# Hazus Comprehensive Data Management System (CDMS) User Guidance

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# **Document History**

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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.



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.





# 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.

3 Comprehensive Data Management System	(CDMS)						- 🗆	×
File Tools 🧭 Help								
FEMA	Comp	Welcon rehensive	ne to the H Data Mana	azus-MH agement S	system			
Please select one of the following:	CDMS	Repository	(Not yet transferred in	to Statewide Layers)				
Import into CDMS Repository from File		Cate	egory Lay	er Re	ecords	Upload Date	Uploaded By	
Import into CDMS Repository from Hazus-MH Study Region								
Building-Specific Data								
Query/Export Statewide Datasets								
Update Study Region with Hazus-MH Data						Transfer to Sta	tewide Dataset	
	Statewi	de Layer Mo	dification His	(Only last 10) report on the	updates are displayed right)	below. To view all rec	cords run the	
		State	Category	Layer	Records	Upload Date	Uploaded By	
- Current State North Carolina								
Exit CDMS								

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.

2 Comprehensive Data Management System (	CDMS)						-		×
File Tools 🕜 Help									
<b>FEMA</b>	Compre	Welcom hensive l	e to the H Data Man	lazus-MH agement Sys	stem				
Please select one of the following:	CDMS	Repository	(Not yet transfe	rred into Statewide Layers	3)				
Import into CDMS Repository from File		C	ategory	Layer	Records	Upload Date	Uploade	ed By	
Import into CDMS Repository from Hazus-MH Study Region									
Building-Specific Data									
Query/Export Statewide Datasets									
Update Study Region with Hazus-MH Data						Transfer to St	atewide L	ataset	
	Statewi	de Layer M	odification H	(Only last report on	: 10 updates are displayed the right)	below. To view all record	is run the		
		State	Category	Layer	Records	Upload Date	Upload	led By	
Current State South Carolina									

#### 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).

3 Comprehensive Data Management Syster	m (CDMS)						- 0	×
File Tools 🥑 Help								
<b>FEMA</b>	Comp	Welc rehensiv	ome to th ve Data N	e Hazus-I lanageme	MH nt System			
Please select one of the following:	CDMS	Repositor	Y (Not yet transt	erred into Statewide	Layers)			
Import into CDMS Repository from File		10	Category	Layer	Records	Upload Date	Uploaded By	
Import into CDMS Repository from Hazus-MH Study Region								
Building-Specific Data								
Query/Export Statewide Datasets								
Update Study Region with Hazus-MH Data						Transfer to a	tatewide Datas	et
	Statewi	de Layer I	Vodificatior	History (Only repo	v last 10 updates are displaye it on the right)	d below. To view all i	ecords run the	
		State	Category	Layer	Records	Upload Date	Uploaded B	y
Current State South Carolina								
Exit CDMS								

## 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.

CDMS Statewide DE	Configuration	
	Statewide Database	
	Specify the Statewide DB folder that you want to o	connect to:
	C:\HazusData\Inventory\SC\SC.mdf Example: \\server\share\	Browse
4	ОК	Cancel

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

Current State	
South Carolina	

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.

3 Save As				×
← → × ↑ 📙 → This PC → OSDisk (C:) → HazusData → PackagedS	tateData v さ	Search Packaged	StateData	P
Organize 🔻 New folder				?
Pictures ★ ^ Name ^ Name ^ No ite          HazusData ★       No ite         GIS_Working ★       No ite         Backup_HPRs       Desktop         Hazus_Final       WA_KING         WA_KING       Dosktop         Dosktop       Dosktop         Dosktop       Pictures         Videos       Videos	Date modified ms match your search.	Type	Size	
File name: SC_updated Save as type: Zip File				~
∧ Hide Folders		<u>S</u> ave	Cancel	

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).

😭 Help × **M**-÷٦ ⇦ -S Hide Back Print Options Contents Index Introduction ? Introduction ? Getting Started CDMS Home Welcome to the HAZUS-MH Importing Site Specific Inventory Data Comprehensive Data Management 📚 Importing and Aggregating General Building System (CDMS). The purpose of the Importing into the CDMS Repository from a CDMS is to provide a standardized 🔟 Building-Specific Data approach that will allow users to import Adding a New Building and manage HAZUS-MH datasets. The Editing or Deleting an Existing Building
 Exporting Building Specific Data system supports a variety of methods to assist users in managing information Searching Building Specific Data including: 🔷 Querying/Export Statewide Datasets Site Specific Inventory Updating a Study Region with HAZUS-MH Data (essential facilities, CDMS Repository high potential loss Transferring Data into HAZUS-MH Statewi facilities...) Statewide Layer Modification History Aggregated General Building Stock Data (building counts, square footage exposure ) > < < 3

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).

🚨 Comprehensive Data Management System	n (CDMS)						- (	I X
File Tools 🍘 Help								
<b>FEMA</b>	Comp	Welco rehensiv	ome to the ve Data M	e Hazus-l anageme	MH ent System			
Please select one of the following:	CDMS	Repositor	Y (Not yet transfe	red into Statewide	Layers)			
Import into CDMS Repository from File			Category	Layer	Records	Upload Date	Uploaded	i By
Import into CDMS Repository from Hazus-MH Study Region								
Building-Specific Data								
Query/Export Statewide Datasets								
Update Study Region with Hazus-MH Data						Transfer to S	itatewide Da	itaset
	Statewi	de Layer N	<b>Nodification</b>	(Only repo	y last 10 updates are disp nt on the right)	layed below. To view all i	records run th	e 📘
		State	Category	Layer	Records	Upload Date	Uploade	ed By
Current State South Carolina								

# Figure 3-1: Repository Import

# Figure 3-2: File Import into Repository

💈 Comprehensive Data Management Syster	(CDMS)		8 <u>221</u>		×
File Tools @ Help	Welcome to t	the Hazus-MH			
Please select one of the following:	Import into CDMS Repository				
Import into CDMS Repository from	Point     C Line	For Tsunami select both Earthquake and Flood			
rue Import into CDMS Repository from Hazus-MH Study Region	Select a file for Import: C:\HazusData\ExerciseSolutions\Activity5_3\SC Specify hazards importing data for:	Charleston_Fire_Before.xls	Brows	se	

🏂 Open File				×
$\leftarrow \rightarrow \land \uparrow$ — « OSD	)isk (C:) → HazusData → ExerciseSolutions → A	Activity5_3 v (	3 Search Activity5_3	م
Organize 🔻 New folder				• 🔳 🕐
🔶 Downloads  🖈 ^	Name	Date modified	Type Si	ze
📰 Pictures 🛛 🖈	SC_Charleston_Fire_After	4/5/2017 3:12 PM	Microsoft Excel 97	40 KB
🔥 HazusData 🛛 🖈 🔤	SC_Charleston_Fire_Before	4/5/2017 3:12 PM	Microsoft Excel 97	39 KB
GIS_Working 🖈				
Backup_HPRs				
E Desktop				
Hazus_Final				
WA_KING				
This PC				
E Desktop				
🔮 Documents				
🕂 Downloads				
b Music				
Pictures				
Videos				
SDisk (C:)				
💣 Network 🗸 🗸				
File <u>n</u> ar	me: SC_Charleston_Fire_Before		✓ Microsoft Excel File	(*.xls) ~
			Open	Cancel
			open	dancel

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.



2 Comprehensive Data Management System	n (CDMS)		<u></u>		×
FEMA	Welcor Comprehensive	ne to the Hazus-MH Data Management System			
Please select one of the following:	Import into CDMS Reposit	ory			
Import into CDMS Repository from File	Point     Ine     Select a file for Import:	For Tsunami select both Earthquake and Flood			
Import into CDMS Repository from Hazus-MH Study Region	C:\HazusData\ExerciseSolutions\A Specify hazards importin	zivity5_3\SC_Charleston_Fire_Before.xls g data for:	Brow	se	
Building-Specific Data		If importing an excel document, please make sure the first row contains field If importing a model document, please make sure the first row contains field If importing a mdb file, please make sure file names have four (4) or more ch	names laracters	na n avan	iore.

# 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

3 Comprehensive Data Management System	n (CDMs) – 🗆 🗙
File Tools Help	Welcome to the Hazus-MH Comprehensive Data Management System
Please select one of the following:	Import into CDMS Repository
Import into CDMS Repository from File	Point O Line     For Tsunami select both Earthquake and Flood Select a file for Import:
Import into CDMS Repository from Hazus-MH Study Region	C:\HazusData\ExerciseSolutions\Activity5_3\SC_Charleston_Fire_Before.xls  Specify hazards importing data for:  Earthquake  Flood  Hurricane Wind  Fields corresponding to the hazards selected will be displayed in the Field Matching options if available.
Building-Specific Data	If importing an excel document, please make sure the first row contains field names If importing a mdb file, please make sure file names have four (4) or more characters
Query/Export Statewide Datasets	Select Hazus-MH Inventory Category: Essential Facilities
Current State South Carolina	Select Hazus-MH Inventory Dataset (Layer): Fire Station Facilities
Exit CDMS	Continue Cominue

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).

🤰 Comprehensive Data Management System (C	CDMS)						- 0	×
File Tools 🔞 Help								
<b>FEMA</b>	Compre	Welcon hensive	ne to the Data Mar	Hazus-MH nagement S	System			
Please select one of the following:	CDMS	Repository	/ (Not yet trans	ferred into Statewide L	ayers)			
Import into CDMS Repository from File			Category	Layer	Records	Upload Date	Uploaded By	
Import into CDMS Repository from Hazus-MH Study Region								
Building-Specific Data								
Query/Export Statewide Datasets						Transfer to S	tatewide Natase	
Update Study Region with Hazus-MH Data						in an area to a	nucerno butaso	
	Statewi	de Layer N	lodification	History (On	ly last 10 updates are displayed ort on the right)	below. To view all reco	rds run the	
		State	Category	Layer	Records	Upload Date	Uploaded By	
Current State Washington								
- Exit CDMS								

# Figure 3-6: Set the Current State

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

3 Comprehensive Data Management System (C	CDMS)						- 0	×
File Tools 🎯 Help								
FEMA	۱ Comprehe	Velcon ensive	ne to the Data Mar	Hazus-MH nagement S	System			
Please select one of the following:	CDMS R	epositor	(Not yet trans	ferred into Statewide L	ayers)			
Import into CDMS Repository from File			Category	Layer	Records	Upload Date	Uploaded By	
Import into CDMS Repository from Hazus-MH Study Region								
Building-Specific Data								
Query/Export Statewide Datasets						Transfer to	Statewide Datase	t
Update Study Region with Hazus-MH Data								
	Statewide	Layer	lodification	(On History	ly last 10 updates are display ort on the right)	ed below. To view all rec	ords run the	
	St	ate	Category	Layer	Records	Upload Date	Uploaded By	
Current State Washington								
I Exit CDMS								

# 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.

3 Comprehensive Data Management System	1 (CDMs) — 🗆 🔿
File Tools Help	Welcome to the Hazus-MH Comprehensive Data Management System
Please select one of the following:	Import into CDMS Repository
Import into CDMS Repository from File	Point O Line     For Tsunami select both Earthquake and Flood Select a file for Import:
Import into CDMS Repository from Hazus-MH Study Region Building-Specific Data	Specify hazards importing data for: Earthquake Flood Hurricane Wind Fields corresponding to the hazards selected will be displayed in the Field Matching options if available. If importing an excel document, please make sure the first row contains field names If importing a mds file, clease make sure file names have four (4) or more characters
Query/Export Statewide Datasets	Select Hazus-MH Inventory Category:         Required Fields:           User Defined Facilities              * The following fields are required for updating inventory
	Select Hazus-MH Inventory Dataset (Layer): User Defined Facilities
- Current State Washington	
🕘 Exit CDMS	🚰 Back Continue 🔄 🚮 CDMS Home

#### 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.

3 Comprehensive Data Management System	n (CDMS) -	- C	ı x
File Tools 🕜 Help			
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System		
Please select one of the following:	Import into CDMS Repository		
Import into CDMS Repository from File Import into CDMS Repository from Hazus-MH Study Region	Input File Name: Otympia_UDF.mdb Data Category: User Defined Facilities Dataset Name: User Defined Facilities Data Import Type: Site Specific		
Building-Specific Data			
Query/Export Statewide Datasets	Select Import Table: Olympia_UDF_wgs84   ** The HAZUS-ID is the fiel Hazus-MH to uniquely ide	d utilized	l by entory
Current State Washington	Select HAZUS-ID Field ** (if available): No HAZUS ID	station as I must be e format meric) ring data icch source is in the e values ist meet t D0) or ha statewic ind giver alue or a required	n, the e data he ve le a value
- Exit CDMS	G Back Continue	🚮 CDM	6 Home

#### 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.

2. Comprehensive Data Management System	(CDMS)					_	- 0	×
FEMA	We Comprehen	elcome to th sive Data N	ne Haz Manage	us-MH ement Syste	m			
Please select one of the following:	Import into CDMS F	Repository - Data	Field Mat	tching				
Import into CDMS Repository from	Define Source(from)	and Destination (	to) Field Ma	atches				
File	Source (from) Field (click to select)	S		Destination (to) F	Fields (click to select)			
Import into CDMS Repository from	BLDGTYPE	Field N	ame	Field Type	Field Length	Defau	ult Value	_^
Hazus-MH Study Region	DESIGNLEVEL	Year Bu	ilt (Betw	Number	2	10		_
	LATITUDE	Earthqu	ake Desi	text	2	LC		
Building-Specific Data	VEARBUILD	eallde	lace	text	5	UDS1		
		EQEOU	dationT	text	1	0031		
Query/Export Statewide Datasets		Landsli	de Susc	int		0		- v
Current State Washington	Default building an	LEGEND: Fi d content replacement	Earthqui elds marked in costs will be p	ake Flood GREEN are required. A rovided based on RS Me	Hurricane Wind Fields marked in RED ar default value will be prov ans tables and building ar	e require rided if the rea when	d fields from th e field is not m not provided t	ie user. atched. by user.
	Field Matches		6					
Input File Name: Olympia_UDF.mdb	Source	Destination	Field Type	e Field Lengt	th Default Value	• •	_	
Data Import Type: Site Specific	ADDRESS	Address	Text	40			🔓 Load	
Data Category: User Defined Facilities	AREA	Area (Sq feet)	real	40				
Dataset Name: User Defined Facilities	BACKUPPOWER	Back-up Powe	Yes/No				Save	
	BLDGDAMAG	BidgDamageF	Number	10		_		
		City	text	40		-	~-	
	CONTACT	Contact	text	40		_	× Remov	/e
	CONTACT	ContDamageF	Number	10		-		
	C. CONTRACT	sentenningerni	(Tannye)	1.19		10.00		
EXIT CUMS				E Back	Continue		付 CDMS H	lome

#### 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.





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**.

egory value ma	atcning : Back-up Po	wer (tes or no)	
ource (click to s	elect) Destin	nation (click to selec	t)
Field Valu	ie Valu	ie	Description
	0		No
	1		Yes
	Add Match	1	1
atching Resu	Add Match	Description	
latching Resu Source NULL	♀     Add Match       Its     Destination       0     0	Description No	Load
atching Resu Source NULL		Description No	Load
atching Resu Source NULL		Description No	Load Save Remove

#### 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.

omprehensive Data	Management Systen	n (CDMS)		
ategory Value Ma	tching : Flood Found	lation Type		
Source (click to s	elect) Desti	nation (click to se	lect)	99
Field Valu	e Valu	ue	Description	^
	1		Pile	
	2		Pier	
	3		Solid Wall	
	4		Basement/Yard	
	5		Crawl Space	_
and the second se	6		Fill	
	<u> </u>		Slab on Grade	×
	Add Match			
Matching Resu	lts			99
Source	Destination	Description		2
7	7	Slab on Gra	de 🗳 Load	
				_
			Save	
			X Remove	
		Continue	💟 🄚 Canc	el

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**.





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.

2	ReportViewer		-		×		
:	□             of 1           + ◎	🖻   🥔 🔲 🚛 🖌   100% 👻 🛛 Find   Next					
	Comprehensive Data Mana	gement System (CDMS)					
	Validation Errors						
	The following errors occured while validate	ating the data. Please check the source input file and try again.					
	Source Field Name Error Description						
	[BLDGTYPE]	eqBldgType - Maximum Field Size - 4					
	4/13/2018 9·32·01 AM		1 of 1				
	, 102010 0.02.017 M						
L							

#### Figure 3-16: CDMS Validation Error Report





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.

3 Comprehensive Data Management System (C	DMS)						- 🗆	×
File Tools 🕜 Help								
FEMA	Compre	Welcome hensive D	to the Hazı ata Manage	us-MH ment Syste	em			
Please select one of the following:	CDMS	Repository	(Not yet transferred int	o Statewide Layers)				
		Cate	egory Lay	er R	ecords I	Upload Date	Uploaded By	
Import into CDMS Repository from File	√iew/ E	dit Remove <mark>User</mark>	Defined Facilities User	Defined Facilities 39	90 4	/13/2018	WSATKINS\lege	7866
Import into CDMS Repository from Hazus-MH Study Region								
Building-Specific Data								
Query/Export Statewide Datasets					Ĩ	Transfer to Sta	towido Datas at	
Update Study Region with Hazus-MH Data						Transfer to sta	lewide balaset	
	Statewi	de Layer Moo	dification Histo	(Only last 10 report on the	updates are displayed be right)	elow. To view all records	s run the	
		State	Category	Layer	Records	Upload Date	Uploaded By	
Current State Washington								
- Exit CDMS								

## 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.

Field Name	Туре	Size*	Field Name	Туре	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	

#### Table 3-1: Sample CDMS Data Schema

\*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.

Tools	🕜 Hel	р						
Detail Info	ormati	on						
CDMS Dat	taset La	iyer						
Categor	y:	User De	efined Facilities					
Data La	yer:	User De	efined Facilities					
Number	of Re	cords: 3558		111				
		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 Ournalik 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
D	<b>C-4</b> 3	0000019	140 Airport Dd SDC 00	20000	Ne	1526102 0000	0000040000000	100

Figure 3-19: Sample Output After Import

# 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**.

3 Comprehensive Data Management System	(CDMS) — 🗆	×
File Tools 🞯 Help		
	Welcome to the Hazus-MH	
FEMA	Comprehensive Data Management System	
(AND STO		
Please select one of the following:	Import into CDMS Repository	
Import into CDMS Repository from File	Input File Name: SC_Charleston_Fire_Before.xls Data Category: Essential Facilities	
Import into CDMS Repository from Hazus-MH Study Region	Dataset Name: Fire Station Facilities Data Import Type: Site Specific	
Building-Specific Data		
Query/Export Statewide Datasets	Select Import Table: Fire Station Facilities   ** The HAZUS-ID is the field utilized Hazus-MH to uniquely identify inve	by
	Select HAZUS-ID Field ** (if available):     data for performing aggregation an analysis tasks. This field must be unique and must have the format XX000000. (2 alpha 6 numeric)	d
	Select Latitude (Y) Field: Select Longitude (X) Field: HAZUS-ID is used to match source records to existing records in the	the data
Current State	Latitude V Longitude V Statewide database. The values contained in this field must meet the	ne
South Carolina	required format (XX000000) or hav empty values.	e
	Records not found in the statewide database will be added and given HAZUS-ID if an empty value or a v which does not meet the required format was provided.	t a ralue
- Exit CDMS	Back Continue 💟 🖾 CDMS	Home

#### 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.

🙎 Comprehensive Data Management System (	(CDMS)					8	- 0	×
File Tools 🔞 Help								
<b>FEMA</b>	Welcome t Comprehensive Da	o the Hazus-MH ta Management Syst	em					
Please select one of the following:	Import into CDMS Repository -	Data Field Matching						
Import into CDMS Repository from	Define Source(from) and Destina	tion (to) Field Matches						
File	Source (from) Fields	Destination (to	) Fields (clic	k to sele	ct)			
	(click to select) Fi	eld Name	Field	Fi	eld		Default \	/alue
Hazus-MH Study Region	EQ Foundation Type Bu	ilding Replacement Cost (thous. \$	) Curre	ncy	1		0	
	EQ Water Depth in Meters between Ea	bith in Meters between Earthquake Design Level		2	L)		PC	
Building-Specific Data	FL Pre/Post FIRM Design Level	ater Depth in Feet between 0 - 100	0 Numb	er			5	
	Replacement cost (thous# \$)	First Floor Height		ber		1		
Quant/Export Statewide Patasata		ood Structure Foundation Type	Text	1			7	
Current State South Carolina	Default building and content r → Add Matc Field Matches	GEND: Earthquake Flood Fields marked in GREEN are required. eplacement costs will be provided based or h	Hu Fields mai A default valu n RS Means ta	irricane W rked in RE will be i ables and	ind D are req provided building a	juired if the irea s	I fields from field is not r when not pro	the user. matched. wided by
Input File Name: SC Charleston Fire Befor	Source	Destination	Field	Field	Defa	^		
Data Import Type: Site Specific	Facility Class	Facility Class	Text	5	FD		100	4
Data Category: Essential Facilities	Facility Name	Facility Name	Text	40			Ly Loui	<u> </u>
Dataset Name: Fire Station Facilities	FL Building Type	Flood Building Type	Text	15	Co	-	C Sau	
	FL Contents Damage Function	n Contents Damage Function	Text	10	477		Save	;
	FL Protection In terms of retu	Protection In terms of return	Number	V.eed/	0			
	FL Structure Damage Functio	n Structure Damage Function	Text	10	640		X Rem	ove
	FL Structure Foundation Type	Flood Structure Foundation	Text	1	7			
	Kitchen Facilities (Yes or No)	Kitchen Facilities (Yes or No)	Yes/No			~		
Exit CDMS		Back	C	ontinue			付 CDMS	Home

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.

#### 🤱 ReportViewer × <u>≣</u> | |4 | 4 | 1 of 1 🕨 🕅 🌾 🔕 🛃 🗐 🗐 💭 🛃 י | 100% Find | Next Comprehensive Data Management System (CDMS) Validation Errors The following errors occured while validating the data. Please check the source input file and try again. Source Field Name Error Description [Latitude] Latitude - Must be numeric [Longitude] Longitude - Must be numeric 12/12/2017 3:17:34 PM 1 of 1

### 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.

	elect)	Destin	ation (click to s	elect)		2
Field Value		Valu	е	Des	cription	1
		HC		Hig	h - Code	
		HS		Spe	cial High –	
	13	LC		Lov	/ - Code	
		LS		Spe	cial Low - C	
		MC		Mod	lerate - Code	
Sec. Sec.		MS		Spe	cial Moderat	
		PC		Pre	- Code	1
		dd Match				
atching Resu	lts	0	And			
-	Desti	nation	Description	n		1º
Source	Courses a		Moderate -	С	🔓 Load	
Source MC	MC		Low - Code		Contraction of the	
Source MC LC	MC LC		LOW - COUL	High - Code		
Source MC LC HC	MC LC HC		High - Code	е	Save	
Source MC LC HC	MC LC HC		High - Code	e	Save	

#### 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**.



CDMS Da	ta Import Success	×
1	Data imported into CDMS Repository. From the CDMS Home screen you may view imported information in the CDMS Repository and transfer data to Hazus-MH statewide datasets	
	ОК	

# 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.

3 Comprehensive Data Management System	(CDMS)						– 🗆 X	<
File Tools 🍘 Help								
<b>FEMA</b>	Compr	Weld ehensi	come to th ive Data M	e Hazus-M lanagemen	H t System			
Please select one of the following:	CDMS F	Reposito	TY (Not yet transf	erred into Statewide Lay	vers)			
Impart into CDUC Denseiters from			Category	Layer	Records	Upload Date	Uploaded By	
File	View/Ed	it Remove	Essential Facilities	Fire Station Facilities	27	12/12/2017	WSATKINS\coug2491	
Import into CDMS Repository from Hazus-MH Study Region								
Building-Specific Data								
Query/Export Statewide Datasets	-							
Update Study Region with Hazus-MH Data						Transfer to	Statewide Dataset	
	Statewic	le Layer	Modification	(Only la: report o	st 10 updates are dis n the right)	played below. To view al	records run the	
		State	Category	Layer	Records	Upload Date	Uploaded By	
Current State South Carolina								

# 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).

🤱 Comprehensive Data Management System	n (CDMS) —		×
File Tools 🕡 Help			
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System		
Please select one of the following:	Import into CDMS Repository		
Import into CDMS Repository from	Point     D Line     For Tsunami select both Earthquake and Flood		
	Select a file for import:		
Import into CDMS Repository from Hazus-MH Study Region	Specify bazards importing data for: V Earthquake V Flood Hurricane Wind	wse	
	Fields corresponding to the hazards selected will be displayed in the Field Matching opti	ions if availa	ble.
Building-Specific Data	If importing a mobilities, please make sure file names have four (4) or more characters		
	Salact Uazus IIU Inventory Category		
Query/Export Statewide Datasets	Select v		
Current State Alaska	Select Hazus-MH Inventory Dataset (Layer): Select  v		
Exit CDMS	G Back Continue 🕎	🖞 CDMS H	ome

# Figure 4-1: Select Import into Repository from File

🎎 Open File				×
$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ $\square$ $\rightarrow$ This PC	> OSDisk (C:) > GIS > AK	v ق	Search AK	م
Organize 🔻 New folder				
A 🛃 Ouick access	Name	Date modified	Туре	Size Ge
Documents	E CDMS_GeoDBExport_3222018114535	3/22/2018 11:46 AM	Microsoft Access	80,996 KB
🔶 Downloads 🛛 🖈				
GIS				
hpr				
Juneau				
🗸 💻 This PC				
> E Desktop				
> 🔮 Documents				
> h Music				
> 📰 Pictures				
> Videos				
USRLA (\\wsatkins.con				
	<			>
File <u>n</u> ame:	CDMS_GeoDBExport_3222018114535	~	Microsoft Access/Geod	database 🗸
			<u>O</u> pen	Cancel

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).

2 Comprehensive Data Management System	n (CDMS)	– 🗆 X
File Tools 🕜 Help		
<b>FEMA</b>	Welcome to the Hazus-I Comprehensive Data Manageme	VH nt System
Please select one of the following:	Import into CDMS Repository	
Import into CDMS Repository from	Point     O Line     For Tsunal	mi select both Earthquake and Flood
File	Select a file for Import:	
Import into CDMS Repository from	C:\GIS\AK\CDMS_GeoDBExport_3222018114535.mdb	Browse
Hazus-MH Study Region	Specify hazards importing data for: Earthquake	Flood Hurricane Wind
Building-Specific Data	If importing an excel documen If importing a mdb file, please	t, please make sure the first row contains field names make sure file names have four (4) or more characters
Query/Export Statewide Datasets	Select Hazus-MH Inventory Category:	Required Fields:
Current State Alaska	Select Hazus-MH Inventory Dataset (Layer): Structure Exposure by Census Block OR Import Site Specific Data to Aggregate Data	<ul> <li>The following herds are required for updating inventory information. Please make sure your data contains all the required fields below:</li> <li>Census Block</li> </ul>
Exit CDMS		Back Continue 🕎 🖾 CDMS Home

#### 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
--------	------	--------	--------	-------

3 Comprehensive Data Management System	n (CDMS)	_		×
File Tools 🕜 Help				
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System			
Please select one of the following:	Import into CDMS Repository			
Import into CDMS Repository from File	Input File Name: CDMS_GeoDBExport_3222018114535.mdb Data Category: Aggregated Data			
Import into CDMS Repository from Hazus-MH Study Region	Dataset Name: Structure Exposure by Census Block Data Import Type: Aggregate			
Building-Specific Data	Solost Import Table:			
Query/Export Statewide Datasets	Exposure By Block V Exposure By Block			
Current State Alaska				
- Exit CDMS	G Back Continue	4	CDMS Ho	me

#### 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).

3 Comprehensive Data Management System	(CDMS)					– 🗆 X	
File Tools 🕢 Help							
<b>FEMA</b>	Welcome Comprehensive Da	to the Hazus-MH ita Management S	ystem				
Please select one of the following:	Import into CDMS Repository	- Data Field Matching					
Import into CDMS Repository from File	Define Source(from) and Destination	ation (to) Field Matches Destination (to) Fields (click to select			t)		
Import into CDMS Repository from Hazus-MH Study Region		ield Name   Field Type	Field L	ength	Det	ault Value	
Building-Specific Data							
Query/Export Statewide Datasets		EGEND: Earthquake Elo	nd Hurr	icane Wind			
Current State	Default building and content replace	Fields marked in GREEN are requeeter to be a set of the	Fields marke fired. A default value n RS Means tables an	ed in RED are n will be provide d building area	equired ed if the when	d fields from the user. e field is not matched. not provided by user.	
	Field Matches						
Input File Name: CDMS_GeoDBExport_3222	Source	Destination	Field Type	Field Defa	ai ^		
Data Import Type: Aggregate	AGR1Agriculture	AGR1 - Agriculture	Number			👍 Load	
Data Category: Aggregated Data	CensusBlock	Census Block	Text	15			
Dataset Name: Structure Exposure by Census Block	COM10Parking	COM10 - Parking COM1 - Retail Trade	Number		- 1	🚽 Save	
	COM2WholesaleTrade	COM2 - Wholesale Trade	Number				
	COM3PersonalandRepairS	COM3 - Personal and Repair	Number			× Remove	
	COM4ProfessionalTechnic	COM4 - Professional/Technic	Number				
	COM5Banks	COM5 - Banks	Number		¥		
Exit CDMS		🗲 Ba	ck Co	ntinue 💟		CDMS Home	

#### 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.

2 Comprehensive Data Management System (C	CDMS)						-9		×
File Tools 🛞 Help									
FEMA	Compreh	Welco ensive	me to the H Data Man	lazus-MH agement Sys	stem				
Please select one of the following:	CDMS R	eposito	ry (Not yet transf	erred into Statewide Layers	3)				
			Category	Layer	Records	Upload Date	Uploaded	l By	
Import into CDMS Repository from File	√iew/ Edit	Remove	User Defined Facilities	User Defined Facilities	3558	3/15/2018	WSATKINS	lege78	66
Import into CDMS Repository from Hazus-MH Study Region									
Building-Specific Data									
Query/Export Statewide Datasets						Transfer to St	atewide Da	taeat	
Update Study Region with Hazus-MH Data						industri to se		uoor	
	Statewide	e Layer	Modification I	(Only last report on	10 updates are displayed b the right)	elow. To view all record	ds run the		
	S	tate	Category	Layer	Records	Upload Date	Uploade	d By	
Current State Alaska									
🕘 Exit CDMS									

#### 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.

🤱 Comprehensive Data Management System	- (CDMS) -		×
File Tools 🕡 Help			
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System		
Please select one of the following:	Import into CDMS Repository		
Import into CDMS Repository from File	Point O Line For Tsunami select both Earthquake and Flood Select a file for Import:		
		WE A	
Import into CDMS Repository from Hazus-MH Study Region	Specify hazards importing data for: 🗹 Earthquake 🔽 Flood Hurricane Wind	JWSC	
Building-Specific Data	Fields corresponding to the hazards selected will be displayed in the Field Matching op If importing an excel document, please make sure the first row contains field names If importing a mdb file, please make sure file names have four (4) or more characters	tions if availa	ble.
Query/Export Statewide Datasets	Select Hazus-MH Inventory Category:		
Current State Alaska	Select Hazus-MH Inventory Dataset (Layer): Select ~		
- Exit CDMS	<b>Back</b>	付 CDMS H	ome

# Figure 4-8: Select Source Data File

🏂 Open File					×
$\leftrightarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ $\square$ $\rightarrow$ This PC	C → OSDisk (C:) → GIS → Juneau		✓ <sup>ひ</sup> Search Juneau		P
Organize 🔻 New folder				☷ ▾ □□	?
<ul> <li>Quick access</li> <li>Documents</li> <li>Downloads</li> <li>Desktop</li> <li>GIS</li> <li>hpr</li> <li>Juneau</li> <li>This PC</li> <li>Desktop</li> <li>Documents</li> <li>Documents</li> <li>Music</li> <li>Pictures</li> <li>Wideos</li> <li>Wideos</li> <li>WSRLA (\wsatkins.con</li> </ul>	Name	Date modified 3/14/2018 2:31 PM 3/15/2018 9:56 AM	Type Microsoft Access Database Microsoft Access Database	Size 21,108 KB 360 KB	
File <u>n</u> ame	:		✓ Microsoft Acc	ess/Geodatabase	×

#### 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

2 Comprehensive Data Management System	(CDMS)	– 🗆 X
File Tools @ Help	Welcome to the Haz Comprehensive Data Manage	us-MH ement System
Please select one of the following:	Import into CDMS Repository	
Import into CDMS Repository from File	Point O Line Fo Select a file for Import:	or Tsunami select both Earthquake and Flood
Import into CDMS Repository from Hazus-MH Study Region	C:\GIS\Juneau\Hazus_Inputs.mdb Specify hazards importing data for: Fields corresponding to Fields corresponding to If importing an excel d	e      Flood Hurricane Wind     the hazards selected will be displayed in the Field Matching options if available.     ocument, please make sure the first row contains field names
Building-Specific Data	If importing a mdb file Select Hazus-MH Inventory Category:	, please make sure file names have four (4) or more characters Required Fields:
Current State Alaska	Select Hazus-MH Inventory Dataset (Layer): Select $\checkmark$ OR Import Site Specific Data to Aggregate Data	<ul> <li>The following fields are required for updating inventory information. Please make sure your data contains all the required fields below:</li> <li>Area Building Value Content Value Building Type Occupancy Class</li> <li>Height of the structure OR its Number of Stories Age OR Year of Construction OR Building Quality Census Tract OR Census Block OR Latitude/Longitude</li> </ul>
- Exit CDMS		Back Continue 🔯 🚮 CDMS Home

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.



CDMS		$\times$
?	Data for the all existing Aggregate Layers in the CDMS Repository will be replaced with the new data. Do you want to Continue?	
	<u>Y</u> es <u>N</u> o	

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).

2 Comprehensive Data Management System	n (CDMS)					_		×
File Tools @ Help	Wel Comprehens	come to the Hazus- ive Data Manageme	MH ent Syste	em				
Please select one of the following:	Import from Buildings	s/Parcels: Data Field Matching	I					
Import into CDMS Repository from File	Define Source(from) an	nd Destination (to) Field Matches						
	Source (from) Fields	Des	stination (to) Fi	ields (click to	select)			
Import into CDMS Repository from	(click to select)	Field Name		Field Type	Field [	Default	Group	^
Hazus-MH Study Region	BACKUPPOWER	Flood Structure Foundatio	n Type	Text	1 7			
	BLDGDAMAGEFNID	Building Replacement Cos	st (thous. \$)	Number			1	
Building-Specific Data	CITY	Content Replacement Cos	t (thous. \$)	Number			1	
	CONTACT	Earthquake Building Type		Text	5		1	
	CONTDAMAGEFNID	Building Quality		Text	1		3	
Query/Export Statewide Datasets	COST	Year Built (Between 1500 a	and 2100)	Number			3	
		Earthquako Dosign Lovol		Toxt	2 1	<u> </u>		<b>~</b>
-Current State Alaska	* For t	* Fields * Fields marked in GREEN are requ fields marked in colors other than RED	marked in RED ired, however and GREEN (Gr	if not matche roups #2,3,4), :	d, the default at least one o	value wi	n the user. II be used. Frequired.	
Input File Name: Hazus_Inputs.mdb	Field Matches	= Add Match				_		
Data Category: Aggregated Data	Source	Destination	Field	Field	Default	^		
	ADDRESS	Address	Text	100		1	heal	
	AREA	Area (Sq feet)	Number				Load	
	BLDGTYPE	Flood Building Type	Text	15	Masonry			
	FIRSTFLOORHT	First Floor Height	Number	0	1		Save	
	FOUNDATIONTYPE	Foundation Type - Earthquake	Number		0			
	LATITUDE	Latitude	Number			X	Remove	
	LONGITUDE	Longitude	Number			×		
Exit CDMS		G	Back	Conti	inue 💟		CDMS Hor	ne

#### 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

3 ReportViewer		-		×			
Comprehensive Data Management System (CDMS)							
Validation Errors	Validation Errors						
The following errors occured v	The following errors occured while validating the data. Please check the source input file and try again.						
Source Field Name	Error Description						
[Latitude]	Latitude - Must be numeric.						
[Longitude]	Longitude - Must be numeric.						
12/12/2017 3:17:34 DM		of 1					
12/12/2011 3.17.34 PW							

#### 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.

ource (click to :	select)	Destin	ation (click to sel	ect)	1
Field Val	ue	Valu	e	Description	^
M1L		PC1		Precast Concret	
RML		PC2		Precast Concret	
		RM1		Reinforced Mas	
		RM2		Reinforced Mas	
		S		Steel	
Market Street		S1 Stee		Steel Moment F	
		S2		Steel Braced Fr	$\checkmark$
	Add Valte	Match	]		2
latching Res	uita				
Source	Desti	nation	Description		
Source C1	Destin C1	nation	Description Concrete Mo	🔓 Load	
Source C1 S1	Destin C1 S1	nation	Description Concrete Mo Steel Momen	Load	
Source C1 S1 W1	Destin C1 S1 W1	nation	Description Concrete Mo Steel Momen Wood, Light	Load	
Source C1 S1 W1 W2	Destin C1 S1 W1 W2	nation	Description Concrete Mo Steel Momen Wood, Light Wood, Com.	Load	

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.

Comprehensive Dat	a Management System (CDMS)
	General Building Type Mapping Scheme Options:
	Please select one of the options below:
A A A A A A A A A A A A A A A A A A A	Use system defaults for General Building Type Mapping Schemes
	(Use the standard General Building Type Mapping Schemes defaults for occupancies not in import.)
1	O Use most recent General Building Type Mapping Schemes for defaults not in import
FO	(performs update of only provided occupancies)
-	Submit Cancel
	Submit Current Submit

### 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.





#### 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

🤰 Comprehensive Data Management System	n (CDMS)	– 🗆 X
File Tools 🕜 Help		
FEMA	Welcome to the Hazus Comprehensive Data Managem	-MH ent System
Please select one of the following:	Import into CDMS Repository	
Import into CDMS Repository from File	Point Line For Tsur     Select a file for Import:	nami select both Earthquake and Flood
Import into CDMS Repository from Hazus-MH Study Region	C:\Temp\Valdez\GIS_Data\Vector\pgdb\Valdez_CDMS.mdb Specify hazards importing data for: Z Earthquake Fields corresponding to the I	Flood Hurricane Wind
Building-Specific Data	If importing an excel docum If importing a mdb file, plea	ent, please make sure the first row contains field names use make sure file names have four (4) or more characters
Query/Export Statewide Datasets	Select Hazus-MH Inventory Category: Aggregated Data	Required Fields:
Current State	Select Hazus-MH Inventory Dataset (Layer): Building Counts by Census Tract v OR Import Site Specific Data to Aggregate Data	information. Please make sure your data contains all the required fields below: AGR1 - Agriculture Comus Tract COM1 - Parking COM2 - Wholesale Trade COM3 - Personal and Repair Services COM4 - Professional/Technical Services COM5 - Banks COM5 - Banks
Alaska		COM6 - Hospital COM7 - Medical Office/Clinic COM8 - Entertainment & Recreation COM9 - Theaters EDU1 - Grade Schools V
Exit CDMS		Back Continue 💇 🚮 CDMS Home

• When this message appears, click Yes.



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

CDMS Import Bui	lding Data		
	Input Table	Selection	
	Please select t	he input table	
	buildings		~
1			
10		ОК	Cancel
			- MAR

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).

🤰 Comprehensive Data Management Systen	(CDMS) —	×
File Tools 🕜 Help		
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System	
Please select one of the following:	Import from Hazus-MH Study Region	
Import into CDMS Repository from File	Select a Study Region:     Study Region Hazards       Select	
Hazus-MH Study Region	Select a Study Region Inventory Category:	
Building-Specific Data	Filter By Data Category V	
Query/Export Statewide Datasets	Select Study Region Inventory Datasets to Import into the CDMS Repository. Use the arrow buttons below.           Category         Data Layer           Accesseded Data         Accessed Data	
	Aggregated bata     Aggregated bata       Aggregated Data     Building Counts by Census Block       Aggregated Data     Building Counts by Census Tract       Aggregated Data     Building Square Footage By Census Block       Aggregated Data     Building Square Footage By Census Block	
Current State Alaska	Selected Study Region Datasets:	
- Exit CDMS	Continue 🕎 🚮 CDMS Home	

#### 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.

2 Comprehensive Data Management System	(CDMS)	- 🗆 X
File Tools 🕢 Help		
<b>FEMA</b>	Welcome to the Hazus Comprehensive Data Managem	s-MH nent System
Please select one of the following:	Import from Hazus-MH Study Region	
Import into CDMS Repository from File	Select a Study Region:	Study Region Hazards
Import into CDMS Repository from Hazus-MH Study Region	Select  Select  Select a Study Region Inventory Category:	Earthquake Rood Hurricane Wind
Building-Specific Data	Filter By Data Category	
Query/Export Statewide Datasets	Category	Data Layer ^
	Aggregated Data Aggregated Data	Vehicles - Day Inventory by Census Block Vehicles - Night Inventory by Census Block
	Essential Facilities	Emergency Operations Centers Facilities
	Essential Facilities	Fire Station Facilities
	Essential Facilities	Medical Care Facilities
Current State	Selected Study Region Datasets:	
Alaska	Category	Data Layer
	Essential Facilities	Fire Station Facilities
	E	Back Continue 🔯 🚮 CDMS Home

### 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.

CDMS Study Regio	on Import			
	Category	Data Layer	Import Status	Import
	Essential Facilities	Fire Station Facilities		
2	Essential Facilities	Emergency Operations		Cancel
				Done
		1		

# 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).

2 Comprehensive Data Management System (C	DMS)							- 🗆	×
File Tools 🕜 Help									
FEMA	Compreh	Velcor ensive	ne to the H Data Man	lazus-MH agement Sy	stem				
Please select one of the following: CDMS Repository (Not yet transferred into Statewide Layers)									
		1	Category	Layer	Records	Upload Dat	te Uploaded E	у	
Import into CDMS Repository from File	View/Edit	Remove	Aggregated Data	Aggregated Data	4	3/15/2018	WSATKINS\C	:0UG2491	
Import into CDMS Repository from Hazus-MH Study Region									
Building-Specific Data									
Query/Export Statewide Datasets							Transfer to Stat	awida Datasat	
Update Study Region with Hazus-MH Data							Transfer to state	ewide bataset	
	Statewide	e Layer I	Modification H	(Only la: report o	st 10 updates are o n the right)	displayed below	w. To view all records	run the	
	S	tate	Category	Layer	Records	U	Ipload Date	Uploaded By	
Current State Alaska									
🕘 Exit CDMS									

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).

Comprehensive Data Management System	n (CDMS) — 🗆 X
File Tools 🕜 Help	
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System
Please select one of the following:	General Earthquake Flood Hurricane
	Main Economic & Capacity Miscellaneous
Import into CDMS Repository from File	Building Id: BuildingID Facility Type: Emergency Operations Centers
Import into CDMS Repository from Hazus-MH Study Region	Identifier:       Address:
Building-Specific Data	City:         State:         AK         Zip Code:            Owner:
Query/Export Statewide Datasets	Contact: Phone: () Geographic Information
* Fields marked in Green are required fields for aggregating General Building Stock data and populating occupancy mapping schemes.	Latitude:     Longitude:     Parcel Number:       County:     Select County     ✓       Tract:     Block:     Block Group:
	Building Parameters
Current State Alaska	Specific Occupancy:     Select Occupancy     V       General Building Type:     Select General Building Type     V
	Building Area (in sg ft): Construction Year: Remodeled Year:
Export Table Empty Buildings Table	Number of Stories: Building Height: (in ft)
🔍 Search Buildings	
- Exit CDMS	🗄 🚺 🔹 🛛 of 0   🕨 🔰 🛃   * After updating information, press the Save button. 🚮 CDMS Home

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
--------	------	-----	-----	----------

CDMS Building Spe	ecific Data Import					
	Add New Building					
	Please enter the building identifier					
	Police Station 33					
1	Please enter the building facility type					
	Police Stations	~				
	ОК	Cancel				

# 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.

3 Comprehensive Data Management System	n (CDMS) – 🗆 🗙
File Tools 🕡 Help	
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System
Please select one of the following:	General Earthquake Flood Hurricane
Import into CDMS Repository from File	Main         Economic & Capacity         Miscellaneous           Building Id:         1         Facility Type:         Police Stations
Import into CDMS Repository from Hazus-MH Study Region	Identifier:     Police Station 33       Address:
Building-Specific Data	City:         State:         AK         ✓         Zip Code:            Owner:
Query/Export Statewide Datasets	Contact: Phone: () Geographic Information
* Fields marked in Green are required fields for aggregating General Building Stock data and populating occupancy mapping schemes.	Latitude:         58.2684         Longitude:         -134.25488         Parcel Number:           County:         Juneau         Juneau         Block:         685412658711001         Block Group:
Current State Alaska	Building Parameters       Specific Occupancy:     GOV2 - Emergency Response       General Building Type:     Concrete
Export Table Empty Buildings Table Q Search Buildings	Building Area (in sq ft):       4000       Construction Year:       2015       Remodeled Year:         Number of Stories:       1       Building Height:       (in ft)
	🚦 🛯 🔹 🖉 of 0   🕨 🕨   🕂 🛧 🔛   * After updating information, press the Save button. 🚮 CDMS Home

#### 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.

2 Comprehensive Data Management System	n (CDMS) — 🗆	×
File Tools @ Help	Welcome to the Hazus-MH Comprehensive Data Management System	
Please select one of the following:	General Earthquake Flood Hurricane	
	Main Economic & Capacity Miscellaneous	
Import into CDMS Repository from File	Building Id: 1 Facility Type: Police Stations	~
Import into CDMS Repository from Hazus-MH Study Region	Identifier: Police Station 33 Address:	
Building-Specific Data	City:         State:         AK         ✓         Zip Code:            Owner:	
Query/Export Statewide Datasets	Contact: Phone: () Geographic Information	
* Fields marked in Green are required fields for aggregating General Building Stock data and populating occupancy mapping schemes.	Latitude:         58.2684         Longitude:         -134.25488         Parcel Number:           County:         Juneau         ✓           Tract:         68541265871         Block:         685412658711001         Block Group:	
Current State	Building Parameters	
Alaska	Specific Occupancy: GOV2 - Emergency Response ~	
	Building Area (in sq ft):     4000     Construction Year:     2015     Remodeled Year:	
Export Table Empty Buildings Table	Number of Stories: 1 Building Height: (in ft)	
Q Search Buildings		
	👔 📢 🔌 🛛 🕺 of 0   🕨 🕨   💠 🔀 🛃    * After updating information, press the Save button. 🚮 CDMS F	lome

# 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).

Define export parameters below	V:		
aeography	Building Types		
Export Boundary: All Buildings	Facility Type:	All Facilities	
Export For:			
	Occupancy:	All Occupancies	
Field Selection			
Address Area (Sq feet)			^
Base Flood Elevation Base Flood Elevation			
Basement Dry FLood Proofed [Y/N] Basement Flood Proofing: Elevation a	bove Datum (feet)		
Basement Dry FLood Proofed [Y/N] Basement Flood Proofing: Elevation a Bracing on Roof Tanks Puilding Condition	ibove Datum (feet)		
Basement Dry FLood Proofed [Y/N] Basement Rood Proofing: Elevation a Bracing on Roof Tanks Building Condition Building Id	ibove Datum (feet)		
Basement Dry FLood Proofed [Y/N] Basement Rood Proofing: Elevation a Bracing on Roof Tanks Building Condition Building Id Building Structural Type Building Valuation Type	ibove Datum (feet)		
Basement Dry FLood Proofed [Y/N] Basement Rood Proofing; Elevation a Bracing on Roof Tanks Building Condition Building Id Building Structural Type Building Valuation Type Building Valuation Type	ibove Datum (feet)		
Basement Dry FLood Proofed [Y/N] Basement Rood Proofing: Elevation a Bracing on Roof Tanks Building Condition Building Id Building Valuation Type Building Valuation Type Builing Value (\$) Business Income (\$/day) Ceiling Bracing	ibove Datum (feet)		
Basement Dry FLood Proofed [Y/N] Basement Rood Proofing: Elevation a Bracing on Roof Tanks Building Condition Building Id Building Valuation Type Building Valuation Type Building Value (\$) Business Income (\$/day) Ceiling Bracing Census Block Census Block Group	ibove Datum (feet)		
Basement Dry FLood Proofed [Y/N] Basement Rood Proofing: Elevation a Bracing on Roof Tanks Building Condition Building Id Building Valuation Type Building Valuation Type Building Valuat (\$) Building Valuat (\$) Building Valuat (\$) Building Statue (\$/day) Ceiling Bracing Census Block Census Block Census Block Group Census Tract Number	ibove Datum (feet)		
Basement Dry FLood Proofed [Y/N] Basement Rood Proofing: Elevation a Bracing on Roof Tanks Building Condition Building Id Building Valuation Type Building Valuation Type Building Valuation Type Building Value (\$) Business Income (\$/day) Celling Bracing Census Block Census Block Group Census Block Group Census Tract Number Chimney Anchored City	ibove Datum (feet)		Ť
Basement Dry FLood Proofed [Y/N] Basement Rood Proofing: Elevation a Bracing on Roof Tanks Building Condition Building Structural Type Building Valuation Type Building Valuation Type Building Valuat (\$) Business Income (\$/day) Ceiling Bracing Census Block Census Block Census Block Group Census Tract Number Chimney Anchored City	ibove Datum (feet)	Export Ontion	~

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).

2 Comprehensive Data Management System	n (CDMS) – 🗆 🗙
File Tools @ Help	Welcome to the Hazus-MH Comprehensive Data Management System
Please select one of the following:	General Earthquake Flood Hurricane
Import into CDMS Repository from File	Building Id:         1         Facility Type:         Police Stations
Import into CDMS Repository from Hazus-MH Study Region	Identifier:     Police Station 33       Address:
Building-Specific Data	City:         State:         AK         Zip Code:            Owner:
Query/Export Statewide Datasets	Contact: Phone: () Geographic Information
* Fields marked in Green are required fields for aggregating General Building Stock data and populating occupancy mapping schemes.	Latitude:         58.2684         Longitude:         -134.25488         Parcel Number:           County:         Juneau         ✓           Tract:         68541265871         Block:         685412658711001         Block Group:
Current State	Building Parameters       Specific Occupancy:     GOV2 - Emergency Response       General Building Type:     Concrete
Export Table Empty Buildings Table Search Buildings	Building Area (in sq ft):     4000     Construction Year:     2015     Remodeled Year:       Number of Stories:     1     Building Height:     (in ft)
	🗄 🚺 🔹 🛛 🗤 of 0   🕨 🕅 🕂 🕂 🛃    * After updating information, press the Save button. 🚮 CDMS Home

# 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).

vis Del	ail Information				
uildir	ng Specific Data				
	Name	Address	City	State	Phone Number
Edit	Police Station 33				

# 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).

3 Comprehensive Data Management System (	CDMS)							- 0	×
File Tools 🕜 Help									
FEMA	۱ Comprehe	Velcor ensive	me to the H Data Mana	azus-MH agement Sy	stem				
Please select one of the following:	CDMS R	epositor	'Y (Not yet transfe	rred into Statewide Laye	rs)				
			Category	Layer	Records	Upload Da	ate Uploaded	і Ву	
Import into CDMS Repository from File	View/ Edit	Remove	Aggregated Data	Aggregated Data	4	3/15/2018	WSATKINS	S\COUG2491	
Import into CDMS Repository from Hazus-MH Study Region									
Building-Specific Data									
Query/Export Statewide Datasets							Torrado da A		
Update Study Region with Hazus-MH Data							Iransfer to St	atewide Dataset	
	Statewide	Layer	Modification H	(Only la report o	st 10 updates are in the right)	displayed belo	ow. To view all record	ls run the	
	St	ate	Category	Layer	Records		Upload Date	Uploaded By	
Current State Alaska									
- Exit CDMS									

#### 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.

3 Comprehensive Data Management System	(CDMS) — 🗆 🗙
File Tools 🕜 Help	
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System
Please select one of the following:	Query/Export Statewide Datasets
Import into CDMS Repository from File	Search By Geographic Area
Import into CDMS Repository from Hazus-MH Study Region	Select All Selected Geographical Areas
Building-Specific Data	Hoonah-Angoon Juneau Kenai Peninsula
Query/Export Statewide Datasets	Ketchikan Gateway Kodiak Island Lake and Peninsula
Current State Alaska	Search By Data Layer         Essential Facilities         Category       Data Layer         Essential Facilities       Emergency Operatio         Essential Facilities       Fire Station Facilities         Essential Facilities       Medical Care Facilit         Essential Facilities       Police Station Faciliti         Select Hazards       Earthquake         Earthquake       Flood
- Exit CDMS	*Additional fields corresponding to the hazards selected above will be displayed in the search results if available           Q Search         CDMS Home

#### 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).

🤰 Comprehensive Data Management System	n (CDMS)						-		×
File Tools 🕜 Help									
<b>FEMA</b>	Com	We prehens	Icome to the H sive Data Man	lazus-N ageme	MH nt System				
Please select one of the following:	Search St	tatewide Da	tasets						
Import into CDMS Repository from File	- Search S Geograph	ic Area: Cou	ınty	Counties Sel Juneau	lected:				^
Import into CDMS Repository from Hazus-MH Study Region									~
Building-Specific Data	Search R Essential	Search Results Essential Facilities - School Facilities  21 row(S)							
Query/Export Statewide Datasets	* Please s	* Please select a layer to display the results				I 🔮	Export to Ge	odatab	ise
		HazusID	Address		Area (Sq feet)	Back-up Power	r (Yes or No	o)	Buil ^
	Delete	AK000012	4890 GLACIER HWY			No			215.
	Delete	AK000017	750 ST ANN'S AVE			No			215.
	Delete	AK000030				No			215
	Delete	AK000047	9363 N DOUGLAS HW	IV		No			\$15
Current State	Delete	AK000056	3017 CLINTON DRIVE			No			515
Alaska	Delete	AK000058	2500 SUNSET DRIVE			No			615.
	Delete	AK000179	811 12TH ST			No		(	515.
	<	1	-		1				<b>`</b>
	Delete	All Records fo	or Selected Inventory						
						E Back	<b>1</b>	CDM S H	ome

#### 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).

2 Comprehensive Data Management System	(CDMS)		– 🗆 X
File Tools 🧭 Help			
<b>FEMA</b>	Welcome to the H Comprehensive Data Mana	azus-MH agement System	
Please select one of the following:	Search Statewide Datasets		
Import into CDMS Repository from File Import into CDMS Repository from	Search Summary Geographic Area: County	Counties Selected: Juneau	ŕ
Building-Specific Data	Search Results Essential Facilities - Fire Station Facilities	<ul> <li>✓ 1 (mw(e))</li> </ul>	~1
Query/Export Statewide Datasets	* Please select a layer to display the results	Export to Excel	Export to Geodatabase
Current State Alaska	HazusID     Address     Area       Delete     AK000077     820 Glacier AVE     Area       Comparison     Belete All Records for Selected Inventory     Area	I (Sq feet) Back-up Power (Yes or No) No	Building Replacement
- Exit CDMS		Back	CDMS Home

## 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

Comprehensive Dat	a Management System (CDMS)
	Export Options:
	Please specify the layers to export
	Export currently selected layer
	O Export all layers
1	* Spreadsheet will display only the first 65,000 records available.
	Submit Cancel

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.

3 Save Export Excel F	ile					×
← → ▼ ↑ 🔄 > This PC > OSDisk (C:) > GIS > Juneau 🗸 Ō Search Juneau						
Organize 🔻 Ne	w folder					?
Documents	🖈 ^ Name ^	Date modified	Туре	Size		
👆 Downloads	*	No items mat	ch your search.			
Desktop			2			
GIS						
lupeau						
Perkton						
Downloads						
Music						
Pictures						
Videos						
🏭 OSDisk (C:)						
👳 USRLA (\\wsa	tki 🗸					
File name:	CDMS ExcelExport 3152018162146					~
Save as type:	Excel File (*.xls)					~
~						
<ul> <li>Hide Folders</li> </ul>				<u>S</u> ave	Cancel	

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).

2 Comprehensive Data Management System	(CDMS)				– 🗆 X
File Tools 🕜 Help					
FEMA	W Compreher	elcome to th nsive Data M	e Hazus-N anagemer	IH ht System	
Please select one of the following:	Search Statewide I	Datasets			
Import into CDMS Repository from File	Geographic Area: C	County	Counties Sele	ected:	^
Import into CDMS Repository from Hazus-MH Study Region					~
Building-Specific Data	Search Results Essential Facilities - F	ire Station Facilities		✓ 1 row(s)	
Query/Export Statewide Datasets	* Please select a layer	r to display the results		Export to Excel	Second Export to Geodatabase
	HazusID	Address	Area (Sq feet)	Back-up Power (Yes or No)	Building Replacement
Current State Alaska	<	: for Selected Inventory		NO	>
i Exit CDMS				G Back	k 🚮 CDMS Home

# 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

Comprehensive Data	a Management System (CDMS)
	Export Options:
	Please specify the layers to export
	Export currently selected layer
	O Export all layers
1	
	Submit Cancel

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.

🤱 Save Export Geoda	atabase Fil	e				×	
← → × ↑ 🔄 > This PC > OSDisk (C:) > GIS > Juneau v Ö Search Juneau							
Organize 🔻 Ne	w folder				• = = · · ·	?	
Documents	* ^	Name	Date modified	Туре	Size		
👆 Downloads	*	Hazus_Inputs	3/15/2018 3:43 PM	Microsoft Access Database	21,108 KB		
📃 Desktop		Hazus_Outputs	3/15/2018 9:56 AM	Microsoft Access Database	360 KB		
GIS							
hpr							
Juneau							
💻 This PC							
📃 Desktop							
🔮 Documents							
👆 Downloads							
🁌 Music							
Pictures							
Videos							
🏪 OSDisk (C:)							
🛖 USRLA (\\wsa	tki 🗸						
File <u>n</u> ame:	CDMS_G	GeoDBExport_315201816234				~	
Save as type:	ESRI Geo	database File (*.mdb)				~	
∧ Hide Folders				Sav	e Cancel		

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).

🤰 Comprehensive Data Management System (C	DMS)							- 🗆	×
File Tools 🕜 Help									
FEMA	Compre	Welcor hensive	ne to the H Data Mana	azus-MH agement Sy	stem				
Please select one of the following:	CDMS I	Repositor	y (Not yet transfer	rred into Statewide Layer	rs)				
			Category	Layer	Records	Upload Date	Uploaded By	1	
Import into CDMS Repository from File	View/ E	dit Remove	Aggregated Data	Aggregated Data	4	3/15/2018	WSATKINS\CC	DUG2491	
Import into CDMS Repository from Hazus-MH Study Region									
Building-Specific Data									
Query/Export Statewide Datasets									
Update Study Region with Hazus-MH Data							ransfer to State	wide Datasei	
	Statewi	de Layer I	Modification H	(Only las report or	st 10 updates are o n the right)	displayed below. To	o view all records ru	un the	
		State	Category	Layer	Records	Uploa	d Date I	Uploaded By	
Current State Alaska									

## 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).

🤰 Comprehensive Data Management System	n (CDMS) —		×
File Tools 🕜 Help			
<b>FEMA</b>	Welcome to the Hazus-MH Comprehensive Data Management System		
Please select one of the following:	Update from Hazus-MH Study Region		
Import into CDMS Repository from File	Select a Study Region:		
Import into CDMS Repository from Hazus-MH Study Region	AK_JUNEAU_eq_prob  V Includes: Earthquake Select a Study Region Inventory Category:		
Building-Specific Data	Essential Facilities		
Query/Export Statewide Datasets	Category         Data Layer           Essential Facilities         Emergency Operations Centers Facilities		1
Update Study Region with Hazus-MH Data	Essential Facilities     Fire Station Facilities       Essential Facilities     Medical Care Facilities		
	Essential Facilities         Police Station Facilities           Essential Facilities         School Facilities		-
Current State	Selected Study Region Datasets:		
Alaska			
- Exit CDMS	G Back Continue 🔯 🚮 CDI	MS Home	

#### 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.

CDMS Study Regio	on Update			
	Category	Data Layer	Update Status	Update
	Essential Facilities	Emergency Operations	. SUCCESS	
	Essential Facilities	Fire Station Facilities	SUCCESS	Cancel
A Contraction	Essential Facilities	Medical Care Facilities	SUCCESS	
	Essential Facilities	Police Station Facilities	SUCCESS	Done
	Essential Facilities	School Facilities	SUCCESS	
		100	1	]

# 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.

3 Comprehensive Data Management System (C	CDMS)						- S		×
File Tools 🥝 Help									
FEMA	Compreh	Velcor ensive	ne to the H Data Man	lazus-MH agement Sy	/stem				
Please select one of the following:	CDMS R	epositor	Y (Not yet transf	erred into Statewide Laye	ers)				
			Category	Layer	Records	Upload Date	U	ploaded	By
Import into CDMS Repository from File	View/Edit	Remove	Aggregated Data	Aggregated Data	6	3/22/2018	V	SATKINS	ACO
Import into CDMS Repository from Hazus-MH Study Region									
Building-Specific Data									
Query/Export Statewide Datasets						Transfer to S	statewide	Dataset	
Update Study Region with Hazus-MH Data									
	Statewide	Layer	Modification I	History (Only la report of	ast 10 updates are displayed b on the right)	below. To view all reco	irds run the		
	S	ate	Category	Layer	Records	Upload Date	Uploa	ded By	
Current State Alaska									
- Exit CDMS									

#### 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 is 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

2 ReportViewer				-	- 🗆	×
Comprehensive Data	i ← ◎ @ i ⊴ □ a a · i 100% · · a Management System (CDMS) yet transferred into Statewide Datas	Find   Next				
Category Aggregated Data 3/22/2018 12:58:02 PM	Dataset Aggregated Data	Records Affected 6	Upload Date 3/22/2018 12:56:17 PM	Uploaded By WSATKINS\COU G2491 1 of 1		

## 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).

Aggregate D	ata Results				
Select a table to	o display the data:	1/1			
Exposure Content	by Census Tract	~	Number	Number of Records: 6	
CensusTract	RES1I - Single Family Dwelling	RES2I - Manuf. Housing	RES3AI - Duplex	RES3BI - Triplex / Qua	
02110000100	227782458	838562	224800	402300	
02110000200	204078594	729800	0	1390365	
02110000300	130129374	1888150	0	960848	
02110000400	77511479	4106450	0	1192298	
02110000500	82721895	78546	0	7935898	
02110000600	156315327	587449	0	0	

#### 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.

CDM	S Detail Informatio	DN			
	Aggregate D	ata Results			
	Select a table to	display the data:			
	Building Counts by	/ Census Block	~	Number	of Records: 0
	CensusBlock	RES1I - Single Family Dwelling	RES2I - Manuf. Housing	RES3AI - Duplex	RES3BI - Triplex / Quads
	<				>
					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.

3 Comprehensive Data Management System (C	CDMS)					- 0	×
File Tools 🕜 Help							
FEMA	Wel Comprehens	come to t ive Data I	he Hazus-N Manageme	MH nt System			
Please select one of the following:	CDMS Repos	sitory (Not ye	t transferred into State	wide Layers)			
		Category	Layer	Records	Upload Date	Uploaded B	By
Import into CDMS Repository from File	View/Edit Rer	nove Aggregated	Data Aggregate	d Data 6	3/22/2018	WSATKINS\C	:0
Import into CDMS Repository from Hazus-MH Study Region							
Building-Specific Data							
Query/Export Statewide Datasets							
Update Study Region with Hazus-MH Data					Transfer to S	tatewide Dataset	
	Statewide La	yer Modifica	tion History	(Only last 10 updates are of report on the right)	lisplayed below. To view all recor	ds run the	
	State	Catego	ory Layer	Records	Upload Date	Uploaded By	
Current State Alaska							
😃 Exit CDMS							

# 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).

3 Comprehensive Data Management System (C	CDMS)						- 0	Х
File Tools 🕜 Help								
FEMA	V Comprehe	Velcom ensive	ne to the H Data Man	lazus-MH agement Sys	stem			
Please select one of the following:	CDMS Re	pository	(Not yet transfe	rred into Statewide Layers	s)			
			Category	Layer	Records	Upload Date	Uploaded	By
Import into CDMS Repository from File	View/Edit	Remove	Aggregated Data	Aggregated Data	6	3/22/2018	WSATKINS	.co
Import into CDMS Repository from Hazus-MH Study Region								
Building-Specific Data								
Query/Export Statewide Datasets								_
Update Study Region with Hazus-MH Data					l	Transfer to Sta	tewide Dataset	
	Statewide	Layer N	/lodification H	(Only last report on	t 10 updates are displayed b the right)	elow. To view all records	s run the	
	Sta	ite	Category	Layer	Records	Upload Date	Uploaded By	
Current State Alaska								
- Exit CDMS								

# 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.



CDMS	×
It is determined that 1 county/counties would be affected by this transfer. If that number seems incorrect, press Cancel to abort transfer.	
OK Cancel	

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.

# Occupancy Replacement Options Occupancy Replacement Options Replace all occupancies for this statewide transfer Replace only non-zero occupancies for this statewide transfer Cancel this statewide transfer Continue

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.