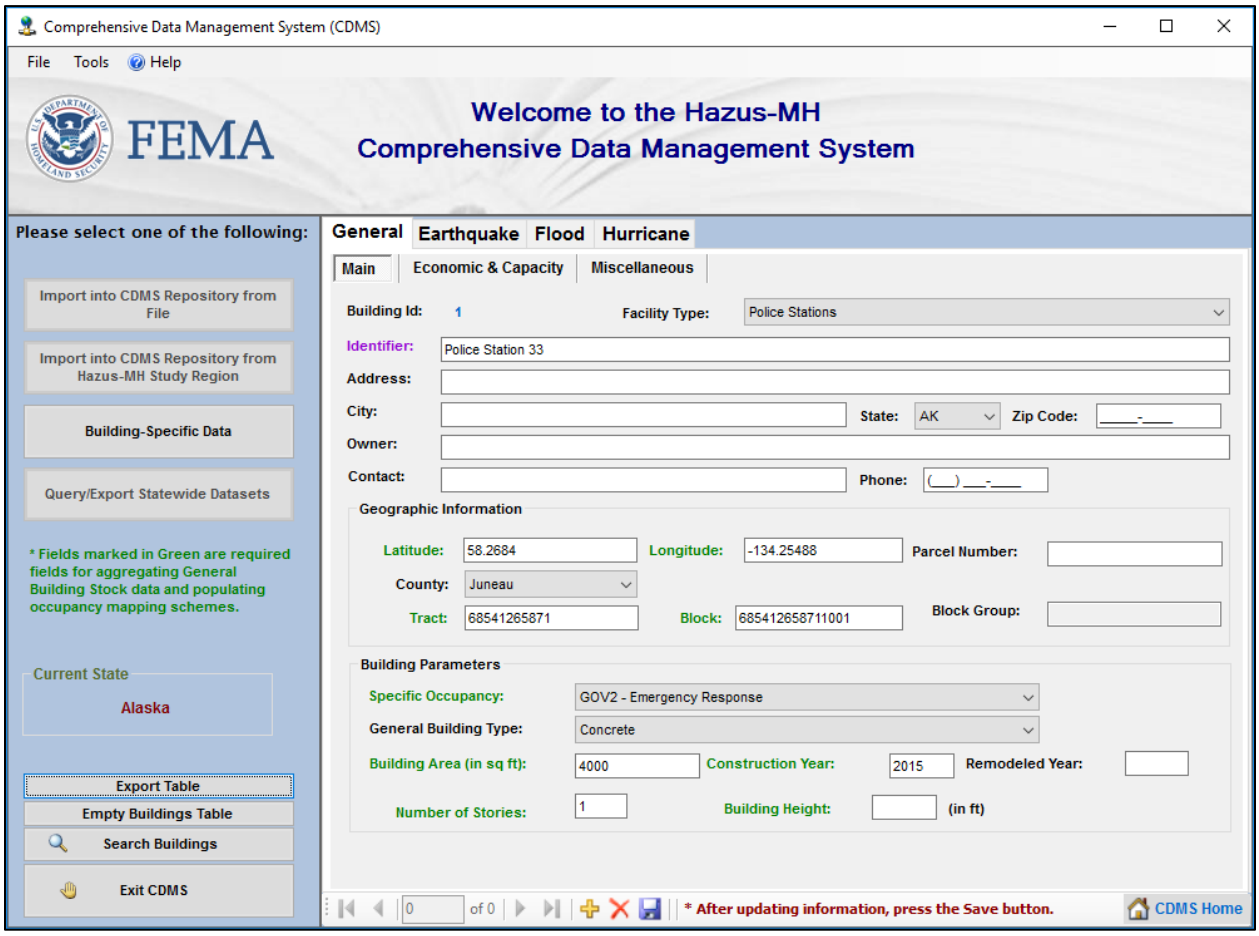


**Items in green are required for aggregation activities*

6.3 Exporting Building-Specific Data

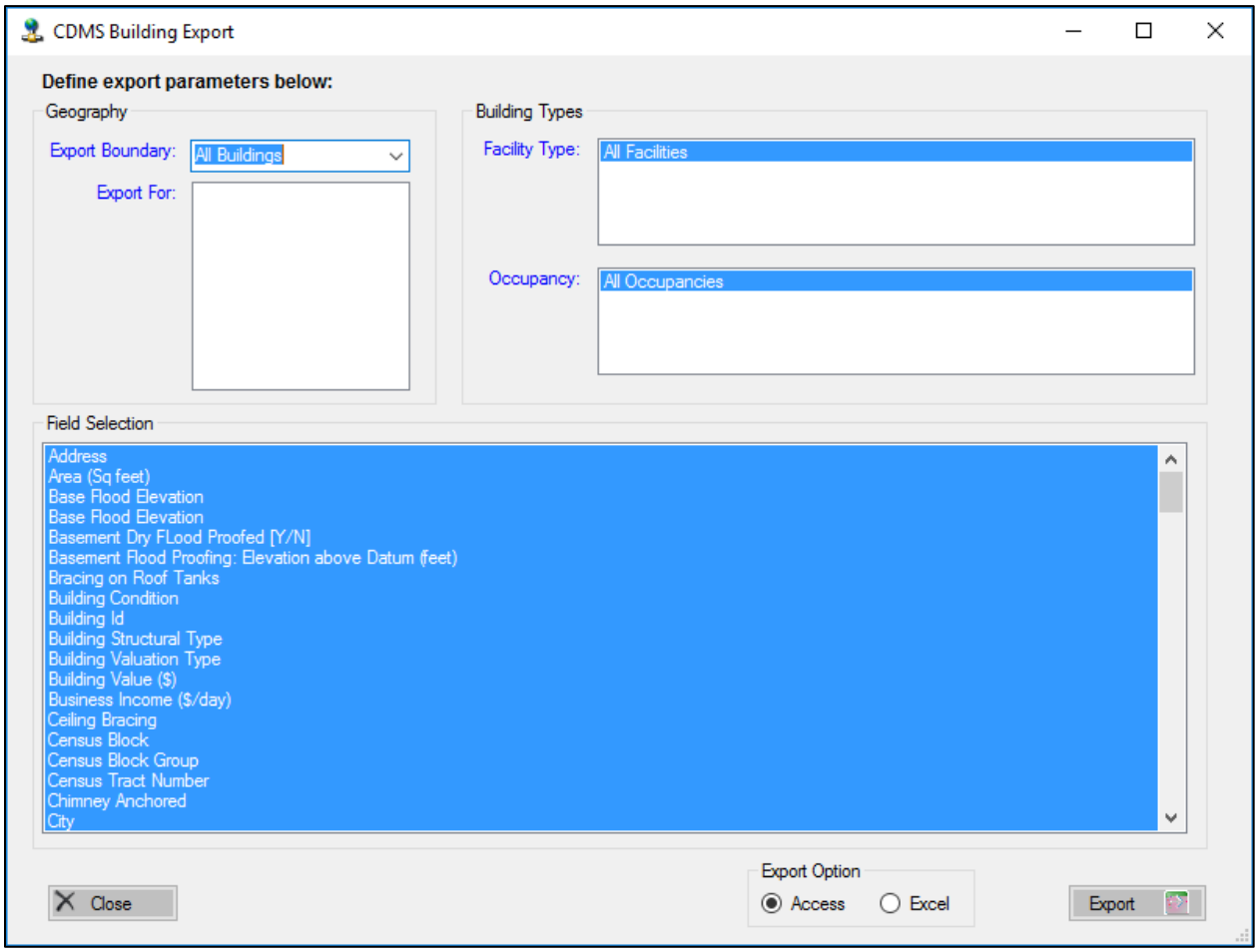
Once the user has navigated to the building-specific data screen using the **Building-Specific Data** button on the **CDMS Home** screen, the user can view the building-specific data that are saved in the system (Figure 6-5). Data must be input into the forms to be able to export the data. Select the **Export Table** button on the left side of the screen.

Figure 6-5: Exporting Building-Specific Data



A new window will appear, and the user must select the criteria to export. All fields are selected by default. By default, the export will be to an MS Access database, but data may also be exported to Excel by changing the radio button option at the bottom of the screen (Figure 6-6).

Figure 6-6: CDMS Building Export Parameter Definition

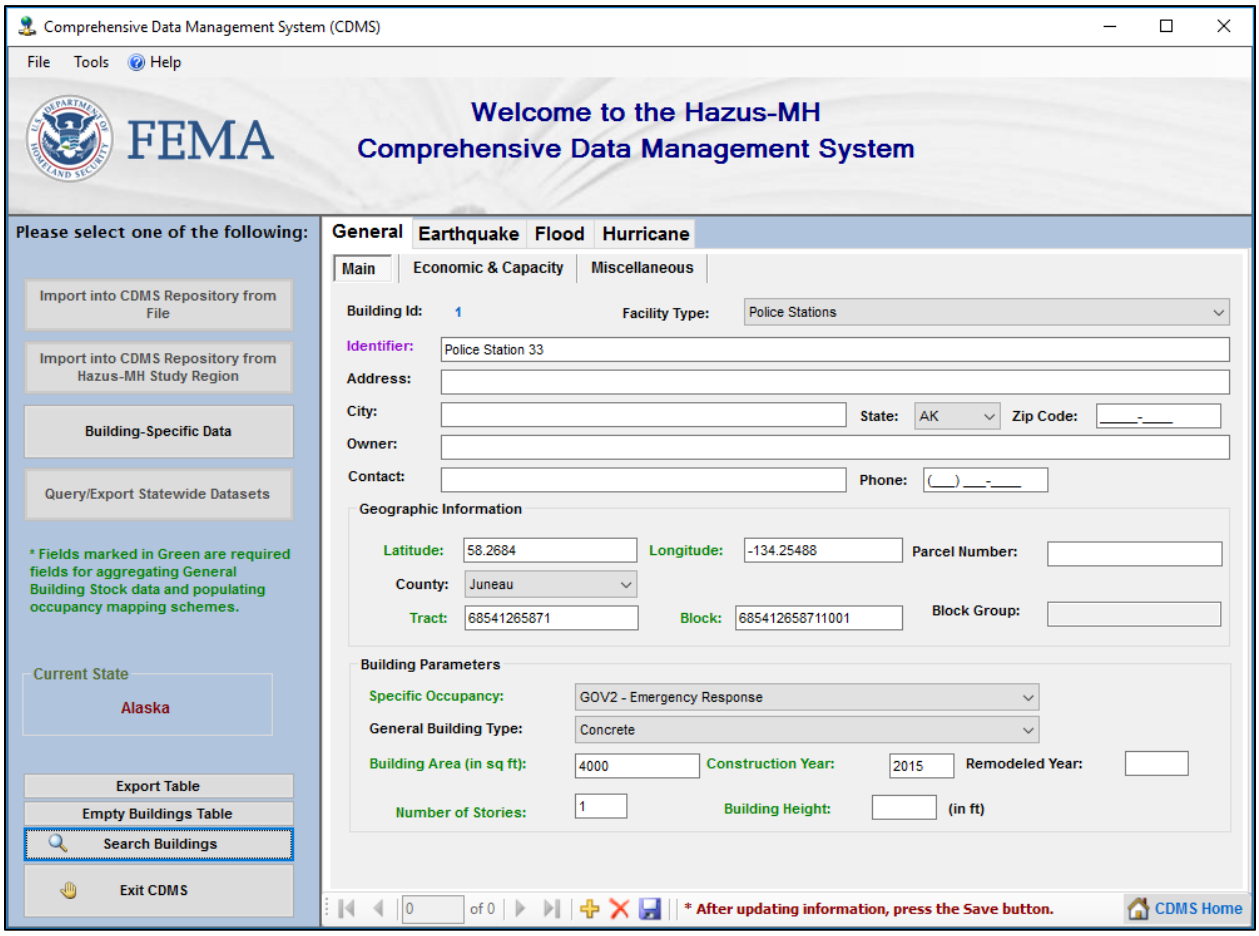


Once the criteria are chosen, select the **Export** button and **a Save File** window will appear. Select the folder where the data are to be saved and select the **Save** button. The window will disappear, and a message box will be displayed confirming export completion. To close the criteria window, select **Cancel** or use the **Close** button in the top right corner of the screen.

6.4 Searching Building-Specific Data

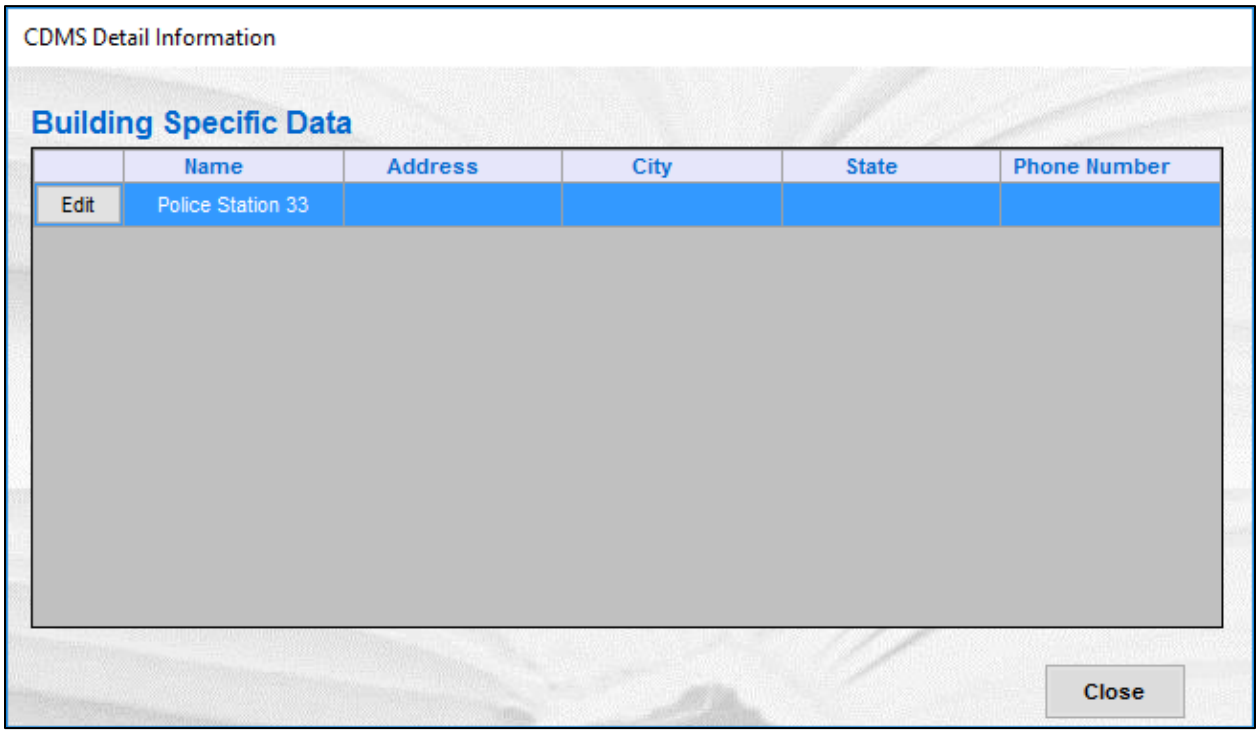
While at the **Building-Specific** data screen, users can search for specific building information that is listed in the tables. To do this, select the **Search Buildings** button on the left side of the screen (Figure 6-7).

Figure 6-7: Building-Specific Search



A new window will appear, and the user will see a list of existing buildings to choose from (Figure 6-8).

Figure 6-8: Building-Specific Data Search



Once the building to edit has been found, select the **Edit** button. The building list window will disappear, and the user will see the building information for the selected building on the building-specific data screen.

7 Querying/Exporting Statewide Datasets

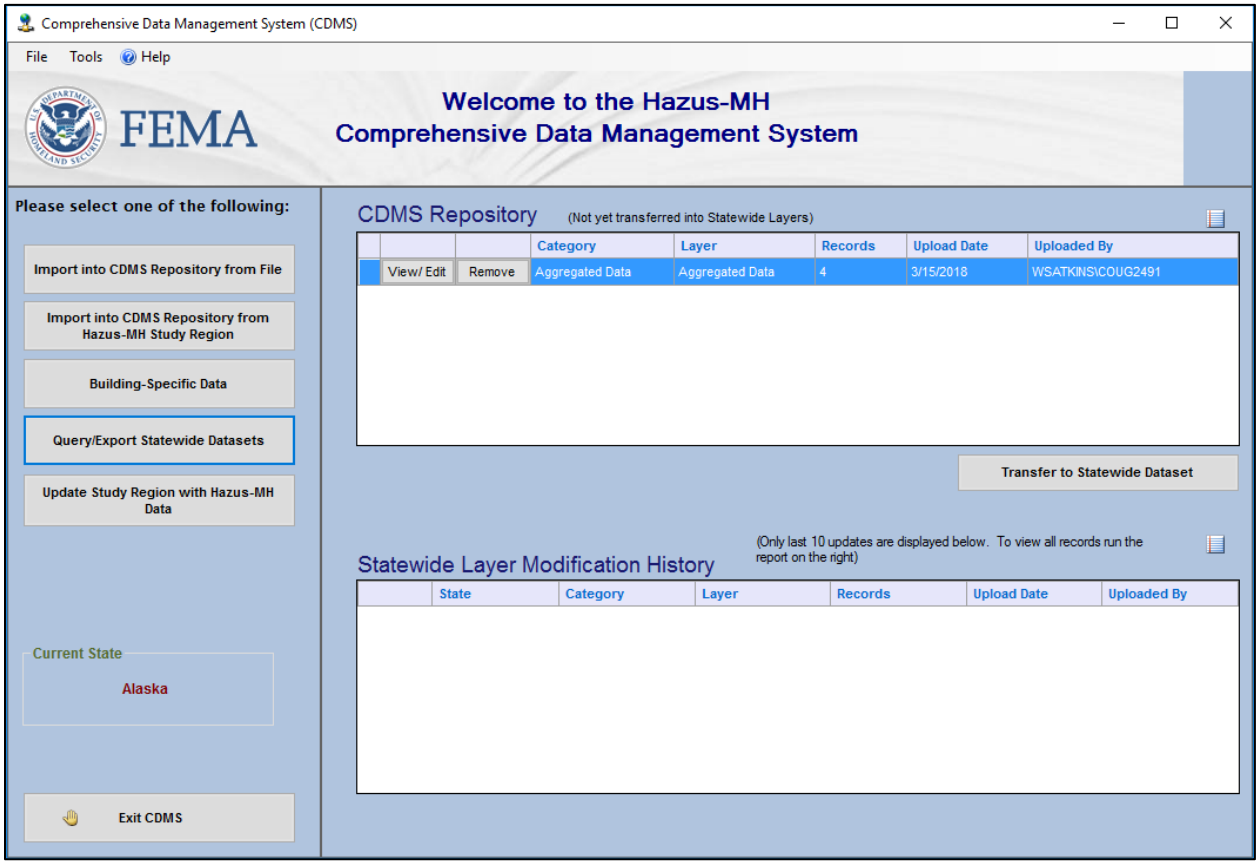
If the user has specified a statewide Hazus data location, the data can be queried, deleted, and exported. The following actions are described in Chapter 7:

- Searching Statewide Geodatabases.
- Deleting Statewide Data.
- Exporting Search Results to an MS Excel File.
- Exporting Search Results to an Esri Personal Geodatabase.

7.1 Searching Statewide Geodatabases

To search statewide geodatabases, first select the **Query/Export Statewide Datasets** button on the left in the **CDMS Home** screen (Figure 7-1).

Figure 7-1: Searching Statewide Geodatabases



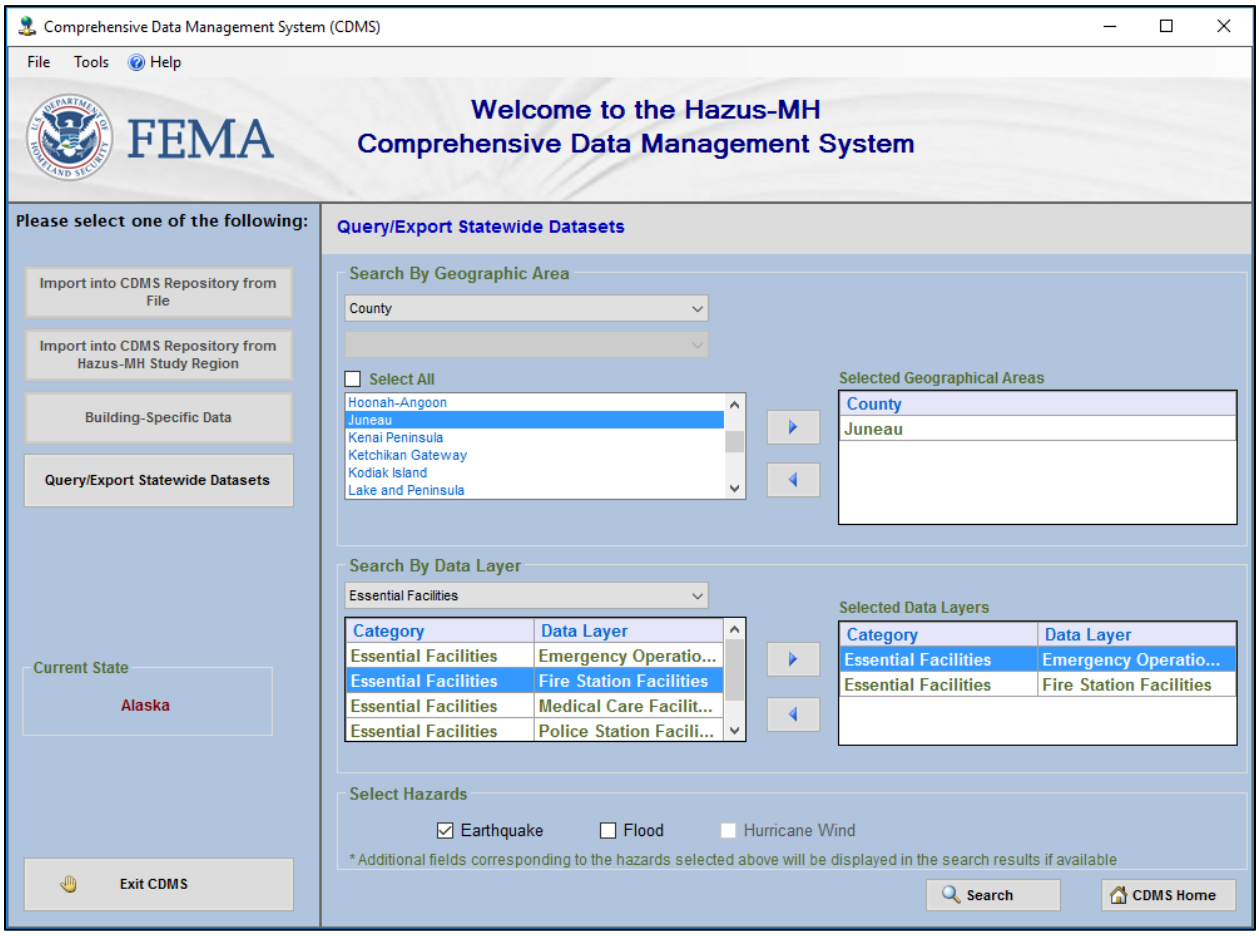
The **Query/Export Statewide Datasets** screen will appear (Figure 7-2). The user should specify the following information:

- Geographic location
  - Statewide

  - County (one or more may be selected)
  - Census Tract (one or more may be selected)
  - Census Block (one or more may be selected)
- Category datasets such as:
  - Essential Facilities > Police Stations
  - Essential Facilities > Schools
  - High Potential Loss Facilities > Military Installations
- Hazards (returns general inventory fields plus selected hazard data):
  - Flood
  - Earthquake
  - Hurricane wind
  - Tsunami

Use the arrow buttons to move information to the **Selected Geographical Areas** and **Selected Data Layers** boxes. After the necessary information has been selected, press the **Search** button.

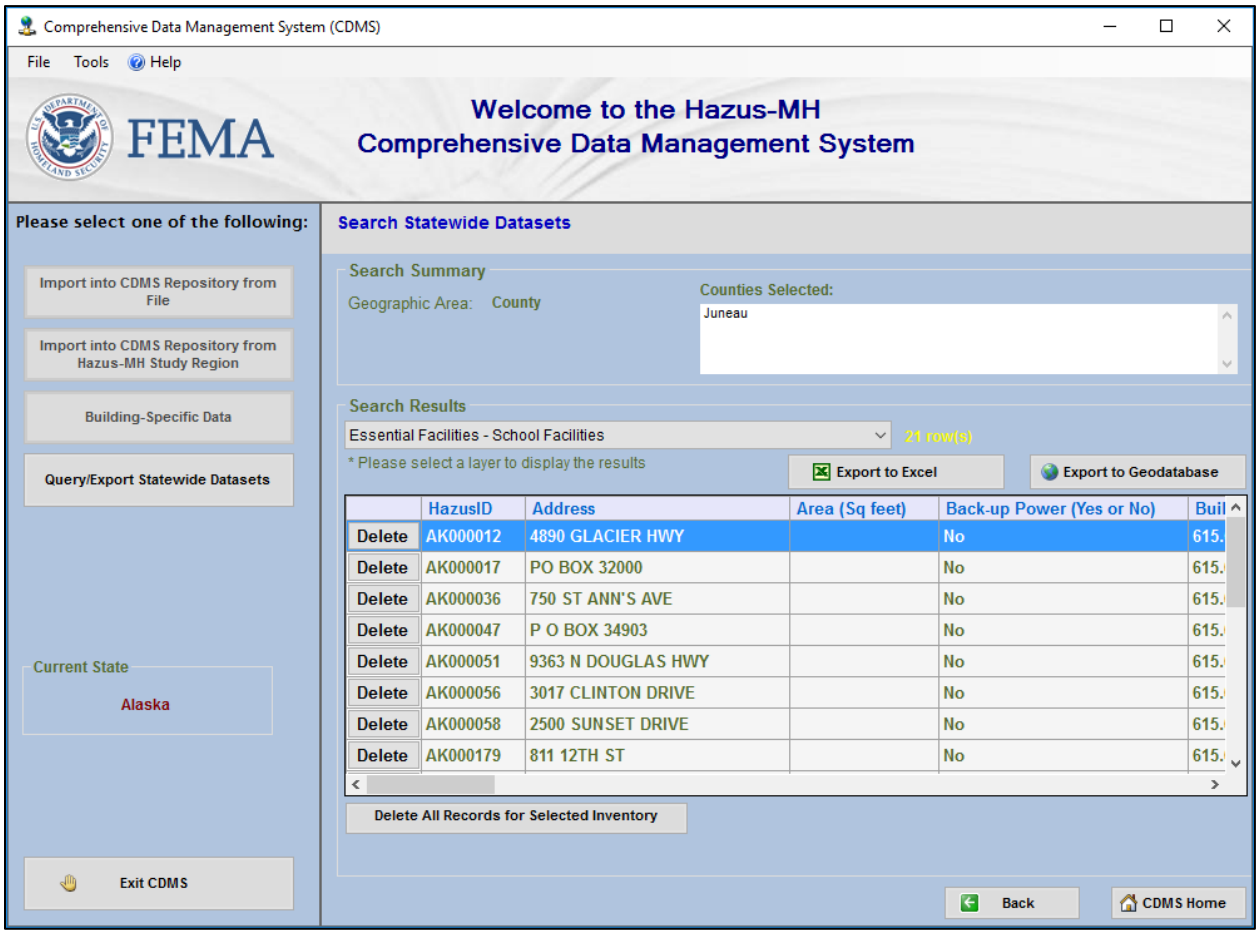
Figure 7-2: Query/Export Statewide Datasets



The system will query statewide Hazus datasets and prepare the information in the following screen (Figure 7-3).

The search summary will display the geographic search criteria. The search results will display individual datasets in a dropdown menu along with a record count of the number of features returned. The user can use the dropdown list to switch between datasets (Figure 7-3).

Figure 7-3: Statewide Datasets Search



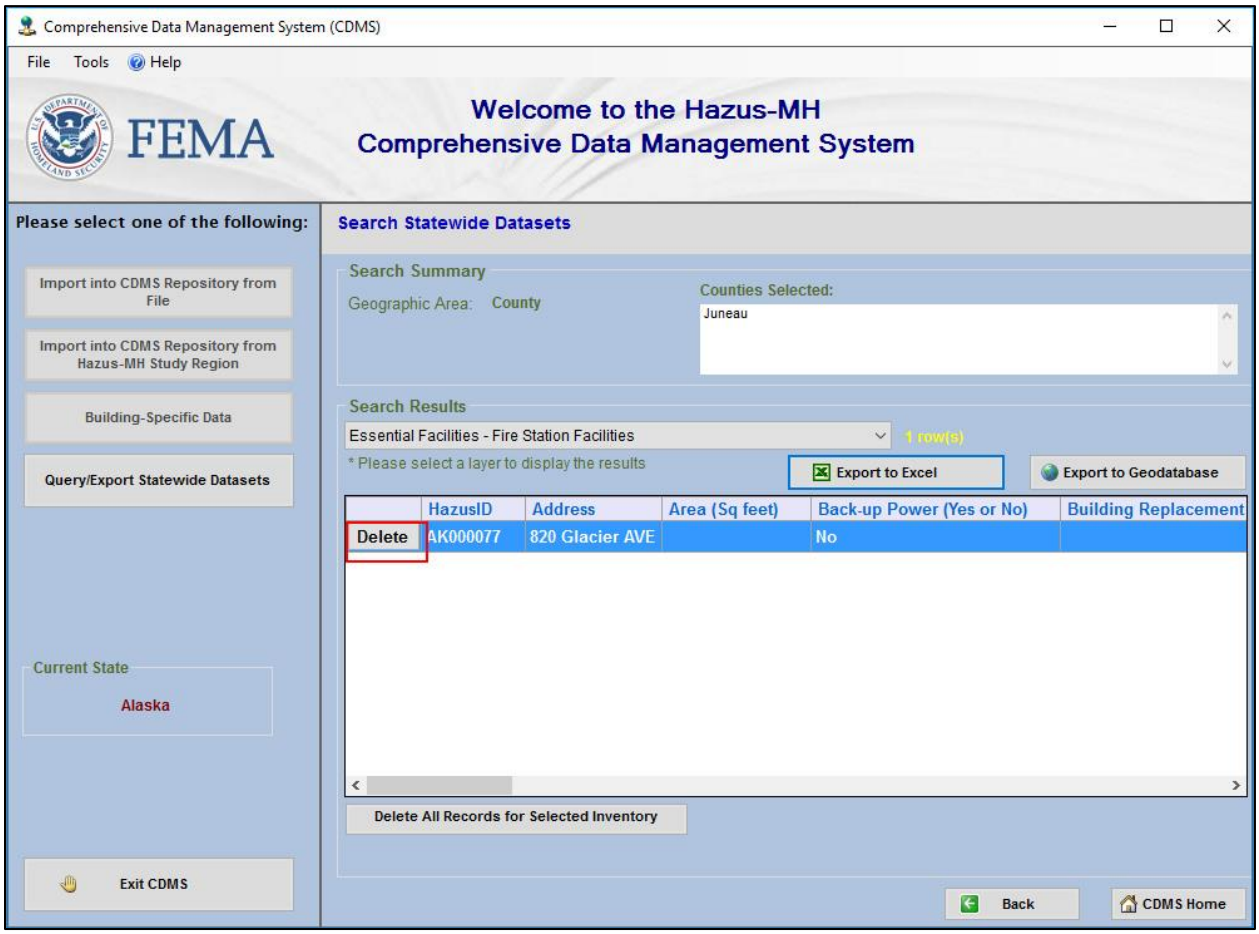
7.2 Deleting Statewide Data

To delete inventory information from a statewide Hazus dataset, first query the data using the techniques that are described. On the search results screen (Figure 7-4), select the **Delete** button to remove individual records from statewide Hazus datasets. To remove all of the records that are selected, press the **Delete All Records for Selected Inventory** button. In either case, a request to verify the removal of the data will appear.

7.3 Exporting Search Results to an MS Excel File

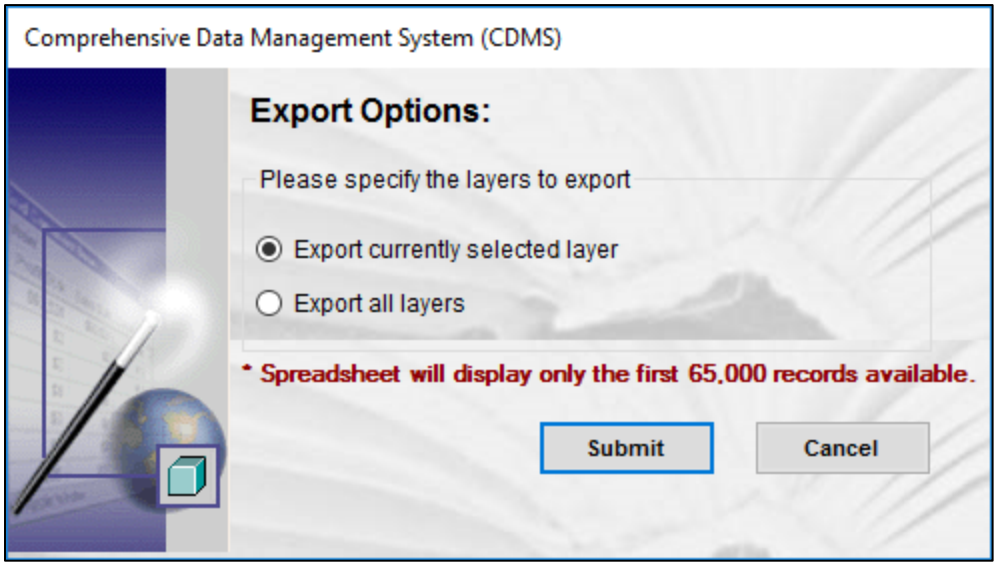
The data that are shown in the search results list can be exported to MS Excel or an Esri personal geodatabase. To export the data to MS Excel, select the **Export to MS Excel** button (Figure 7-4).

Figure 7-4: Exporting Search Results



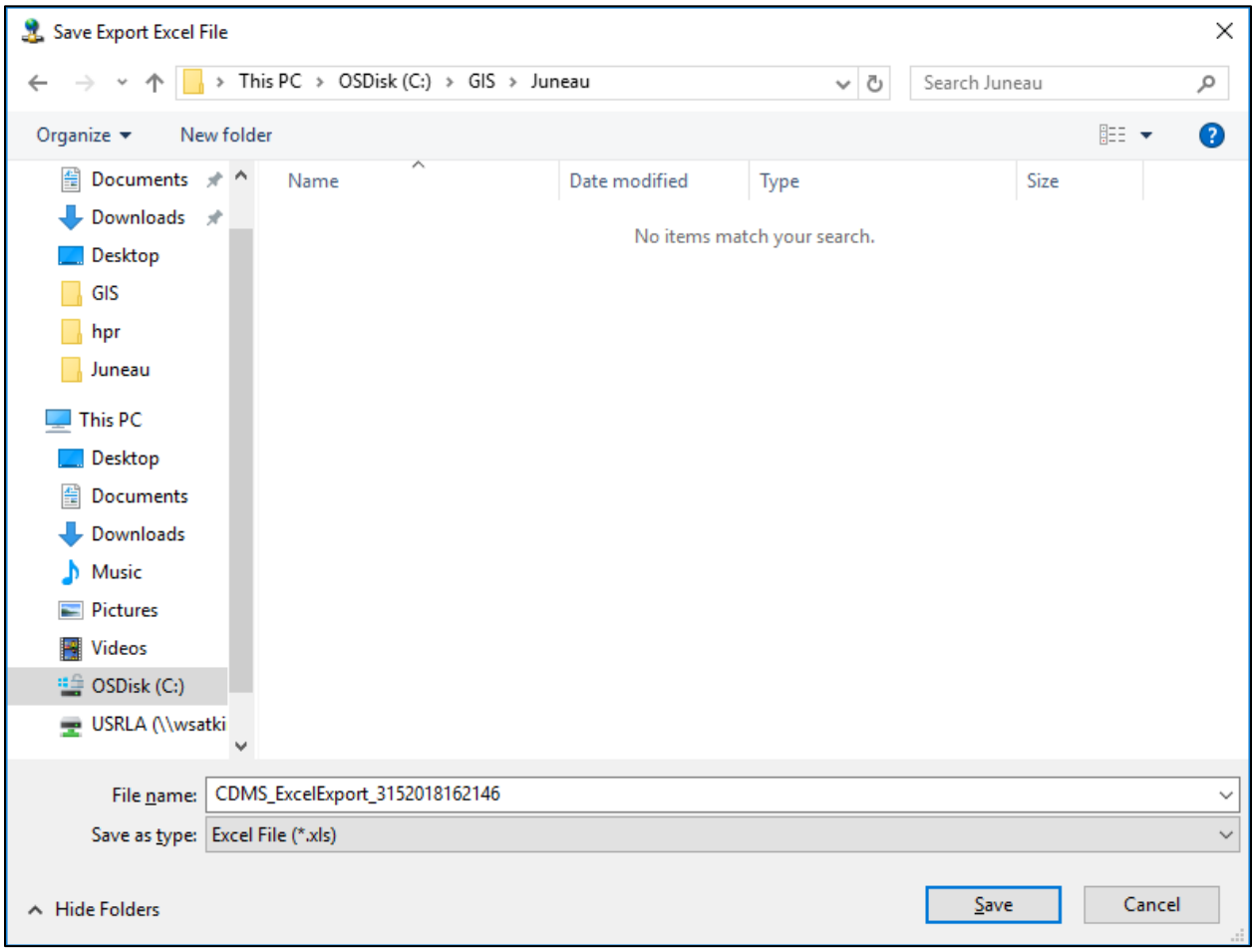
The user must specify an option to export only the selected layer or all layers and then select the **Submit** button (Figure 7-5).

Figure 7-5: Exporting Options



Enter a file name and choose a folder to save the data in (Figure 7-6). To save the file, select the **Save** button. The window will close and the queried list will be visible again.

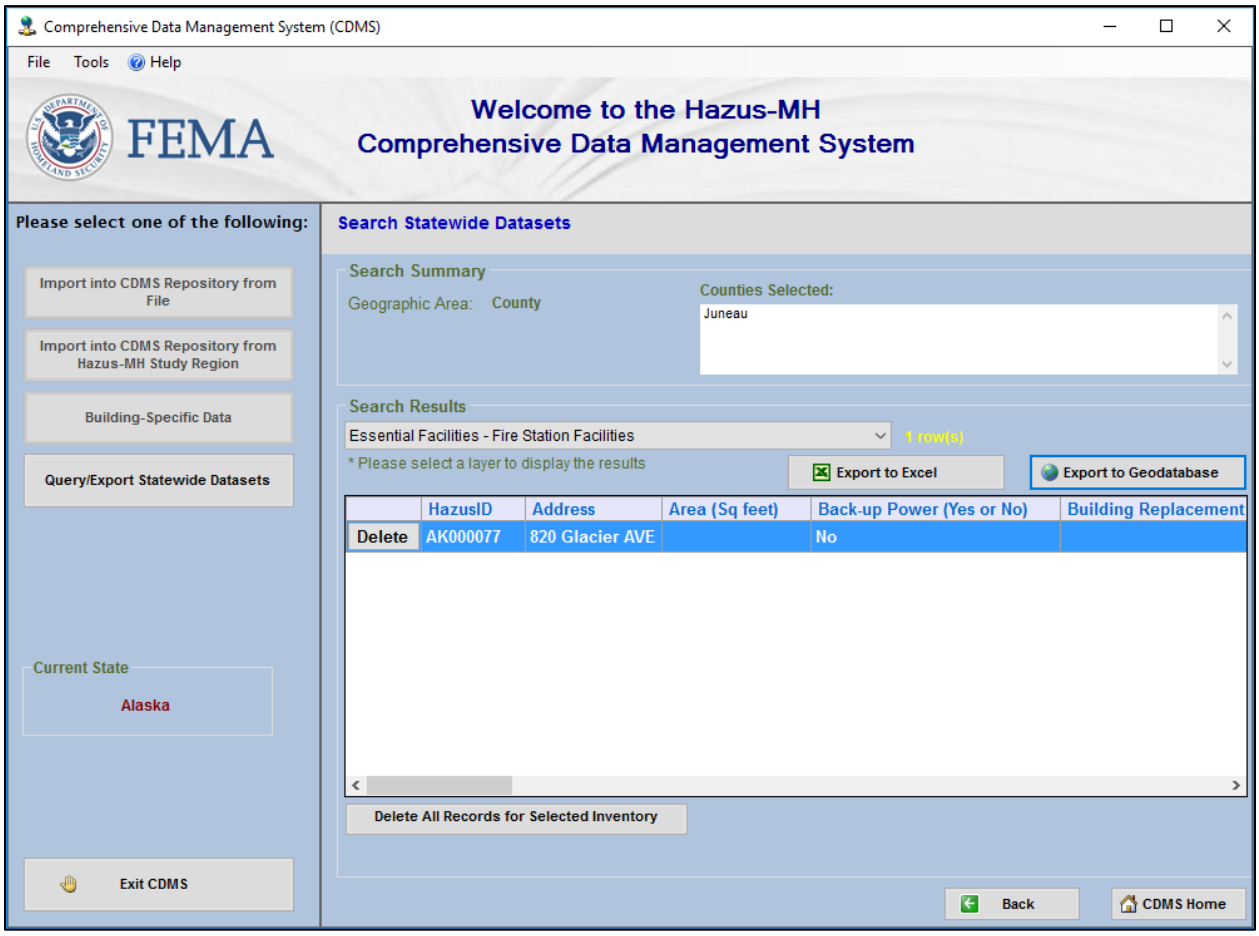
Figure 7-6: Saving Exported Data



7.4 Exporting Search Results to an Esri Personal Geodatabase

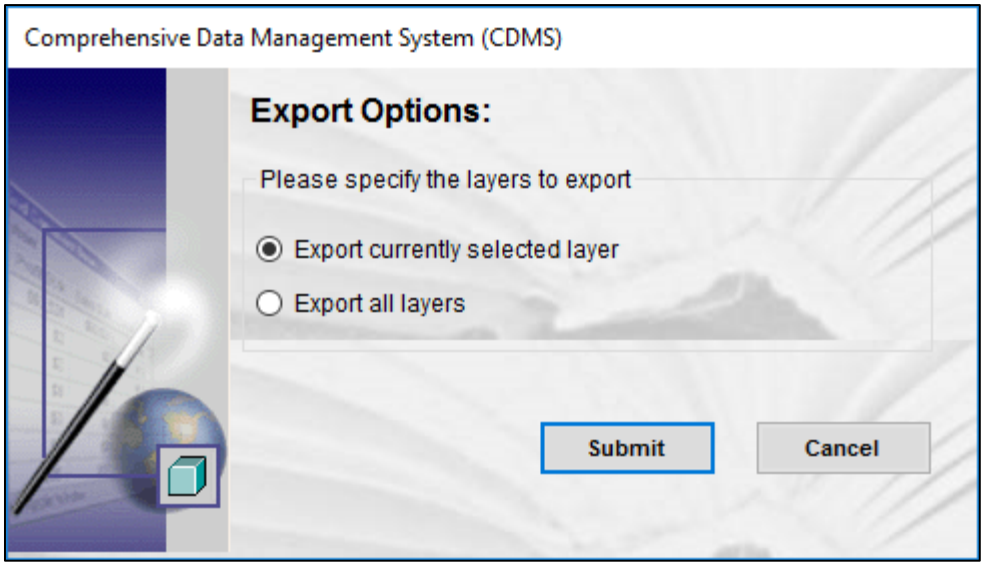
To export the search results to an Esri personal geodatabase, select the **Export to Geodatabase** button (Figure 7-7).

Figure 7-7: Exporting Search Results to an Esri Personal Geodatabase



As with the MS Excel option, the user must make an export choice and select the **Submit** button (Figure 7-8).

Figure 7-8: Exporting Selected Results to an Esri Personal Geodatabase



A new window will appear, and the user must enter a file name and choose a folder to save the data in. To save the file, select the **Save** button (Figure 7-9). The window will close, and the queried list will be visible again (Figure 7-10). The data can now be loaded into ArcGIS.

Figure 7-9: Saving Results to an ESRI Personal Geodatabase

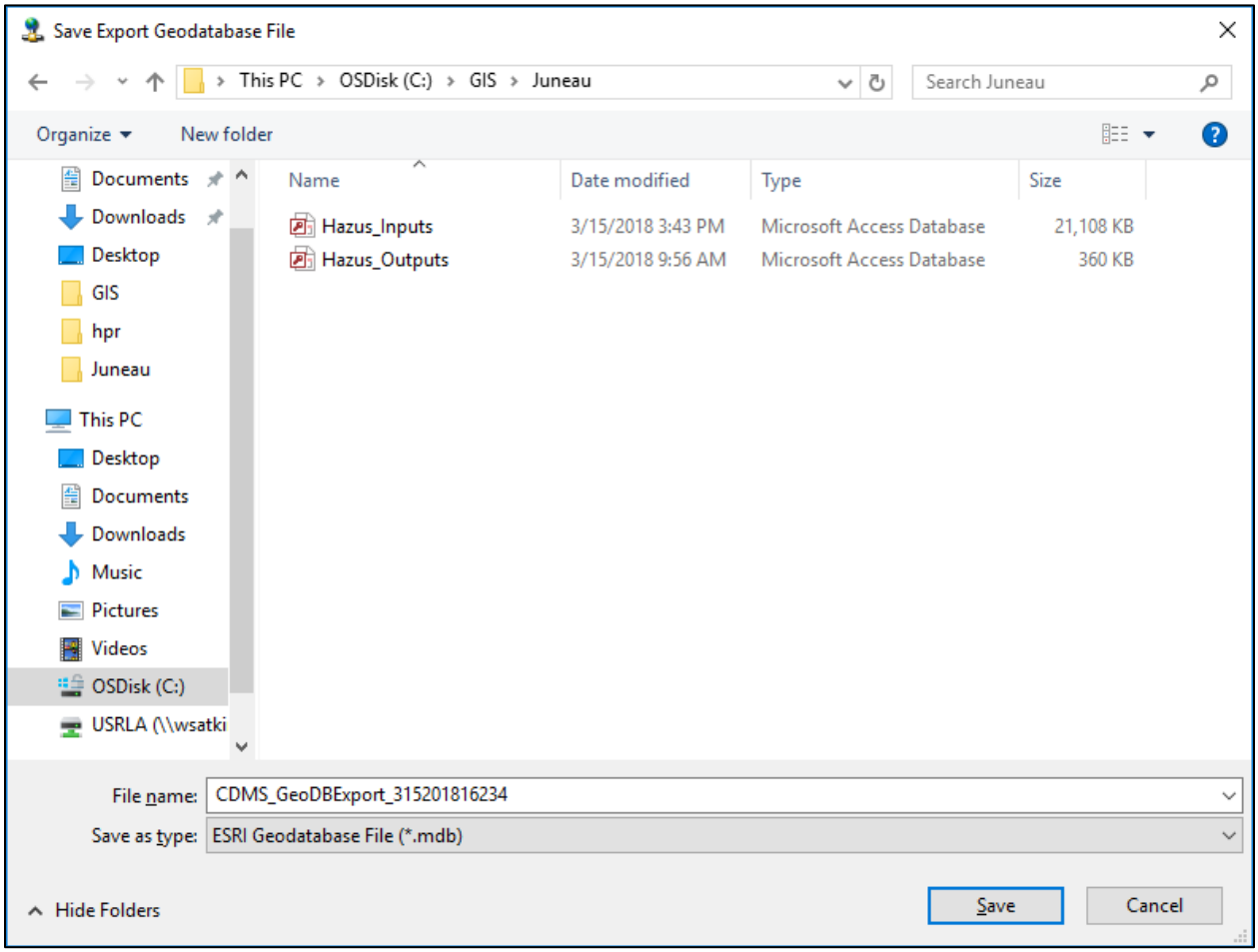
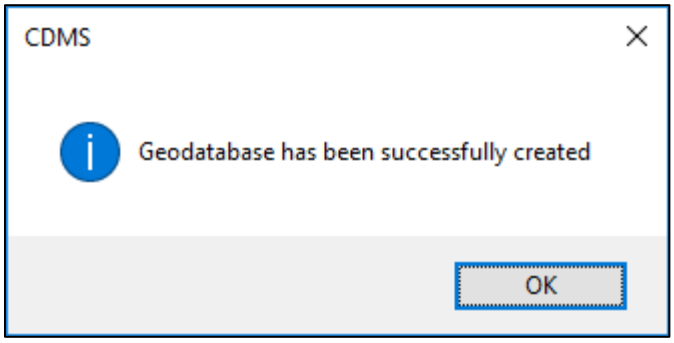


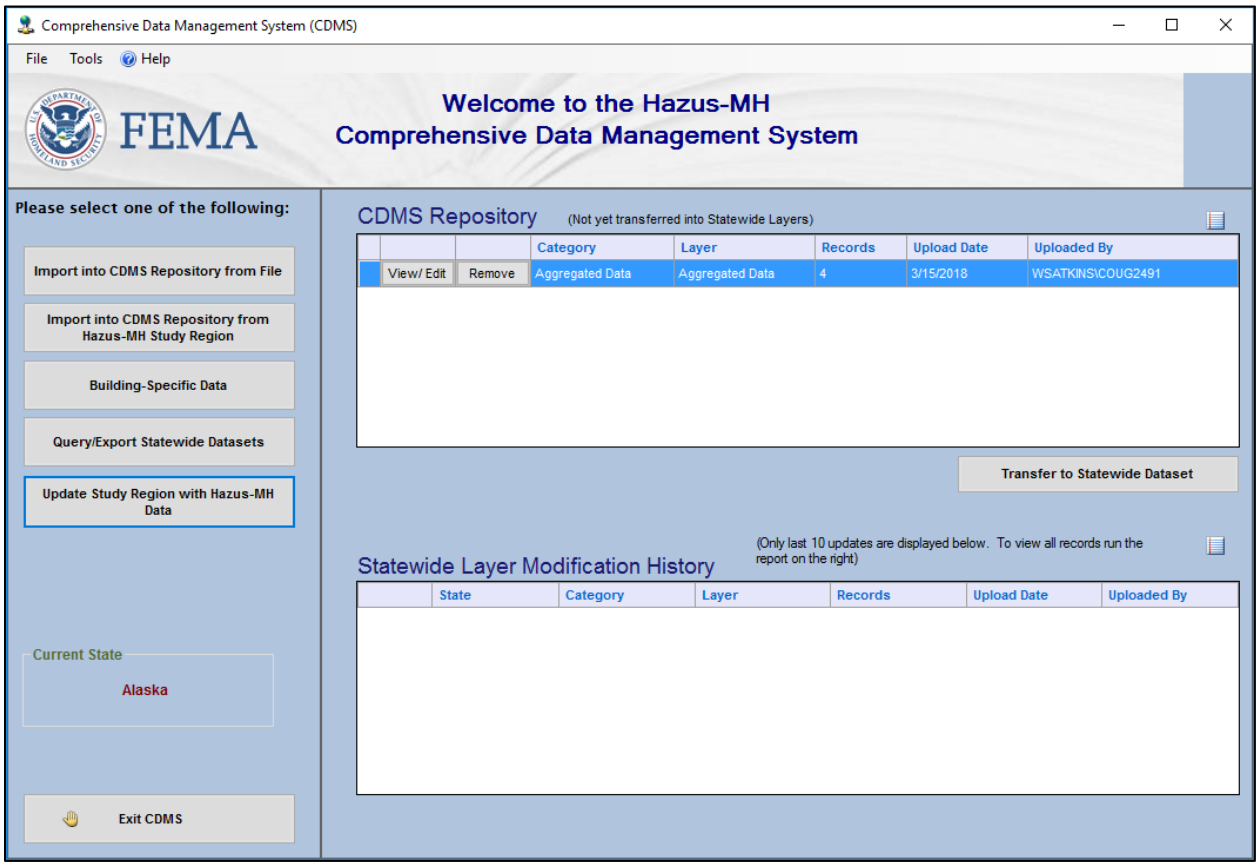
Figure 7-10: Saving Geodatabases



8 Updating a Study Region with Hazus Data

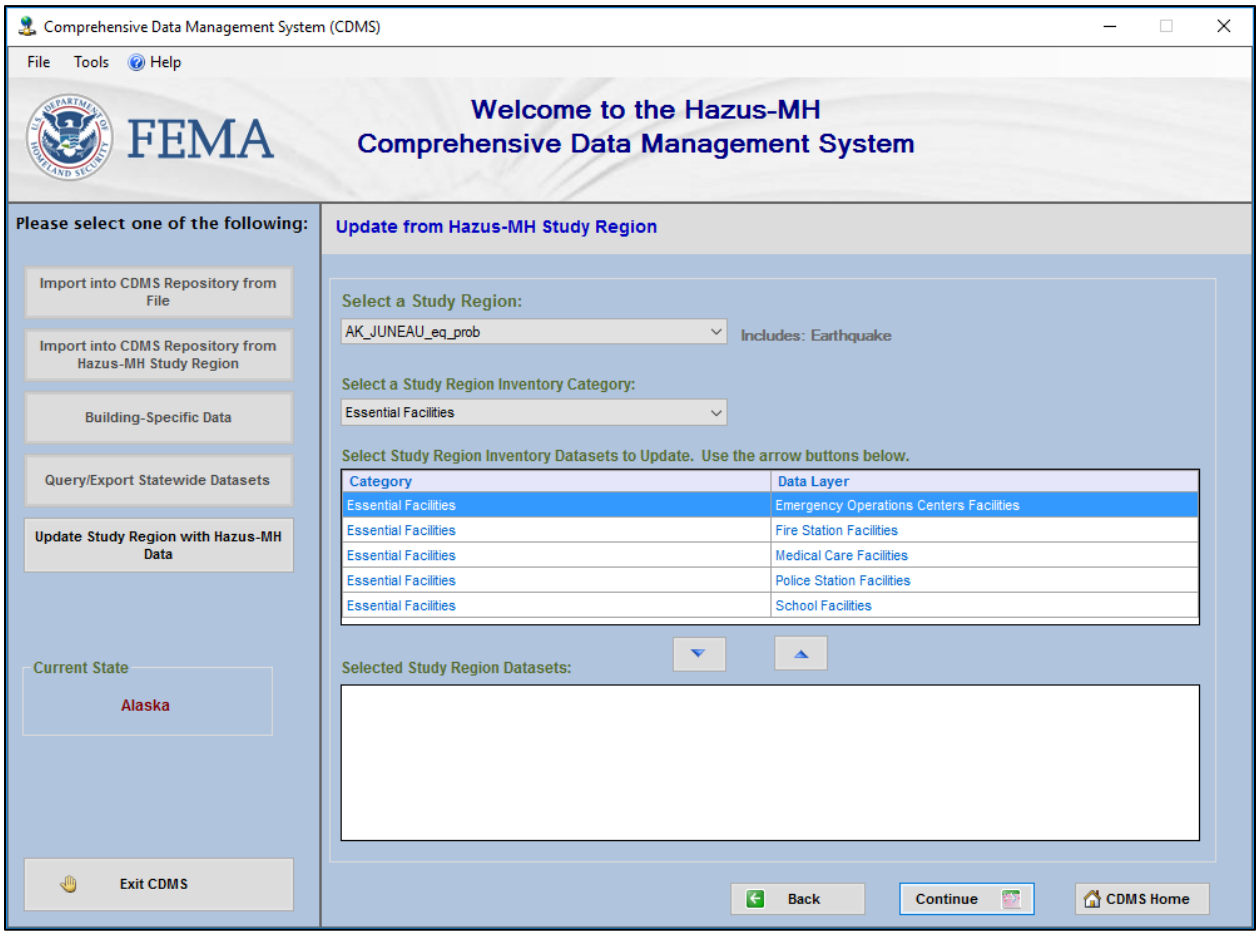
CDMS allows users to update an existing Study Region with user data. To do this, the user must select the **Update Study Region with Hazus Data** button (Figure 8-1).

Figure 8-1: Update Study Region with Hazus Data



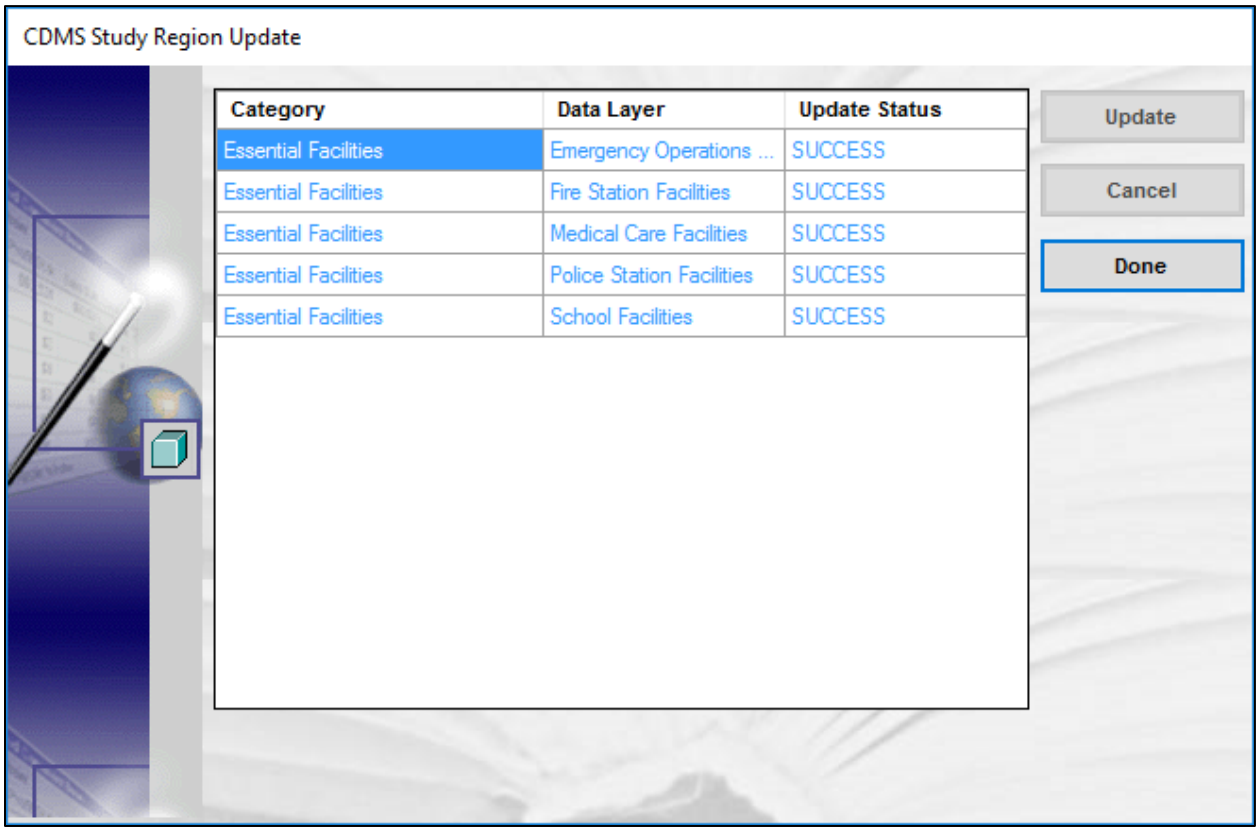
The criteria screen will appear, and the user will need to select all of the criteria pertaining to the information that needs to be updated (Figure 8-2).

Figure 8-2: Update Study Region Criteria



Once the criteria have been chosen, select the **Continue** button to move to the next screen (Figure 8-3). Select the **Update** button to initiate the process. The **Update Status** column will show the progress of each update. Once all of the updates are completed, the **Done** button will become available. Select the **Done** button to exit the update screen.

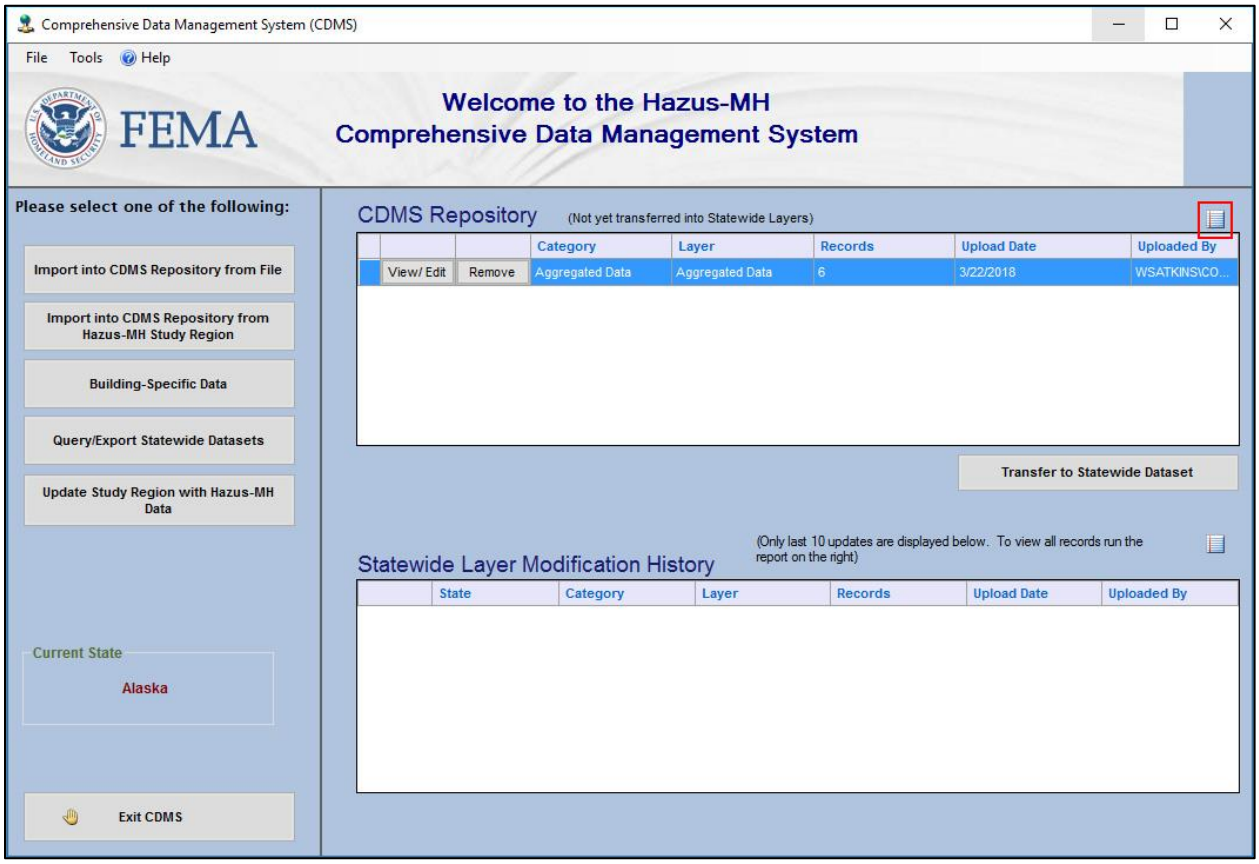
Figure 8-3: CDMS Study Region Update



9 CDMS Repository

The **CDMS Repository** holds any data that have been imported and converted to Hazus data structures. Data shown in this window (Figure 9-1) have not been merged with Hazus state datasets. Any data shown in the repository can be viewed and removed by the user, and a report can be generated showing a summary of the data in the repository.

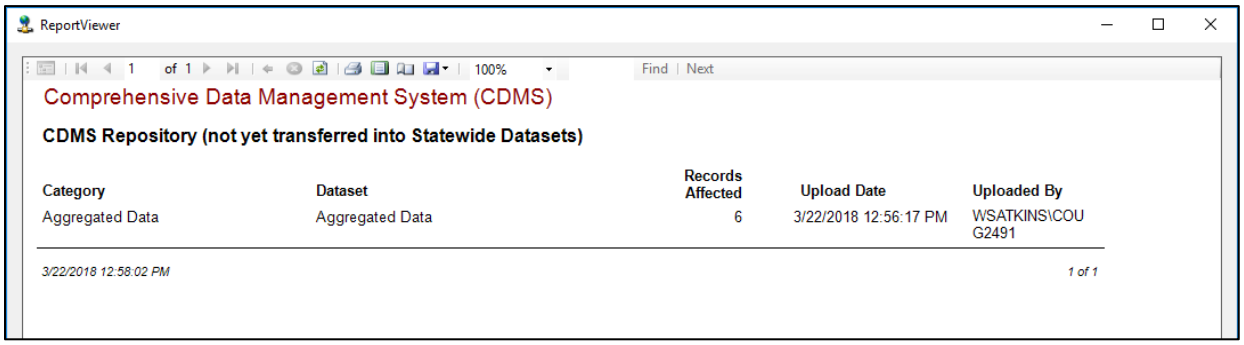
Figure 9-1: CDMS Repository



9.1 Viewing a Report of Data in the CDMS Repository

To view a report of the data in the **CDMS Repository**, select the report icon above the repository (Figure 9-1). A new window will appear with the data information for datasets in the **CDMS Repository**. The report can be printed and saved using the **Print** and **Save** buttons at the top of the report.

Figure 9-2: Viewing a Data Report



9.2 Viewing Individual Records for a Site-Specific Inventory Dataset

To see an individual record for a layer/dataset loaded into the **CDMS Repository**, select the **View/Edit** button (Figure 9-1) next to the layer of interest. A new window will appear with the detailed dataset information shown below.

- Sort data by selecting on the column heading above the data.
- Use the scroll bars to view all information available.

When finished viewing, select the **Close** button in the bottom right corner of the screen, and the window will close.

9.3 Removing Individual Records for a Site-Specific Inventory Dataset

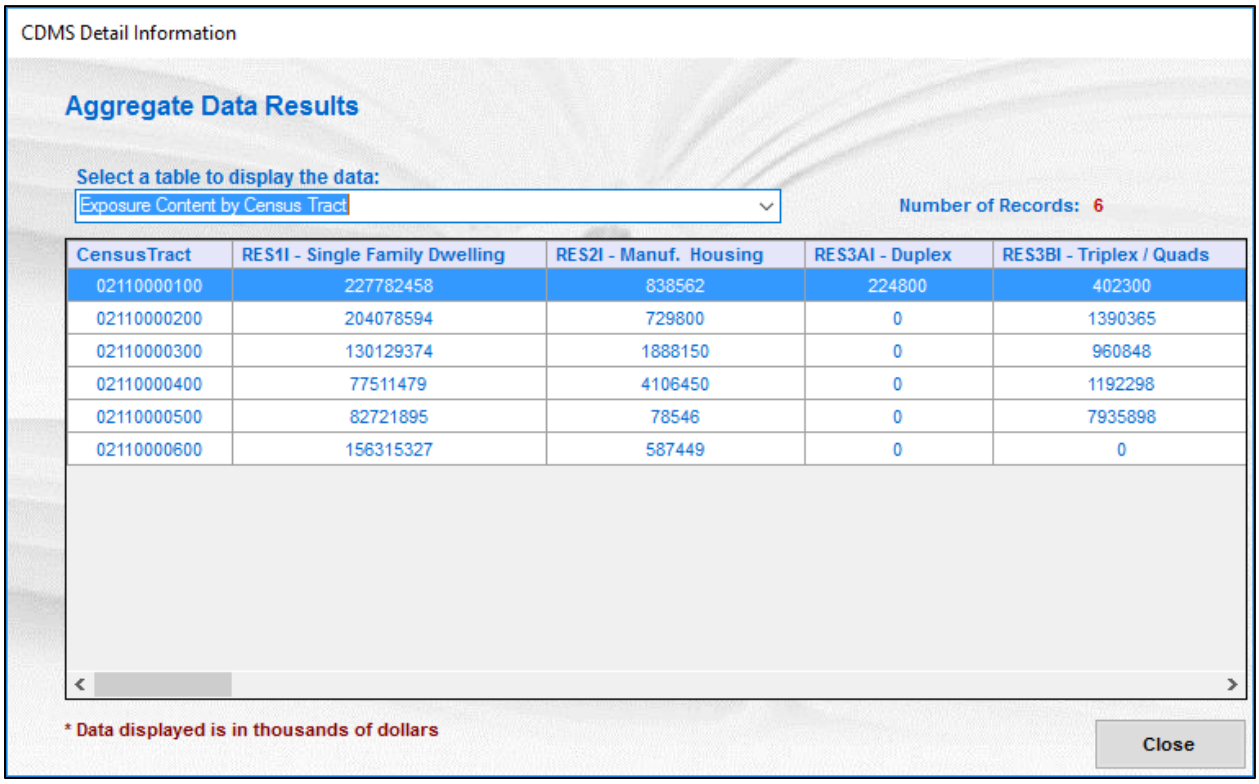
To view an individual record for a layer/dataset loaded into the **CDMS Repository,** select the **View/Edit** button (Figure 9-1) next to the layer of interest.

A new window will appear with the detailed dataset information. Take the following actions as needed:

- Sort data by selecting on the column heading above the data.
- Use the scroll bars to view all information available.
- Select the **Remove** button next to the inventory feature. This record will be removed and will not be available for transfer into the Hazus state dataset.

The screen will refresh with the datasets deleted from the system. The user can delete another or close the window using the **Close** button in the bottom right corner (Figure 9-3).

Figure 9-3: Removing Individual Records



9.4 Viewing Individual Records for an Aggregated Data Dataset

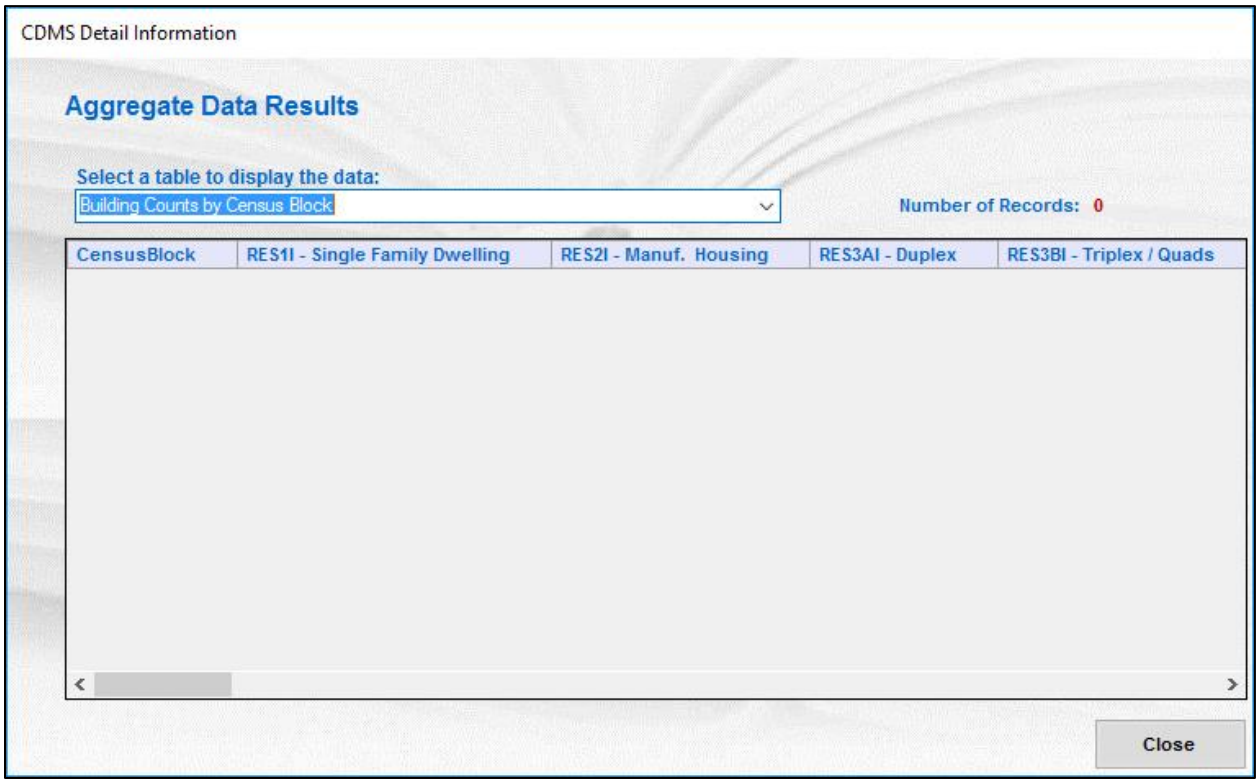
Aggregated data imported into the **CDMS Repository** are listed under the category **Aggregated Data** (Figure 9-1).

Select the **View** button to view the following information by census block and tract:

- Building Counts
- Square Footage
- Content Exposure
- Building Exposure

A new window will appear with the dataset information shown in a list format (Figure 9-4). The data can be filtered using the dropdown list at the top of the screen. When finished viewing, select the **Close** button in the bottom right corner of the screen and the window will close.

Figure 9-4: Viewing Individual Records



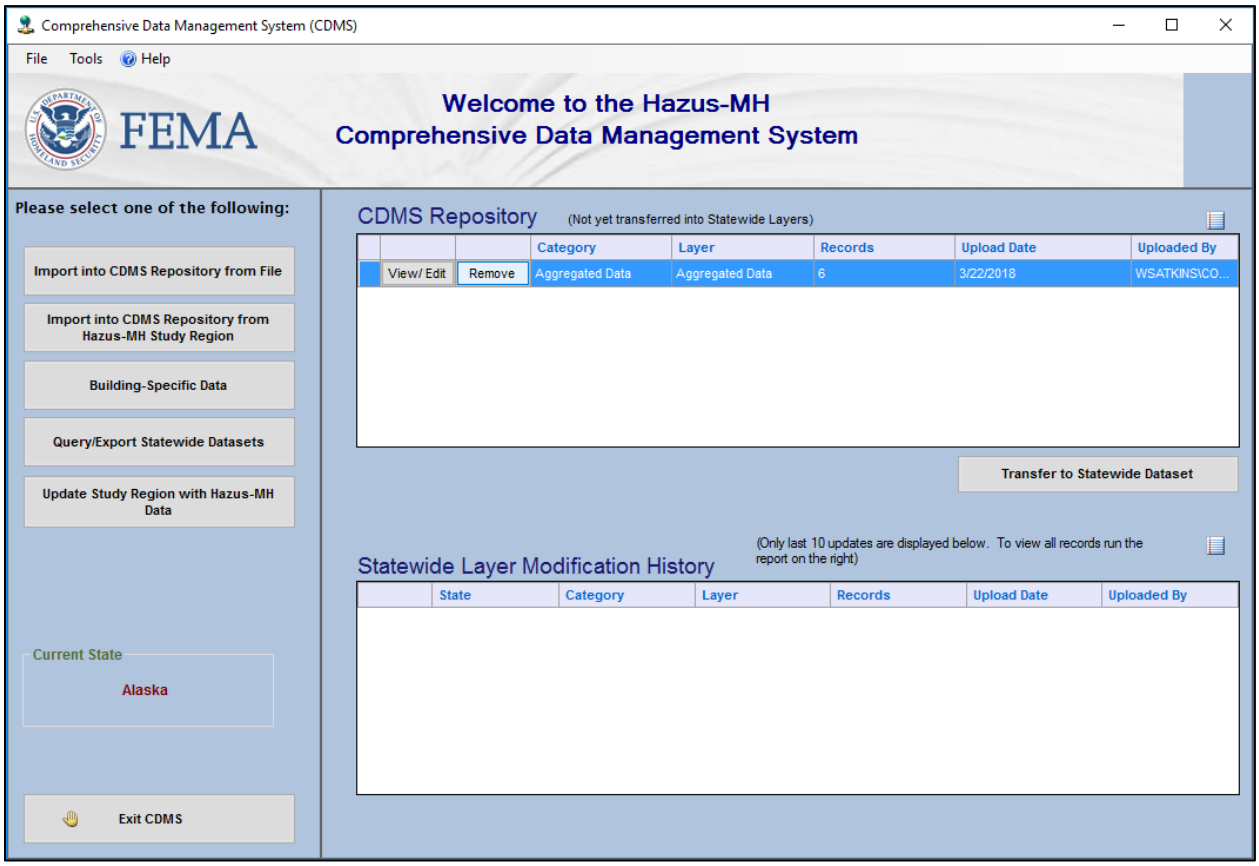
9.5 Removing a Site-Specific or Aggregate Dataset from the CDMS Repository

Users may remove an entire dataset from the **CDMS Repository**. The user may want to do this because new information has been acquired or incorrect information has been uploaded.

To remove a dataset from the **CDMS Repository**, select the **Remove** button next to the layer/dataset (Figure 9-5).

Once the **Remove** button has been selected, the screen will refresh and the dataset will be deleted from the system. The user will not be able to transfer the removed dataset to a Hazus state dataset.

Figure 9-5: Removing a Site-Specific or Aggregate Dataset



10 Transferring Data into Hazus State Datasets

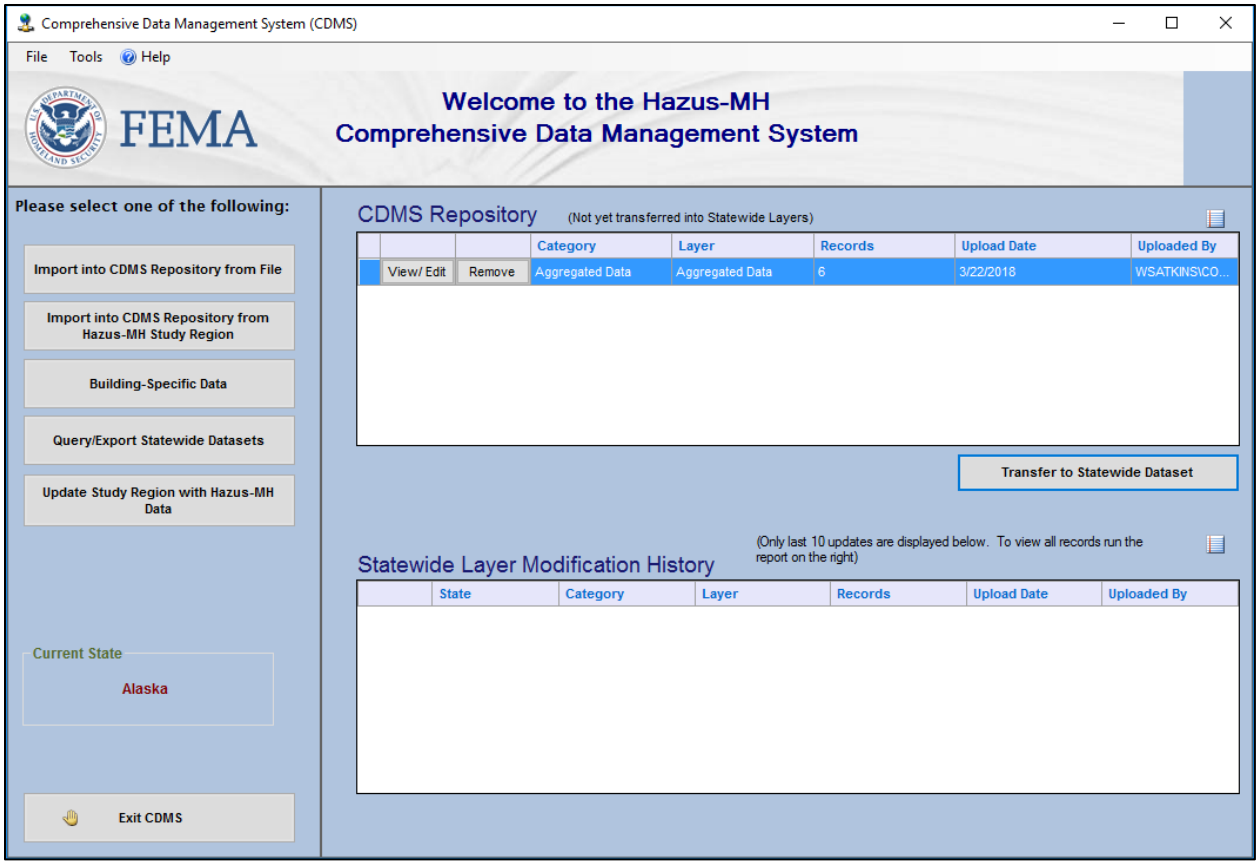
Data residing in the **CDMS Repository** can be transferred into the Hazus state datasets for use within Hazus. Data residing within the **CDMS Repository** have already been validated to verify that the data meet the minimum Hazus data format requirements.

NOTE: Data in the CDMS Repository have been verified for format and structure accuracy but not for geographic correctness. During the transfer process, CDMS will check to see that data being transferred will fit within census tracts for the given state. If any records are outside available census tracts, these records will be ignored.

10.1 Transferring Site-Specific Inventory Data into Hazus State Datasets

Site-specific inventory data in the **CDMS Repository** can be transferred to state datasets. The user must select a dataset by selecting the layer name and select the **Transfer to Statewide Dataset** button (Figure 10-1).

Figure 10-1: Transferring Site-Specific Inventory Data



CDMS will ask the user to specify an update strategy for data updates. The two primary options are:

- **Append/Update Data** – This option should be used when importing a subset of data into a Hazus state dataset. The system will try to match the Hazus-ID to the user-specified ID. If a match is found, an update of record will take place. If a match is not found, a new

record will be added to the state dataset. To delete records from the state dataset, review the **Query** functionality.

- **Replace Data** – This option should be used when a total replace of state data is needed. This option will remove all features residing in a Hazus state dataset for the selected layer.

After the data transfer has completed, a window will appear stating that the dataset was transferred successfully. The dataset will appear in the **Statewide Layer Modification History** section of the **CDMS Home** screen.

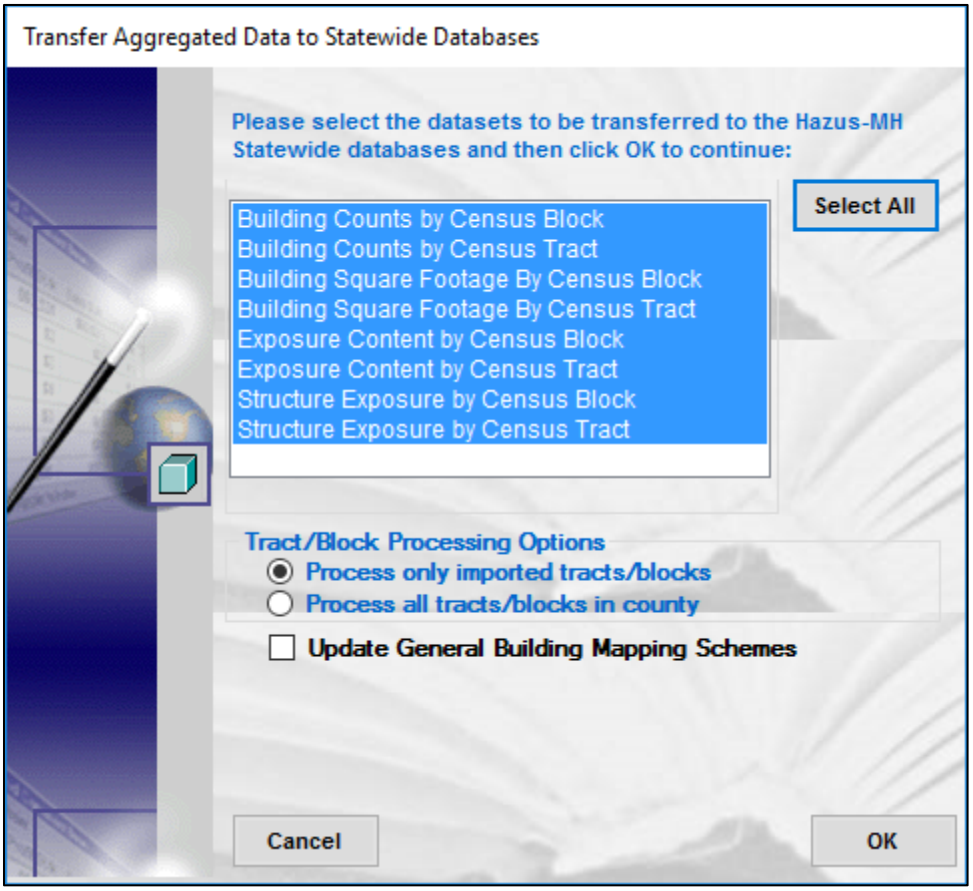
10.2 Transferring Aggregated Data into a Hazus State Dataset

Aggregated data in the **CDMS Repository** on the **CDMS Home** screen can be transferred to statewide Hazus datasets. CDMS provides update routines to update aggregate information for the selected state.

- Select the aggregated dataset layer from the **CDMS Repository.**
- Select the **Transfer to Statewide Geodatabase** button.

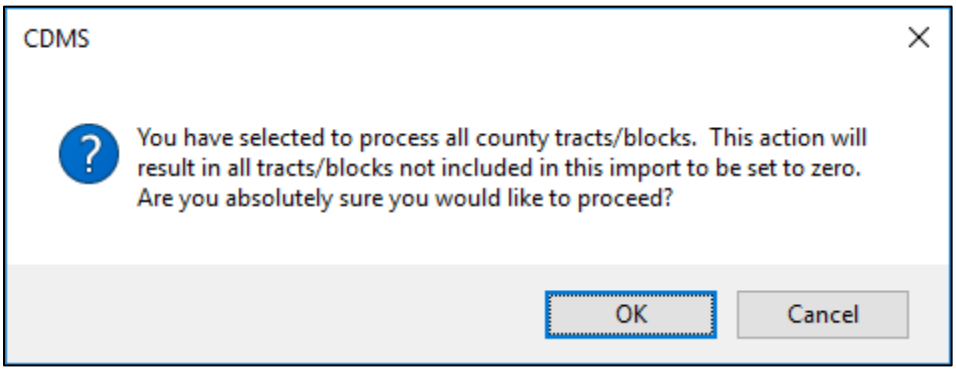
The window shown in Figure 10-2 will appear. The user should select the aggregate data layers the user wants to transfer.

Figure 10-2: Transferring Aggregated Data



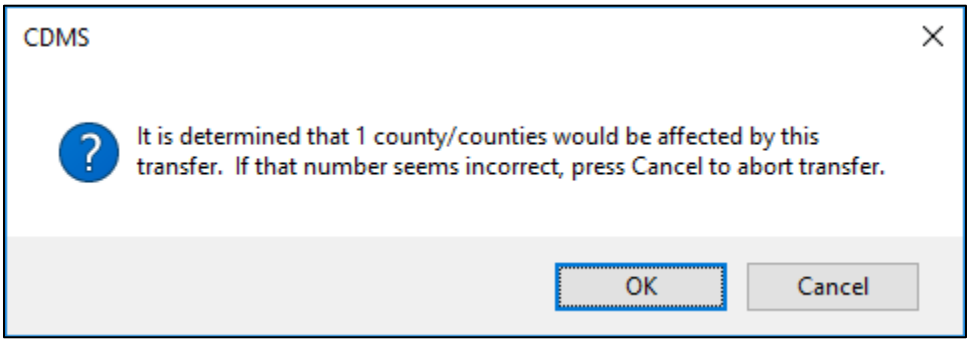
Select individual datasets or use the **Select All** button to select all datasets for update (Figure 10-2). To update the General Building Mapping schemes, select the appropriate check box. Select the tract/block processing options. By default, updates only occur on the tracts/blocks that are included in this update, but by checking **Process all tracts/blocks in county**, the user will receive the warning shown in Figure 10-3.

Figure 10-3: Process All Tracts/Blocks in County



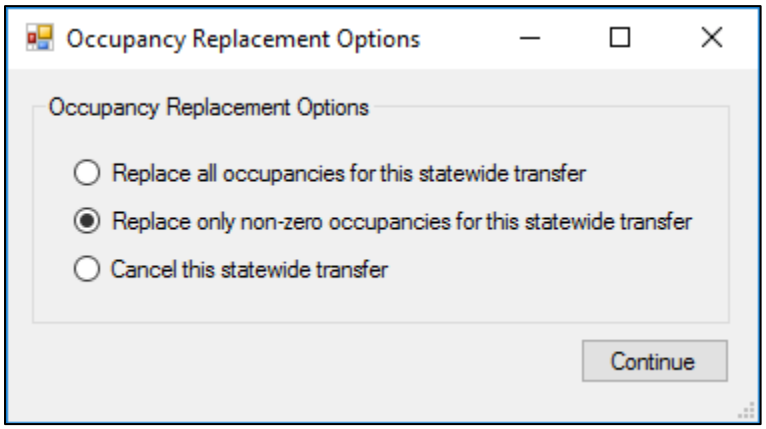
If a user selects the option to process all county tract/blocks, a message will appear indicating the number of counties that will be affected by the update (Figure 10-4). The message is intended to prevent unintentional data updates.

Figure 10-4: Number of Counties Affected



Finally, if the user does not select the option to process all county tract/blocks, a message regarding occupancy count replacement will appear (Figure 10-5). The message gives the user the option to do a complete replacement of all occupancy counts from the input file or update only the non-zero counts.

Figure 10-5: Occupancy Replacement Options



Select the **Continue** button to update a Hazus state dataset.

Once the update routine has finished, the user will be notified that the data were transferred successfully, and the dataset will appear in the Statewide Layer Modification History.

11 Acronyms

AEBM	Advanced Engineering Building Module
CDMS	Comprehensive Data Management System
COM1	Retail Trade
COM2	Wholesale Trade
FEMA	Federal Emergency Management Agency
FIPS	Federal Information Processing Standards
GBS	General Building Stock
GIS	Geographic Information Systems
MS	Microsoft
NIBS	National Institute of Building Sciences
NAD83	North American Datum of 1983
RES1	Single Family Dwelling
RES2	Mobile Home
UDF	User-Defined Facility
WGS84	World Geodetic System 1984

12 Glossary

Advanced Engineering Building Model (AEBM) structure: Procedures for earthquake analysis of individual buildings that are an extension of the general methods of the FEMA/National Institute of Building Sciences (NIBS) earthquake loss estimation methodology (Hazus) and provide damage and loss functions compatible with current Hazus software.

Aggregation: Groups composed of multiple parts or numbers.

Building: structure with a roof and walls

Building contents (or contents): Furniture and equipment that is not integral to the structure, computers, or supplies.

Building occupancy classes: Classification or categorization of structures based on usage.

Census tract: Permanent statistical subdivisions of a county or jurisdictional entirety based on the Census Bureau's Participant Statistical Areas Program.

General Building Stock (GBS): Database that includes square footage by occupancy and building type, building count by occupancy and building type, validation by occupancy and building type, and general occupancy mapping.

Hazard: Act or phenomenon that has the potential to produce harm or other undesirable consequences to a person or thing.

Hazus. Geographic Information Systems (GIS)-based risk assessment methodology and software application created by FEMA and the NIBS for analyzing potential losses from floods, hurricane winds and storm surge, earthquakes, and tsunamis.

Shapefile: Geospatial vector data format for GIS software.

Study Region: Area in which data are being collected or analyzed.