

Multihazard Loss Estimation Methodology

HAZUS^{®MH} MR3

Data Dictionary

Developed by:

Department of Homeland Security

Emergency Preparedness and Response Directorate

FEMA

Mitigation Division

Washington, D.C.

Under a contract with:

National Institute of Building Sciences

Washington, D.C.

©2007, Federal Emergency Management Agency

(Secured by Assignment)

HAZUS[®] is a trademark of the Federal Emergency Management Agency

Contents

	Introduction.....	vii
1.	Statewide HAZUS Data Inventory	1-1
2.	System Boundaries: syBoundary.mdb.....	2-1
2.1.	Database Overview	2-1
2.2.	Identification.....	2-1
2.3.	Database Content.....	2-1
2.3.1.	State Boundaries: syState Feature Class.....	2-2
2.3.2.	County Boundaries: syCounty Feature Class.....	2-3
2.3.3.	Census Tract Boundaries: syTract Feature Class	2-3
3.	State Boundaries: Boundary.mdb.....	3-1
3.1.	Database Overview	3-1
3.2.	Identification.....	3-2
3.3.	Database Content.....	3-3
3.3.1.	County Boundaries: hzCounty	3-3
3.3.2.	Census Tract Boundaries: hzTract	3-4
3.3.3.	Census Block Boundaries: hzCensusBlock.....	3-5
3.3.4.	Demographics by Census Tract: hzDemographicT	3-7
3.3.5.	Demographics by Census Block: hzDemographicB	3-10
3.3.6.	Building Count by Census Tract: hzBldgCountOccupT	3-13
3.3.7.	Building Count by Census Block: hzBldgCountOccupB	3-15
3.3.8.	Building Replacement Value by Census Tract: hzExposureOccupT	3-17
3.3.9.	Building Replacement Value by Census Block: hzExposureOccupB.....	3-19
3.3.10.	Content Replacement Value by Census Tract: hzExposureContentOccupT	3-21
3.3.11.	Content Replacement Value by Census Block: hzExposureContentOccupB	3-23
3.3.12.	Square Footage Value by Census Tract: hzSqFootageOccupT.....	3-25
3.3.13.	Square Footage Value by Census Block: hzSqFootageOccupB	3-26
3.3.14.	County Location Factor: hzMeansCountyLocationFactor	3-27
4.	Essential Facilities: EF.mdb.....	4-1
4.1.	Database Overview	4-1
4.2.	Identification.....	4-2

4.3.	Database Content.....	4-2
4.3.1.	Care Facilities Feature Class: hzCareFlty	4-3
4.3.2.	Earthquake Specific Care Facilities Table: eqCareFlty	4-5
4.3.3.	Flood Specific Care Facilities Table: flCareFlty	4-7
4.3.4.	Emergency Operation Center Feature Class: hzEmergencyCtr.....	4-8
4.3.5.	Earthquake Specific Emergency Center Table: eqEmergencyCtr	4-10
4.3.6.	Flood Specific Emergency Center Facilities Table: flEmergencyCtr.....	4-12
4.3.7.	Fire Stations Feature Class: hzFireStation	4-13
4.3.8.	Earthquake Specific Fire Stations Table: eqFireStation	4-15
4.3.9.	Flood Specific Fire Station Facilities Table: flFireStation.....	4-17
4.3.10.	Police Station Feature Class: hzPoliceStation.....	4-18
4.3.11.	Earthquake Specific Police Stations Table: eqPoliceStation	4-20
4.3.12.	Flood Specific Police Station Facilities Table: flPoliceStation.....	4-22
4.3.13.	Schools Feature Class: hzSchool.....	4-23
4.3.14.	Earthquake Specific School Table: eqSchool.....	4-25
4.3.15.	Flood Specific Schools Facilities Table: flSchool.....	4-27
5.	Transportation Systems: TRN.mdb	5-1
5.1.	Database Overview	5-1
5.2.	Identification.....	5-2
5.3.	Database Content.....	5-2
5.3.1.	Airports Feature Class: hzAirportFlty.....	5-4
5.3.2.	Earthquake Specific Airports Table: eqAirportFlty	5-6
5.3.3.	Bus Facilities Feature Class: hzBusFlty	5-8
5.3.4.	Earthquake Specific Bus Facilities Table: eqBusFlty.....	5-10
5.3.5.	Ferry Facilities Feature Class: hzFerryFlty	5-12
5.3.6.	Earthquake Specific Ferry Facilities Table: eqFerryFlty	5-14
5.3.7.	Highway Bridges Feature Class: hzHighwayBridge	5-16
5.3.8.	Earthquake Specific Highway Bridge Table: eqHighwayBridge	5-18
5.3.9.	Flood Specific Highway Bridge Table: flHighwayBridge	5-19
5.3.10.	Highway Roads Feature Class: hzHighwaySegment	5-20
5.3.11.	Earthquake Specific Highway Roads Table: eqHighwaySegment	5-22
5.3.12.	Highway Tunnel Feature Class: hzHighwayTunnel	5-23

5.3.13.	Earthquake Specific Highway Tunnel Table: eqHighwayTunnel.....	5-25
5.3.14.	Light Rail Bridges Feature Class: hzLightRailBridge	5-26
5.3.15.	Earthquake Specific Light Rail Bridge Table: eqLightRailBridge	5-28
5.3.16.	Flood Specific Light Rail Bridge Table: fLightRailBridge.....	5-29
5.3.17.	Light Rail Facility Feature Class: hzLightRailFlty.....	5-30
5.3.18.	Earthquake Specific Light Rail Facilities Table: eqLightRailFlty.....	5-32
5.3.19.	Light Rail Tracks Feature Class: hzLightRailSegment.....	5-34
5.3.20.	Earthquake Specific Light Rail Tracks Table: eqLightRailSegment	5-35
5.3.21.	Light Rail Tunnel Feature Class: hzLightRailTunnel.....	5-36
5.3.22.	Earthquake Specific Light Rail Tunnel Table: eqLightRailTunnel	5-38
5.3.23.	Port and Harbor Facilities Feature Class: hzPortFlty	5-39
5.3.24.	Earthquake Specific Care Facilities Table: eqPortFlty	5-41
5.3.25.	Railway Facility Feature Class: hzRailFlty	5-43
5.3.26.	Earthquake Specific Railway Facilities Table: eqRailFlty	5-45
5.3.27.	Railway Bridges Feature Class: hzRailwayBridge	5-47
5.3.28.	Earthquake Specific Railway Bridge Table: eqRailwayBridge	5-49
5.3.29.	Flood Specific Railway Bridge Table: fRailwayBridge	5-50
5.3.30.	Railway Tracks Feature Class: hzRailwaySegment	5-51
5.3.31.	Earthquake Specific Railway Tracks Table: eqRailwaySegment	5-52
5.3.32.	Railway Tunnel Feature Class: hzRailwayTunnel	5-53
5.3.33.	Earthquake Specific Railway Tunnel Table: eqRailwayTunnel	5-55
5.3.34.	Airport Runways Feature Class: hzRunway	5-56
5.3.35.	Earthquake Specific Airports Runway Table: eqRunway.....	5-57
6.	Lifeline Utility Systems: UTIL.mdb	6-1
6.1.	Database Overview	6-1
6.2.	Identification.....	6-1
6.3.	Database Content.....	6-2
6.3.1.	Communication Facilities Feature Class: hzCommunicationFlty	6-4
6.3.2.	Earthquake Specific Communication Facilities Table: eqCommunicationFlty.....	6-6
6.3.3.	Electric Power Facilities Feature Class: hzElectricPowerFlty	6-8

6.3.4.	Earthquake Specific Electric Power Facilities Table: eqElectricPowerFlty	6-10
6.3.5.	Flood Specific Electric Power Facilities Table: flElectricPowerFlty	6-12
6.3.6.	Natural Gas Facilities Feature Class: hzNaturalGasFlty	6-13
6.3.7.	Earthquake Specific Natural Gas Facilities Table: eqNaturalGasFlty	6-15
6.3.8.	Flood Specific Natural Gas Facilities Table: flNaturalGasFlty	6-17
6.3.9.	Natural Gas Pipelines Feature Class: hzNaturalGasPI	6-18
6.3.10.	Earthquake Specific Natural Gas Pipeline Table: eqNaturalGasPI	6-19
6.3.11.	Flood Specific Natural Gas Pipeline Table: flNaturalGasPI	6-20
6.3.12.	Oil Facilities Feature Class: hzOilFlty	6-21
6.3.13.	Earthquake Specific Oil Facilities Table: eqOilFlty	6-23
6.3.14.	Flood Specific Oil Facilities Table: flOilFlty	6-25
6.3.15.	Oil Pipelines Feature Class: hzOilPI	6-26
6.3.16.	Earthquake Specific Oil Pipeline Table: eqOilPI	6-27
6.3.17.	Flood Specific Oil Pipeline Table: flOilPI	6-28
6.3.18.	Potable Water Facilities Feature Class: hzPotableWaterFlty	6-29
6.3.19.	Earthquake Specific Potable Water Facilities Table: eqPotableWaterFlty	6-31
6.3.20.	Flood Specific Potable Water Facilities Table: flPotableWaterFlty	6-33
6.3.21.	Potable Water Pipelines Feature Class: hzPotableWaterPI	6-34
6.3.22.	Earthquake Specific Potable Water Pipeline Table: eqPotableWaterPI	6-35
6.3.23.	Flood Specific Potable Water Pipeline Table: flPotableWaterPI	6-36
6.3.24.	Potable Water Distribution Pipes Table: eqPotableWaterDL	6-37
6.3.25.	Waste Water Facilities Feature Class: hzWasteWaterFlty	6-38
6.3.26.	Earthquake Specific Waste Water Facilities Table: eqWasteWaterFlty	6-40
6.3.27.	Flood Specific Waste Water Facilities Table: flWasteWaterFlty	6-42
6.3.28.	Waste Water Pipelines Feature Class: hzWasteWaterPI	6-43
6.3.29.	Earthquake Specific Waste Water Pipeline Table: eqWasteWaterPI	6-44

6.3.30.	Flood Specific Waste Water Pipeline Table: flWasteWaterPI ..	6-45
6.3.31.	Waste Water Distribution Pipes Table: eqWasteWaterDL.....	6-46
7.	High Potential Loss Facilities: HPLF.mdb.....	7-1
7.1.	Database Overview	7-1
7.2.	Identification.....	7-2
7.3.	Database Content.....	7-2
7.3.1.	Dams Feature Class: hzDams.....	7-3
7.3.2.	Earthquake Specific Dams Table: eqDams	7-6
7.3.3.	Hazardous Material Facilities Feature Class: hzHazmat	7-7
7.3.4.	Earthquake Specific Hazardous Material Facilities Table: eqHazmat	7-9
7.3.5.	Levees Feature Class: hzLevees	7-11
7.3.6.	Earthquake Specific Levees Table: eqLevees.....	7-12
7.3.7.	Military Facilities Feature Class: hzMilitary	7-13
7.3.8.	Earthquake Specific Military Table: eqMilitary	7-15
7.3.9.	Nuclear Power Plants Feature Class: hzNuclearFlty	7-17
7.3.10.	Earthquake Specific Nuclear Power Plant Facilities Table: eqNuclearFlty	7-19
8.	Agriculture Inventory: flAG.mdb.....	8-1
8.1.	Database Overview	8-1
8.2.	Identification.....	8-1
8.3.	Database Content.....	8-1
8.3.1.	Agriculture Crop Feature Class: flAgMap	8-2
8.3.2.	Agriculture Inventory Table: flAgricultureInventory	8-3
9.	Vehicles Inventory: flVeh.mdb	9-1
9.1.	Database Overview	9-1
9.2.	Identification.....	9-1
9.3.	Database Content.....	9-1
9.3.1.	Nighttime Vehicles Table: flNightVehicleInv	9-2
9.3.2.	Daytime Vehicles Table: flDayVehicleInv	9-3
10.	Hurricane Model Database: huTemplateGBS.mdb.....	10-1
10.1.	Database Overview	10-1
10.2.	Identification.....	10-1
10.3.	Database Content.....	10-1
10.3.1.	Peak Gust Wind Speed by Return Period Table: huHazardMapWindSpeed	10-2
10.3.2.	Terrain Characterization Table: huTerrain.....	10-3

10.3.3.	Tree Characteristics Distribution Table: huTreeParameters....	10-4
10.3.4.	Hurricane Model Census Tract Table: huTract.....	10-5
11.	Occupancy Mapping Scheme: MSH.mdb	11-1
11.1.	Database Overview	11-1
11.1.1.	Occupancy Mapping Scheme for Building Type.....	11-2
11.1.2.	Flood Model Mapping Scheme.....	11-6
11.2.	Identification.....	11-7
11.2.1.	Database Content	11-7

Appendix A Acronyms and Abbreviations

Appendix B Classification Systems

Appendix C New Design Level

Introduction

This data dictionary documents the structure and data elements of the HAZUS-MH inventory data set that serves as source for creating study regions. The document is organized in 11 chapters. Chapter 1 introduces the inventory organization and storage as a system of folders and files; lists the major database components or databases and how they are organized by theme; and explains the naming conventions of feature classes and tables. The chapters describe each database separately:

- Chapter 2 syBoundary.mdb—System boundaries
- Chapter 3 Bndrygbs.mdb—State boundaries
- Chapter 4 Ef.mdb—Essential facilities
- Chapter 5 TRN.mdb—Transportation systems
- Chapter 6 UTIL.mdb—Lifeline utility systems
- Chapter 7 HPLF.mdb—High potential loss facilities
- Chapter 8 fIAg.mdb—Agriculture inventory
- Chapter 9 fIVEH.mdb—Vehicle inventory (flood hazard specific)
- Chapter 10 huTemplateGBS.mdb—Vehicle inventory (hurricane hazard specific)
- Chapter 11 MSH.mdb—Occupancy mapping scheme

Each geodatabase section includes an overview of the database and how it is identified; a main table listing the sub-tables and feature classes, including a brief description of each; and a detailed table for each feature class and table. For each feature class and table, the following information is documented:

- Identification: Name of feature class or table
- Type: ESRI's feature class or table type
- Purpose: Entity purpose in the aggregation process or/and analysis

- Data: Feature classes and tables field definition
- Feature class field definition
 - Name: Field name. If a field is found in the study region databases, but not in the state database, a value of N/A is included in the column.
 - Field Type: Contains the field format. If Access field type differs from ESRI field type, Access field type is shown in italics.
 - Index: Indicates if the field has index. Index properties are provided.
 - Required: For the aggregation process. Provides an indication of whether a value must be provided other than Null and those specified on Values column.
 - Values: Identifies valid values for this data element.
 - Field Description: Provides a human readable description of the field's data element.

1. Statewide HAZUS Data Inventory

The HAZUS-MH state-level default databases are stored in eight multi-state data DVDs that can be ordered from the FEMA Distribution Center. As shown in Table 1, each DVD (labeled with a letter accompanied by the numeral 1) contains a set of states. This label helps HAZUS-MH to identify the DVD that is required when the user creates a new region.

Table 1: HAZUS-MH MR3 DVDs

DVD Number	Label	States
Data DVD 1	A1	AK, AZ, CA, HI, ID, NV, OR, UT, and WA
Data DVD 2	B1	CO, IA, KS, MN, MO, MT, ND, NE, SD, and WY
Data DVD 3	C1	AR, LA, MS, NM, OK, and TX
Data DVD 4	D1	AL, FL, and GA
Data DVD 5	E1	NC, SC, TN, and Puerto Rico
Data DVD 6	F1	CT, MA, ME, NH, NJ, NY, RI, and VT
Data DVD 7	G1	DE, MD, PA, VA, WV, and District of Columbia
Data DVD 8	H1	IL, IN, KY, MI, OH, and WI

The following files and folders are located in the root directory of the data DVDs:

- One text file (without content) named with the DVD label, as shown in Column 2 of Table 1. This text file helps HAZUS-MH to identify if it is the DVD required when the user creates a new region.
- One text file (without content) named with the DVD number as shown in Column 1 of Table 1.
- A geodatabase named syBoundary.mdb that comprises GIS boundary information for the entire United States relative to states, counties, and census tracts. This geodatabase is the same across all DVDs.

- One folder for each state contained in the DVD. The name of the folder consists of the state name abbreviation followed by the numeral 1.

The state-specific data are located in the appropriate State folder. It consists of:

- A set of geodatabases with feature classes and tables related to all hazards.
- For states considered by the Hurricane (HU) Model, the State folder contains:
 - A folder named HU consisting of one Access database—huTemplateGBS.mdb—that contains census tract information relative to terrain, wind speeds, and tree parameters.
 - A binary file that contains hurricane event data for probabilistic analysis named XX_HUR_50.BIN where XX is the abbreviation of the state name.

Because HAZUS-MH relies in ArcGIS 9.2, most default inventory data are stored in ArcGIS geodatabases, which are in Access format. The exceptions are a few Access databases that comprise plain tables. Also, feature classes and tables are organized in geodatabases by theme. For instance, transportation items are contained in a transportation-specific database named “TRN.mdb”. Table 2 shows the geodatabases included in HAZUS-MH. Each database is discussed in the following chapters.

Table 2: HAZUS-MH Inventory Geodatabases

Database Name	Description	Location Relative to HAZUS Data DVD1:
syBoundary.mdb	Contains GIS boundary information for the entire United States relative to states, counties, and census tracts.	Located in the root directory of the DVD
Bndrygbs.mdb	Contains GIS boundary information for counties, census tracts, and census blocks for a given state. Also contains aggregated data including demographics, building square footage, building counts, structure exposure, and content exposure for a given state.	Located in root/state (e.g., Alabama is AL1) folder of the DVD
Ef.mdb	Contains GIS location and hazard information for essential facilities including schools, hospitals, medical care facilities, police stations, and fire stations.	Located in root/state (e.g., Alabama is AL1) folder of the DVD
fLAG.mdb	Contains GIS boundary information for crops grown in areas of the state. Flood (FL) is the only model of the HAZUS system to use this database.	Located in root/state (e.g., Alabama is AL1) folder of the DVD
fIVEH.mdb	Contains information for daytime and nighttime vehicle inventory by census block for the state. Flood (FL) is the only model of the HAZUS software to use this database.	Located in root/state (e.g., Alabama is AL1) folder of the DVD
HPLF.mdb	Contains GIS location and hazard information for high potential loss facilities (HPLF) that include dams, hazardous materials, levees, military installations, and nuclear facilities.	Located in root/state (e.g., Alabama is AL1) folder of the DVD
MSH.mdb	Contains information for mapping schemes for the Earthquake (EQ) and Flood (FL) models. These mapping schemes refer to construction aspects for buildings.	Located in root/state (e.g., Alabama is AL1) folder of the DVD
TRN.mdb	Contains GIS location and hazard information for transportation facilities including airports, buses, ferries, highways, light rail, railways, bridges, ports, and runways.	Located in root/state (e.g., Alabama is AL1) folder of the DVD
UTIL.mdb	Contains GIS location and hazard information for utility features and facilities including communications, electric, natural gas, oil, potable water, and wastewater.	Located in root/state (e.g., Alabama is AL1) folder of the DVD
huTemplateGBS.mdb	Contains census tract information for terrain, wind speeds, and tree parameters.	Located in root/state/hu folder of the DVD. This file is only available for coastal states which have been setup for hurricanes

¹ The HAZUS-MH MR3 installation allows the user to specify the folder where the state data will be copied through the “Choose Data Path” dialog in the installation wizard. By default, the installation wizard will show the data path from where the installation program was launched (usually from a DVD drive). To access data from a location than the DVD drive, users must follow HAZUS-MH Technical Manual instructions.

While point, line, and polygon features are stored in ESRI feature classes, not all attributes related to a particular entity are stored in the same feature record. Generally, attributes related to all hazards are stored in the feature record in a feature class named with a prefix hz. For instance, police station points are stored in a feature class name hzPoliceStation, while attributes specific to hazards (such as earthquakes and floods) are stored in records in separate tables. Table 3 shows all feature classes and tables with their respective prefix.

Table 3: Feature Classes and Table Prefixes

Prefix	Description	Example
hz	All hazards dataset	hzPoliceStation
eq	Earthquake Model specific dataset	eqPoliceStation
fl	Flood Model specific dataset	flPoliceStation

While point, line, and polygon features are stored in ESRI feature classes, not all attributes related to a particular entity are stored in the same feature record. In general, attributes related to all hazards are stored in the feature record in a feature class named with a prefix hz. For instance, police station points are stored in a feature class name hzPoliceStation while attributes specific to hazards (such as earthquake and flood) are stored in records in separate tables. Table 3 shows all feature classes and tables with their respective prefixes.

2. System Boundaries: syBoundary.mdb

2.1. Database Overview

The syBoundary is an ESRI Access personal geodatabase that contains the definition of state, county, and census tract boundaries in three feature classes. The geographical extent is nationwide, including features for the 50 states, the District of Columbia, and territories. This geodatabase is crucial during the aggregation process. It is used by Create Region Wizard to guide the user through the definition of a region.

2.2. Identification

syBoundary.mdb

2.3. Database Content

The syBoundary.mdb database includes:

Name	Type	Content
syState	ESRI Feature Class	US Census 2000 state boundaries for the 50 states, the District of Columbia, and territories
syCounty	ESRI Feature Class	US Census 2000 county boundaries for the 50 states, the District of Columbia, and territories
syTract	ESRI Feature Class	US Census 2000 census tract boundaries for the 50 states, the District of Columbia, and territories

2.3.1. State Boundaries: syState Feature Class

Identification:	syState				
Type:	ESRI Polygon Feature Class				
Purpose:	Feature class that plays a crucial role during the aggregation process. It belongs to syBoundary.mdb. Provides the definition of state boundaries and the states available for the region aggregation process.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
StateFips	Text(2)	T	T	FIPS state code	Federal Information Processing Standard (FIPS) state code
State	Text(2)	T, U, A	T	USPS State name abbreviation	United States Postal Service (USPS) state abbreviation
StateName	Text(40)	F			State name
Region	Short(2) <i>Integer(2)</i>	F	T	1 = Western United States 2= Central Eastern United States	For determining attenuation relationships (EQ Model). See the HAZUS-MH Earthquake Model Technical Manual, Chapter 4, Subsection 4.1.1.2, Input Requirements and Output Information, for details.
NumCounties	Short(2) <i>Integer(2)</i>	F	T		Number of counties in the syCounty feature class belonging to the state record
HUState	Short(2) <i>Integer(2)</i>	F	T	0 = Non Hurricane State 1 = Hurricane State	To identify if the State can be aggregated for the HU Model study region. If the value is 1, the state will be available in the Create Region Wizard State List.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

2.3.2. County Boundaries: syCounty Feature Class

Identification:	syCounty				
Type:	ESRI Polygon Feature Class				
Purpose:	A system boundaries feature class that plays a crucial role during the aggregation process. It belongs to syBoundary.mdb. Provides the definition of county boundaries and the counties available for the region aggregation process.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CountyFips	Text(5)	T, U, A	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
CountyFips3	Text(3)	T, NU, A	T	Three-digit FIPS county code	Last three digits of the FIPS county code
CountyName	Text(40)	T, NU, A	T		County name
State	Text(2)	T, NU, A	T	USPS state abbreviation	USPS state abbreviation
StateFips	Text(2)	T, NU, A	T	FIPS state code	FIPS state code
NumTracts	Short(2) <i>Integer(2)</i>	F	F		Number of tracts in the syTract feature class belonging to the state record

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

2.3.3. Census Tract Boundaries: syTract Feature Class

Identification:	syTract				
Type:	ESRI Polygon Feature Class				
Purpose:	A system boundaries feature class that plays a crucial role during the aggregation process. It belongs to syBoundary.mdb. Provides the definition of census tract boundaries and the census tract available for the region aggregation process.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Tract	Text(11)	T, U, A	T	11 digits of the census tract number	11 digits of the census tract number from the 2000 US Census
CountyFips	Text(5)	T, NU, A	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
Tract6	Text(40)	T, NU, A	T	Census tract six-digit number	Census tract six-digit number from the 2000 US Census
TractArea	Float(4) <i>Single(4)</i>	F	F		Census tract area (in km ²)
CenLongit	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Census tract longitude (centroid)
CenLat	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Census tract latitude (centroid)

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3. State Boundaries: Boundary.mdb

3.1. Database Overview

The bndrygbs.mdb is an Access personal geodatabase that contains boundary *feature classes and tables* with demographic (population, housing, age, etc.) and building inventory profiles aggregated at the census block and census tract levels. The geographical domain of the database is the state. In that case, there is one bndrygbs.mdb database for each state, each one located in the appropriate state folder. County census tracts and census block boundaries are in separate feature classes.

Data stored in individual tables include the following:

- *Square footage by occupancy*. These data are the estimated floor area by specific occupancy (e.g., COM1).
- *Full replacement value by occupancy*. These data provide estimated replacement values by specific occupancy (e.g., RES1).
- *Building count by occupancy*. These data provide an estimated building count by specific occupancy (e.g., IND1).
- *General occupancy mapping*. These data provide general mapping for the general building stock (GBS) inventory data from the specific occupancy to general building type (e.g., wood).
- *Demographics*. These data provide housing and population statistics for the study region.

The content of tables showing the building stock characteristics (e.g., replacement cost, building type, occupancy type, etc.) is used to estimate damages and economic losses. Demographic and housing characteristic are essential for estimating social impacts, such as shelter needs, household displacement, and casualties.

During the creation of a study region, boundary geometry from feature classes is transferred to a geodatabase named RegionBndry.mdb in the Region folder for all hazards. Demographic, building stock related data, and attributes from the feature classes as well as tables are transferred to the SQL Server database in the Region folder.

3.2. Identification

Boundary.mdb

3.3. Database Content

The Boundary.mdb database includes:

Name	Type	Content
hzCounty	ESRI Polygon Feature Class	US Census 2000 county boundaries
hzTract	ESRI Polygon Feature Class	US Census 2000 census tract boundaries
hzCensusBlock	ESRI Polygon Feature Class	US Census 2000 census block boundaries
hzDemographicsT	ESRI Table	Demographics by census tract
hzDemographicsB	ESRI Table	Demographics by census block
hzBldgCountOccupT	ESRI Table	Building count by occupancy by census tract
hzBldgCountOccupB	ESRI Table	Building count by occupancy by census tract
hzExposureOccupT	ESRI Table	Building (without content) full replacement value by occupancy by census tract
hzExposureOccupB	ESRI Table	Building (without content) full replacement value by occupancy by census block
hzExposureContentOccupT	ESRI Table	Building content replacement value by occupancy by census tract
hzExposureContentOccupB	ESRI Table	Building content replacement value by occupancy by census block
hzSqFootageOccupT	ESRI Table	Square footage by occupancy by census tract
hzSqFootageOccupB	ESRI Table	Square footage by occupancy by census block
hzMeansCountyLocationFactor	ESRI Table	Means location factors for residential and non-residential occupancies on a county basis

3.3.1. County Boundaries: hzCounty

Identification:	hzCounty				
Type:	ESRI Polygon Feature Class				
Purpose:	A state extent boundaries feature. It belongs to Boundary.mdb. Provides the definition of county boundaries geometry and attributes in one state. Boundary geometries are transferred to a geodatabase named RegionBndry.mdb in the Region folder during the process of creating a new study region. Attributes are also transferred to the SQL Server database in the Region folder during this process. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CountyFips	Text(5)	T, U, A	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS code; the remaining three digits are the county code.
CountyFips3	Text(3)	T, NU, A	T	Three-digit FIPS county code	Last three digits of the FIPS county code.
CountyName	Text(40)	T, NU, A	T		County name
State	Text(2)	T, NU, A	T	USPS state abbreviation	USPS state abbreviation
StateFips	Text(2)	T, NU, A	T	FIPS state code	FIPS state code
NumAggrTracts	Long(4) <i>Long Integer(4)</i>	F	F		Number of tracts in the hztract feature.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.2. Census Tract Boundaries: hzTract

Identification:	hzTract				
Type:	ESRI Polygon Feature Class				
Purpose:	A state extent boundaries feature. It belongs to Boundary.mdb. Provides the definition of census tract boundaries geometry and attributes in one state. Boundary geometries are transferred to a geodatabase named RegionBndry.mdb in the Region folder during the process of creating a new study region. Attributes (e.g., tract number, building scheme Id) are also transferred to the SQL Server database in the Region folder during this process. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Tract	Text(11)	T, U, A	T	11 digits of the census tract number	11 digits of the census tract number of the US Census 2000
CountyFips	Text(5)	T, NU, A	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
BldgSchemesId	Text(5)	F	T	EQ specific building scheme according to the available values in table hzGenBldgSchemes in MSH.mdb for the state. See Occupancy Mapping Scheme: MSH.mdb .	EQ specific building scheme according to the available values in table hzGenBldgSchemes in MSH.mdb for the state. See Occupancy Mapping Scheme: MSH.mdb .
Tract6	Text(40)	F	T		Census tract six-digit number of the US Census 2000
TractArea	Float(4) <i>Single(4)</i>	F	N		Census tract area (in km ²)
CenLat	Double(8) <i>Double(8)</i>	F	N	Latitude Decimal Degrees	Census tract latitude (centroid)
CenLongit	Double(8) <i>Double(8)</i>	F	N	Longitude Decimal Degrees	Census tract longitude (centroid)
Length	Float(4) <i>Single(4)</i>	F	N		Total length (in kms) of street segment in the census tract. Length is used during the study region creation process to estimate distribution of pipeline length for potable water, wastewater, and natural gas.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.3. Census Block Boundaries: hzCensusBlock

Identification:	hzCensusBlock				
Type:	ESRI Polygon Feature Class				
Purpose:	A state extent boundaries feature. It belongs to Boundary.mdb. Provides the definition of census block boundaries geometry and attributes in one state. Boundary geometries are transferred to a geodatabase named RegionBndry.mdb in the Region folder during the process of creating a new study region when the flood hazard is included. Attributes (e.g., tract number, building scheme Id) are also transferred to the SQL Server database in the Region folder during this process. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusBlock	Text(15)	T, U, A			15 digits of the census block number
Tract	Text(11)	T, NU, A	T		11 digits of the census tract number
BldgSchemesId	Text(5)	F	T		EQ specific building scheme accord to the available values in table hzGenBldgSchemes in MSH.mdb for the state. See Occupancy Mapping Scheme: MSH.mdb .
BlockType	Text(1)	F	T	R=Riverine C=Coastal L=Lake	Within the HAZUS Flood Model, all census blocks have been assigned a code identifying the primary local flood hazard type and a foundation mapping scheme. The default value for all census blocks is "R" (riverine). Census blocks immediately adjacent to the Great Lakes are coded as "L" for Great Lakes. Census blocks within the FEMA Q3's for coastal regions are coded as "C" (coastal).
BlockArea	Float(4) Float(4)	F	F		Census block area (in km ²)
CenLat	Double(8) Double(8)	F	F	Latitude Decimal Degrees	Census block latitude (centroid)
CenLongit	Double(8) Double(8)	F	F	Longitude Decimal Degrees	Census block longitude (centroid)
PctWithBasemnt	Short(2) Integer(2)	F	F		Percentage of residential units with basements (flood hazard specific field)
Pct1StoryRes1	Short(2) Integer(2)	F	F		Percentage of one-story single-family (flood hazard specific field)
Pct2StoryRes1	Short(2) Integer(2)	F	F		Percentage of two-story, single-family (flood hazard specific field)
Pct3StoryRes1	Short(2) Integer(2)	F	F		Percentage of three-story, single-family (flood hazard specific field)
PctSplitLvlRes1	Short(2) Integer(2)	F	F		Percentage of split level, single-family (flood hazard specific field)
Pct1to2StryRes3	Short(2) Integer(2)	F	F		Percentage of 1-2 story, multi-family (flood hazard specific field)

Pct3to4StryRes3	Short(2) <i>Integer(2)</i>	F	F		Percentage of 3-4-story, multi-family (flood hazard specific field)
Pct5StryplusRes3	Short(2) <i>Integer(2)</i>	F	F		Percentage of 5-story and up multi-family (flood hazard specific field)
PctLowRiseOther	Short(2) <i>Integer(2)</i>	F	F		Percentage of all other occupancies, low-rise (flood hazard specific field)
PctMidRiseOther	Short(2) <i>Integer(2)</i>	F	F		Percentage of all other occupancies, mid-rise (flood hazard specific field)
PctHighRiseOther	Short(2) <i>Integer(2)</i>	F	F		Percentage of all other occupancies, high-rise (flood hazard specific field)
Pct1CarGarage	Short(2) <i>Integer(2)</i>	F	F		Percentage of single-family with 1-car garage (flood hazard specific field)
Pct2CarGarage	Short(2) <i>Integer(2)</i>	F	F		Percentage of single-family with 2-car garage (flood hazard specific field)
Pct3CarGarage	Short(2) <i>Integer(2)</i>	F	F		Percentage of single-family with 3-car garage (flood hazard specific field)
PctCarPort	Short(2) <i>Integer(2)</i>	F	F		Percentage of single-family with carport (flood hazard specific field)
PctNoGarage	Short(2) <i>Integer(2)</i>	F	F		Percentage of single-family with no garage (flood hazard specific field)
IncomeRatio	Float(4) <i>Single(4)</i>	F	F		Ratio of block group to state income (flood hazard specific field)

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.4. Demographics by Census Tract: hzDemographicT

Identification:	hzDemographicT				
Type:	ESRI Table				
Purpose:	This table provides housing and population statistics at the census tract level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusTract	Text(11)	T, U, A	T	11 digits of the census tract number	11 digits of the census tract number
Population	Long(4) <i>Long Integer(4)</i>	F	F		Total population
Households	Long(4) <i>Long Integer(4)</i>	F	F		Total households
GroupQuarters	Long(4) <i>Long Integer(4)</i>	F	F		Total group quarters
MaleLess16	Long(4) <i>Long Integer(4)</i>	F	F		Total number of males under 16 years of age
Male16to65	Long(4) <i>Long Integer(4)</i>	F	F		Total number of males aged 16 to 65
MaleOver65	Long(4) <i>Long Integer(4)</i>	F	F		Total number of males over age 65
FemaleLess16	Long(4) <i>Long Integer(4)</i>	F	F		Total number of females under 16 years of age
Female16to65	Long(4) <i>Long Integer(4)</i>	F	F		Total number of females aged 16 to 65
FemaleOver65	Long(4) <i>Long Integer(4)</i>	F	F		Total number of females over age 65
MalePopulation	Long(4) <i>Long Integer(4)</i>	F	F		Total males
FemalePopulation	Long(4) <i>Long Integer(4)</i>	F	F		Total females
White	Long(4) <i>Long Integer(4)</i>	F	F		Total white population
Black	Long(4) <i>Long Integer(4)</i>	F	F		Total black population
NativeAmerican	Long(4) <i>Long Integer(4)</i>	F	F		Total Native American population
Asian	Long(4) <i>Long Integer(4)</i>	F	F		Total Asian population
Hispanic	Long(4) <i>Long Integer(4)</i>	F	F		Total Hispanic population
PacificIslander	Long(4) <i>Long Integer(4)</i>	F	F		Total Pacific Islander population

OtherRaceOnly	Long(4) <i>Long Integer(4)</i>	F	F		Total other race population
IncLess10	Long(4) <i>Long Integer(4)</i>	F	F		Total households with less than \$10,000 annual income
Inc10to20	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$10,000 to \$20,000 annual income
Inc20to30	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$20,000 to \$30,000 annual income
Inc30to40	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$30,000 to \$40,000 annual income
Inc40to50	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$40,000 to \$50,000 annual income
Inc50to60	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$50,000 to \$60,000 annual income
Inc60to75	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$60,000 to \$75,000 annual income
Inc75to100	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$75,000 to \$100,000 annual income
IncOver100	Long(4) <i>Long Integer(4)</i>	F	F		Total households with more than \$100,000 annual income
ResidDay	Long(4) <i>Long Integer(4)</i>	F	F		Total daytime population
ResidNight	Long(4) <i>Long Integer(4)</i>	F	F		Total nighttime population
Hotel	Long(4) <i>Long Integer(4)</i>	F	F		Total population in hotels
Visitor	Long(4) <i>Long Integer(4)</i>	F	F		Visitor population
WorkingCom	Long(4) <i>Long Integer(4)</i>	F	F		Population working in commercial occupations
WorkingInd	Long(4) <i>Long Integer(4)</i>	F	F		Population working in industrial occupations
Commuting5PM	Long(4) <i>Long Integer(4)</i>	F	F		Population commuting at 5:00 p.m.
OwnerSingleUnits	Long(4) <i>Long Integer(4)</i>	F	F		Owner-occupied, single-family units
OwnerMultUnits	Long(4) <i>Long Integer(4)</i>	F	F		Owner-occupied, multi-family units
OwnerMultStructs	Long(4) <i>Long Integer(4)</i>	F	F		Owner-occupied, multi-family structures
OnwerMHs	Long(4) <i>Long Integer(4)</i>	F	F		Owner-occupied, manufactured housing
RenterSingleUnits	Long(4) <i>Long Integer(4)</i>	F	F		Renter-occupied single family units
RenterMultUnits	Long(4) <i>Long Integer(4)</i>	F	F		Renter-occupied, multi-family units
RenterMultStructs	Long(4) <i>Long Integer(4)</i>	F	F		Renter-occupied, multi-family structures
RenterMHs	Long(4) <i>Long Integer(4)</i>	F	F		Renter-occupied, manufactured housing
VacantSingleUnits	Long(4) <i>Long Integer(4)</i>	F	F		Vacant single-family units

VacantMultUnits	Long(4) <i>Long Integer(4)</i>	F	F		Vacant multi-family units
VacantMultStructs	Long(4) <i>Long Integer(4)</i>	F	F		Vacant multi-family structures
VacantMHs	Long(4) <i>Long Integer(4)</i>	F	F		Vacant manufactured housing
BuiltBefore40	Short(2) <i>Integer(2)</i>	F	F		Housing units built before 1940
Built40to49	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1940 and 1949
Built50to59	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1950 and 1959
Built60to69	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1960 and 1969
Built70to79	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1970 and 1979
Built80to89	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1980 and 1989
Built90to98	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1990 and 1998
BuiltAfter98	Short(2) <i>Integer(2)</i>	F	F		Housing units built after 1998
MedianYearBuilt	Short(2) <i>Integer(2)</i>	F	F		Median year housing built
AvgRent	Long(4) <i>Long Integer(4)</i>	F	F		Average cash rent
AvgValue	Long(4) <i>Long Integer(4)</i>	F	F		Average home value
SchoolEnrollmentKt o12	Long(4) <i>Long Integer(4)</i>	F	F		School enrollment up to high school
SchoolEnrollmentC ollege	Long(4) <i>Long Integer(4)</i>	F	F		College and university enrollment

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.5. Demographics by Census Block: hzDemographicB

Identification:	hzDemographicB				
Type:	ESRI Table				
Purpose:	This table provides housing and population statistics at census block level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region when the flood hazard is included. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusBlock	Text(15)	T, U, A	T	15 digits of census block number	15 digits of census block number
Population	Long(4) <i>Long Integer(4)</i>	F	F		Total population
Households	Long(4) <i>Long Integer(4)</i>	F	F		Total households
GroupQuarters	Long(4) <i>Long Integer(4)</i>	F	F		Total group quarters
MaleLess16	Long(4) <i>Long Integer(4)</i>	F	F		Total number of males under 16 years of age
Male16to65	Long(4) <i>Long Integer(4)</i>	F	F		Total number of males aged 16 to 65
MaleOver65	Long(4) <i>Long Integer(4)</i>	F	F		Total number of males over age 65
FemaleLess16	Long(4) <i>Long Integer(4)</i>	F	F		Total number of females under 16 years of age
Female16to65	Long(4) <i>Long Integer(4)</i>	F	F		Total number of females aged 16 to 65
FemaleOver65	Long(4) <i>Long Integer(4)</i>	F	F		Total number of females over age 65
MalePopulation	Long(4) <i>Long Integer(4)</i>	F	F		Total males
FemalePopulation	Long(4) <i>Long Integer(4)</i>	F	F		Total females
White	Long(4) <i>Long Integer(4)</i>	F	F		Total white population
Black	Long(4) <i>Long Integer(4)</i>	F	F		Total black population
NativeAmerican	Long(4) <i>Long Integer(4)</i>	F	F		Total Native American population
Asian	Long(4) <i>Long Integer(4)</i>	F	F		Total Asian population
Hispanic	Long(4) <i>Long Integer(4)</i>	F	F		Total Hispanic population
PacificIslander	Long(4) <i>Long Integer(4)</i>	F	F		Total Pacific Islander population

OtherRaceOnly	Long(4) <i>Long Integer(4)</i>	F	F		Total other race population
IncLess10	Long(4) <i>Long Integer(4)</i>	F	F		Total households with less than \$10,000 annual income
Inc10to20	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$10,000 to \$20,000 annual income
Inc20to30	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$20,000 to \$30,000 annual income
Inc30to40	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$30,000 to \$40,000 annual income
Inc40to50	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$40,000 to \$50,000 annual income
Inc50to60	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$50,000 to \$60,000 annual income
Inc60to75	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$60,000 to \$75,000 annual income
Inc75to100	Long(4) <i>Long Integer(4)</i>	F	F		Total households with \$75,000 to \$100,000 annual income
IncOver100	Long(4) <i>Long Integer(4)</i>	F	F		Total households with more than \$100,000 annual income
ResidDay	Long(4) <i>Long Integer(4)</i>	F	F		Total daytime population
ResidNight	Long(4) <i>Long Integer(4)</i>	F	F		Total nighttime population
Hotel	Long(4) <i>Long Integer(4)</i>	F	F		Total population in hotels
Visitor	Long(4) <i>Long Integer(4)</i>	F	F		Visitor population
WorkingCom	Long(4) <i>Long Integer(4)</i>	F	F		Population working in commercial occupations
WorkingInd	Long(4) <i>Long Integer(4)</i>	F	F		Population working in industrial occupations
Commuting5PM	Long(4) <i>Long Integer(4)</i>	F	F		Population commuting at 5:00 p.m.
OwnerSingleUnits	Long(4) <i>Long Integer(4)</i>	F	F		Owner-occupied, single-family units
OwnerMultUnits	Long(4) <i>Long Integer(4)</i>	F	F		Owner-occupied, multi-family units
OwnerMultStructs	Long(4) <i>Long Integer(4)</i>	F	F		Owner-occupied, multi-family structures
OnwerMHs	Long(4) <i>Long Integer(4)</i>	F	F		Owner-occupied, manufactured housing
RenterSingleUnits	Long(4) <i>Long Integer(4)</i>	F	F		Renter-occupied, single-family units
RenterMultUnits	Long(4) <i>Long Integer(4)</i>	F	F		Renter-occupied, multi-family units
RenterMultStructs	Long(4) <i>Long Integer(4)</i>	F	F		Renter-occupied, multi-family structures
RenterMHs	Long(4) <i>Long Integer(4)</i>	F	F		Renter-occupied, manufactured housing
VacantSingleUnits	Long(4) <i>Long Integer(4)</i>	F	F		Vacant single-family units

VacantMultUnits	Long(4) <i>Long Integer(4)</i>	F	F		Vacant multi-family units
VacantMultStructs	Long(4) <i>Long Integer(4)</i>	F	F		Vacant multi-family structures
VacantMHs	Long(4) <i>Long Integer(4)</i>	F	F		Vacant manufactured housing
BuiltBefore40	Short(2) <i>Integer(2)</i>	F	F		Housing units built before 1940
Built40to49	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1940 and 1949
Built50to59	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1950 and 1959
Built60to69	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1960 and 1969
Built70to79	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1970 and 1979
Built80to89	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1980 and 1989
Built90to98	Short(2) <i>Integer(2)</i>	F	F		Housing units built between 1990 and 1998
BuiltAfter98	Short(2) <i>Integer(2)</i>	F	F		Housing units built after 1998
MedianYearBuilt	Short(2) <i>Integer(2)</i>	F	F		Median year housing built
AvgRent	Long(4) <i>Long Integer(4)</i>	F	F		Average cash rent
AvgValue	Long(4) <i>Long Integer(4)</i>	F	F		Average home value
SchoolEnrollmentKto12	Long(4) <i>Long Integer(4)</i>	F	F		School enrollment up to high school
SchoolEnrollmentColleg e	Long(4) <i>Long Integer(4)</i>	F	F		College and university enrollment

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.6. Building Count by Census Tract: hzBldgCountOccupT

Identification:	hzBldgCountOccupT				
Type:	ESRI Table				
Purpose:	This table provides building count by occupancy at the census tract level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type</i> (Size)	Index*	Required*	Values	Description
CensusTract	Text(11)	T, U, A	T		11 digits of the census tract number
RES1I	Short(2) Integer(2)	F	F		Single family dwellings
RES2I	Short(2) Integer(2)	F	F		Manufactured housing
RES3AI	Short(2) Integer(2)	F	F		Duplex - 1 to 2 units
RES3BI	Short(2) Integer(2)	F	F		Duplex - 3 to 4 units
RES3CI	Short(2) Integer(2)	F	F		Duplex - 5 to 9 units
RES3DI	Short(2) Integer(2)	F	F		Duplex - 10 to 19 units
RES3EI	Short(2) Integer(2)	F	F		Duplex - 20 to 49 units
RES3FI	Short(2) Integer(2)	F	F		Duplex - more than 50 units
RES4I	Short(2) Integer(2)	F	F		Temporary lodging
RES5I	Short(2) Integer(2)	F	F		Institutional dormitories
RES6I	Short(2) Integer(2)	F	F		Nursing homes
COM1I	Short(2) Integer(2)	F	F		Retail trade
COM2I	Short(2) Integer(2)	F	F		Wholesale trade
COM3I	Short(2) Integer(2)	F	F		Personal and repairs services
COM4I	Short(2) Integer(2)	F	F		Professional and technical services
COM5I	Short(2) Integer(2)	F	F		Banks
COM6I	Short(2) Integer(2)	F	F		Hospitals
COM7I	Short(2) Integer(2)	F	F		Medical office and clinic

COM8I	Short(2) <i>Integer(2)</i>	F	F		Entertainment and recreation
COM9I	Short(2) <i>Integer(2)</i>	F	F		Theaters
COM10I	Short(2) <i>Integer(2)</i>	F	F		Parking garages
IND1I	Short(2) <i>Integer(2)</i>	F	F		Heavy industrial
IND2I	Short(2) <i>Integer(2)</i>	F	F		Light industrial
IND3I	Short(2) <i>Integer(2)</i>	F	F		Food/drugs/chemicals
IND4I	Short(2) <i>Integer(2)</i>	F	F		Metal/minerals processing
IND5I	Short(2) <i>Integer(2)</i>	F	F		High technology
IND6I	Short(2) <i>Integer(2)</i>	F	F		Construction facilities and offices
AGR1I	Short(2) <i>Integer(2)</i>	F	F		Agriculture facilities and offices
REL1I	Short(2) <i>Integer(2)</i>	F	F		Churches and non-profit organizations
GOV1I	Short(2) <i>Integer(2)</i>	F	F		Government - general services
GOV2I	Short(2) <i>Integer(2)</i>	F	F		Government - emergency response
EDU1I	Short(2) <i>Integer(2)</i>	F	F		Grade schools and administrative offices
EDU2I	Short(2) <i>Integer(2)</i>	F	F		Colleges and universities

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.7. Building Count by Census Block: hzBldgCountOccupB

Identification:	hzBldgCountOccupB				
Type:	ESRI Table				
Purpose:	This table provides building count by occupancy at census block level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region when the flood hazard is included. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type</i> (Size)	Index*	Required*	Values	Description
CensusBlock	Text(15)	T, U, A	T	15 digits of the census block number	15 digits of the census block number
RES1I	Short(2) <i>Integer(2)</i>	F	F		Single-family dwellings
RES2I	Short(2) <i>Integer(2)</i>	F	F		Manufactured housing
RES3AI	Short(2) <i>Integer(2)</i>	F	F		Duplex - 1 to 2 units
RES3BI	Short(2) <i>Integer(2)</i>	F	F		Duplex - 3 to 4 units
RES3CI	Short(2) <i>Integer(2)</i>	F	F		Duplex - 5 to 9 units
RES3DI	Short(2) <i>Integer(2)</i>	F	F		Duplex - 10 to 19 units
RES3EI	Short(2) <i>Integer(2)</i>	F	F		Duplex - 20 to 49 units
RES3FI	Short(2) <i>Integer(2)</i>	F	F		Duplex - more than 50 units
RES4I	Short(2) <i>Integer(2)</i>	F	F		Temporary lodging
RES5I	Short(2) <i>Integer(2)</i>	F	F		Institutional dormitories
RES6I	Short(2) <i>Integer(2)</i>	F	F		Nursing homes
COM1I	Short(2) <i>Integer(2)</i>	F	F		Retail trade
COM2I	Short(2) <i>Integer(2)</i>	F	F		Wholesale trade
COM3I	Short(2) <i>Integer(2)</i>	F	F		Personal and repair services
COM4I	Short(2) <i>Integer(2)</i>	F	F		Professional and technical services
COM5I	Short(2) <i>Integer(2)</i>	F	F		Banks
COM6I	Short(2) <i>Integer(2)</i>	F	F		Hospitals

COM7I	Short(2) <i>Integer(2)</i>	F	F		Medical office and clinic
COM8I	Short(2) <i>Integer(2)</i>	F	F		Entertainment and recreation
COM9I	Short(2) <i>Integer(2)</i>	F	F		Theaters
COM10I	Short(2) <i>Integer(2)</i>	F	F		Parking garages
IND1I	Short(2) <i>Integer(2)</i>	F	F		Heavy industrial
IND2I	Short(2) <i>Integer(2)</i>	F	F		Light industrial
IND3I	Short(2) <i>Integer(2)</i>	F	F		Food/drugs/chemicals
IND4I	Short(2) <i>Integer(2)</i>	F	F		Metal/minerals processing
IND5I	Short(2) <i>Integer(2)</i>	F	F		High technology
IND6I	Short(2) <i>Integer(2)</i>	F	F		Construction facilities and offices
AGR1I	Short(2) <i>Integer(2)</i>	F	F		Agriculture facilities and offices
REL1I	Short(2) <i>Integer(2)</i>	F	F		Churches and non-profit organizations
GOV1I	Short(2) <i>Integer(2)</i>	F	F		Government - general services
GOV2I	Short(2) <i>Integer(2)</i>	F	F		Government - emergency response
EDU1I	Short(2) <i>Integer(2)</i>	F	F		Grade schools and administrative offices
EDU2I	Short(2) <i>Integer(2)</i>	F	F		Colleges and universities

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.8. Building Replacement Value by Census Tract: hzExposureOccupT

Identification:	hzExposureOccupT				
Type:	ESRI Table				
Purpose:	This table provides building (without content) full replacement value by occupancy at the census tract level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusTract	Text(11)	T, U, A	F	11 digits of the census tract number	11 digits of the census tract number
RES1I	Long(4) <i>Long Integer(4)</i>	F	F		Single-family dwellings
RES2I	Long(4) <i>Long Integer(4)</i>	F	F		Manufactured housing
RES3AI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 1 to 2 units
RES3BI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 3 to 4 units
RES3CI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 5 to 9 units
RES3DI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 10 to 19 units
RES3EI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 20 to 49 units
RES3FI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - more than 50 units
RES4I	Long(4) <i>Long Integer(4)</i>	F	F		Temporary lodging
RES5I	Long(4) <i>Long Integer(4)</i>	F	F		Institutional dormitories
RES6I	Long(4) <i>Long Integer(4)</i>	F	F		Nursing homes
COM1I	Long(4) <i>Long Integer(4)</i>	F	F		Retail trade
COM2I	Long(4) <i>Long Integer(4)</i>	F	F		Wholesale trade
COM3I	Long(4) <i>Long Integer(4)</i>	F	F		Personal and repair services
COM4I	Long(4) <i>Long Integer(4)</i>	F	F		Professional and technical services
COM5I	Long(4) <i>Long Integer(4)</i>	F	F		Banks
COM6I	Long(4) <i>Long Integer(4)</i>	F	F		Hospitals

COM7I	Long(4) <i>Long Integer(4)</i>	F	F		Medical office and clinic
COM8I	Long(4) <i>Long Integer(4)</i>	F	F		Entertainment and recreation
COM9I	Long(4) <i>Long Integer(4)</i>	F	F		Theaters
COM10I	Long(4) <i>Long Integer(4)</i>	F	F		Parking garages
IND1I	Long(4) <i>Long Integer(4)</i>	F	F		Heavy industrial
IND2I	Long(4) <i>Long Integer(4)</i>	F	F		Light industrial
IND3I	Long(4) <i>Long Integer(4)</i>	F	F		Food/drugs/chemicals
IND4I	Long(4) <i>Long Integer(4)</i>	F	F		Metal/minerals processing
IND5I	Long(4) <i>Long Integer(4)</i>	F	F		High technology
IND6I	Long(4) <i>Long Integer(4)</i>	F	F		Construction facilities and offices
AGR1I	Long(4) <i>Long Integer(4)</i>	F	F		Agriculture facilities and offices
REL1I	Long(4) <i>Long Integer(4)</i>	F	F		Churches and non-profit organizations
GOV1I	Long(4) <i>Long Integer(4)</i>	F	F		Government - general services
GOV2I	Long(4) <i>Long Integer(4)</i>	F	F		Government - emergency response
EDU1I	Long(4) <i>Long Integer(4)</i>	F	F		Grade schools and administrative offices
EDU2I	Long(4) <i>Long Integer(4)</i>	F	F		Colleges and universities

* T=True, F=False, U=Unique, NU=Non-Unique, A=Ascending, D=Descending; UC=Uppercase; LC=Lowercase

3.3.9. Building Replacement Value by Census Block: hzExposureOccupB

Identification:	hzExposureOccupB				
Type:	ESRI Table				
Purpose:	This table provides building (without content) full replacement value by occupancy at the census block level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region when the flood hazard is included. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type</i> (Size)	Index*	Required*	Values	Description
CensusBlock	Text(15)	T, U, A	T	15 digits of the census block number	15 digits of the census block number
RES1I	Long(4) <i>Long Integer(4)</i>	F	F		Single-family dwellings
RES2I	Long(4) <i>Long Integer(4)</i>	F	F		Manufactured housing
RES3AI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 1 to 2 units
RES3BI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 3 to 4 units
RES3CI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 5 to 9 units
RES3DI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 10 to 19 units
RES3EI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 20 to 49 units
RES3FI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - more than 50 units
RES4I	Long(4) <i>Long Integer(4)</i>	F	F		Temporary lodging
RES5I	Long(4) <i>Long Integer(4)</i>	F	F		Institutional dormitories
RES6I	Long(4) <i>Long Integer(4)</i>	F	F		Nursing homes
COM1I	Long(4) <i>Long Integer(4)</i>	F	F		Retail trade
COM2I	Long(4) <i>Long Integer(4)</i>	F	F		Wholesale trade
COM3I	Long(4) <i>Long Integer(4)</i>	F	F		Personal and repair services
COM4I	Long(4) <i>Long Integer(4)</i>	F	F		Professional and technical services
COM5I	Long(4) <i>Long Integer(4)</i>	F	F		Banks
COM6I	Long(4) <i>Long Integer(4)</i>	F	F		Hospitals

COM7I	Long(4) <i>Long Integer(4)</i>	F	F		Medical office and clinic
COM8I	Long(4) <i>Long Integer(4)</i>	F	F		Entertainment and recreation
COM9I	Long(4) <i>Long Integer(4)</i>	F	F		Theaters
COM10I	Long(4) <i>Long Integer(4)</i>	F	F		Parking garages
IND1I	Long(4) <i>Long Integer(4)</i>	F	F		Heavy industrial
IND2I	Long(4) <i>Long Integer(4)</i>	F	F		Light industrial
IND3I	Long(4) <i>Long Integer(4)</i>	F	F		Food/drugs/chemicals
IND4I	Long(4) <i>Long Integer(4)</i>	F	F		Metal/minerals processing
IND5I	Long(4) <i>Long Integer(4)</i>	F	F		High technology
IND6I	Long(4) <i>Long Integer(4)</i>	F	F		Construction facilities and offices
AGR1I	Long(4) <i>Long Integer(4)</i>	F	F		Agriculture facilities and offices
REL1I	Long(4) <i>Long Integer(4)</i>	F	F		Churches and non-profit organizations
GOV1I	Long(4) <i>Long Integer(4)</i>	F	F		Government - general services
GOV2I	Long(4) <i>Long Integer(4)</i>	F	F		Government - emergency response
EDU1I	Long(4) <i>Long Integer(4)</i>	F	F		Grade schools and administrative offices
EDU2I	Long(4) <i>Long Integer(4)</i>	F	F		Colleges and universities

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.10. Content Replacement Value by Census Tract:

hzExposureContentOccupT

Identification:		hzExposureContentOccupT			
Type:		ESRI Table			
Purpose:		This table provides building content replacement value by occupancy at the census tract level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.			
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusTract	Text(11) <i>Long Integer(4)</i>	T, U, A	T	11 digits of the census tract number	11 digits of the census tract number
RES1I	Long(4) <i>Long Integer(4)</i>	F	F		Single-family dwellings
RES2I	Long(4) <i>Long Integer(4)</i>	F	F		Manufactured housing
RES3AI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 1 to 2 units
RES3BI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 3 to 4 units
RES3CI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 5 to 9 units
RES3DI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 10 to 19 units
RES3EI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 20 to 49 units
RES3FI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - more than 50 units
RES4I	Long(4) <i>Long Integer(4)</i>	F	F		Temporary lodging
RES5I	Long(4) <i>Long Integer(4)</i>	F	F		Institutional dormitories
RES6I	Long(4) <i>Long Integer(4)</i>	F	F		Nursing homes
COM1I	Long(4) <i>Long Integer(4)</i>	F	F		Retail trade
COM2I	Long(4) <i>Long Integer(4)</i>	F	F		Wholesale trade
COM3I	Long(4) <i>Long Integer(4)</i>	F	F		Personal and repair services
COM4I	Long(4) <i>Long Integer(4)</i>	F	F		Professional and technical services
COM5I	Long(4) <i>Long Integer(4)</i>	F	F		Banks
COM6I	Long(4) <i>Long Integer(4)</i>	F	F		Hospitals

COM7I	Long(4) <i>Long Integer(4)</i>	F	F		Medical office and clinic
COM8I	Long(4) <i>Long Integer(4)</i>	F	F		Entertainment and recreation
COM9I	Long(4) <i>Long Integer(4)</i>	F	F		Theaters
COM10I	Long(4) <i>Long Integer(4)</i>	F	F		Parking garages
IND1I	Long(4) <i>Long Integer(4)</i>	F	F		Heavy industrial
IND2I	Long(4) <i>Long Integer(4)</i>	F	F		Light industrial
IND3I	Long(4) <i>Long Integer(4)</i>	F	F		Food/drugs/chemicals
IND4I	Long(4) <i>Long Integer(4)</i>	F	F		Metal/minerals processing
IND5I	Long(4) <i>Long Integer(4)</i>	F	F		High technology
IND6I	Long(4) <i>Long Integer(4)</i>	F	F		Construction facilities and offices
AGR1I	Long(4) <i>Long Integer(4)</i>	F	F		Agriculture facilities and offices
REL1I	Long(4) <i>Long Integer(4)</i>	F	F		Churches and non-profit organizations
GOV1I	Long(4) <i>Long Integer(4)</i>	F	F		Government - general services
GOV2I	Long(4) <i>Long Integer(4)</i>	F	F		Government - emergency response
EDU1I	Long(4) <i>Long Integer(4)</i>	F	F		Grade schools and administrative offices
EDU2I	Long(4) <i>Long Integer(4)</i>	F	F		Colleges and universities

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.11. Content Replacement Value by Census Block:

hzExposureContentOccupB

Identification:	hzExposureContentOccupB				
Type:	ESRI Table				
Purpose:	This table provides building content replacement value by occupancy at the census block level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region when the flood hazard is included. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusBlock	Text(15)	T, U, A	T	15 digits of the census block number	15 digits of the census block number
RES1I	Long(4) <i>Long Integer(4)</i>	F	F		Single-family dwellings
RES2I	Long(4) <i>Long Integer(4)</i>	F	F		Manufactured housing
RES3AI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 1 to 2 units
RES3BI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 3 to 4 units
RES3CI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 5 to 9 units
RES3DI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 10 to 19 units
RES3EI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - 20 to 49 units
RES3FI	Long(4) <i>Long Integer(4)</i>	F	F		Duplex - more than 50 units
RES4I	Long(4) <i>Long Integer(4)</i>	F	F		Temporary lodging
RES5I	Long(4) <i>Long Integer(4)</i>	F	F		Institutional dormitories
RES6I	Long(4) <i>Long Integer(4)</i>	F	F		Nursing homes
COM1I	Long(4) <i>Long Integer(4)</i>	F	F		Retail trade
COM2I	Long(4) <i>Long Integer(4)</i>	F	F		Wholesale trade
COM3I	Long(4) <i>Long Integer(4)</i>	F	F		Personal and repair services
COM4I	Long(4) <i>Long Integer(4)</i>	F	F		Professional and technical services
COM5I	Long(4) <i>Long Integer(4)</i>	F	F		Banks

COM6I	Long(4) <i>Long Integer(4)</i>	F	F		Hospitals
COM7I	Long(4) <i>Long Integer(4)</i>	F	F		Medical office and clinic
COM8I	Long(4) <i>Long Integer(4)</i>	F	F		Entertainment and recreation
COM9I	Long(4) <i>Long Integer(4)</i>	F	F		Theaters
COM10I	Long(4) <i>Long Integer(4)</i>	F	F		Parking garages
IND1I	Long(4) <i>Long Integer(4)</i>	F	F		Heavy industrial
IND2I	Long(4) <i>Long Integer(4)</i>	F	F		Light industrial
IND3I	Long(4) <i>Long Integer(4)</i>	F	F		Food/drugs/chemicals
IND4I	Long(4) <i>Long Integer(4)</i>	F	F		Metal/minerals processing
IND5I	Long(4) <i>Long Integer(4)</i>	F	F		High technology
IND6I	Long(4) <i>Long Integer(4)</i>	F	F		Construction facilities and offices
AGR1I	Long(4) <i>Long Integer(4)</i>	F	F		Agriculture facilities and offices
REL1I	Long(4) <i>Long Integer(4)</i>	F	F		Churches and non-profit organizations
GOV1I	Long(4) <i>Long Integer(4)</i>	F	F		Government - general services
GOV2I	Long(4) <i>Long Integer(4)</i>	F	F		Government - emergency response
EDU1I	Long(4) <i>Long Integer(4)</i>	F	F		Grade schools and administrative offices
EDU2I	Long(4) <i>Long Integer(4)</i>	F	F		Colleges and universities

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.12. Square Footage Value by Census Tract: hzSqFootageOccupT

Identification:	hzSqFootageOccupT				
Type:	ESRI Table				
Purpose:	This table provides square footage value by occupancy at census tract level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusTract	Text(11)	T, U, A	T	11 digits of the census tract number	11 digits of the census tract number
RES1F	Float	F	F		Single-family dwellings
RES2F	Float	F	F		Manufactured housing
RES3AF	Float	F	F		Duplex - 1 to 2 units
RES3BF	Float	F	F		Duplex - 3 to 4 units
RES3CF	Float	F	F		Duplex - 5 to 9 units
RES3DF	Float	F	F		Duplex - 10 to 19 units
RES3EF	Float	F	F		Duplex - 20 to 49 units
RES3FF	Float	F	F		Duplex - more than 50 units
RES4F	Float	F	F		Temporary lodging
RES5F	Float	F	F		Institutional dormitories
RES6F	Float	F	F		Nursing homes
COM1F	Float	F	F		Retail trade
COM2F	Float	F	F		Wholesale trade
COM3F	Float	F	F		Personal and repair services
COM4F	Float	F	F		Professional and technical services
COM5F	Float	F	F		Banks
COM6F	Float	F	F		Hospitals
COM7F	Float	F	F		Medical office and clinic
COM8F	Float	F	F		Entertainment and recreation
COM9F	Float	F	F		Theaters
COM10F	Float	F	F		Parking garages
IND1F	Float	F	F		Heavy industrial
IND2F	Float	F	F		Light industrial
IND3F	Float	F	F		Food/drugs/chemicals
IND4F	Float	F	F		Metal/minerals processing
IND5F	Float	F	F		High technology
IND6F	Float	F	F		Construction facilities and offices
AGR1F	Float	F	F		Agriculture facilities and offices
REL1F	Float	F	F		Churches and non-profit organizations
GOV1F	Float	F	F		Government - general services
GOV2F	Float	F	F		Government - emergency response
EDU1F	Float	F	F		Grade schools and administrative offices
EDU2F	Float	F	F		Colleges and universities

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.13. Square Footage Value by Census Block: hzSqFootageOccupB

Identification:	hzSqFootageOccupB				
Type:	ESRI Table				
Purpose:	This table provides square footage value by occupancy at census block level for the study region. It belongs to Boundary.mdb. Data are transferred to the SQL Server database in the Region folder during the process of creating a new study region when the flood hazard is included. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and losses, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusBlock	Text(15)	T, U, A	T	15 digits of the census block number	15 digits of the census block number
RES1F	Float	F	F		Single-family dwellings
RES2F	Float	F	F		Manufactured housing
RES3AF	Float	F	F		Duplex - 1 to 2 units
RES3BF	Float	F	F		Duplex - 3 to 4 units
RES3CF	Float	F	F		Duplex - 5 to 9 units
RES3DF	Float	F	F		Duplex - 10 to 19 units
RES3EF	Float	F	F		Duplex - 20 to 49 units
RES3FF	Float	F	F		Duplex - more than 50 units
RES4F	Float	F	F		Temporary lodging
RES5F	Float	F	F		Institutional dormitories
RES6F	Float	F	F		Nursing homes
COM1F	Float	F	F		Retail trade
COM2F	Float	F	F		Wholesale trade
COM3F	Float	F	F		Personal and repair services
COM4F	Float	F	F		Professional and technical services
COM5F	Float	F	F		Banks
COM6F	Float	F	F		Hospitals
COM7F	Float	F	F		Medical office and clinic
COM8F	Float	F	F		Entertainment and recreation
COM9F	Float	F	F		Theaters
COM10F	Float	F	F		Parking garages
IND1F	Float	F	F		Heavy industrial
IND2F	Float	F	F		Light industrial
IND3F	Float	F	F		Food/drugs/chemicals
IND4F	Float	F	F		Metal/minerals processing
IND5F	Float	F	F		High technology
IND6F	Float	F	F		Construction facilities and offices
AGR1F	Float	F	F		Agriculture facilities and offices
REL1F	Float	F	F		Churches and non-profit organizations
GOV1F	Float	F	F		Government - general services
GOV2F	Float	F	F		Government - emergency response
EDU1F	Float	F	F		Grade schools and administrative offices
EDU2F	Float	F	F		Colleges and universities

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

3.3.14. County Location Factor: hzMeansCountyLocationFactor

Identification:	hzMeansCountyLocationFactor				
Type:	ESRI table				
Purpose:	The HAZUS Means-based location factor at the county level used to "localize" national costs to reflect local conditions.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
CountyFips	Text(5)	F	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the FIPS state code; the remaining three digits are the county code.
MeansAdjRes	Double	F	F		Means location factors for residential occupancies on a county basis
MeansAdjNonRes	Double	F	F		Means location factors for non-residential occupancies on a county basis

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4. Essential Facilities: EF.mdb

4.1. Database Overview

The EF.mdb is an Access personal geodatabase that contains (1) feature classes for essential facilities with fields that are relevant for all hazards and (2) tables with information specific to the EQ and FL Models. Essential facilities are those that provide services to the community and should be functional after an earthquake, flood, or hurricane event. Essential facilities include:

- Fire stations
- Police stations
- Emergency centers
- Care facilities (hospitals and medical clinics)
- Schools (K-12 and colleges)

The geographical domain of the database is the state. In that case, there is one EF.mdb database for each state, each located in the appropriate State folder.

During the creation of a study region, for all hazards, essential facilities geometries from feature classes are transferred to a geodatabase named EF.mdb in the Region folder. Feature classes are named with the prefix hz, meaning they are relevant across all HAZUS-MH Models. Police stations, for instance, are stored in hzPoliceStation feature class with fields containing information common to all hazards, such as name and address. This information is transferred to a table with the same name (for police station, hzPoliceStation) in the SQL Server database in the Region folder.

Hazard specific tables are named with the prefix eq (earthquake) and fl (flood), such as eqPoliceStation and flPoliceStation. The information is transferred to tables with the same name in the SQL Server database in the Region folder. There is a one-to-one

relationship between hz tables and the corresponding eq and fl tables through a unique identifier.

4.2. Identification

EF.mdb

4.3. Database Content

The EF.mdb database includes:

Name	Type	Content
hzCareFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of hospitals and medical clinics
hzEmergencyCtr	ESRI Point Feature Class	Geometry (point features) and all-hazards information of emergency operation centers (EOC)
hzFireStation	ESRI Point Feature Class	Geometry (point features) and all-hazards information of fire stations
hzPoliceStation	ESRI Point Feature Class	Geometry (point features) and all-hazards information of police stations
hzSchool	ESRI Point Feature Class	Geometry (point features) and all-hazards information of schools and colleges
eqCareFlty	ESRI Table	Earthquake specific information for hospitals and medical clinics
eqEmergencyCtr	ESRI Table	Earthquake specific information for EOCs
eqFireStation	ESRI Table	Earthquake specific information for fire stations
eqPoliceStation	ESRI Table	Earthquake specific information for police stations
eqSchool	ESRI Table	Earthquake specific information for schools and colleges
flCareFlty	ESRI Table	Flood specific information for hospitals and medical clinics
flEmergencyCtr	ESRI Table	Flood specific information for EOCs
flFireStation	ESRI Table	Flood specific information for fire stations
flPoliceStation	ESRI Table	Flood specific information for police stations
flSchool	ESRI Table	Flood specific information for schools and colleges

4.3.1. Care Facilities Feature Class: hzCareFlty

Identification:	hzCareFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to EF.mdb. Provides the geometry of hospitals and medical clinics. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named EF.mdb in the Region folder. Field information is transferred to a table with the same name (hzCareFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CareFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this hzCareFlty feature class with the associated eqCareFlty and flCareFlty tables. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
EfClass	Text(5)	T, NU, A	T, UC	EFHL=Large hospital EFHM=Medium hospital EFHS=Small hospital EFMC=Medical clinic MDFLT=Default value	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing the loss estimations produced by the EQ model.
Tract	Text(11)	T, NU, A	T	11 digits of the census tract number	Census tract number of the 2000 US Census
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
State	Text(2)	F	F		USPS state abbreviation
Contact	Text(40)	F	F		Name of contact person for the facility
PhoneNumber	Text(14)	F	F		Phone number to contact the facility
Use	Text(10)	F	F		Use
YearBuilt	Short(2) Integer(2)	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
NumStories	Short(1) Byte(1)	F	F		Number of stories
Cost	Double(8) Currency(8)	F	F		Replacement cost (in thousands)
BackupPower	Short(1) Yes/No(1)	F	F	0=No 1=Yes	Availability of backup power
NumBeds	Long(4) Long Integer(4)	F	F		Maximum number of available patient beds

Ahald	Text(7)	F	F		American Hospital Association (AHA) hospital identification number, if AHA data used
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

4.3.2. Earthquake Specific Care Facilities Table: eqCareFlty

Identification:	eqCareFlty				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Earthquake Model specific information for hospitals and medical clinics. During the creation of a study region, the table content is transferred to another table with the same name (eqCareFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqCareFlty for each record in hzCareFlty with the same CareFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CareFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqCareFlty feature class with the associated hzCareFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for descriptions of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See the Earthquake Technical Manual, Chapters 3 and 5, for design levels.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is found in the table for future extensibility of the earthquake model but does not need to be populated at this time.
SoilType	Text(1)	F	T	A = Soil type A B = Soil type B C = Soil type C D = Soil type D E = Soil type E	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines conditions where the structure is located. This is based on shear wave velocity. See Earthquake User Manual, Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.

LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

4.3.3. Flood Specific Care Facilities Table: flCareFlty

Identification:	flCareFlty				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Flood Model specific information of hospitals and medical clinics. During the creation of a study region, the table content is transferred to another table with the same name (flCareFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in flCareFlty for each record in hzCareFlty with same CareFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size)	Index*	Required*	Values	Description
CareFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this flCareFlty feature class with the associated hzCareFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
BldgType	Text(15)	F	F	Null, Masonry, Concrete, Wood, Steel, ManufHousing	General building type
DesignLevel	Text(1)	F	F	Null 0 = Pre-FIRM 1 = Post-FIRM	Design level (Pre/Post FIRM)
FoundationType	Text(1)	F	F	Null 1 = Basement 2 = Crawl 3 = Fill 4 = Pier 5 = Pile 6 = Slab 7 = SolidWall	Foundation type (e.g., slab, pile)
FirstFloorHt	Float(4) Single(4)	F	F		First floor height
BldgDamageFnld	Text(10)	F	F		Default building damage function id
ContDamageFnld	Text(10)	F	F		Default content damage function id
FloodProtection	Short(2) Integer(2)	F	F		Flood protection return period

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4.3.4. Emergency Operation Center Feature Class: hzEmergencyCtr

Identification:	hzEmergencyCtr				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to EF.mdb. Provides the geometry of EOCs. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named EF.mdb in the Region folder. Field information is transferred to a table with the same name (hzEmergencyCtr) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
EocId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this hzEmergencyCtr feature class with the associated eqEmergencyCtr and flEmergencyCtr tables. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
EfClass	Text(5)	T, NU, A	T, UC	EDFLT = Default EFEQ = Emergency Operation Centers See Appendix B, Table B-3	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ model.
Tract	Text(11)	T, NU, A	T	11 digits of the census tract number	11 digits of the census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Statea	Text(2)	F	F		USPS state abbreviation
Contact	Text(40)	F	F		Name of contact person for the facility
PhoneNumber	Text(14)	F	F		Phone number to contact the facility
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year the structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0 = No 1 = Yes	Availability of backup power
ShelterCapacity	Short(2) <i>Integer(2)</i>	F	F		Shelter capacity. This is for informational purposes only and is not used in any HAZUS-MH calculations. This is the total number of persons who can be sheltered in this facility

Area	Float(4) <i>Single(4)</i>	F	F		AHA hospital id number, if AHA data are used
Kitchen	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether a kitchen is available in the facility
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4.3.5. Earthquake Specific Emergency Center Table: eqEmergencyCtr

Identification:	eqEmergencyCtr				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Earthquake Model specific information of EOCs. During the creation of a study region, the table content is transferred to another table with the same name (eqEmergencyCtr) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqEmergencyCtr for each record in hzEmergencyCtr with same EocId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
EocId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqEmergencyCtr feature class with the associated hzEmergencyCtr in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B-2	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
FoundationType	Text(1)	F	T		Foundation type (e.g., slab, pile). This field is found in the table for future extensibility of the Earthquake Model, but does not need to be populated at this time.
SoilType	Text(1)	F	T	See Appendix B, Table B.1	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines structure location conditions. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.

LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

4.3.6. Flood Specific Emergency Center Facilities Table: flEmergencyCtr

Identification:	flEmergencyCtr				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Flood Model specific information of EOCs. During the creation of a study region, the table content is transferred to another table with the same name (flEmergencyCtr) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in flEmergencyCtr for each record in hzEmergencyCtr with same EocId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
EocId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this flEmergencyCtr feature class with the associated hzEmergencyCtr in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxx is a sequential number from 000001 to 999999.
BldgType	Text(15)	F	F	Null, Masonry, Concrete, Wood, Steel, ManufHousing	General building type
DesignLevel	Text(1)	F	F	Null 0 = Pre-FIRM 1 = Post-FIRM	Design level (Pre/Post FIRM)
FoundationType	Text(1)	F	F	Null 1 = Basement 2 = Crawl 3 = Fill 4 = Pier 5 = Pile 6 = Slab 7 = SolidWall	Foundation type (e.g., slab, pile)
FirstFloorHt	Float(4) <i>Single(4)</i>	F	F		First-floor height
BldgDamageFnld	Text(10)	F	F		Default building damage function id
ContDamageFnld	Text(10)	F	F		Default content damage function id
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood protection return period

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4.3.7. Fire Stations Feature Class: hzFireStation

Identification:	hzFireStation				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to EF.mdb. Provides the geometry of fire stations. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named EF.mdb in the Region folder. Field information is transferred to a table with the same name (hzFireStation) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
FireStationId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this hzFireStation feature class with the associated eqFireStation and flFireStation tables. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
EfClass	Text(5)	T, NU, A	T, UC	EDFLT = Default EFFS = Fire Station	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Statea	Text(2)	F	F		USPS state abbreviation
Contact	Text(40)	F	F		Contact name of person for the facility
PhoneNumber	Text(14)	F	F		Phone number to contact the facility
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0=No 1=Yes	Availability of backup power
ShelterCapacity	Short(2) <i>Integer(2)</i>	F	F		Shelter capacity. This is for informational purposes only and is not used in any HAZUS-MH calculations. This is the total number of persons who can be sheltered in this facility.

Area	Float(4) <i>Single(4)</i>	F	F		AHA hospital id number, if AHA data are used.
Kitchen	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether a kitchen is available in the facility.
NumTrucks	Short(2) <i>Integer(2)</i>	F	F		Number of fire trucks in a fire station
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4.3.8. Earthquake Specific Fire Stations Table: eqFireStation

Identification:	eqFireStation				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Earthquake Model specific information of fire stations. During the creation of a study region, the content of the table is transferred to another table with the same name (eqFireStation) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqFireStation for each record in hzFireStation with same FireStationId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
FireStationId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqFireStation feature class with the associated hzFireStation in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and, for detailed information about design levels.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the Earthquake Model but does not need to be populated at this time.
SoilType	Text(1)	F	T	See Appendix B, Table B.1	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines structure location conditions. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.

LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

4.3.9. Flood Specific Fire Station Facilities Table: flFireStation

Identification:	flFireStation				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Flood Model specific information of fire stations. During creation of a study region, the table content is transferred to another table with the same name (flFireStation) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in flFireStation for each record in hzFireStation with same FireStationId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
FireStationId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this flFireStation feature class with the associated hzFireStation in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
BldgType	Text(15)	F	F	Null, Masonry, Concrete, Wood, Steel, ManufHousing	General building type
DesignLevel	Text(1)	F	F	Null 0 = Pre-FIRM 1 = Post-FIRM	Design level (Pre/Post FIRM)
FoundationType	Text(1)	F	F	Null 1 = Basement 2 = Crawl 3 = Fill 4 = Pier 5 = Pile 6 = Slab 7 = SolidWall	Foundation type (e.g., slab, pile)
FirstFloorHt	Float(4) <i>Single(4)</i>	F	F		First-floor height
BldgDamageFnld	Text(10)	F	F		Default building damage function id
ContDamageFnld	Text(10)	F	F		Default content damage function id
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood protection return period

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4.3.10. Police Station Feature Class: hzPoliceStation

Identification:	hzPoliceStation				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to EF.mdb. Provides the geometry of police stations. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named EF.mdb in the Region folder. Field information is transferred to a table with the same name (hzPoliceStation) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PoliceStationId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this hzPoliceStation feature class with the associated eqPoliceStation and fIPoliceStation tables. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
EfClass	Text(5)	T, NU, A	T, UC	EDFLT = Default EFFS = Police Station See Appendix B, Table B.4	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Statea	Text(2)	F	F		USPS state abbreviation
Contact	Text(40)	F	F		Name of contact person for the facility
PhoneNumber	Text(14)	F	F		Phone number to contact the facility
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0 = No 1 = Yes	Availability of backup power
ShelterCapacity	Short(2) <i>Integer(2)</i>	F	F		Shelter capacity. This is for informational purposes only and is not used in any HAZUS-MH calculations. This is the total number of persons who can be sheltered in this facility.

Area	Float(4) <i>Single(4)</i>	F	F		AHA hospital id number, if AHA data are used.
Kitchen	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether a kitchen is available in the facility.
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4.3.11. Earthquake Specific Police Stations Table: eqPoliceStation

Identification:	eqPoliceStation				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Earthquake Model specific information of police stations. During the creation of a study region, the table content is transferred to another table with the same name (eqPoliceStation) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqPoliceStation for each record in hzPoliceStation with same PoliceStationId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PoliceStationId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqPoliceStation feature class with the associated hzPoliceStation in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the structure location conditions. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.

LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicator of the landslide susceptibility of the facility location. See Earthquake Technical Manual (Section, 4.2 Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

4.3.12. Flood Specific Police Station Facilities Table: flPoliceStation

Identification:	flPoliceStation				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Flood Model specific information of police stations. During the creation of a study region, the table content is transferred to another table with the same name (flPoliceStation) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in flPoliceStation for each record in hzPoliceStation with same PoliceStationId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PoliceStationId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this flPoliceStation feature class with the associated hzPoliceStation in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
BldgType	Text(15)	F	F	Null, Masonry, Concrete, Wood, Steel, ManufHousing	General building type
DesignLevel	Text(1)	F	F	Null 0 = Pre-FIRM 1 = Post-FIRM	Design level (Pre/Post FIRM)
FoundationType	Text(1)	F	F	Null 1 = Basement 2 = Crawl 3 = Fill 4 = Pier 5 = Pile 6 = Slab 7 = SolidWall	Foundation type (e.g., slab, pile)
FirstFloorHt	Float(4) <i>Single(4)</i>	F	F		First-floor height
BldgDamageFnld	Text(10)	F	F		Default building damage function id
ContDamageFnld	Text(10)	F	F		Default content damage function id
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood protection return period

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4.3.13. Schools Feature Class: hzSchool

Identification:	hzSchool				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to EF.mdb. Provides the geometry of schools, colleges, and universities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named EF.mdb in the Region folder. Field information is transferred to a table with the same name (hzSchool) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Schoold	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this hzSchool feature class with the associated eqSchool and flSchool tables. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
EfClass	Text(5)	T, NU, A	T, UC	EDFLT = Default EFS1 = Grade School EFS2 = College/ University	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the census tract number	Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Statea	Text(2)	F	F		USPS state abbreviation
Contact	Text(40)	F	F		Name of contact person for the facility
PhoneNumber	Text(14)	F	F		Phone number to contact the facility
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
NumStudents	Short(2) <i>Integer(2)</i>	F	F		Number of students in facility
BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0 = No 1 = Yes	Availability of backup power
ShelterCapacity	Short(2) <i>Integer(2)</i>	F	F		Shelter capacity. This is for informational purposes only and is not used in any HAZUS-MH calculations. This is the total number of persons who can be sheltered in this facility

Area	Float(4) <i>Single(4)</i>	F	F		AHA hospital id number, if AHA data are used
District	Text(30)	F	F		Name of school district
Kitchen	Short(1) Yes/No(1)	F	F	0=No 1=Yes	Indicates whether a kitchen is available in the facility
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

4.3.14. Earthquake Specific School Table: eqSchool

Identification:	eqSchool				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Earthquake Model specific information of schools, colleges, and universities. During the creation of a study region, the table content is transferred to another table with the same name (eqSchool) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqSchool for each record in hzSchool with same Schoold unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Schoold	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqSchool feature class with the associated hzSchool in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is found in the table for future extensibility of the earthquake model, but does not need to be populated at this time.
SoilType	Text(1)	F	T, UC	See Appendix B, table B-1	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines structure location conditions. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.

LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicator of the landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

4.3.15. Flood Specific Schools Facilities Table: flSchool

Identification:	flSchool				
Type:	ESRI Table				
Purpose:	Belongs to EF.mdb. Provides Flood Model specific information of schools, colleges, and universities. During the creation of a study region, the table content is transferred to another table with the same name (flSchool) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in flSchool for each record in hzSchool with same Schoold unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Schoold	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this flSchool feature class with the associated hzSchool in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
BldgType	Text(15)	F	F	Null, Masonry, Concrete, Wood, Steel, ManufHousing	General building type
DesignLevel	Text(1)	F	F	Null 0 = Pre-FIRM 1 = Post-FIRM	Design level (Pre/Post FIRM)
FoundationType	Text(1)	F	F	Null 1 = Basement 2 = Crawl 3 = Fill 4 = Pier 5 = Pile 6 = Slab 7 = SolidWall	Foundation type (e.g., slab, pile)
FirstFloorHt	Float(4) <i>Single(4)</i>	F	F		First-floor height
BldgDamageFnld	Text(10)	F	F		Default building damage function id
ContDamageFnld	Text(10)	F	F		Default content damage function id
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood protection return period

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5. Transportation Systems: TRN.mdb

5.1. Database Overview

The TRN.mdb is an Access personal geodatabase that contains feature *classes* for transportation systems with fields relevant to all hazards; it also contains *tables* with information specific to the EQ and FL Models. Transportation systems include:

- Highway segments, bridges, and tunnels
- Railway tracks, bridges, and tunnels
- Railway facilities
- Light rail tracks, bridges, and tunnels
- Light rail facilities
- Bus stations
- Ports
- Ferries
- Airports and runways

The geographical domain of the database is the state. In that case, there is one TRN.mdb database for each state, each located in the appropriate State folder.

The current version of the Flood Model provides only the level of damage to the bridge network and the subsequent bridge functionality. The Hurricane Model does not provide damage or loss estimates for transportation systems.

During the creation of a study region, for all hazards, transportation system geometries from feature classes are transferred to a geodatabase named TRN.mdb in the Region folder. Feature classes are named with the prefix *hz* that means that are relevant across

all HAZUS-MH Models. Highway bridges, for instance, are stored in *hzHighwayBridge* feature class with fields containing information common to all hazards, such as name and address. This information is transferred to a table with the same name (for highway bridges, *hzHighwayBridge*) in the SQL Server database in the Region folder.

Hazard specific tables are named with the prefix *eq* (earthquake) and *flood*, such as *eqHighwayBridge* and *floodHighwayBridge*. The information is transferred to tables with the same name in the SQL Server database in the Region folder. There is a one-to-one relationship between *hz* tables and the corresponding *eq* and *flood* tables through a unique identifier.

5.2. Identification

TRN.mdb

5.3. Database Content

The TRN.mdb database includes:

Name	Type	Content
hzAirportFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of airports related facilities. Airport transportation systems consist of control towers, runways, terminal buildings, parking structures, and fuel, maintenance, and hangar facilities.
hzBusFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of bus transportation facilities. Bus transportation systems consist of urban stations, fuel facilities, dispatch facilities, and maintenance facilities.
hzFerryFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of ferry facilities. Ferry systems consist of waterfront structures, passenger terminals, fuel facilities, dispatch facilities, and maintenance facilities.
hzHighwayBridge	ESRI Point Feature Class	Geometry (point features) and all-hazards information of highway bridges
hzHighwaySegment	ESRI Line Feature Class	Geometry (line features) and all-hazards information highways
hzHighwayTunnel	ESRI Point Feature Class	Geometry (point features) and all-hazards information of highway tunnels

hzLightRailBridge	ESRI Point Feature Class	Geometry (point features) and all-hazards information of light rail bridges
hzLightRailFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of light rail transportation facilities. Like railways, light rail systems are composed of tracks, bridges, tunnels, and facilities. The major difference between the two is the power supply, with light rail systems operating with DC power substations.
hzLightRailSegment	ESRI Line Feature Class	Geometry (line features) and all-hazards information of light rail tracks
hzLightRailTunnel	ESRI Point Feature Class	Geometry (point features) and all-hazards information of light rail tunnels
hzPortFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of port and harbor facilities
hzRailFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of railway transportation facilities
hzRailwayBridge	ESRI Point Feature Class	Geometry (point features) and all-hazards information of railway bridges
hzRailwaySegment	ESRI Line Feature Class	Geometry (line features) and all-hazards information of railway tracks
hzRailwayTunnel	ESRI Point Feature Class	Geometry (point features) and all-hazards information of railway tunnels
hzRunway	ESRI Point Feature Class	Geometry (point features) and all-hazards information of airport runways
eqAirportFlty	ESRI Table	Earthquake specific information for airports facilities
eqBusFlty	ESRI Table	Earthquake specific information for bus facilities
eqFerryFlty	ESRI Table	Earthquake specific information for ferry facilities
eqHighwayBridge	ESRI Table	Earthquake specific information for highway bridges
eqHighwaySegment	ESRI Table	Earthquake specific information for highway segments
eqHighwayTunnel	ESRI Table	Earthquake specific information for highway tunnels
eqLightRailBridge	ESRI Table	Earthquake specific information for light rail bridges
eqLightRailFlty	ESRI Table	Earthquake specific information for light rail facilities
eqLightRailSegment	ESRI Table	Earthquake specific information for light rail segments
eqLightRailTunnel	ESRI Table	Earthquake specific information for light rail tunnels
eqPortFlty	ESRI Table	Earthquake specific information for port and harbor facilities
eqRailFlty	ESRI Table	Earthquake specific information for railway facilities
eqRailwayBridge	ESRI Table	Earthquake specific information for railway bridges
eqRailwaySegment	ESRI Table	Earthquake specific information for railway segments
eqRailwayTunnel	ESRI Table	Earthquake specific information for railway tunnels
eqRunway	ESRI Table	Earthquake specific information for airport runways
flExposureTransport	ESRI Table	Flood specific table (not used and not required)
flHighwayBridge	ESRI Table	Flood specific information for highway bridges
flLightRailBridge	ESRI Table	Flood specific information for light rail bridges
flRailwayBridge	ESRI Table	Flood specific information for railway bridges

5.3.1. Airports Feature Class: hzAirportFlty

Identification:	hzAirportFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of airports. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (hzAirportFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type</i> (Size)	Index*	Required*	Values	Description
AirportFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzAirportFlty</i> feature class with the associated <i>eqAirportFlty</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
TranspFclyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.12.	Indicates facility classification. Used by HAZUS-MH to identify appropriate damage curve to assess loss estimations produced by the EQ model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact person
PhoneNumber	Text(14)	F	F		Facility contact phone number
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Cargo	Long(4) <i>Long Integer(4)</i>	F	F		Capacity of cargo that the facility handles (tons/day)

NumFlights	Short(2) <i>Integer(2)</i>	F	F		Capacity of flights per day that the facility can handle
NumPassengers	Short(2) <i>Integer(2)</i>	F	F		Number of passengers per day
BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0 = No 1 = Yes	Availability of backup power
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.2. Earthquake Specific Airports Table: eqAirportFlty

Identification:	eqAirportFlty				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of airports. During the creation of a study region, the table content is transferred to another table with the same name (eqAirportFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqAirportFlty for each record in hzAirportFlty with same AirportFltyId unique identifier				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
AirportFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqAirportFlty</i> feature class with the associated <i>hzAirportFlty</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines structure location conditions. This is based on shear wave velocity. See Appendix B, Table B.1, for details

LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2 Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2 Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.3. Bus Facilities Feature Class: hzBusFlty

Identification:	hzBusFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of bus transportation facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (hzBusFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
BusFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzBusFlty</i> feature class with the associated <i>eqBusFlty</i> table. The standard format adopted by HAZUS is SSxxxxx where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
TranspFltyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.9.	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F			Facility name
Address	Text(40)	F			Physical address
City	Text(40)	F			City
Statea	Text(2)	F			USPS state abbreviation
Zipcode	Text(10)	F			Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F			Facility owner name
Contact	Text(40)	F			Facility contact person
PhoneNumber	Text(14)	F			Facility contact phone number
Use	Text(10)	F			Use
YearBuilt	Short(2) <i>Integer(2)</i>	F		Null or (\geq 1500 and \leq 2100)	Year structure was built
Cost	Double(8) <i>Currency(8)</i>	F			Replacement cost (in thousands). This field is for informational purposes and has no bearing on any computation.

BackupPower	Short(1) <i>Yes/No(1)</i>	F		0 = No 1 = Yes	Availability of backup power
Traffic	Long(4) <i>Long Integer(4)</i>	F			Daily traffic (buses/day). This field is for informational purposes and has no bearing on any computation.
Latitude	Double(8) <i>Double(8)</i>	F	Y	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	Y	Longitude decimal degrees	Longitude
Comment	Text(40)	F			Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.4. Earthquake Specific Bus Facilities Table: eqBusFlty

Identification:	eqBusFlty				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of bus transportation facilities. During the creation of a study region, the table content is transferred to another table with the same name (eqBusFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqBusFlty for each record in hzBusFlty with same BusFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
BusFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqBusFlty</i> feature class with the associated <i>hzBusFlty</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines conditions of the structure location. This is based on shear wave velocity. See Appendix B, Table B.1, for details.

LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2 Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.5. Ferry Facilities Feature Class: **hzFerryFlty**

Identification:	hzFerryFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of ferry transportation system facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (hzFerryFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
FerryFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzFerryFlty</i> feature class with the associated <i>eqFerryFlty</i> table. The standard format adopted by HAZUS is SSxxxxx where SS is the State name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
TranspFclyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B-11.	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing the loss estimations produced by the EQ model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact person name
PhoneNumber	Text(14)	F	F		Contact person phone number
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories

Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands). This field is for informational purposes and has no bearing on any computation.
BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0=No 1=Yes	Availability of backup power
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Daily traffic (ferry/day). This field is for informational purposes and has no bearing on any computation
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique, NU=Non-Unique, A=Ascending, D=Descending; UC=Uppercase; LC=Lowercase

5.3.6. Earthquake Specific Ferry Facilities Table: eqFerryFlty

Identification:	eqFerryFlty				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of ferry transportation system facilities. During the creation of a study region, is transferred to a table with the same name (eqFerryFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqFerryFlty for each record in hzFerryFlty with same FerryFltyId unique identifier				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
FerryFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqFerryFlty feature class with the associated hzFerryFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for a complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether the facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the Earthquake Model, but does not need to be populated at this time.

SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions of the structure location. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.7. Highway Bridges Feature Class: *hzHighwayBridge*

Identification:	hzHighwayBridge				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of highway bridges. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzHighwayBridge</i>) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HighwayBridgeld	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzHighwayBridge</i> feature class with the associated <i>eqHighwayBridge</i> and <i>flHighwayBridge</i> tables. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
BridgeClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.6.	Indicates bridge classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess loss estimations produced by the EQ model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner name
BridgeType	Text(8)	F	F		Structural types based on the FHWA classification scheme in the source database. This field is for informational purposes and has no bearing on the computation of results.
Width	Double(8) Double(8)	F	F		Bridge width (in meters)
NumSpans	Short(1) Byte(1)	F	F		Number of spans
Length	Long(4) Long Integer(4)	F	F		Bridge length (in meters)
MaxSpanLength	Double(8) Double(8)	F	F		Maximum span length (in meters)
SkewAngle	Double(8) Double(8)	F	F		Skew angle (in degrees)

SeatLength	Double(8) <i>Double(8)</i>	F	F		Seat length (in meters)
SeatWidth	Double(8) <i>Double(8)</i>	F	F		Seat width (in meters)
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year built
YearRemodeled	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year remodeled
PierType	Text(10)	F	F		Pier type based on FHWA classification scheme in the source database
FoundationType	Text(1)	F	F		Foundation type based on FHWA classification scheme in the source database.
ScourIndex	Text(1)	F	F		This field is significant for flood analysis, and is the second part of the bridge specific occupancy in the bridge damage function tables ¹ . This field is not used in the EQ or HU Model calculations.
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (cars per day)
TrafficIndex	Text(2)	F	F		Traffic index
Condition	Text(3)	F	F		General condition rating based on the FHWA classification scheme in the source database
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

¹ If the bridge is considered inundated then, the scour index is checked. If the scour index is in (4, 5, 6, 7, 8, 9, T, N) then no analysis is performed as the engineering study has determined that the bridge will not be subjected to scour. If the scour index is in (U, 1, 2, 3) then an analysis must be performed.

5.3.8. Earthquake Specific Highway Bridge Table: eqHighwayBridge

Identification:	eqHighwayBridge				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of highway bridges. During the creation of a study region, the table content is transferred to another table with the same name (eqHighwayBridge) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqHighwayBridge for each record in hzHighwayBridge with same HighwayBridgeld unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HighwayBridgeld	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqHighwayBridge feature class with the associated hzHighwayBridge in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) Byte(1)	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) Single(4)	F	F	Null or ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.9. Flood Specific Highway Bridge Table: fHighwayBridge

Identification:	fHighwayBridge				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Flood Model specific information of highway bridges. During the creation of a study region, the content of the table is transferred to another table with the same name (fHighwayBridge) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fHighwayBridge for each record in hzHighwayBridge with same HighwayBridgeld unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HighwayBridgeld	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fHighwayBridge feature class with the associated hzHighwayBridge in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
Elevation	Double(8) <i>Double(8)</i>	F	F		Elevation of bridge deck
<small>* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase</small>					

5.3.10. Highway Roads Feature Class: hzHighwaySegment

Identification:		hzHighwaySegment			
Type:		ESRI Line Feature Class			
Purpose:		Belongs to TRN.mdb. Provides the geometry of highway roads. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Fields information is transferred to a table with the same name (hzHighwaySegment) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.			
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HighwaySegId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzHighwaySegment</i> feature class with the associated <i>eqHighwaySegment</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the State name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
SegmentClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.6.	Indicates highway road classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess the loss estimations produced by the EQ model.
CountyFips	Text(5)	T, NU, A	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner name
Length	Short(2) <i>Integer(2)</i>	F	F		Highway segment length (in kilometers)
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (cars per day)
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
NumLanes	Short(2) <i>Integer(2)</i>	F	F		Number of lanes
Pavement	Text(10)	F	F		Pavement type based on the FHWA classification scheme in the source database. This field is for informational purposes and has no bearing on the computation of results.

Width	Double(8) <i>Double(8)</i>	F	F		Highway segment width (in meters)
Capacity	Long(4) <i>Long Integer(4)</i>	F	F		Daily capacity (cars/day)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.11. Earthquake Specific Highway Roads Table: eqHighwaySegment

Identification:	eqHighwaySegment				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of highway roads. During the creation of a study region, the table content is transferred to a table with the same name (eqHighwaySegment) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqHighwaySegment for each record in hzHighwaySegment with same HighwaySegId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HighwaySegId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqHighwaySegment feature class with the associated hzHighwaySegment in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.12. Highway Tunnel Feature Class: *hzHighwayTunnel*

Identification:		<i>hzHighwayTunnel</i>			
Type:		ESRI Point Feature Class			
Purpose:		Belongs to TRN.mdb. Provides the geometry of highway tunnels. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzHighwayTunnel</i>) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.			
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HighwayTunnelId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzHighwayTunnel</i> feature class with the associated <i>eqHighwayTunnel</i> table. The standard format adopted by HAZUS is SSxxxxx where SS is the State name abbreviation (Upper case) and xxxxx is a sequential number from 000001 to 999999.
TunnelClass	Text(5)	T, NU, A	T, UC	See Appendix 6, Table B.6.	Indicates tunnel classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner name
Type	Text(5)	F	F		Structural types based on the FHWA classification scheme in the source database. This field is for informational purposes and has no bearing on the computation of results.
Width	Double(8) <i>Double(8)</i>	F	F		Bridge width (in meters)
Length	Long(4) <i>Long Integer(4)</i>	F	F		Bridge length (in meters)
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (cars per day)
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)

Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.13. Earthquake Specific Highway Tunnel Table: eqHighwayTunnel

Identification:	eqHighwayTunnel				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of highway tunnels. During the creation of a study region, the table content is transferred to a table with the same name (eqHighwayTunnel) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqHighwayTunnel for each record in hzHighwayTunnel with same HighwayTunnelId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HighwayTunnelId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqHighwayTunnel</i> feature class with the associated <i>hzHighwayTunnel</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
SoilType	Text(1)	N	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines structure location conditions. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) Byte(1)	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) Single(4)	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.14. Light Rail Bridges Feature Class: **hzLightRailBridge**

Identification:	hzLightRailBridge				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of light rail bridges. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (hzLightRailBridge) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
LightRailBridgeld	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzLightRailBridge</i> feature class with the associated <i>eqLightRailBridge</i> and <i>flLightRailBridge</i> tables. The standard format adopted by HAZUS is SSxxxxxx, where SS is the State name abbreviation (Upper case) and xxxxxx is a sequential number from 000001 to 999999.
BridgeClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.8.	Indicates bridge classification. It is used by HAZUS-MH to identify appropriate damage curve to assess the loss estimations produced by the EQ model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner name
BridgeType	Text(8)	F	F		Structural types based on the FHWA classification scheme in the source database. This field is for informational purposes and has no bearing on the computation of results.
Width	Double(8) <i>Double(8)</i>	F	F		Bridge width (in meters)
NumSpans	Short(1) <i>Byte(1)</i>	F	F		Number of spans
Length	Long(4) <i>Long Integer(4)</i>	F	F		Bridge length (in meters)
MaxSpanLength	Double(8) <i>Double(8)</i>	F	F		Maximum span length (in meters)
SkewAngle	Double(8) <i>Double(8)</i>	F	F		Skew angle (in degrees)

SeatLength	Double(8) <i>Double(8)</i>	F	F		Seat length (in meters)
SeatWidth	Double(8) <i>Double(8)</i>	F	F		Seat width (in meters)
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year built
YearRemodeled	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year remodeled
PierType	Text(10)	F	F		Pier type based on FHWA classification scheme in the source database
FoundationType	Text(1)	F	F		Foundation type based on FHWA classification scheme in the source database
ScourIndex	Text(1)	F	F		This field is significant to flood analysis and is the second part of the bridge specific occupancy in the bridge damage function tables ² . This field is not used in the earthquake or hurricane model calculations.
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (trains/day)
TrafficIndex	Text(2)	F	F		Traffic index
Condition	Text(3)	F	F		General condition rating based on FHWA classification scheme in the source database
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

² If the bridge is considered inundated then, the scour index is checked. If the scour index is in (4, 5, 6, 7, 8, 9, T, N) then no analysis is performed as the engineering study has determined that the bridge will not be subjected to scour. If the scour index is in (U, 1, 2, 3) then an analysis must be performed.

5.3.15. Earthquake Specific Light Rail Bridge Table: eqLightRailBridge

Identification:	eqLightRailBridge				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of light rail bridges. During the creation of a study region, the table content is transferred to another table with the same name (eqLightRailBridge) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqLightRailBridge for each record in hzLightRailBridge with same LightRailBridgeld unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
LightRailBridgeld	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqLightRailBridge feature class with the associated hz in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) Byte(1)	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) Single(4)	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.16. Flood Specific Light Rail Bridge Table: fILightRailBridge

Identification:	fILightRailBridge				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Flood Model specific information of light rail bridges. During the creation of a study region, the table content is transferred to a table with the same name (fILightRailBridge) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fILightRailBridge for each record in hzLightRailBridge with same LightRailBridgeId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
LightRailBridgeId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>fILightRailBridge</i> feature class with the associated <i>hzLightRailBridge</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
Elevation	Double(8) <i>Double(8)</i>	F	F		Elevation of bridge deck
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.17. Light Rail Facility Feature Class: *hzLightRailFlty*

Identification:	<i>hzLightRailFlty</i>				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of light rail facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzLightRailFlty</i>) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
LightRailFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzLightRailFlty</i> feature class with the associated <i>eqLightRailFlty</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
TranspFctyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.8.	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Owner name of the facility
Contact	Text(40)	F	F		Contact name of person for the facility
PhoneNumber	Text(14)	F	F		Phone number to contact the facility
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)

BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0 = No 1=Yes	Availability of backup power
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (trains/day)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.18. Earthquake Specific Light Rail Facilities Table: eqLightRailFlty

Identification:	eqLightRailFlty				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of light rail facilities. During the creation of a study region, the table content is transferred to a table with the same name (eqLightRailFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqLightRailFlty for each record in hzLightRailFlty with same LightRailFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
LightRailFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqLightRailFlty feature class with the associated hzLightRailFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether the facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the Earthquake Model, but does not need to be populated at this time.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels

SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, of the Earthquake User Manual for details.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.19. Light Rail Tracks Feature Class: *hzLightRailSegment*

Identification:		<i>hzLightRailSegment</i>			
Type:		ESRI Line Feature Class			
Purpose:		Belongs to TRN.mdb. Provides the geometry of light rail tracks. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzLightRailSegment</i>) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.			
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
LightRailSegId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzLightRailSegment</i> feature class with the associated <i>eqLightRailSegment</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
SegmentClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.8.	Indicates highway road classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess the loss estimations produced by the EQ Model.
CountyFips	Text(5)	T, NU, A	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
Name	Text(40)	F	F		Track segment name
Owner	Text(25)	F	F		Owner of track segment
Length	Short(2) <i>Integer(2)</i>	F	F		Section length (in kms)
NumTracks	Short(1) <i>Byte(1)</i>	F	F		Number of tracks
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (trains/day)
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Comment	Text(40)	F	F		Comments
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.20. Earthquake Specific Light Rail Tracks Table: eqLightRailSegment

Identification:	eqLightRailSegment				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of highway roads. During the creation of a study region, the table content is transferred to another table with the same name (eqLightRailSegment) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqLightRailSegment for each record in hzLightRailSegment with same LightRailSegId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
LightRailSegId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqLightRailSegment</i> feature class with the associated <i>hzLightRailSegment</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
<small>* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase</small>					

5.3.21. Light Rail Tunnel Feature Class: *hzLightRailTunnel*

Identification:		<i>hzLightRailTunnel</i>			
Type:		ESRI Point Feature Class			
Purpose:		Belongs to TRN.mdb. Provides the geometry of light rail tunnels. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzLightRailTunnel</i>) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.			
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type</i> (Size)	Index*	Required*	Values	Description
LightRailTunnelId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzLightRailTunnel</i> feature class with the associated <i>eqLightRailTunnel</i> table. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
TunnelClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.8.	Indicates tunnel classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner name
Type	Text(5)	F	F		Structural types based on FHWA classification scheme in the source database. This field is for informational purposes and has no bearing on the computation of results.
Width	Double(8) <i>Double(8)</i>	F	F		Bridge width (in meters)
Length	Long(4) <i>Long Integer(4)</i>	F	F		Bridge length (in meters)
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (trains/day)
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)

Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.22. Earthquake Specific Light Rail Tunnel Table: eqLightRailTunnel

Identification:	eqLightRailTunnel				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of light rail tunnels. During the creation of a study region, the table content is transferred to a table with the same name (eqLightRailTunnel) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqLightRailTunnel for each record in hzLightRailTunnel with same LightRailTunnelId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
LightRailTunnelId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqLightRailTunnel feature class with the associated hzLightRailTunnel in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1 for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) Byte(1)	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) Single(4)	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.23. Port and Harbor Facilities Feature Class: hzPortFlty

Identification:	hzPortFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of ports and harbors facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (hzPortFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PortFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzPortFlty</i> feature class with the associated <i>eqPortFlty</i> table. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
TranspFltyClass	Text(5)	T, NU, A	T, UC	See Appendix B, table B-10	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess the loss estimations produced by the EQ model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact name
PhoneNumber	Text(14)	F	F		Facility contact phone number
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year structure was built
BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0 = No 1 = Yes	Availability of backup power
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)

Capacity	Long(4) <i>Long Integer(4)</i>	F	F		Capacity (tons/day)
NumBerths	Short(2) <i>Integer(2)</i>	F	F		Number of berths
NumCranes	Short(2) <i>Integer(2)</i>	F	F		Number of cranes
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.24. Earthquake Specific Care Facilities Table: eqPortFlty

Identification:	eqPortFlty				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of ports and harbors facilities. During the creation of a study region, the table content is transferred to another table with the same name (eqPortFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqPortFlty for each record in hzPortFlty with same PortFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PortFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqPortFlty</i> feature class with the associated <i>hzPortFlty</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, of the Earthquake User Manual for details.

LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.25. Railway Facility Feature Class: hzRailFty

Identification:	hzRailFty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of railway transportation facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (hzRailFty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RailFtyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzRailFty</i> feature class with the associated <i>eqRailFty</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
TranspFcityClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B-7	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess the loss estimations produced by the EQ Model
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact name
PhoneNumber	Text(14)	F	F		Facility phone number
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)

BackupPower	Short(1) <i>Yes/No(1)</i>	F	F	0 = No 1 = Yes	Availability of backup power
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (trains/day)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.26. Earthquake Specific Railway Facilities Table: eqRailFlty

Identification:	eqRailFlty				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of light rail facilities. During the creation of a study region, the content of the table is transferred to a table with the same name (eqRailFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqLightRailFlty for each record in hzRailFlty with same RailFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RailFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqRailFlty feature class with the associated hzRailFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is found in the table for future extensibility of the EQ Model, but does not need to be populated at this time.

SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.27. Railway Bridges Feature Class: *hzRailwayBridge*

Identification:	hzRailwayBridge				
Type:	ESRI Point Feature Class				
Purpose	Belongs to TRN.mdb. Provides the geometry of railway bridges. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzRailwayBridge</i>) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RailwayBridgeld	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzRailwayBridge</i> feature class with the associated <i>eqRailwayBridge</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
BridgeClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.7.	Indicates bridge classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess the loss estimations produced by the EQ Model
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner name
BridgeType	Text(8)	F	F		Structural types based on the FHWA classification scheme in the source database. This field is for informational purposes and has no bearing on the computation of results.
Width	Double(8) <i>Double(8)</i>	F	F		Bridge width (in meters)
NumSpans	Short(1) <i>Byte(1)</i>	F	F		Number of spans
Length	Long(4) <i>Long Integer(4)</i>	F	F		Bridge length (in meters)
MaxSpanLength	Double(8) <i>Double(8)</i>	F	F		Maximum span length (in meters)
SkewAngle	Double(8) <i>Double(8)</i>	F	F		Skew angle in degrees

SeatLength	Double(8) <i>Double(8)</i>	F	F		Seat length (in meters)
SeatWidth	Double(8) <i>Double(8)</i>	F	F		Seat width (in meters)
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year built
YearRemodeled	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year remodeled
PierType	Text(10)	F	F		Pier type based on FHWA classification scheme in the source database
FoundationType	Text(1)	F	F		Foundation type based on FHWA classification scheme in the source database
ScourIndex	Text(1)	F	F		This field is significant to flood analysis and is the second part of the bridge specific occupancy in the bridge damage function tables ³ . This field is not used in the EQ or HU Model calculations
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (trains/day)
TrafficIndex	Text(2)	F	F		Traffic index
Condition	Text(3)	F	F		General condition rating based on the FHWA classification scheme in the source database
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

³ If the bridge is considered inundated then, the scour index is checked. If the scour index is in (4, 5, 6, 7, 8, 9, T, N) then no analysis is performed as the engineering study has determined that the bridge will not be subjected to scour. If the scour index is in (U, 1, 2, 3) then an analysis must be performed.

5.3.28. Earthquake Specific Railway Bridge Table: eqRailwayBridge

Identification:	eqRailwayBridge				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of railway bridges. During the creation of a study region, the table content is transferred to a table with the same name (eqRailwayBridge) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqRailwayBridge for each record in hzRailwayBridge with same RailwayBridgeld unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RailwayBridgeld	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqRailwayBridge feature class with the associated hz in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) Byte(1)	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) Single(4)	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.29. Flood Specific Railway Bridge Table: fIRailwayBridge

Identification:	fIRailwayBridge				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Flood Model specific information of railway bridges. During the creation of a study region, the table content is transferred to a table with the same name (fIRailwayBridge) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fIRailwayBridge for each record in hzRailwayBridge with same RailwayBridgeld unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RailwayBridgeld	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fIRailwayBridge feature class with the associated hzRailwayBridge in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
Elevation	Double(8) <i>Double(8)</i>	F	F		Elevation of bridge deck
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.30. Railway Tracks Feature Class: **hzRailwaySegment**

Identification:	hzRailwaySegment				
Type:	ESRI Line Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of railway tracks. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (hzRailwaySegment) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RailwaySegId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzRailwaySegment</i> feature class with the associated <i>eqRailwaySegment</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
SegmentClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.7.	Indicates highway road classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess loss estimations produced by the EQ Model
CountyFips	Text(5)	T, NU, A	T		Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
Name	Text(40)	F	F		Track segment name
Owner	Text(25)	F	F		Track segment owner
Length	Short(2) <i>Integer(2)</i>	F	F		Section length (in kms)
NumTracks	Short(1) <i>Byte(1)</i>	F	F		Number of tracks
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (trains/day)
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Comment	Text(40)	F	F		Comments
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.31. Earthquake Specific Railway Tracks Table: eqRailwaySegment

Identification:	eqRailwaySegment				
Type:	ESRI Table				
Purpose	Belongs to TRN.mdb. Provides Earthquake Model specific information of railway tracks. During the creation of a study region, the table content is transferred to a table with the same name (eqRailwaySegment) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqRailwaySegment for each record in hzRailwaySegment with same RailwaySegId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size)	Index*	Required*	Values	Description
RailwaySegId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqRailwaySegment</i> feature class with the associated <i>hzRailwaySegment</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999
<small>* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase</small>					

5.3.32. Railway Tunnel Feature Class: hzRailwayTunnel

Identification:	hzRailwayTunnel				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of railway tunnels. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (hzRailwayTunnel) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RailwayTunnelId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzRailwayTunnel</i> feature class with the associated <i>eqRailwayTunnel</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
TunnelClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.7.	Indicates tunnel classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner name
Type	Text(5)	F	F		Structural types based on the FHWA classification scheme in the source database. This field is for informational purposes and has no bearing on the computation of results.
Width	Double(8) <i>Double(8)</i>	F	F		Bridge width (in meters)
Length	Long(4) <i>Long Integer(4)</i>	F	F		Bridge length (in meters)
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year structure was built
Traffic	Long(4) <i>Long Integer(4)</i>	F	F		Average daily traffic (trains/day)
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)

Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

5.3.33. Earthquake Specific Railway Tunnel Table: eqRailwayTunnel

Identification:	eqRailwayTunnel				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of railway tunnels. During the creation of a study region, the table content is transferred to a table with the same name (eqRailwayTunnel) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqRailwayTunnel for each record in hzRailwayTunnel with same RailwayTunnelId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RailwayTunnelId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqRailwayTunnel feature class with the associated hzRailwayTunnel in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) Byte(1)	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) Single(4)	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.34. Airport Runways Feature Class: *hzRunway*

Identification:	hzRunway				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to TRN.mdb. Provides the geometry of airport runways location. There are one or more runway records for each record in <i>hzAirportFlty</i> feature class. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named TRN.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzRunway</i>) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RunwayId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzRunway</i> feature class with the associated <i>eqRunway</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
TranspFctyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.12.	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Name of runway
AirportId	Text(8)	F	F		The AirportId value in <i>hzAirportFlty</i> feature class to what the record is related
RunwayLength	Double(8) <i>Double(8)</i>	F	F		Runway length (in meters)
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Capacity	Long(4) <i>Long Integer(4)</i>	F	F		Capacity (flights/day)
Pavement	Text(10)	F	F		Pavement type
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

5.3.35. Earthquake Specific Airports Runway Table: eqRunway

Identification:	eqRunway				
Type:	ESRI Table				
Purpose:	Belongs to TRN.mdb. Provides Earthquake Model specific information of airports. During the creation of a study region, the table content is transferred to a table with the same name (eqRunway) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqRunway for each record in hzRunway with same RunwayId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
RunwayId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqRunway feature class with the associated hzRunway in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) Byte(1)	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) Byte(1)	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) Single(4)	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6. Lifeline Utility Systems: UTIL.mdb

6.1. Database Overview

The UTIL.mdb is an Access personal geodatabase that contains feature *classes* for lifeline utility systems with fields relevant for all hazards; it also contains *tables* with information specific to the Earthquake and Flood Models. Lifeline utility systems include potable water, wastewater, oil, natural gas, electric power, and communication systems.

The geographical domain of the database is the state. In that case, there is one UTIL.mdb database for each state, each located in the appropriate State folder.

The current version of the Flood Model does not provide damage or loss estimates for communication systems.

During the creation of a study region, for all hazards, utility systems geometries from feature classes are transferred to a geodatabase named UTIL.mdb in the Region folder. Feature classes are named with the prefix *hz*, meaning they are relevant across all HAZUS-MH Models. Potable water facilities, for instance, are stored in the *hzPotableWaterFlty* feature class with fields containing information common to all hazards, such as name and address. This information is transferred to a table with the same name (for potable water facilities, *hzPotableWaterFlty*) in the SQL Server database in the Region folder.

Hazard specific tables are named with the prefix *eq* (earthquake) and *flood*: *eqPotableWaterFlty* and *floodPotableWaterFlty*. The information is transferred to tables with the same name in the SQL Server database in the Region folder. There is a one-to-one relationship between *hz* tables and the corresponding *eq* and *flood* tables through a unique identifier.

6.2. Identification

UTIL.mdb

6.3. Database Content

The UTIL.mdb database includes:

Name	Type	Content
hzCommunicationFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of communication related facilities. A communication facilities system consists of central offices, stations, and transmitters
hzElectricPowerFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of electric power facilities. An electric power facilities system consists of substations, distribution circuits, generation plants, and transmission towers.
hzNaturalGasFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of natural gas compressor stations
hzNaturalGasPl	ESRI Line Feature Class	Geometry (line features) and all-hazards information of natural gas pipelines
hzOilFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information for oil system facilities including refineries, pumping plants, and tank farms
hzOilPl	ESRI Line Feature Class	Geometry (line features) and all-hazards information of oil pipelines
hzPotableWaterFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of potable water facilities including water treatment plants, wells, storage tanks, and pumping stations
hzPotableWaterPl	ESRI Line Feature Class	Geometry (line features) and all-hazards information of potable water pipelines
hzWasteWaterFlty	ESRI Point Feature Class	Geometry (point features) and all-hazards information of wastewater facilities including wastewater treatment plants and lift stations
hzWasteWaterPl	ESRI Line Feature Class	Geometry (line features) and all-hazards information of wastewater pipelines
eqCommunicationFlty	ESRI Table	Earthquake specific information for communication related facilities
eqElectricPowerFlty	ESRI Table	Earthquake specific information for electric power facilities
eqNaturalGasDL	ESRI Table	Earthquake specific information for natural gas distribution pipelines by census tract
eqNaturalGasFlty	ESRI Table	Earthquake specific information for natural gas facilities
eqNaturalGasPl	ESRI Table	Earthquake specific information for natural gas pipelines
eqOilFlty	ESRI Table	Earthquake specific information for oil facilities
eqOilPl	ESRI Table	Earthquake specific information for airport oil pipelines
eqPotableWaterDL	ESRI Table	Earthquake specific information for potable water distribution pipelines by census tract
eqPotableWaterFlty	ESRI Table	Earthquake specific information for potable water facilities
eqPotableWaterPl	ESRI Table	Earthquake specific information for potable water pipelines
eqWasteWaterDL	ESRI Table	Earthquake specific information for wastewater distribution pipelines by census tract
eqWasteWaterFlty	ESRI Table	Earthquake specific information for wastewater facilities
eqWasteWaterPl	ESRI Table	Earthquake specific information for wastewater pipelines
flElectricPowerFlty	ESRI Table	Flood specific information for electric power facilities
flExposureUtil	ESRI Table	Flood specific table (not used and not required)

flNaturalGasFlty	ESRI Table	Flood specific information natural gas facilities
flNaturalGasPI	ESRI Table	Flood specific information for natural gas pipelines
flOilFlty	ESRI Table	Flood specific information for oil facilities
flOilPI	ESRI Table	Flood specific information for oil pipelines
flPotableWaterFlty	ESRI Table	Flood specific information for potable water facilities
flPotableWaterPI	ESRI Table	Flood specific information for potable water pipelines
flWasteWaterFlty	ESRI Table	Flood specific information for wastewater facilities
flWasteWaterPI	ESRI Table	Flood specific information for wastewater pipelines

6.3.1. Communication Facilities Feature Class: **hzCommunicationFlty**

Identification:	hzCommunicationFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of communication facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzCommunicationFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
CommunicationFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzCommunicationFlty</i> feature class with the associated <i>eqCommunicationFlty</i> table. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
UtilFltyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.18.	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact name
PhoneNumber	Text(14)	F	F		Facility contact phone number
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer</i> (2)	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
Cost	Double(8) <i>Currency</i> (8)	F	F		Replacement cost (in thousands)
BackupPower	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Availability of backup power

Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.2. Earthquake Specific Communication Facilities Table: eqCommunicationFlty

Identification:	eqCommunicationFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of communication facilities. During the creation of a study region, the table content is transferred to a table with the same name (eqCommunicationFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqCommunicationFlty for each record in hzCommunicationFlty with same CommunicationFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size)	Index*	Required*	Values	Description
Access Type (Size)					
CommunicationFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqCommunicationFlty feature class with the associated hzCommunicationFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based upon shear wave velocity. See Appendix B, Table B.1, for details.

Anchor	Short(1) <i>Yes/No(1)</i>	F	F	0 = No 1 = Yes	Indicates whether the facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the Earthquake Model, but does not need to be populated at this time.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.3. Electric Power Facilities Feature Class: hzElectricPowerFlty

Identification:	hzElectricPowerFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of electric power facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzElectricPowerFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
ElectricPowerFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzElectricPowerFlty</i> feature class with the associated <i>eqElectricPowerFlty</i> and <i>fIElectricPowerFlty</i> tables. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
UtilFltyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.17.	Indicates the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact person
PhoneNumber	Text(14)	F	F		Facility contact phone number
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Capacity	Long(4) <i>Long Integer(4)</i>	F	F		Volts/Watts

Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.4. Earthquake Specific Electric Power Facilities Table: eqElectricPowerFlty

Identification:	eqElectricPowerFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of electric power facilities. During the creation of a study region, the table content is transferred to a table with the same name (eqElectricPowerFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqElectricPowerFlty for each record in hzElectricPowerFlty with same ElectricPowerFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size)	Index*	Required*	Values	Description
Access Type (Size)					
ElectricPowerFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqElectricPowerFlty feature class with the associated hzElectricPowerFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time

SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based upon shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	N	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.5. Flood Specific Electric Power Facilities Table: fElectricPowerFlty

Identification:	fElectricPowerFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of electric power facilities. During the creation of a study region, the table content is transferred to a table with the same name (fElectricPowerFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fElectricPowerFlty for each record in hzElectricPowerFlty with same ElectricPowerFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
ElectricPowerFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fElectricPowerFlty feature class with the associated hzElectricPowerFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
UtilIndicator	Short(2) <i>Integer(2)</i>	F	F		Utility Indicator. This field is not used in the current version (MR3) of HAZUS-MH.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile)
EquipmentHt	Double(8) <i>Currency(8)</i>	F	F		Average height of electrical equipment (measured in feet from the floor)
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood return period (in years) for which the structure is protected
UtilDamageFnld	Text(10)	F	F		Originally intended to allow users to define facility specific damage curves. Utility damage functions are not used in version MR3 of HAZUS.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.6. Natural Gas Facilities Feature Class: hzNaturalGasFity

Identification:	hzNaturalGasFity				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of natural gas facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzNaturalGasFity) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
NaturalGasFityId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzNaturalGasFity</i> feature class with the associated <i>eqNaturalGasFity</i> and <i>fNaturalGasFity</i> tables. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
UtilFcltyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.16.	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing the loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Name of the facility owner
Contact	Text(40)	F	F		Name of contact person for the facility
PhoneNumber	Text(14)	F	F		Phone number to contact the facility
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year the structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)

BackupPower	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Availability of backup power
Capacity	Float(4) <i>Single(4)</i>	F	F		Millions of cubic feet per day
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude Decimal Degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.7. Earthquake Specific Natural Gas Facilities Table: eqNaturalGasFlty

Identification:	eqNaturalGasFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of natural gas facilities. During the creation of a study region, the content of the table is transferred to a table with the same name (eqNaturalGasFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqNaturalGasFlty for each record in hzNaturalGasFlty with same NaturalGasFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
NaturalGasFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqNaturalGasFlty feature class with the associated hzNaturalGasFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2 for the complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether the facility is anchored to provide additional resistance to seismic forces.

FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the EQ Model, but does not need to be populated at this time.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.8. Flood Specific Natural Gas Facilities Table: fINaturalGasFlty

Identification:	fINaturalGasFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of natural gas facilities. During the creation of a study region, the table content is transferred to a table with the same name (fINaturalGasFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fINaturalGasFlty for each record in hzNaturalGasFlty with same NaturalGasFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
NaturalGasFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fINaturalGasFlty feature class with the associated hzNaturalGasFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (Upper case) and xxxxx is a sequential number from 000001 to 999999.
UtilIndicator	Short(2) <i>Integer(2)</i>	F	F		Utility Indicator. This field is not used in the current version MR3 of HAZUS-MH.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile)
EquipmentHt	Double(8) <i>Currency(8)</i>	F	F		Average height of electrical equipment (measured in feet from the floor)
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood return period (in years) for which the structure is protected.
UtilDamageFnld	Text(10)	F	F		Originally intended to allow users to define facility specific damage curves. Utility damage functions are not used in version MR3 of HAZUS-MH.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.9. Natural Gas Pipelines Feature Class: hzNaturalGasPI

Identification:	hzNaturalGasPI				
Type:	ESRI Line Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of natural gas pipelines. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzNaturalGasPI) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type(Size)</i>	Index*	Required*	Values	Description
NaturalGasPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzNaturalGasPI</i> feature class with the associated <i>eqNaturalGasPI</i> and <i>flNaturalGasPI</i> tables. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxx is a sequential number from 000001 to 999999.
PipelinesClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.16.	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve to assess the loss estimations produced by the EQ Model.
CountyFips	Text(5)	T, NU, A	T	Five digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three are digits the county code.
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner
Material	Text(10)	F	F		Material type
Diameter	Double(8) <i>Currency(8)</i>	F	F		Diameter (in inches)
PipeLength	Float(4) <i>Single(4)</i>	F	F		Length of the segment (in kms)
Joint	Text(10)	F	F		Join type
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year the structure was built
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
SourceId	Long(4) <i>Long Integer(4)</i>	F	F		Identification of the source
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.10. Earthquake Specific Natural Gas Pipeline Table: eqNaturalGasPI

Identification:	eqNaturalGasPI				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of natural gas pipelines. It includes the unique id (NaturalGasPIId) for each record in hzNaturalGasPI. During the creation of a study region, the table content is transferred to a table with the same name (eqNaturalGasPI) in the SQL Server database in the Region folder. The SQL server table includes additional fields that are populated subsequently. There must be one record in eqNaturalGasPI for each record in hzNaturalGasPI with same NaturalGasPLId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
NaturalGasPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqNaturalGasPI</i> feature class with the associated <i>hzNaturalGasPI</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.11. Flood Specific Natural Gas Pipeline Table: fINaturalGasPI

Identification:	fINaturalGasPI				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of natural gas pipelines. During the creation of a study region, the table content is transferred to another table with the same name (fINaturalGasPI) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fINaturalGasPI for each record in hzNaturalGasPI with same NaturalGasPId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type(Size) Access Type(Size)	Index*	Required*	Values	Description
NaturalGasPId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fINaturalGasPI feature class with the associated hzNaturalGasPI in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
SystemId	Text(5)	F	F		Utility indicator. This field is not used in the current version MR3 of HAZUS-MH.
VulnerabilityToScour	Text(10)	F	F		Vulnerability to scour. Field for future development.
IDUpperJunction	Short(2) <i>Integer(2)</i>	F	F		Field for future development
IDLowerJunction	Short(2) <i>Integer(2)</i>	F	F		Field for future development
DamageFnId	Text(10)	F	F		Field for future development

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.12. Oil Facilities Feature Class: hzOilFlty

Identification:	hzOilFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of Oil facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzOilFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type(Size)	Index*	Required*	Values	Description
OilFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzOilFlty</i> feature class with the associated <i>eqOilFlty</i> and <i>fOilFlty</i> tables. The standard format adopted by HAZUS is SSxxxxx where SS is the state name abbreviation (upper case) and xxxxx, is a sequential number from 000001 to 999999.
UtilFltyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.15.	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact
PhoneNumber	Text(14)	F	F		Facility phone number
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year the structure was built
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
BackupPower	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Availability of backup power

Capacity	Float(4) <i>Single(4)</i>	F	F		Thousands of barrels per day
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.13. Earthquake Specific Oil Facilities Table: eqOilFlty

Identification:	eqOilFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of oil facilities. During the creation of a study region, the table content is transferred to a table with the same name (eqOilFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqOilFlty for each record in hzOilFlty with same OilFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
OilFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqOilFlty feature class with the associated hzOilFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for the complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether the facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.

SoilType	Text(1)	F	T, UC	See Appendix B, Table B-1	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based upon shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.14. Flood Specific Oil Facilities Table: fOilFlty

Identification:	fOilFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of oil facilities. During the creation of a study region, the table content is transferred to a table with the same name (fOilFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fOilFlty for each record in hzOilFlty with same OilFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
OilFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fOilFlty feature class with the associated hzOilFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
UtilIndicator	Short(2) <i>Integer(2)</i>	F	F		Utility indicator. This field is not used in the current version MR3 of HAZUS-MH.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile)
EquipmentHt	Double(8) <i>Currency(8)</i>	F	F		Average height of electrical equipment (measured in feet from the floor)
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood return period (in years) for which the structure is protected.
UtilDamageFnld	Text(10)	F	F		Originally intended to allow users to define facility specific damage curves. Utility damage functions are not used in version MR3 of HAZUS-MH
NumStories	Short(2) <i>Integer(2)</i>	F	F		Number of stories

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.15. Oil Pipelines Feature Class: hzOilPI

Identification:	hzOilPI				
Type:	ESRI Line Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of oil pipelines. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzOilPI) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
OilPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzOilPI</i> feature class with the associated <i>eqOilPI</i> and <i>fOilPI</i> tables. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (Upper case) and xxxxx is a sequential number from 000001 to 999999.
PipelinesClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B 15.	This field is used to indicate the facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model.
CountyFips	Text(5)	T, NU, A	YT	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner name
Material	Text(10)	F	F		Material type
Diameter	Double(8) Currency(8)	F	F		Diameter (in inches)
PipeLength	Float(4) Single(4)	F	F		Length of the segment (in kms)
Joint	Text(10)	F	F		Join type
YearBuilt	Short(2) Integer(2)	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
Cost	Double(8) Currency(8)	F	F		Replacement cost (in thousands)
SourceId	Long(4) Long Integer(4)	F	F		Identification of the source
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.16. Earthquake Specific Oil Pipeline Table: eqOilPI

Identification:	eqOilPI				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of oil pipelines. It includes the unique id (OilPIId) for each record in hzOilPI. During the creation of a study region, the content of the table is transferred to a table with the same name (eqOilPI) in the SQL Server database in the Region folder. The SQL server table includes additional fields that are populated subsequently. There must be one record in eqOilPI for each record in hzOilPI with same OilPIId unique identifier				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
OilPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqOilPI feature class with the associated hzOilPI in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.17. Flood Specific Oil Pipeline Table: fOilPI

Identification:	fOilPI				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of oil pipelines. During the creation of a study region, the table content is transferred to a table with the same name (fOilPI) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fOilPI for each record in hzOilPI with same OilPIId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
OilPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fOilPI feature class with the associated hzOilPI in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (Upper case) and xxxxxx is a sequential number from 000001 to 999999.
SystemId	Text(5)	F	F		Utility indicator. This field is not used in the current version (MR3) of HAZUS-MH.
VulnbltyToScour	Text(10)	F	F		Vulnerability to scour. Field for future development.
IDUpperJunction	Short(2) <i>Integer(2)</i>	F	F		Field for future development
IDLowerJunction	Short(2) <i>Integer(2)</i>	F	F		Field for future development
DamageFnId	Text(10)	F	F		Field for future development

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.18. Potable Water Facilities Feature Class: **hzPotableWaterFlty**

Identification:	hzPotableWaterFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of potable water facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzPotableWaterFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PotableWaterFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzPotableWaterFlty</i> feature class with the associated <i>eqPotableWaterFlty</i> and <i>fIPotableWaterFlty</i> tables. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (Upper case) and xxxxx is a sequential number from 000001 to 999999.
UtilFltyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.1.3	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact person
PhoneNumber	Text(14)	F	F		Facility contact phone number
Use	Text(10)	F	F		Use
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)

SystemId	Text(5)	F	F		Identifier for potable water system.
GClass	Text(1)	F	F		For network analysis. HAZUS-MH does not include a tool to analyze potable water networks such as POWSAN included in HAZUS 99.
BackupPower	Short(1) Yes/No(1)	F	F	0=No 1=Yes	Availability of backup power
YearUpgraded	Short(2) Integer(2)	F	F	Null or (\geq 1500 and \leq 2100)	Year the structure was upgraded
Capacity	Long(4) Long Integer(4)	F	F		Capacity (million gallons/day)
Demand	Float(4) Single(4)	F	F		Demand (million gallons/day)
Latitude	Double(8) Double(8)	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) Double(8)	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.19. Earthquake Specific Potable Water Facilities Table: eqPotableWaterFlty

Identification:	eqPotableWaterFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of potable water facilities. During the creation of a study region, the table content is transferred to a table with the same name (eqPotableWaterFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqPotableWaterFlty for each record in hzPotableWaterFlty with same PotableWaterFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
PotableWaterFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this eqPotableWaterFlty feature class with the associated hzPotableWaterFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether the facility is anchored to provide additional resistance to seismic forces.

FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.20. Flood Specific Potable Water Facilities Table: fIPotableWaterFlty

Identification:	fIPotableWaterFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of potable water facilities. During the creation of a study region, the table content is transferred to a table with the same name (fIPotableWaterFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fIPotableWaterFlty for each record in hzPotableWaterFlty with same PotableWaterFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PotableWaterFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fIPotableWaterFlty feature class with the associated hzPotableWaterFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
UtilIndicator	Short(2) <i>Integer(2)</i>	F	F		Utility indicator. This field is not used in the current version MR3 of HAZUS-MH.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile)
EquipmentHt	Double(8) <i>Currency(8)</i>	F	F		Average height of electrical equipment (measured in feet from the floor).
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood return period (in years) for which the structure is protected.
UtilDamageFnld	Text(10)	F	F		Originally intended to allow users to define facility specific damage curves. Utility damage functions are not used in version MR3 of HAZUS-MH.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.21. Potable Water Pipelines Feature Class: **hzPotableWaterPI**

Identification:	hzPotableWaterPI				
Type:	ESRI Line Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of potable water pipelines. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzPotableWaterPI) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PotableWaterPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzPotableWaterPI</i> feature class with the associated <i>eqPotableWaterPI</i> and <i>flPotableWaterPI</i> tables. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
PipelinesClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.13.	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ model.
CountyFips	Text(5)	T, NU, A	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner
Material	Text(10)	F	F		Material type
Diameter	Double(8) <i>Currency(8)</i>	F	F		Diameter (in inches)
PipeLength	Float(4) <i>Single(4)</i>	F	F		Length of the segment (in kms)
Joint	Text(10)	F	F		Join type
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
SourceId	Long(4) <i>Long Integer(4)</i>	F	F		Identification of the source
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.22. Earthquake Specific Potable Water Pipeline Table: eqPotableWaterPI

Identification:	eqPotableWaterPI				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of potable water pipelines. It includes the unique id (PotableWaterPIId) for each record in hzPotableWaterPI. During the creation of a study region, the table content is transferred to a table with the same name (eqPotableWaterPI) in the SQL Server database in the Region folder. The SQL server table includes additional fields that are populated subsequently. There must be one record in eqPotableWaterPI for each record in hzPotableWaterPI with same PotableWaterPIId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PotableWaterPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqPotableWaterPI</i> feature class with the associated <i>hzPotableWaterPI</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
GClass	Text(1)	F	F		For network analysis **
Status	Double(8) Currency(8)	F	F		For network analysis **
UpNode	Text(5)	F	F		For network analysis **
DownNode	Text(5)	F	F		For network analysis **
Roughness	Double(8) Currency(8)	F	F		For network analysis **
MinLoss	Double(8) Currency(8)	F	F		For network analysis **
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase ** HAZUS-MH does not include a tool for analyzing potable water networks such as PWSAN (Potable Water System Analysis Model) included in HAZUS 99.					

6.3.23. Flood Specific Potable Water Pipeline Table: fIPotableWaterPI

Identification:	fIPotableWaterPI				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of potable water pipelines. During the creation of a study region, the table content is transferred to a table with the same name (fIPotableWaterPI) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fIPotableWaterPI for each record in hzPotableWaterPI with same PotableWaterPIId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PotableWaterPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fIPotableWaterPI feature class with the associated hzPotableWaterPI in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (Upper case) and xxxxx is a sequential number from 000001 to 999999.
SystemId	Text(5)	F	F		Utility indicator. This field is not used in the current version MR3 of HAZUS-MH
VulnerabilityToScour	Text(10)	F	F		Vulnerability to scour. Field for future development.
IDUpperJunction	Short(2) <i>Integer(2)</i>	F	F		Field for future development
IDLowerJunction	Short(2) <i>Integer(2)</i>	F	F		Field for future development
DamageFnId	Text(10)	F	F		Field for future development

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.24. Potable Water Distribution Pipes Table: eqPotableWaterDL

Identification:	eqPotableWaterDL				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides total length of potable water distribution pipelines aggregated by census tract. Only the Earthquake Model estimates damage, losses and functionality for the pipeline components of the potable water system. During the creation of a study region, the content of the table is transferred to a table with the same name (eqPotableWaterDL) in the SQL Server database in the Region folder. The SQL server table includes additional fields that are populated subsequently. There must be one record in eqPotableWaterDL for each record in hzTract feature class in the State syBoundary.mdb.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
Tract	Text(11)	T, U, A	T, UC		11 digits of the 2000 US Census tract number
DuctilePipe	Float(4) Single(4)	F	F		Total length of ductile distribution pipes (in kms)
BrittlePipe	Float(4) Single(4)	F	F		Total length of brittle distribution pipes (in kms)
TotalPipe	Float(4) Single(4)	F	F		Total length of distribution pipes (in kms)

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.25. Waste Water Facilities Feature Class: hzWasteWaterFlty

Identification:	hzWasteWaterFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of wastewater facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzWasteWaterFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
WasteWaterFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzWasteWaterFlty</i> feature class with the associated <i>eqWasteWaterFlty</i> and <i>fWasteWaterFlty</i> tables. The standard format adopted by HAZUS is SSxxxxxx where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
UtilFltyClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.14.	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model.
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact name
PhoneNumber	Text(14)	F	F		Facility phone number
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
Use	Text(10)	F	F		Use
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
BackupPower	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Availability of backup power

Capacity	Long(4) <i>Long Integer(4)</i>	F	F		Capacity (million gallons/day)
GClass	Text(1)	F	F		For network analysis. HAZUS-MH does not include a tool to analyze water networks such as POWSAN included in HAZUS 99.
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
SystemId	Text(5)	F	F		Identifier for the waste water system
YearUpgraded	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year structure was upgraded
Demand	Float(4) <i>Single(4)</i>	F	F		Demand (million gallons/day)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.26. Earthquake Specific Waste Water Facilities Table: eqWasteWaterFlty

Identification:	eqWasteWaterFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of waste water facilities. During the creation of a study region, the table content is transferred to a table with the same name (eqWasteWaterFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in eqWasteWaterFlty for each record in hzWasteWaterFlty with same WasteWaterFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
WasteWaterFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqWasteWaterFlty</i> feature class with the associated <i>hzWasteWaterFlty</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B-2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
Anchor	Short(1) Yes/No(1)	F	F	0 = No 1 = Yes	Indicates whether the facility is anchored to provide additional resistance to seismic forces.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.

SoilType	Text(1)	F	T, UC	See Appendix B, table B.1	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based upon shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.27. Flood Specific Waste Water Facilities Table: fIWasteWaterFlty

Identification:	fIWasteWaterFlty				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of waste water facilities. During the creation of a study region, the table content is transferred to a table with the same name (fIWasteWaterFlty) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fIWasteWaterFlty for each record in hzWasteWaterFlty with same WasteWaterFltyId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
WasteWaterFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fIWasteWaterFlty feature class with the associated hzWasteWaterFlty in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
UtilIndicator	Short(2) <i>Integer(2)</i>	F	F		Utility indicator. This field is not used in the current version MR3 of HAZUS-MH.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile)
EquipmentHt	Double(8) <i>Currency(8)</i>	F	F		Average height of electrical equipment (measured in feet from the floor)
FloodProtection	Short(2) <i>Integer(2)</i>	F	F		Flood return period (in years) for which the structure is protected
UtilDamageFnld	Text(10)	F	F		Originally intended to allow users to define facility specific damage curves. Utility damage functions are not used in version MR3 of HAZUS-MH.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.28. Waste Water Pipelines Feature Class: **hzWasteWaterPl**

Identification:	hzWasteWaterPl				
Type:	ESRI Line Feature Class				
Purpose:	Belongs to UTIL.mdb. Provides the geometry of waste water pipelines. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named UTIL.mdb in the Region folder. Field information is transferred to a table with the same name (hzWasteWaterPl) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH estimation of hazards, damages, and loss of functionality, as well as mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
WasteWaterPlId	Text(8)	T, U,A	T, UC		Unique identifier for each record. It relates this <i>hzWasteWaterPl</i> feature class with the associated <i>eqWasteWaterPl</i> and <i>flWasteWaterPl</i> tables. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
PipelinesClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.14.	Indicates facility classification. It is used by HAZUS-MH to identify the appropriate damage curve for assessing loss estimations produced by the EQ Model.
CountyFips	Text(5)	T, NU, A	T	Five-digit FIPS county code	Five-digit FIPS County code. First two digits are the state FIPS; the remaining three digits the county code.
Name	Text(40)	F	F		Facility name
Owner	Text(25)	F	F		Facility owner
Material	Text(10)	F	F		Material type
Diameter	Double(8) <i>Currency(8)</i>	F	F		Diameter (in inches)
PipeLength	Float(4) <i>Single(4)</i>	F	F		Length of the segment (in kms)
Joint	Text(10)	F	F		Join type
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year the structure was built
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
SourceId	Long(4) <i>Long Integer(4)</i>	F	F		Identification of the source
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.29. Earthquake Specific Waste Water Pipeline Table: eqWasteWaterPI

Identification:	eqWasteWaterPI				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Earthquake Model specific information of waste water pipelines. It includes a unique id (WasteWaterPlId) for each record in hzWasteWaterPI. During the creation of a study region, the table content is transferred to a table with the same name (eqWasteWaterPI) in the SQL Server database in the Region folder. The SQL server table includes additional fields that are populated subsequently. There must be one record in eqWasteWaterPI for each record in hzWasteWaterPI with same WasteWaterPlId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type Size)</i>	Index*	Required*	Values	Description
WasteWaterPlId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqWasteWaterPI</i> feature class with the associated <i>hzWasteWaterPI</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

6.3.30. Flood Specific Waste Water Pipeline Table: fIWasteWaterPI

Identification:	fIWasteWaterPI				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides Flood Model specific information of waste water pipelines. During the creation of a study region, the table content is transferred to a table with the same name (fIWasteWaterPI) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH Flood Model estimation of hazards, damages, and loss of functionality. There must be one record in fIWasteWaterPI for each record in hzWasteWaterPI with same WasteWaterPIId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type Size</i>	Index*	Required*	Values	Description
WasteWaterPIId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this fIWasteWaterPI feature class with the associated hzWasteWaterPI in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (Upper case) and xxxxx is a sequential number from 000001 to 999999.
SystemId	Text(5)	F	F		Utility indicator. This field is not used in the current version MR3 of HAZUS-MH
VulnerabilityToScour	Text(10)	F	F		Vulnerability to scour. Field for future development.
IDUpperJunction	Short(2) <i>Integer(2)</i>	F	F		Field for future development
IDLowerJunction	Short(2) <i>Integer(2)</i>	F	F		Field for future development
DamageFnId	Text(10)	F	F		Field for future development

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

6.3.31. Waste Water Distribution Pipes Table: eqWasteWaterDL

Identification:	eqWasteWaterDL				
Type:	ESRI Table				
Purpose:	Belongs to UTIL.mdb. Provides total length of waste water distribution pipelines aggregated by census tract. Only the Earthquake Model estimates damage, losses and functionality for the pipeline components of the waste water system. During the creation of a study region, the table content is transferred to a table with the same name (eqWasteWaterDL) in the SQL Server database in the Region folder. The SQL server table includes additional fields that are populated subsequently. There must be one record in eqWasteWaterDL for each record in hzTract feature class in the State syBoundary.mdb.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
Tract	Text(11)	T, U, A	T, UC	11 digits of the census tract number	11 digits of the census tract number
DuctilePipe	Float(4) Single(4)	F	F		Total length of ductile distribution pipes (in kms)
BrittlePipe	Float(4) Single(4)	F	F		Total length of brittle distribution pipes (in kms)
TotalPipe	Float(4) Single(4)	F	F		Total length of distribution pipes (in kms)

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

7. High Potential Loss Facilities: HPLF.mdb

7.1. Database Overview

HPLF.mdb is an Access personal geodatabase that contains feature *classes* for HPLF with fields relevant to all hazards and *tables* with information specific to Earthquake Model. HPLFs are those likely to cause severe loss if damaged. Damage and loss estimation calculations for HPLFs are not performed by HAZUS-MH.

HPLFs include nuclear power plants, dams, levees, and some military installations. Hazardous material facilities and levees are also included in HPLF.mdb. Hazardous material facilities contain substances that can pose significant hazards because of their toxicity, radioactivity, flammability, explosiveness, or reactivity. Similar to other facilities with high potential loss, HAZUS-MH models do not estimate losses caused by hazardous material releases and levee failures based on the inventory data.

The geographical domain of the database is the state. In that case, there is one HPLF.mdb database for each state, each located in the appropriate State folder.

During the creation of a study region, for all hazards, HPLF geometries from feature classes are transferred to a geodatabase named HPLF.mdb in the Region folder. Feature classes are named with the prefix *hz* that means that are relevant across all HAZUS-MH models. Dams, for instance, are stored in *hzDams* feature class with fields containing information common to all hazards. This information is transferred to a table with the same name (for dams, *hzDams*) in the SQL Server database in the Region folder.

Hazard specific tables are named with the prefix *eq* (earthquake) such as *eqDams*. The information is transferred to tables with the same name in the SQL Server database in the Region folder. There is a one-to-one relationship between *hz* tables and the corresponding *eq* table through a unique identifier.

7.2. Identification

HPLF.mdb

7.3. Database Content

The HPLF.mdb database includes:

Name	Type	Content
hzDams	ESRI Point Feature Class	Geometry (point features) and all-hazards information of dams structures
hzHazmat	ESRI Point Feature Class	Geometry (point features) and all-hazards information of hazardous material facilities
hzLevees	ESRI Line Feature Class	Geometry (line features) and all-hazards information of levees
hzMilitary	ESRI Point Feature Class	Geometry (point features) and all-hazards information of military facilities
hzNuclearFlty	ESRI Line Feature Class	Geometry (line features) and all-hazards information for nuclear facilities
eqDams	ESRI Table	Earthquake specific information for dam structures
eqHazmat	ESRI Table	Earthquake specific information for hazardous material facilities
eqLevees	ESRI Table	Earthquake specific information for levees
eqMilitary	ESRI Table	Earthquake specific information for military installations
eqNuclearFlty	ESRI Table	Earthquake specific information for nuclear facilities

7.3.1. Dams Feature Class: hzDams

Identification:	hzDams				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to HPLF.mdb. Provides the geometry of dam facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named HPLF.mdb in the Region folder. Field information is transferred to a table with the same name (hzDams) in the SQL Server database in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
DamId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzDams</i> feature class with the associated <i>eqDams</i> table. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
DamClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.5.	Indicates facility classification
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
CountyName	Text(30)	F	F		County where facility is located
Owner	Text(25)	F	F		Facility owner
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
River	Text(30)	F	F		Name of river on which dam is located
NearCity	Text(30)	F	F		Nearest city downstream from dam
DistanceCity	Float(4) <i>Single(4)</i>	F	F		Distance of nearest city downstream from dam (in miles)
Purpose	Text(10)	F	F		Purposes for which reservoir is used
YearCompl	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year original main dam structure was completed
DamLength	Float(4) <i>Single(4)</i>	F	F		Dam length, in feet (defined as length along top of dam)
DamHeight	Float(4) <i>Single(4)</i>	F	F		Dam height, in feet (defined as vertical distance between the lowest point on the crest of the dam and the lowest point in the original streambed)

StructHeight	Float(4) <i>Single(4)</i>	F	F		Structural height of the dam, in feet (defined as the vertical distance from the lowest point of the excavated foundation to the top of the dam)
MaxDischarge	Float(4) <i>Single(4)</i>	F	F		Maximum storage, in acre-feet (defined as the total storage space in a reservoir below the maximum attainable water surface elevation, including any surcharge storage)
HydroHeight	Float(4) <i>Single(4)</i>	F	F		Hydraulic height of dam, in feet, (defined as the vertical difference between the maximum design water level and the lowest point in the original streambed)
MaxStorage	Float(4) <i>Single(4)</i>	F	F		Maximum storage, in acre-feet (defined as the total storage space in a reservoir below the maximum attainable water surface elevation, including any surcharge storage)
NormStorage	Float(4) <i>Single(4)</i>	F	F		Normal storage, in acre-feet (defined as the total storage space in a reservoir below the normal retention level, including dead and inactive storage and excluding any flood control or surcharge storage)
SurfaceArea	Float(4) <i>Single(4)</i>	F	F		Surface area, in acres, of the impoundment at its normal retention level
DrainArea	Float(4) <i>Single(4)</i>	F	F		Drainage area of the dam, in square miles (defined as the area that drains to the reservoir)
Hazard	Text(1)	F	F		Code indicating the potential hazard to the downstream area resulting from failure or malfunctioning of the dam or facilities: L = Low S = Significant H = High
EAP	Text(2)	F	F		Code indicating whether the dam has an emergency action plan (EAP) developed by the dam owner. An EAP is defined as a plan of action to be taken to reduce the potential for property damage and loss of life in an area affected by a dam failure or large flood. Y = Yes N = No NR = Not required by submitting agency
SpillType	Float(4) <i>Single(4)</i>	F	F		Code that describes spillway type: C = Controlled U = Uncontrolled N = None

Volume	Float(4) <i>Single(4)</i>	F	F		Total number of cubic yards occupied by the materials used in the dam structure. Portions of powerhouse, locks, and spillways are included only if they are an integral part of the dam and required for structural stability.
NATID	Text(7)	F	F		The official National Inventory of Dams identification number for the dam (formerly known as the National ID)
PrimaryAgency	Text(20)	F	F		Primary source agency from which the data was derived.
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

7.3.2. Earthquake Specific Dams Table: eqDams

Identification:	eqDams				
Type:	ESRI Table				
Purpose:	Belongs to HPLF.mdb. Provides Earthquake Model specific information of dams. During the creation of a study region, the table content is transferred to a table with the same name (<i>eqDams</i>) in the SQL Server database in the Region folder. There must be one record in <i>eqDams</i> for each record in <i>hzDams</i> with same <i>DamId</i> unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
DamId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqDams</i> feature class with the associated <i>hzDams</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

7.3.3. Hazardous Material Facilities Feature Class: *hzHazmat*

Identification:	<i>hzHazmat</i>				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to HPLF.mdb. Provides the geometry of hazardous material facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named HPLF.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzHazmat</i>) in the SQL Server database in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HazmatId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzHazmat</i> feature class with the associated <i>eqHazmat</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (Upper case) and xxxxx is a sequential number from 000001 to 999999.
HplfClass	Text(5)	T, NU, A	T, UC		Indicates facility classification
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Facility address
City	Text(40)	F	F		City
Statea	Text(2)	F	F		USPS state abbreviation
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-564 or 300672564
Contact	Text(40)	F	F		Facility contact person
PhoneNumber	Text(14)	F	F		Facility phone number
Owner	Text(25)	F	F		Facility owner
Cas	Text(10)	F	F		Chemical Abstract Service (CAS) number for hazardous material
ChemicalName	Text(20)	F	F		Proper chemical name associated with the CAS number of the hazardous material
ChemicalQuant	Long(4) <i>Long Integer(4)</i>	F	F		Quantity (in pounds) of the chemical at a hazardous materials facility
SIC	Text(10)	F	F		Standard Industrial Code
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (≥ 1500 and ≤ 2100)	Year structure was built

EPAID	Text(2)	F	F		Environmental Protection Agency (EPA) ID
PerAmount	Float(4) <i>Single(4)</i>	F	F		Amount of chemical (in pounds) allowed by permit.
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

7.3.4. Earthquake Specific Hazardous Material Facilities Table: eqHazmat

Identification:	eqHazmat				
Type:	ESRI Table				
Purpose:	Belongs to HPLF.mdb. Provides Earthquake Model specific information of hazardous material facilities. During the creation of a study region, the table content is transferred to a table with the same name (<i>eqHazmat</i>) in the SQL Server database in the Region folder. There must be one record in <i>eqHazmat</i> for each record in <i>hzHazmat</i> with same HazmatId unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
HazmatId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqHazmat</i> feature class with the associated <i>hzHazmat</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	N	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	N	T, UC	HC = High-Code MC = Moderate -Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual, Chapters 3 and 5, for detailed information about design levels.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.

LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

7.3.5. Levees Feature Class: hzLevees

Identification:	hzLevees				
Type:	ESRI Line Feature Class				
Purpose:	Belongs to HPLF.mdb. Provides the geometry of levees. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named HPLF.mdb in the Region folder. Field information is transferred to a table with the same name (hzLeveest) in the SQL Server database in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Leveeid	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzLevees</i> feature class with the associated <i>eqLevees</i> table. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (Upper case) and xxxxxx is a sequential number from 000001 to 999999.
CountyFips	Text(5)	T, NU, A	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

7.3.6. Earthquake Specific Levees Table: eqLevees

Identification:	eqLevees				
Type:	ESRI Table				
Purpose:	Belongs to HPLF.mdb. Provides Earthquake Model specific information of levees. During the creation of a study region, the table content is transferred to a table with the same name (<i>eqLevee</i>) in the SQL Server database in the Region folder. There must be one record in eqLevees for each record in <i>hzLevees</i> with same <i>Leveelid</i> unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Leveelid	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqLevee</i> feature class with the associated <i>hzLevee</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.
LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null ≥ 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

7.3.7. Military Facilities Feature Class: hzMilitary

Identification:	hzMilitary				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to HPLF.mdb. Provides the geometry of military facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named HPLF.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzMilitary</i>) in the SQL Server database in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
MilitaryFId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzMilitary</i> feature class with the associated <i>eqMilitary</i> table. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
HplfClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B.5.	Indicates facility classification
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Facility address
City	Text(40)	F	F		City
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Statea	Text(2)	F	F		USPS state abbreviation
Contact	Text(40)	F	F		Facility contact person
PhoneNumber	Text(14)	F	F		Facility phone number
NumStories	Short(1) Byte(1)	F	F		Number of stories
YearBuilt	Short(2) Integer(2)	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
Owner	Text(25)	F	F		Facility owner name
ShelterCapacity	Short(2) Integer(2)	F	F		Shelter capacity. For informational purposes only and not used in any HAZUS-MH calculations. Total number of persons who can be sheltered in this facility.
Use	Text(10)	F	F		Facility use
BldgCost	Double(8) Currency(8)	F	F		Building replacement cost (in thousands)

ContentCost	Double(8) <i>Currency(8)</i>	F	F		Content replacement cost (in thousands)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude
Comment	Text(40)	F	F		Comments
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

7.3.8. Earthquake Specific Military Table: eqMilitary

Identification:	eqMilitary				
Type:	ESRI Table				
Purpose:	Belongs to HPLF.mdb. Provides Earthquake Model specific information of military facilities. During the creation of a study region, the table content is transferred to a table with the same name (<i>eqSchool</i>) in the SQL Server database in the Region folder. There must be one record in <i>eqMilitary</i> for each record in <i>hzMilitary</i> with same <i>MilitaryId</i> unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
MilitaryFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>eqMilitary</i> feature class with the associated <i>hzMilitary</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	N	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	N	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual , Chapters 3 and 5, for detailed information about design levels.
FoundationType	Text(1)	F	F		Foundation type (e.g., slab, pile). This field is in the table for future extensibility of the earthquake model, but does not need to be populated at this time.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.

LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

7.3.9. Nuclear Power Plants Feature Class: hzNuclearFlty

Identification:	hzNuclearFlty				
Type:	ESRI Point Feature Class				
Purpose:	Belongs to HPLF.mdb. Provides the geometry of nuclear power plant facilities. During the creation of a study region, for all hazards, geometries are transferred to a geodatabase named HPLF.mdb in the Region folder. Field information is transferred to a table with the same name (<i>hzNuclearFlty</i>) in the SQL Server database in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
NuclearFltyId	Text(8)	T, U, A	T, UC		Unique identifier for each record. It relates this <i>hzNuclearFlty</i> feature class with the associated <i>eqNuclearFlty</i> table. The standard format adopted by HAZUS is SSxxxxx, where SS is the state name abbreviation (upper case) and xxxxx is a sequential number from 000001 to 999999.
HplfClass	Text(5)	T, NU, A	T, UC	See Appendix B, Table B-5.	Indicates facility classification
Tract	Text(11)	T, NU, A	T	11 digits of the Census tract number	2000 US Census tract number
Name	Text(40)	F	F		Facility name
Address	Text(40)	F	F		Physical address
City	Text(40)	F	F		City
Zipcode	Text(10)	F	F		Zip code; for instance, 30067 or 30067-2564 or 300672564
Statea	Text(2)	F	F		USPS state abbreviation
Owner	Text(25)	F	F		Facility owner name
Contact	Text(40)	F	F		Facility contact person
PhoneNumber	Text(14)	F	F		Facility phone number
YearBuilt	Short(2) <i>Integer(2)</i>	F	F	Null or (\geq 1500 and \leq 2100)	Year structure was built
NumStories	Short(1) <i>Byte(1)</i>	F	F		Number of stories
Cost	Double(8) <i>Currency(8)</i>	F	F		Replacement cost (in thousands)
Latitude	Double(8) <i>Double(8)</i>	F	F	Latitude decimal degrees	Latitude
Longitude	Double(8) <i>Double(8)</i>	F	F	Longitude decimal degrees	Longitude

Capacity	Long(4) <i>Long Integer(4)</i>	F	F		Volts/Watts
Comment	Text(40)	F	F		Comments

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

7.3.10. Earthquake Specific Nuclear Power Plant Facilities Table: eqNuclearFlty

Identification:	eqNuclearFlty				
Type:	ESRI Table				
Purpose:	Belongs to HPLF.mdb. Provides Earthquake Model specific information of nuclear power plant facilities. During the creation of a study region, the table content is transferred to a table with the same name (<i>eqNuclearFlty</i>) in the SQL Server database in the Region folder. Data are subsequently used for HAZUS-MH EQ Model estimation of hazards, damages, and loss of functionality. There must be one record in <i>eqNuclearFlty</i> for each record in <i>hzNuclearFlty</i> with same <i>NuclearFltyId</i> unique identifier.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size)	Index*	Required*	Values	Description
	Access Type (Size)				
NuclearFltyId	Text(8)	T, U,A	T, UC		Unique identifier for each record. It relates this <i>eqNuclearFlty</i> feature class with the associated <i>hzNuclearFlty</i> in a one-to-one relationship. The standard format adopted by HAZUS is SSxxxxxx, where SS is the state name abbreviation (upper case) and xxxxxx is a sequential number from 000001 to 999999.
eqBldgType	Text(4)	F	T, UC	See Appendix B, Table B.2.	The building type that will be modeled in HAZUS earthquake scenarios. See Appendix B, Table B.2, for complete description of available model building types.
DesignLevel	Text(2)	F	T, UC	HC = High-Code MC = Moderate-Code LC = Low-Code PC = Pre-Code HS = Special High-Code MS = Special Moderate-Code LS = Special Low-Code	Building codes in effect in the area. See Earthquake Technical Manual , Chapters 3 and 5, for detailed information about design levels.
SoilType	Text(1)	F	T, UC	See Appendix B, Table B.1.	National Earthquake Hazard Reduction Program (NEHRP) soil classification that defines the conditions where the structure is located. This is based on shear wave velocity. See Appendix B, Table B.1, for details.

LqfSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 5	Indicates liquefaction susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
LndSusCat	Short(1) <i>Byte(1)</i>	F	F	Null or 0 to 10	Indicates landslide susceptibility of the facility location. See Earthquake Technical Manual (Section 4.2, Ground Failure) for liquefaction discussion.
WaterDepth	Float(4) <i>Single(4)</i>	F	F	Null \geq 0	Water table depth in feet. Values must be greater than 0. Range: 0 – 300 meters.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

8. Agriculture Inventory: fLAG.mdb

8.1. Database Overview

fLAG.mdb is an Access personal geodatabase that provides information about distributions of crop type, price, and harvest cost of agriculture products. The information is used by the Flood Model to determine the direct physical damage to agriculture.

The geographical domain of the database is the state. In that case, there is one fLAG.mdb database for each state, each located in the appropriate State folder.

fLAG.msb contains a feature class (fAgMap) with polygons (defining crop distribution and extent) and a table (fAgricultureInventory) that provides crop type, units of measurement, unit price, and harvest cost of agriculture products for each polygon.

During the creation of a flood study region, features from feature class fAgMap are transferred to a geodatabase named fLAG.mdb in the Region folder. Data from table fAgricultureInventory are transferred to a table named fAgricultureInventory in the SQL Server database in the Region folder.

8.2. Identification

fLAG.mdb

8.3. Database Content

The fLAG.mdb database includes:

Name	Type	Content
fAgMap	ESRI Polygon Feature Class	Geometry (polygon features) and information of crops
fAgricultureInventory	ESRI Table	This table provides distributions of crop type, units of measurement, unit price, and harvest cost for agriculture products

8.3.1. Agriculture Crop Feature Class: fAgMap

Identification:	fAgMap				
Type:	ESRI Polygon Feature Class				
Purpose:	Belongs to fAG.mdb. Provides the geometry of crop polygons. During the creation of a study region, features are transferred to a geodatabase named fAG.mdb in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
PolygonId	Text(25)	F	T		Sub County Polygon ID
LUCODE	Short(2) <i>Integer(2)</i>	F			Land use code
Name	Text(20)	F	T		County name
FIPS	Text(5)	F	T		Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
ST	Text(2)	T, NU, A	T		FIPS state code
ST_NAME	Text(2)	T, NU, A	T		USPS state abbreviation

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

8.3.2. Agriculture Inventory Table: fIAgricultureInventory

Identification:	fIAgricultureInventory				
Type:	ESRI Table				
Purpose:	Belongs to fAG.mdb. Provides Flood Model with information about agriculture crops. During the creation of a study region, the table content is transferred to a table with the same name (<i>fIAgricultureInventory</i>) in the SQL Server database in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CropType	Text(50)	F	T		Crop type
CountyFIPS	Text(5)	F	T	Five-digit FIPS county code	Five-digit FIPS county code. First two digits are the state FIPS; the remaining three digits are the county code.
PolygonId	Text(25)	F	T		Sub county polygon ID
AvgAnnualYield	Double(8) <i>Double(8)</i>	F	F		Annual average crop yield
Unit	Text(10)	F	F		Unit of measurement for crop
UnitPrice	Double(8) <i>Double(8)</i>	F	F		Price per unit of measurement
HarvestCost	Double(8) <i>Double(8)</i>	F	F		Cost to harvest crop
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

9. Vehicles Inventory: fIVeh.mdb

9.1. Database Overview

fIVeh.mdb is an Access personal geodatabase that provides distributions and costs (replacement value) of vehicles by census block. The information is used by the Flood Model for estimating the dollar cost of flood related damages to motor vehicles due to flood events.

The geographical domain of the database is the state. In that case, there is one fIVeh.mdb database for each state, each located in the appropriate State folder.

fIVeh.msb contains two tables: one named fINightVehicleInv that provides nighttime vehicle information and one named fIDayVehicleInv that provides daytime vehicle information.

During the creation of a flood study region, records from both tables are copied to tables with the same names in the SQL Server database in the Region folder.

9.2. Identification

fIVeh.mdb

9.3. Database Content

The fIVeh.mdb database includes:

Name	Type	Content
fINightVehicleInv	ESRI Table	This table provides nighttime vehicle information
fIDayVehicleInv	ESRI Table	This table provides daytime vehicle information

9.3.1. Nighttime Vehicles Table: flNightVehicleInv

Identification:	flNightVehicleInv				
Type:	ESRI table				
Purpose:	Belongs to flVeh.mdb. Provides distributions and costs of vehicles at nighttime. During the creation of a study region, records are copied to a table named flNightVehicleInv in the SQL Server database in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type(Size)</i>	Inde x*	Required*	Values	Description
CensusBlock	Text(15)	N	T	15 digits of the Census block number	15 digits of the Census block number
TotalVehicle	Long(4) <i>Long Integer(4)</i>	F	F		Total vehicles count
Cars	Long(4) <i>Long Integer(4)</i>	F	F		Total count cars
LightTrucks	Long(4) <i>Long Integer(4)</i>	F	F		Total count light trucks
HeavyTrucks	Long(4) <i>Long Integer(4)</i>	F	F		Total count heavy trucks
TotalExp	Double(8) <i>Double(8)</i>	F	F		Total vehicle exposure
TValNewCars	Double(8) <i>Double(8)</i>	F	F		Total value new cars
TValUsedCars	Double(8) <i>Double(8)</i>	F	F		Total value used cars
TValNewLightTrucks	Double(8) <i>Double(8)</i>	F	F		Total value new light trucks
TValUsedLightTrucks	Double(8) <i>Double(8)</i>	F	F		Total value used light trucks
TValNewHeavyTrucks	Double(8) <i>Double(8)</i>	F	F		Total value new heavy trucks
TValUsedHeavyTrucks	Double(8) <i>Double(8)</i>	F	F		Total value used heavy trucks

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

9.3.2. Daytime Vehicles Table: flDayVehicleInv

Identification:	flDayVehicleInv				
Type:	ESRI table				
Purpose:	Belongs to flVeh.mdb. Provides distributions and costs of vehicles at daytime. During the creation of a study region, records are copied to a table named flDayVehicleInv in the SQL Server database in the Region folder.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Inde x*	Required*	Values	Description
CensusBlock	Text(15)	N	T	15 digits of the Census block number	15 digits of the 2000 US Census block number
TotalVehicle	Long(4) <i>Long Integer(4)</i>	F	F		Total vehicles count
Cars	Long(4) <i>Long Integer(4)</i>	F	F		Total count cars
LightTrucks	Long(4) <i>Long Integer(4)</i>	F	F		Total count light trucks
HeavyTrucks	Long(4) <i>Long Integer(4)</i>	F	F		Total count heavy trucks
TotalExp	Double(8) <i>Double(8)</i>	F	F		Total vehicle exposure
TValNewCars	Double(8) <i>Double(8)</i>	F	F		Total value new cars
TValUsedCars	Double(8) <i>Double(8)</i>	F	F		Total value used cars
TValNewLightTrucks	Double(8) <i>Double(8)</i>	F	F		Total value new light trucks
TValUsedLightTrucks	Double(8) <i>Double(8)</i>	F	F		Total value used light trucks
TValNewHeavyTrucks	Double(8) <i>Double(8)</i>	F	F		Total value new heavy trucks
TValUsedHeavyTrucks	Double(8) <i>Double(8)</i>	F	F		Total value used heavy trucks
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

10. Hurricane Model Database: huTemplateGBS.mdb

10.1. Database Overview

huTemplateGBS.mdb is an Access database that provides Hurricane Model parameter values by census tract. The geographical domain of the database is the state. In that case, there is one huTemplateGBS.mdb database for each state, each located in a folder named *hu* in the appropriate State folder.

huTemplateGBS.mdb has four tables that provide critical Hurricane Model information about hazard and exposure (e.g., terrain condition, tree inventory, wind specific mapping schemes, gust wind speed by return period, distance to coast, etc.) by census tract.

During the creation of a flood study region, records from all tables are copied to tables with the same name in the SQL Server database in the Region folder.

10.2. Identification

huTemplateGBS.mdb

10.3. Database Content

The huTemplateGBS.mdb database includes:

Name	Type	Content
huHazardMapWindSpeed	ESRI Table	This table provides estimated gust (3-second) wind speed by census tract for different return periods.
huTerrain	ESRI Table	This table provides terrain characterization (surface roughness) by census tract.
huTract	ESRI Table	This table provides Hurricane Model specific mapping scheme name by census tract. Values for parameters <i>distance to coast</i> and <i>wind grid index</i> are included for each census tract.
huTreeParameters	ESRI Table	This table provides tree coverage parameter values by census tract.

10.3.1. Peak Gust Wind Speed by Return Period Table: huHazardMapWindSpeed

Identification:		huHazardMapWindSpeed			
Type:		Access Table			
Purpose:		Belongs to huTemplateGBS.mdb. Provides estimated peak gust (3-second) wind speed by census tract for different return periods. Records are transferred to the SQL Server database in the Region folder during the aggregation process. Data are subsequently used for HAZUS-MH wind speed mapping			
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Tract	Text(11) <i>Single(4)</i>	F	T	11 digits of the census tract number	11 digits of the 2000 US Census tract number
f10yr	Float(4) <i>Single(4)</i>	F	F		Estimated gust (3-seconds) wind speed to be exceeded only once every 10 years
f20yr	Float(4) <i>Single(4)</i>	F	F		Estimated gust (3-seconds) wind speed to be exceeded only once every 20 years
f50yr	Float(4) <i>Single(4)</i>	F	F		Estimated gust (3-seconds) wind speed to be exceeded only once every 50 years
f100yr	Float(4) <i>Single(4)</i>	F	F		Estimated gust (3-seconds) wind speed to be exceeded only once every 100 years
f200yr	Float(4) <i>Single(4)</i>	F	F		Estimated gust (3-seconds) wind speed to be exceeded only once every 200 years
f500yr	Float(4) <i>Single(4)</i>	F	F		Estimated gust (3-seconds) wind speed to be exceeded only once every 500 years
f1000yr	Float(4) <i>Single(4)</i>	F	F		Estimated gust (3-seconds) wind speed to be exceeded only once every 1000 years

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

10.3.2. Terrain Characterization Table: huTerrain

Identification:	huTerrain				
Type:	Access Table				
Purpose:	Belongs to huTemplateGBS.mdb. Provides surface roughness values by census tract and wind grid. Records are transferred to the SQL Server database in the Region folder during the aggregation process.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Tract	Text(11)	F	T	11 digits of the census tract number	11 digits of the 2000 US Census tract number
SURFACEROUGHNESS	Float(4) <i>Single(4)</i>	F	F		Surface roughness value. See Hurricane Model Technical Manual, Chapter 3, Surface Roughness Modeling.
SRIndex	Float(4) <i>Single(4)</i>	F	F		Surface roughness index. See Hurricane Model Technical Manual, Chapter 3, Surface Roughness Modeling.

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

10.3.3. Tree Characteristics Distribution Table: huTreeParameters

Identification:	huTreeParameters				
Type:	Access Table				
Purpose:	Belongs to huTemplateGBS.mdb. Provides tree parameters values by census tract. Records are transferred to the SQL Server database in the Region folder during the aggregation process.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Tract	Text(11)	N	T	11 digits of the census tract number	11 digits of the 2000 US Census tract number
PreDomTreeType	Text(20)	F	F	Null Deciduous Coniferous Mixed	Predominant tree type: deciduous, coniferous, mixed
StemsPerAcre	Long(4) <i>Long Integer(4)</i>	F	F		Number of trees per acre
TreeHeightLess40	Float(4) <i>Single(4)</i>	F	F		Percentage of trees with height less than 40 feet
TreeHeight40To60	Float(4) <i>Single(4)</i>	F	F		Percentage of trees with height 40 feet to 60 feet
TreeHeightGreater 60	Float(4) <i>Single(4)</i>	F	F		Percentage of trees with height greater than 60 feet
TreeCollectionFact or	Float(4) <i>Single(4)</i>	F	F		Tree collection factor. A factor to estimate eligible tree debris for collection.
<small>* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase</small>					

10.3.4. Hurricane Model Census Tract Table: huTract

Identification:	huTract				
Type:	Access Table				
Purpose:	Belongs to huTemplateGBS.mdb. This table provides Hurricane Model specific building and occupancy mapping scheme names by census tract. Values for parameters distance to coast and wind grid index are included for each census tract. Records are transferred to the SQL Server database in the Region folder during the aggregation process. Data are subsequently used for HAZUS-MH wind speed mapping.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Tract	Text(11) <i>Single(4)</i>	F	T		11 digits of the 2000 US Census tract number
huBldgSchemeName	Float(4) <i>Single(4)</i>	F	T		Hurricane Model building scheme name
huOccMapSchemeName	Float(4) <i>Single(4)</i>	F	T		Hurricane Model occupancy mapping scheme name
DistToCoast	Float(4) <i>Single(4)</i>	F	F		Distance to coast (in miles)
SURFACEROUGHNESS	Float(4) <i>Single(4)</i>	F	F		Surface roughness value. See Hurricane Model Technical Manual, Chapter 3, Surface Roughness Modeling.
WindGridIndex	Float(4) <i>Single(4)</i>	F	F		Wind grid index

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

11. Occupancy Mapping Scheme: MSH.mdb

11.1. Database Overview

Occupancy mapping schemes are sets of tables (matrices) that inform the distribution of building characteristics by occupancy to HAZUS-MH. MSH.mdb is the Access database that provides mapping scheme tables for HAZUS-MH damage and losses assessment. There are two sets of mapping schemes tables. One set provides the percentage distribution of building by building types and occupancy. An example would be to specify that RES1 (single-family dwellings) is 80 percent wood and 20 percent masonry. The other set, specific to the Flood Model, provides the percentage distribution of pre-FIRM and post-FIRM by foundation type for each occupancy type.

The geographical domain of the database is the state. In that case, there is one MSH.mdb database for each state, each located in the appropriate State folder.

During the creation of a study region, for all hazards, records from tables with prefix *hz* (*hzGenBldgScheme* and *hzGenBldgSchemes*) are appended to tables with the same name in the SQL Server database in the Region folder. The table *hzGenBldgSchemes* portrays the available schemes for a particular state, while *hzGenBldgScheme* defines the distribution of general building types (wood, steel, etc.) for each of these schemes by occupancy. Although originally designed for the Earthquake Model, the distribution of general building type as presented in *hzGenBldgScheme* table is commonly used across all HAZUS-MH Models.

Tables with prefix *eq* in their names are specific to the EQ Model. One table for each general building type (wood, steel, etc.) portrays the distribution of specific building types by design level. Records from these tables are appended to tables with the same name in the SQL Server database in the Region folder if an EQ region is aggregated.

Flood specific tables have names with prefix *fl*. Records from these tables are appended to tables with the same name in the SQL Server database in the Region folder when a flood region is aggregated.

11.1.1. Occupancy Mapping Scheme for Building Type

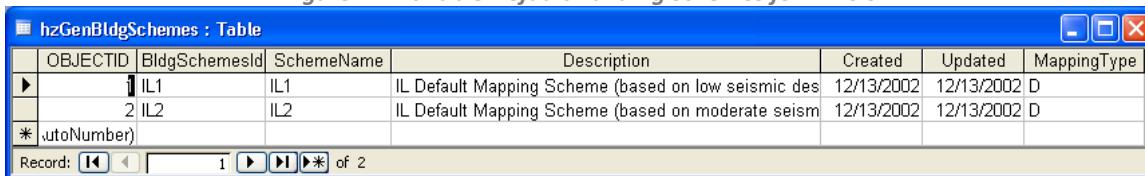
While information about replacement value, building count, and square footage by occupancy is explicitly depicted in tables (by census tract and by census block) in bndrygbs.mdb (see [State Boundaries: Boundary.mdb](#)), building type distribution by occupancy is handled differently.

Two sets of tables deal with the distribution of building types by occupancy. One set takes care of general building type distribution (e.g., wood, concrete, and masonry) and another set takes care of specific building type distribution (e.g., wood light frame [W1] or concrete share wall low-rise [C2L]).

In terms of general building type, the table named *hzGenBldgSchemes* acts as bookkeeper, listing all building schemes available for a particular state. Building scheme, in this context, refers to a particular mapping of the distribution of general building types. In both feature classes previously discussed—[hzTract \(Census Tract Boundaries\)](#) and [hzCensusBlock \(Census Block Boundaries\)](#) in the [State Boundaries \(Boundary.mdb\)](#) geodatabase—a field specifies the appropriate building scheme identifier to be applied to determine the distribution of building type.

Figure 1 shows that there are two building schemes available in the HAZUS-MH default database for Illinois. The use of the state abbreviation for the building scheme identifier (BldgSchemeID) is not required. Instead, any alphanumeric string can be used (that is, up to 10 characters length).

Figure 1: Available Default Building Schemes for Illinois



The screenshot shows a Microsoft Access database window titled "hzGenBldgSchemes : Table". The table has columns: OBJECTID, BldgSchemesId, SchemeName, Description, Created, Updated, and MappingType. There are two records:

OBJECTID	BldgSchemesId	SchemeName	Description	Created	Updated	MappingType
1	IL1	IL1	IL Default Mapping Scheme (based on low seismic des	12/13/2002	12/13/2002	D
2	IL2	IL2	IL Default Mapping Scheme (based on moderate seism	12/13/2002	12/13/2002	D

Record: 1 of 2

As shown in Figure 2, for each of these building schemes, there will be 33 records (one for each occupancy type in HAZUS-MH) in a table named *hzGenBldgScheme* that define the distribution in percentage by general building type: wood, masonry, steel, concrete, and manufactured home.

Figure 2: General Mapping Schemes by Occupancy for Illinois

	OBJECTID	GenBldgSchemelD	BldgSchemesId	Occupancy	Total	WPct	CPct	SPct	MPct	HPct
1	IL1	IL1	RES1	100	77	1	0	22	0	
2	IL2	IL1	RES2	100	0	0	0	0	100	
3	IL3	IL1	RES3A	100	75	0	0	25	0	
4	IL4	IL1	RES3B	100	75	0	0	25	0	
5	IL5	IL1	RES3C	100	75	0	0	25	0	
6	IL6	IL1	RES3D	100	75	0	0	25	0	
7	IL7	IL1	RES3E	100	75	0	0	25	0	
8	IL8	IL1	RES3F	100	75	0	0	25	0	
9	IL9	IL1	RES4	100	50	0	0	50	0	
10	IL10	IL1	RES5	100	20	45	0	35	0	
11	IL11	IL1	RES6	100	90	0	0	10	0	
12	IL12	IL1	COM1	100	30	10	30	30	0	
13	IL13	IL1	COM2	100	10	30	30	30	0	
14	IL14	IL1	COM3	100	30	10	30	30	0	
15	IL15	IL1	COM4	100	30	10	30	30	0	
16	IL16	IL1	COM5	100	30	10	30	30	0	
17	IL17	IL1	COM6	100	0	70	10	20	0	

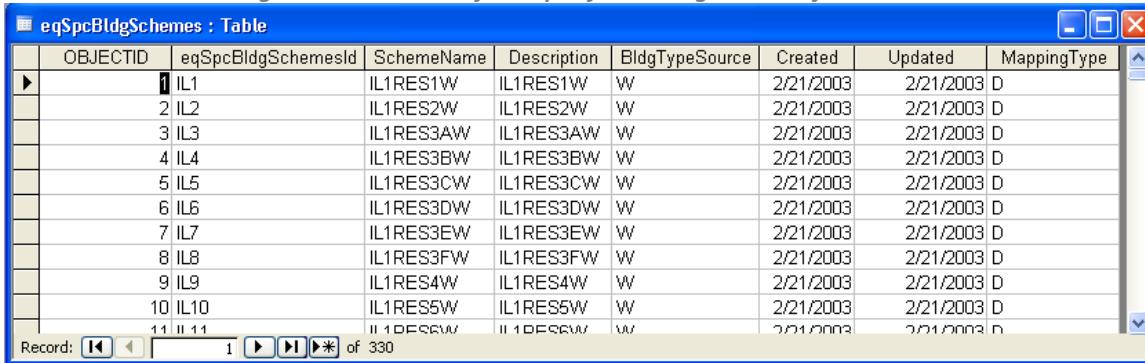
In this way, HAZUS-MH will realize that for a particular tract or block with building scheme IL1 assigned; for instance, 77 percent of buildings classified as occupancy type RES1 are wood structures. As shown in Figure 1, the field BldgSchemelD refers to a record in *hzGenBldgScheme*. The value IL1 in field GenBldgSchemelD uniquely identifies the general building scheme of RES1 for Building Scheme IL1¹ while value IL2 in the field GenBldgSchemelD uniquely identifies the general building scheme of RES1 for the same building scheme IL1.

As noted, a second set of tables maps the *specific* building type by design level. In terms of specific building type, a table named *eqSpcBldgSchemes* will act as the bookkeeper for all specific building schemes available for a particular state. Specific building schemes, in this context, refer to a particular mapping of the distribution of specific building types. Figure 3 shows several records in *eqSpcBldgSchemes* that are

¹ The user must be aware that naming convention may result in confusions. In HAZUS-MH default inventory, the same naming convention (State abbreviation plus a number) is used for identifying building schemes in table *hzGenBldgScheme* (field BldgSchemelD) and for the record that refers to the general building scheme for occupancy type RES1 in *hzGenBldgSchemes* table (field GenBldgSchemelD) However, both are identifying different items and, as previously stated, the use of the State abbreviation is not required. Instead, any alphanumeric string can be used (up to 10 characters length).

available in HAZUS-MH default database for Illinois. Again, the use of the state abbreviation for the specific building scheme identifier (eqSpcBldgSchemeID) is not required.

Figure 3: Available Default Specific Building Schemes for Illinois



The screenshot shows a Microsoft Access database window titled "eqSpcBldgSchemes : Table". The table has the following columns: OBJECTID, eqSpcBldgSchemesId, SchemeName, Description, BldgTypeSource, Created, Updated, and MappingType. The data consists of 11 rows, each representing a specific building scheme. The first row is highlighted in yellow. The last row shown is 11, with a total of 330 records indicated at the bottom. The table is displayed in a grid format with horizontal and vertical scroll bars.

OBJECTID	eqSpcBldgSchemesId	SchemeName	Description	BldgTypeSource	Created	Updated	MappingType
1	IL1	IL1RES1W	IL1RES1W	W	2/21/2003	2/21/2003	D
2	IL2	IL1RES2W	IL1RES2W	W	2/21/2003	2/21/2003	D
3	IL3	IL1RES3AW	IL1RES3AW	W	2/21/2003	2/21/2003	D
4	IL4	IL1RES3BW	IL1RES3BW	W	2/21/2003	2/21/2003	D
5	IL5	IL1RES3CW	IL1RES3CW	W	2/21/2003	2/21/2003	D
6	IL6	IL1RES3DW	IL1RES3DW	W	2/21/2003	2/21/2003	D
7	IL7	IL1RES3EW	IL1RES3EW	W	2/21/2003	2/21/2003	D
8	IL8	IL1RES3FW	IL1RES3FW	W	2/21/2003	2/21/2003	D
9	IL9	IL1RES4W	IL1RES4W	W	2/21/2003	2/21/2003	D
10	IL10	IL1RES5W	IL1RES5W	W	2/21/2003	2/21/2003	D
11	IL11	IL1RES6W	IL1RES6W	W	2/21/2003	2/21/2003	D

Record: 1 of 330

By default, there are 165 records in HAZUS-MH for each building scheme available in hzGenBldgSchemes; however, there can be fewer or more as necessary. Each set of 165 records consists of 33 subsets (representatives of the 33 specific occupancy class) and five records (one for each general building type like wood, concrete, etc.). For instance, the Specific Building Scheme IL1 (Figure 3) refers to RES1-wood buildings. Details of the distribution of building types for each scheme is stored in five tables, one for each general building type. In this way, wood type schemes are stored in a table named eqWBldgTypeMp, while concrete type schemes are stored in a table named eqCBldgTypeMp.

Figure 4 shows the specific building type distribution for wood from the EqWBldgTypeMp table for Illinois. Using the example in the paragraph above, wood for RES1 is mapped to 100 percent W1 (wood light-frame) with design level low code for the rest of combination building type/design level. By definition, the percentages must total 100. This subset of tables is exclusive to the EQ Model, as the prefix in the names indicates.

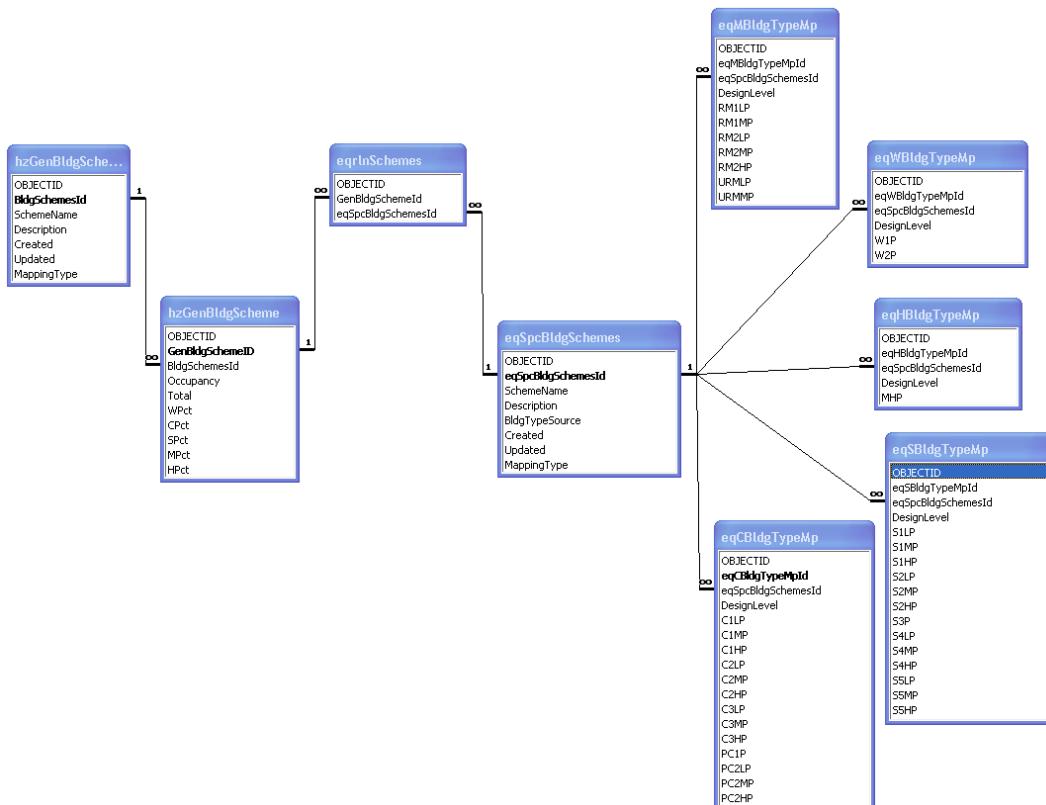
Figure 4: Specific Building Type Scheme (Wood) from EqWbldgtypemp Table

eqWbldgTypeMp : Table						
OBJECTID	eqWbldgTypeM	eqSpcBldgSchemesId	DesignLevel	W1P	W2P	
1	IL1	IL1	LC	100	0	
2	IL2	IL1	LS	0	0	
3	IL3	IL1	PC	0	0	
4	IL4	IL1	MC	0	0	
5	IL5	IL1	MS	0	0	
7	IL6	IL1	HC	0	0	
8	IL7	IL1	HS	0	0	

Record: [Back] [First] [5] [Next] [Last] [Print] of 462

Figure 5 shows the relationship between the occupancy mapping scheme tables discussed above.

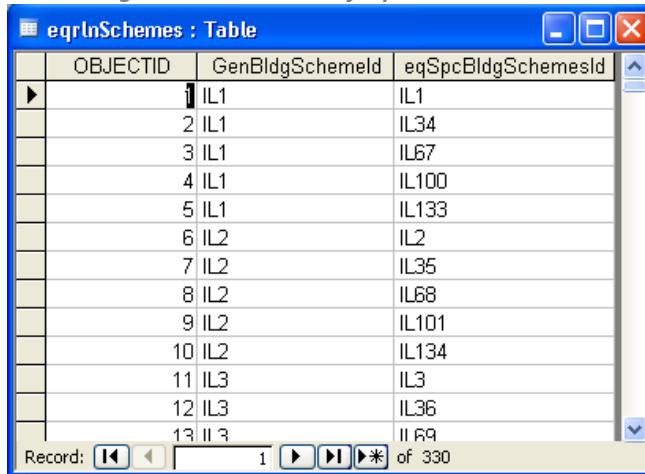
Figure 5: Occupancy Mapping Scheme Relationship in HAZUS-MH



There is a many-to-many relationship between the general mapping schemes (**hzGenBldgScheme**) and the specific mapping schemes (**eqSpcBldgSchemes**). This

relationship is stored in the table eqInSchemes. In this way, two general schemes (as specified in hzGenBldgSchemes) can share the same scheme definition in eqSpcBldgSchemes for a particular occupancy/building type distribution (for instance, Res1/W2). Figure 6 shows a partial view of Illinois eqInScheme table. For general building scheme IL1 (RES1) in hzGenBldgScheme (see Figure 2), there are five specific building type (field eqSpcBldgSchemeID): IL1 (RES1-Wood), IL34 (RES1-Concrete), etc.

Figure 6: Partial view of eqInScheme table.



OBJECTID	GenBldgSchemeId	eqSpcBldgSchemeId
1	IL1	IL1
2	IL1	IL34
3	IL1	IL67
4	IL1	IL100
5	IL1	IL133
6	IL2	IL2
7	IL2	IL35
8	IL2	IL68
9	IL2	IL101
10	IL2	IL134
11	IL3	IL3
12	IL3	IL36
13	IL3	IL69

11.1.2. Flood Model Mapping Scheme

First floor elevation (as determined from foundation type) is another key parameter for the estimation of flood damage. Information on foundation types for the general building stock is provided by a foundation mapping scheme consisting of a set of tables that depicts how foundation type and first floor elevations are distributed by specific occupancy.

Figure 7: Specific Building Type Scheme (Wood) from EqcBldgtypemp Table.

Schemeld	Soccup	FoundationType	PreFirmDist	PreFirmHt	PostFirmDist	PostFirmHt	HazardType
ALR00001	RES1	Pile	0	7	0	8	R
ALR00001	RES1	Pier	0	5	0	6	R
ALR00001	RES1	SolidWall	0	7	0	8	R
ALR00001	RES1	Basement	25	4	25	4	R
ALR00001	RES1	Crawl	49	3	49	4	R
ALR00001	RES1	Fill	0	2	0	2	R
ALR00001	RES1	Slab	26	1	26	1	R
ALR00001	RES2	Pile	0	7	0	8	R
ALR00001	RES2	Pier	0	5	0	6	R
ALR00001	RES2	SolidWall	0	7	0	8	R
ALR00001	RES2	Basement	25	4	25	4	R
ALR00001	RES2	Crawl	49	3	49	4	R
ALR00001	RES2	Fill	0	2	0	2	R
ALR00001	RES2	Slab	26	1	26	1	R
ALR00001	RES3A	Pile	0	7	0	8	R
ALR00001	RES3A	Pier	0	5	0	6	R
ALR00001	RES3A	SolidWall	0	7	0	8	R
ALR00001	RES3A	Basement	25	4	25	4	R
ALR00001	RES3A	Crawl	49	3	49	4	R
ALR00001	RES3A	Fill	0	2	0	2	R
ALR00001	RES3A	Slab	26	1	26	1	R
ALR00001	RES3B	Pile	0	7	0	8	R

Conversely, the scheme identifier of the occupancy mapping scheme for building type is not assigned in the [hzCensusBlock \(Census Block Boundaries\)](#) feature class directly, but there is a table (fISchemeMapping) in MSH.mdb assigned to each census block number in the state a scheme identifier.

11.2. Identification

MSH.mdb

11.2.1. Database Content

The MSH.mdb database includes:

Name	Type	Content
hzGenBldgSchemes	ESRI Table	hzGenBldgSchemes holds a list of all the mapping schemes available in the state. This table is a bookkeeping table that holds items such as the name of the scheme and the date it was created.
hzGenBldgScheme	ESRI Table	hzGenBldgScheme is the table with values for general building type associated with all mapping schemes in hzGenBldgSchemes. There are 33 records—one for each specific occupancy class (Res1, Res2, Com6, etc.)—for each scheme available in hzGenBldgSchemes. For each record, the percentage of building by general building type (wood, concrete, etc.) is summarized.

eqrlnSchemes	ESRI Table	There is a many-to-many relationship between the general mapping schemes (hzGenBldgScheme) and the specific mapping schemes (eqSpcBldgSchemes); this relationship is stored in the table eqrlnSchemes. In this way, two general schemes (as specified in hzGenBldgSchemes) can share the same scheme definition in eqSpcBldgSchemes for a particular occupancy/building type distribution (for instance, Res1/W2).
eqSpcBldgSchemes		eqSpcBldgSchemes is the equivalent of hzGenBldgSchemes, but applies to the specific building type distribution.
eqCBldgTypeMp	ESRI Table	eqCBldgTypeMp portrays the percentage of specific concrete building type (for instance, C1LP and C1MP) by design level. Each record in eqSpcBldgSchemes for concrete building type has five related records (one for each design level type) in eqCBldgTypeMp.
eqHBldgTypeMp	ESRI Table	eqHBldgTypeMp portrays the percentage of specific manufactured home building type (MHP) by design level. Each record in eqSpcBldgSchemes for manufactured home building type has five related records (one for each design level type) in eqHBldgTypeMp.
eqMBldgTypeMp	ESRI Table	eqMBldgTypeMp portrays the percentage of specific masonry building type (for instance, RM1LP and RM1MP) by design level. Each record in eqSpcBldgSchemes for masonry building type has five related records (one for each design level type) in eqMBldgTypeMp.
eqWBldgTypeMp	ESRI Table	eqWBldgTypeMp portrays the percentage of specific wood building type (for instance, W1P and W2P) by design level. Each record in eqSpcBldgSchemes for wood building type has five related records (one for each design level type) in eqWBldgTypeMp.
eqSBldgTypeMp	ESRI Table	eqSBldgTypeMp portrays the percentage of specific steel building type (for instance, S1LP and S1MP) by design level. Each record in eqSpcBldgSchemes for steel building type has five related records (one for each design level type) in eqSBldgTypeMp.
flSchemeInfo	ESRI Table	flSchemeInfo holds a list of all mapping schemes available in the state. This table is a bookkeeping table holding items such as scheme name and creation date.
flSchemeCoastal	ESRI Table	flSchemeCoastal portrays the distribution (expressed in percentages) of foundation types (pile, pier, solid wall, etc.) by occupancy with the building's first floor elevation for each foundation type in coastal areas. Elevation and percentage distribution is provided for pre-FIRM and post-FIRM conditions.

flSchemeGLakes	ESRI Table	flSchemeGLakes portray the distribution (expressed in percentages) of foundation types (pile, pier, solid wall, etc.) by occupancy with the building's first floor elevation for each foundation type in Great Lakes areas. Elevation and percentage distribution is provided for pre-FIRM and post-FIRM conditions
flSchemeRiverine	ESRI Table	flSchemeRiverine portrays the distribution (expressed in percentages) of foundation types (pile, pier, solid wall, etc.) by occupancy with the building's first floor elevation for each foundation type in areas with riverine hazard). Elevation and percentage distribution is provided for pre-FIRM and post-FIRM conditions.
flSchemeMapping	ESRI Table	flSchemeMapping assigns scheme type to each census block in a state.

11.2.1.1. Building Schemes Catalog: hzGenBldgSchemes

Identification:	hzGenBldgSchemes				
Type:	ESRI Table				
Purpose:	This table holds a list of all mapping schemes available in the state. This table is a bookkeeping table holding items such as the scheme name and date of creation.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
BldgSchemesId	Text(10)	F	T		Building scheme unique ID
SchemeName	Text(30)	F	T		Building scheme name
Description	Text(100)	F	N		Scheme description
Created	Date <i>Date/Time</i>	F	T		Scheme creation date
Updated	Date <i>Date/Time</i>	F	T		Scheme modification date
MappingType	Text(2)	F	T, UC	D=Default UE=User-defined in Earthquake Model UF=User-defined in Flood Model UH=User-defined in hurricane Model BT=BIT mapping scheme	Source of scheme (Default, user-defined, or BIT)
<small>* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase</small>					

11.2.1.2. General Building Schemes: hzGenBldgScheme

Identification:	hzGenBldgSchemes				
Type:	ESRI Table				
Purpose:	This table provides percentages for general building type associated with all the mapping schemes in hzGenBldgSchemes. There are 33 records—one for each specific occupancy class (Res1, Res2, Com6, etc.)—for each scheme available in hzGenBldgSchemes. For each record, the percentage of building by general building type (wood, concrete, etc.) is summarized.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
GenBldgSchemeID	Text(10)	F	T		General building scheme unique ID
BldgSchemesId	Text(30)	F	T		Foreign key to BldgSchemesId field in hzGenBldgSchemes table
Occupancy	Text(5)	F	T, UC	RES1, RES2, RES3A, RES3B, RES3C, RES3D, RES3E, RES3F, RES4, RES5, RES6, COM1, COM2, COM3, COM4, COM5, COM6, COM7, COM8, COM9, COM10, IND1, IND2, IND3, IND4, IND5, IND6, AGR1, REL1, GOV1, GOV2, EDU1, EDU2	Occupancy type
Total	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Total
WPct	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage wood
CPct	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage concrete
SPct	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage steel
MPct	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage masonry
HPct	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage manufactured homes

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

11.2.1.3. EQ Building Scheme Relationships Table: eqrlnSchemes

Identification:	hzGenBldgSchemes				
Type:	ESRI Table				
Purpose:	This table keeps a many-to-many relationship between the general mapping schemes (hzGenBldgScheme) and the specific mapping schemes (eqSpcBldgSchemes). In this way, two general schemes (as specified in hzGenBldgSchemes) can share the same scheme definition in eqSpcBldgSchemes for a particular occupancy/building type distribution (for instance, Res1/W2).				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
GenBldgSchemeId	Text(10)	F	T		Building scheme ID in hzGenBldgSchemes table. There must be records in hzGenBldgSchemes with this ID.
eqSpcBldgSchemeId	Text(10)	F	T		Specific building type Scheme ID in eqSpcBldgSchemes table. There must be a record in eqSpcBldgSchemesId with this ID.
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

11.2.1.4. EQ Specific Building Type Schemes Catalog: eqSpcBldgSchemes

Identification:	eqSpcBldgSchemes				
Type:	ESRI Table				
Purpose:	This table holds a list of all specific building type schemes available in the state in tables qSpcBldgSchemes, eqCBldgTypeMp, eqHBldgTypeMp, eqMBldgTypeMp, and eqSBldgTypeMp. This table is a bookkeeping table holding items such as scheme name and creation date.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type(Size)	Index*	Required*	Values	Description
eqSpcBldgScheme sld	Text(10)	F	T		Specific building type scheme unique ID
SchemeName	Text(30)	F	T		Specific building type scheme name
Description	Text(100)	F	F		Scheme description
BldgTypeSource	Text(1)	F	F	Null W=Wood S=Steel C=Concrete M=Masonry H=Manufactured Home	Building type source
Created	Date <i>Date/Time</i>	F	F		Scheme creation date
Updated	Date <i>Date/Time</i>	F	F		Scheme modification date
MappingType	Text(1)	F	T, UC	D=Default UE=User-defined in Earthquake Model UF=User-defined in Flood Model UH=User-defined in hurricane Model BT=BIT mapping scheme	Scheme source (default, user-defined, or BIT)
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

11.2.1.5. EQ Wood Specific Building Type Scheme: eqWBldgTypeMp

Identification:	eqWBldgTypeMp				
Type:	ESRI Table				
Purpose:	eqWBldgTypeMp portrays the percentage of specific wood building type by design level.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
eqWBldgTypeMpId	Text(10)	F	T		General building scheme unique ID
eqSpcBldgScheme sld	Text(30)	F	T		Foreign key to BldgSchemesId field in hzGenBldgSchemes table
DesignLevel	Text(2)	F	F, UC	Null, HC, MC, LC, PC, HS, MS, MS, LS, LS	Building design level. See Appendix C.
W1P	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of wood light frame out of wood structures
W2P	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage wood, commercial, and industrial out of wood structures

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

11.2.1.6. EQ Concrete Specific Building Type Scheme: eqCBldgTypeMp

Identification:	eqCBldgTypeMp				
Type:	ESRI Table				
Purpose:	eqCBldgTypeMp portrays the percentage of specific concrete building by design level.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
eqCBldgTypeMpld	Text(10)	F	T		General building scheme unique ID
eqSpcBldgScheme sld	Text(30)	F	T		This is a foreign key to BldgSchemesId field in hzGenBldgSchemes table
DesignLevel	Text(2)	F	F,UC	Null, HC, MC, LC, PC, HS, MS, MS, LS, LS	Building design level. See Appendix C.
C1LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete moment frame, low-rise, out of concrete structures
C1MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete moment frame, mid-rise, out of concrete structures
C1HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete moment frame, high-rise, out of concrete structures
C2LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete shear wall, low-rise, out of concrete structures
C2MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete shear wall, mid-rise, out of concrete structures
C2HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete shear wall, high-rise, out of concrete structures
C3LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete frame with unreinforced masonry infill walls, low-rise, out of concrete structures
C3MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete frame with unreinforced masonry infill walls, mid-rise, out of concrete structures
C3HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of concrete frame with unreinforced masonry infill walls, high-rise, out of concrete structures
PC1P	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of precast concrete tilt-up walls out of concrete structures
PC2LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of precast concrete frames with concrete shear walls, low-rise, out of concrete structures

PC2MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of precast concrete frames with concrete shear walls, mid-rise, out of concrete structures
PC2HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of precast concrete frames with concrete shear walls, high-rise, out of concrete structures
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

11.2.1.7. EQ Steel Specific Building Type Scheme: eqSBldgTypeMp

Identification:	eqSBldgTypeMp				
Type:	ESRI Table				
Purpose:	eqSBldgTypeMp portrays the percentage of specific steel building by design level.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
eqCBldgTypeMpld	Text(10)	F	T		General building scheme unique ID
eqSpcBldgScheme sld	Text(30)	F	T		Foreign key to BldgSchemesId field in hzGenBldgSchemes table
DesignLevel	Text(2)	F	F,UC	Null, HC, MC, LC, PC, HS, MS, MS, LS, LS	Building design level. See Appendix C.
S1LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel moment frame, low-rise, out of steel structures
S1MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel moment frame, mid-rise, out of steel structures
S1HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel moment frame, high-rise, out of steel structures
S2LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel braced frame, low-rise, out of steel structures
S2MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel braced frame, mid-rise, out of steel structures
S2HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel braced frame, high-rise, out of steel structures
S3P	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel light frame with unreinforced masonry infill walls low-rise, out of steel structures
S4LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel frame with cast-in-place concrete shear walls, mid-rise, out of steel structures
S4MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel frame with cast-in-place concrete shear walls, high-rise, out of steel structures
S4HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel frame with cast-in-place concrete shear walls out of steel structures
S5LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel frame with unreinforced masonry infill walls, low-rise, out of steel structures

S5MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel frame with unreinforced masonry infill walls, mid-rise, out of steel structures
S5HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of steel frame with unreinforced masonry infill walls, high-rise, out of steel structures
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

11.2.1.8. EQ Masonry Specific Building Type Scheme: eqMBldgTypeMp

Identification:	eqMBldgTypeMp				
Type:	ESRI Table				
Purpose:	eqMBldgTypeMp portrays the percentage of specific masonry building by design level.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
eqCBldgTypeMpld	Text(10)	F	T		General building scheme unique ID
eqSpcBldgScheme sld	Text(30)	F	T		Foreign key to BldgSchemesId field in hzGenBldgSchemes table
DesignLevel	Text(2)	F	F, UC	Null, HC, MC, LC, PC, HS, MS, MS, LS, LS	Building design level. See Appendix C.
RM1LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of reinforced masonry bearing walls with wood or metal deck diaphragms, low-rise, out of masonry structures
RM1MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of reinforced masonry bearing walls with wood or metal deck diaphragms, mid-rise, out of masonry structures
RM2LP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of reinforced masonry bearing walls with precast concrete diaphragms, high-rise, out of masonry structures
RM2MP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of reinforced masonry bearing walls with precast concrete diaphragms, low-rise, out of masonry structure
RM2HP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of reinforced masonry bearing walls with precast concrete diaphragms, mid-rise, out of masonry structures
URMLP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of unreinforced masonry bearing walls, high-rise, out of masonry structures
URMMP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of unreinforced masonry bearing walls, low-rise, out of masonry structures

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

**11.2.1.9. EQ Manufactured Homes Specific Building Type Scheme:
eqHBldgTypeMp**

Identification:	eqHBldgTypeMp				
Type:	ESRI Table				
Purpose:	eqHBldgTypeMp portrays the percentage of specific manufactured home building by design level.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) Access Type (Size)	Index*	Required*	Values	Description
eqCBldgTypeMpId	Text(10)	F	T		General building scheme unique ID
eqSpcBldgScheme sld	Text(30)	F	T		Foreign key to BldgSchemesId field in hzGenBldgSchemes table
DesignLevel	Text(2)	F	F UC	Null, HC, MC, LC, PC, HS, MS, MS, LS, LS	Building design level. See Appendix C.
MHP	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of manufactured home structures
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

11.2.1.10. Flood Schemes Catalog: fISchemeInfo

Identification:	fISchemeInfo				
Type:	ESRI Table				
Purpose:	This table holds a list of Flood Model related mapping schemes available in the state. It is a bookkeeping table holding items such as scheme name and date of its creation.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Schemeld	Text(8)	F	T		Building scheme unique ID
SchemeName	Text(50)	F	T		Building scheme name
Created	Date <i>Date/Time</i>	F	T		Scheme creation date
Updated	Date <i>Date/Time</i>	F	T		Scheme modification date
Editable	Short(2) <i>Integer(2)</i>	F	T	0=No 1=Yes	Provides information about if the scheme is editable
Description	Text(100)	F	F		Scheme description
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

11.2.1.11. Flood Riverine Scheme: flSchemeRiverin

Identification:	flSchemeRiverine				
Type:	ESRI Table				
Purpose:	flschemeRiverine portrays the distribution (expressed in percentages) of foundation types (pile, pier, solid wall, etc.) by occupancy with the building's first floor elevation for each foundation type in areas with riverine hazard. Elevation and percentage distribution is provided for pre-FIRM and post-FIRM conditions.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size)	Index*	Required*	Values	Description
Schemeld	Text(10)	F	T		Scheme unique ID
SOccup	Text(5)	F	T, UC	RES1, RES2, RES3A, RES3B, RES3C, RES3D, RES3E, RES3F, RES4, RES5, RES6, COM1, COM2, COM3, COM4, COM5, COM6, COM7, COM8, COM9, COM10, IND1, IND2, IND3, IND4, IND5, IND6, AGR1, REL1, GOV1, GOV2, EDU1, EDU2	Occupancy type
FoundationType	Text(10)	F	T	Pile, Pier, SolidWall, Basement, Crawl, Fill, Slab	Building foundation type
PreFirmDist	Short(2) <i>Integer(2)</i>	F	N	Null or between 0 and 100	Percentage of structures built before FIRM was made for the community
PreFirmHt	Short(2) <i>Integer(2)</i>	F	N		Height of first floor of structures built before a FIRM was made for the community
PostFirmDist	Short(2) <i>Integer(2)</i>	F	N	Null or between 0 and 100	Percentage of structures built after a FIRM was made for the community
PostFirmHt	Short(2) <i>Integer(2)</i>	F	N		Height of first floor of structures built after FIRM was made for the community
HazardType	Text(1)	F	T	R=Riverine C=Coastal L=Great Lake	Hazard type
* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase					

11.2.1.12. Flood Coastal Scheme: fISchemeCoastal

Identification:	fISchemeCoastal				
Type:	ESRI Table				
Purpose:	fISchemeCoastal portrays the distribution (expressed in percentages) of foundation types (pile, pier, solid wall, etc.) by occupancy with the building's first floor elevation for each foundation type in areas with coastal hazard. Elevation and percentage distribution is provided for pre-FIRM and post-FIRM conditions				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Schemeld	Text(10)	F	T		Scheme unique ID
SOccup	Text(5)	F	T, UC	RES1, RES2, RES3A, RES3B, RES3C, RES3D, RES3E, RES3F, RES4, RES5, RES6, COM1, COM2, COM3, COM4, COM5, COM6, COM7, COM8, COM9, COM10, IND1, IND2, IND3, IND4, IND5, IND6, AGR1, REL1, GOV1, GOV2, EDU1, EDU2	Occupancy type
FoundationType	Text(10)	F	T	Pile, Pier, Solid Wall, Basement, Crawl, Fill, Slab	Building foundation type
PreFirmDist	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of structures built before FIRM was made for the community
PreFirmHt	Short(2) <i>Integer(2)</i>	F	F		Height of first floor of structures built before FIRM was made for the community
PostFirmDistAZone	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of structures built in Zone A after FIRM was made for the community
PostFirmHtAZone	Short(2) <i>Integer(2)</i>	F	F		Height of first floor of structures in Zone A built after FIRM was made for the community
PostFirmDistVZone	Short(2) <i>Integer(2)</i>			Null or between 0 and 100	Percentage of structures built in Zone V after FIRM was made for the community
PostFirmHtVZone	Short(2) <i>Integer(2)</i>				Height of first floor of structures in Zone V built after FIRM was made for the community
HazardType	Text(1)	F	T	R=Riverine C=Coastal L=Great Lake	Hazard type

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

11.2.1.13. Flood Great Lakes Scheme: fISchemeGLakes

Identification:	fISchemeGLake				
Type:	ESRI Table				
Purpose:	fISchemeGLake portrays the distribution (expressed in percentages) of foundation types (pile, pier, solid wall, etc.) by occupancy with the building's first floor elevation for each foundation type in Great Lakes area. Elevation and percentage distribution is provided for pre-FIRM and post-FIRM conditions.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
Schemeld	Text(10)	F	T		Scheme unique ID
SOccup	Text(5)	F	T, UC	RES1, RES2, RES3A, RES3B, RES3C, RES3D, RES3E, RES3F, RES4, RES5, RES6, COM1, COM2, COM3, COM4, COM5, COM6, COM7, COM8, COM9, COM10, IND1, IND2, IND3, IND4, IND5, IND6, AGR1, REL1, GOV1, GOV2, EDU1, EDU2	Occupancy type
FoundationType	Text(10)	F	T	Pile, Pier, Solid Wall, Basement, Crawl, Fill, Slab	Building foundation type
PreFirmDist	Long(4) <i>Long Integer(4)</i>	F	F	Null or between 0 and 100	Percentage of structures built before FIRM was made for the community
PreFirmHt	Long(4) <i>Long Integer(4)</i>	F	F		Height of first floor of structures built before FIRM was made for the community
PostFirmDistAZone	Short(2) <i>Integer(2)</i>	F	F	Null or between 0 and 100	Percentage of structures built in Zone A after FIRM was made for the community
PostFirmHtAZone	Short(2) <i>Integer(2)</i>	F	F		Height of first floor of structures in Zone A built after FIRM was made for the community
PostFirmDistVZone	Short(2) <i>Integer(2)</i>			Null or between 0 and 100	Percentage of structures built in Zone V after FIRM was made for the community
PostFirmHtVZone	Short(2) <i>Integer(2)</i>				Height of first floor of structures in Zone V built after FIRM was made for the community
HazardType	Text(1)	F	T	R=Riverine C=Coastal L=Great Lake	Hazard type

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

11.2.1.14. Census Block Scheme Definition: fISchemeMapping

Identification:	fISchemeGLake				
Type:	ESRI Table				
Purpose:	fISchemeMapping assigns scheme type to each census block in a state.				
Data:					
Feature Class Field Definition					
Name	ESRI Type (Size) <i>Access Type (Size)</i>	Index*	Required*	Values	Description
CensusBlock	Text(15)	T, U, A			15 digits of the census block number
Schemeld	Text(10)	F	T		Scheme unique ID
EntryDate	Short(2) <i>Integer(2)</i>	F	F		Community FIRM entry date; year is formatted yyyy (for instance, 2003)
UDPrePct	Short(2) <i>Integer(2)</i>	F	F		

* T=True; F=False; U=Unique; NU=Non-Unique; A=Ascending; D=Descending; UC=Uppercase; LC=Lowercase

Appendix A

Acronyms and Abbreviations

Appendix A

Acronyms and Abbreviations

AHA	American Hospital Association
BIT	Building-Data Import Tool
CAS	Chemical Abstract Service
EF	Essential Facilities
EOC	Emergency Operation Centers
EPA	Environmental Protection Agency
EQ	Earthquake
ESRI	Environmental Systems Research Institute
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIPS	Federal Information Processing Standard
FIRM	Flood Insurance Rate Map
FL	Flood
GBS	General Building Stock
GIS	Geographic Information System
HAZUS-MH MR3	Hazard United States-Multihazard Maintenance Release 3
HPLF	High Potential Loss Facilities
HU	Hurricane
NEHRP	National Earthquake Hazard Reduction Program
POWSAN	Potable Water System Analysis Model
USPS	United States Postal Service

Appendix B
Classification Systems

Appendix B

Classification Systems

Table B.1 Site Classes

Site Class	Site Class Description	Shear Wave Velocity (m/sec)	
		Minimum	Maximum
A	Hard Rock Eastern United States sites only	1500	
B	Rock	760	1500
C	Very Dense Soil and Soft Rock Untrained shear strength $u_s \geq 2000$ psf ($u_s \geq 100$ kPa) or $N \geq 50$ blows/ft	360	760
D	Stiff Soils Stiff soil with undrained shear strength $1000 \text{ psf} \leq u_s \leq 2000 \text{ psf}$ ($50 \text{ kPa} \leq u_s \leq 100 \text{ kPa}$) or $15 \leq N \leq 50$ blows/ft	180	360
	Soft Soils Profile with more than 10 ft (3 m) of soft clay defined as soil with plasticity index $PI > 20$, moisture content $w > 40\%$ and undrained shear strength $u_s < 1000$ psf (50 kPa) ($N < 15$ blows/ft)		180
F	Soils Requiring Site specific Evaluations 1. Soils vulnerable to potential failure or collapse under seismic loading: e.g. liquefiable soils, quick and highly sensitive clays, collapsible weakly cemented soils. 2. Peats and/or highly organic clays (10 ft (3 m) or thicker layer) 3. Very high plasticity clays: (25 ft (8 m) or thicker layer with plasticity index >75) 4. Very thick soft/medium stiff clays: (120 ft (36 m) or thicker layer)		
Source: 1997 National Earthquake Hazard Reduction Program (NEHRP) Provisions			

Table B.2 Structural Building Classifications

No.	Label	Description	Height			
			Range		Typical	
			Name	Stories	Stories	Feet
1	W1	Wood, Light Frame (\leq 5,000 sq.ft.)		1 - 2	1	14
2	W2	Wood, Greater than 5,000 sq. ft.		All	2	24
3	S1L	Steel Moment Frame	Low-Rise	1 - 3	2	24
4	S1M		Mid-Rise	4 - 7	5	60
5	S1H		High-Rise	8+	13	156
6	S2L	Steel Braced Frame	Low-Rise	1 - 3	2	24
7	S2M		Mid-Rise	4 - 7	5	60
8	S2H		High-Rise	8+	13	156
9	S3	Steel Light Frame		All	1	15
10	S4L	Steel Frame with Cast-in-Place Concrete Shear Walls	Low-Rise	1 - 3	2	24
11	S4M		Mid-Rise	4 - 7	5	60
12	S4H		High-Rise	8+	13	156
13	S5L	Steel Frame with Unreinforced Masonry Infill Walls	Low-Rise	1 - 3	2	24
14	S5M		Mid-Rise	4 - 7	5	60
15	S5H		High-Rise	8+	13	156
16	C1L	Concrete Moment Frame	Low-Rise	1 - 3	2	20
17	C1M		Mid-Rise	4 - 7	5	50
18	C1H		High-Rise	8+	12	120
19	C2L	Concrete Shear Walls	Low-Rise	1 - 3	2	20
20	C2M		Mid-Rise	4 - 7	5	50
21	C2H		High-Rise	8+	12	120
22	C3L	Concrete Frame with Unreinforced Masonry Infill Walls	Low-Rise	1 - 3	2	20
23	C3M		Mid-Rise	4 - 7	5	50
24	C3H		High-Rise	8+	12	120
25	PC1	Precast Concrete Tilt-Up Walls		All	1	15
26	PC2L	Precast Concrete Frames with Concrete Shear Walls	Low-Rise	1 - 3	2	20
27	PC2M		Mid-Rise	4 - 7	5	50
28	PC2H		High-Rise	8+	12	120
29	RM1L	Reinforced Masonry Bearing Wall s with Wood or Metal Deck Diaphragms	Low-Rise	1-3	2	20
30	RM2M		Mid-Rise	4+	5	50
31	RM2L	Reinforced Masonry Bearing Wall s with Precast Concrete Diaphragms	Low-Rise	1 - 3	2	20
32	RM2M		Mid-Rise	4 - 7	5	50
33	RM2H		High-Rise	8+	12	120
34	URML	Unreinforced Masonry Bearing Walls	Low-Rise	1 - 2	1	15
35	URMM		Mid-Rise	3+	3	35
36	MH	Mobile Homes		All	1	10

Table B.3 Building Occupancy Classes

Label	Occupancy Class	Example Descriptions
	Residential	
RES1	Single Family Dwelling	House
RES2	Mobile Home	Mobile Home
RES3	Multi Family Dwelling RES3A Duplex RES3B 3-4 Units RES3C 5-9 Units RES3D 10-19 Units RES3E 20-49 Units RES3F 50+ Units	Apartment/Condominium
RES4	Temporary Lodging	Hotel/Motel
RES5	Institutional Dormitory	Group Housing (military, college), Jails
RES6	Nursing Home	
	Commercial	
COM1	Retail Trade	Store
COM2	Wholesale Trade	Warehouse
COM3	Personal and Repair Services	Service Station/Shop
COM4	Professional/Technical Services	Offices
COM5	Banks	
COM6	Hospital	
COM7	Medical Office/Clinic	
COM8	Entertainment & Recreation	Restaurants/Bars
COM9	Theaters	Theaters
COM10	Parking	Garages
	Industrial	
IND1	Heavy	Factory
IND2	Light	Factory
IND3	Food/Drugs/Chemicals	Factory
IND4	Metals/Minerals Processing	Factory
IND5	High Technology	Factory
IND6	Construction	Office
	Agriculture	
AGR1	Agriculture	
	Religion/Non/Profit	

Label	Occupancy Class	Example Descriptions
REL1	Church/Non-Profit	
	Government	
GOV1	General Services	Office
GOV2	Emergency Response	Police/Fire Station/EOC
	Education	
EDU1	Grade Schools	
EDU2	Colleges/Universities	Does not include group housing

Table B.4 Essential Facilities Classification

Label	Occupancy Class	Description
	Medical Care Facilities	
EFHS	Small Hospital	Hospital with less than 50 Beds
EFHM	Medium Hospital	Hospital with beds between 50 & 150
EFHL	Large Hospital	Hospital with greater than 150 Beds
EFMC	Medical Clinics	Clinics, Labs, Blood Banks
	Emergency Response	
EFFS	Fire Station	
EFPS	Police Station	
EFEQ	Emergency Operation Centers	
	Schools	
EFS1	Grade Schools	Primary/ High Schools
EFS2	Colleges/Universities	

Table B.5 High Potential Loss Facilities Classification

Label	Description
	Dams
HPDE	Earth
HPDR	Rock fill
HPDG	Gravity
HPDB	Buttress
HPDA	Arch
HPDU	Multi-Arch
HPDC	Concrete
HPDM	Masonry
HPDS	Stone
HPDT	Timber Crib
HPDZ	Miscellaneous
	Nuclear Power Facilities
HPNP	Nuclear Power Facilities
	Military Installations
HPMI	Military Installations

Table B.6 Highway System Classification

Label	Description
	Highway Roads
HRD1	Major Roads
HRD2	Urban Roads
	Highway Bridges
HWB1	Major Bridge - Length > 150m (Conventional Design)
HWB2	Major Bridge - Length > 150m (Seismic Design)
HWB3	Single Span – (Not HWB1 or HWB2) (Conventional Design)
HWB4	Single Span – (Not HWB1 or HWB2) (Seismic Design)
HWB5	Concrete, Multi-Column Bent, Simple Support (Conventional Design), Non-California (Non-CA)
HWB6	Concrete, Multi-Column Bent, Simple Support (Conventional Design), California (CA)
HWB7	Concrete, Multi-Column Bent, Simple Support (Seismic Design)
HWB8	Continuous Concrete, Single Column, Box Girder (Conventional Design)
HWB9	Continuous Concrete, Single Column, Box Girder (Seismic Design)
HWB10	Continuous Concrete, (Not HWB8 or HWB9) (Conventional Design)
HWB11	Continuous Concrete, (Not HWB8 or HWB9) (Seismic Design)
HWB12	Steel, Multi-Column Bent, Simple Support (Conventional Design), Non-California (Non-CA)
HWB13	Steel, Multi-Column Bent, Simple Support (Conventional Design), California (CA)
HWB14	Steel, Multi-Column Bent, Simple Support (Seismic Design)
HWB15	Continuous Steel (Conventional Design)
HWB16	Continuous Steel (Seismic Design)
HWB17	PS Concrete Multi-Column Bent, Simple Support - (Conventional Design), Non-California
HWB18	PS Concrete, Multi-Column Bent, Simple Support (Conventional Design), California (CA)
HWB19	PS Concrete, Multi-Column Bent, Simple Support (Seismic Design)
HWB20	PS Concrete, Single Column, Box Girder (Conventional Design)
HWB21	PS Concrete, Single Column, Box Girder (Seismic Design)
HWB22	Continuous Concrete, (Not HWB20/HWB21) (Conventional Design)
HWB23	Continuous Concrete, (Not HWB20/HWB21) (Seismic Design)
HWB24	Same definition as HWB12 except that the bridge length is less than 20 meters
HWB25	Same definition as HWB13 except that the bridge length is less than 20 meters
HWB26	Same definition as HWB15 except that the bridge length is less than 20 meters and Non-CA
HWB27	Same definition as HWB15 except that the bridge length is less than 20 meters and in CA
HWB28	All other bridges that are not classified (including wooden bridges)
	Highway Tunnels
HTU1	Highway Bored/Drilled Tunnel
HTU2	Highway Cut and Cover Tunnel

Table B.7 Railway System Classification

Label	Description
RTR1	Railway Tracks
RTR1	Railway Tracks
RTR1	Railway Bridges
RLB1	Steel, Multi-Column Bent, Simple Support (Conventional Design), Non-California (Non-CA)
RLB2	Steel, Multi-Column Bent, Simple Support (Conventional Design), California (CA)
RLB3	Steel, Multi-Column Bent, Simple Support (Seismic Design)
RLB4	Continuous Steel (Conventional Design)
RLB5	Continuous Steel (Seismic Design)
RLB6	Same definition as HWB1 except that the bridge length is less than 20 meters
RLB7	Same definition as HWB2 except that the bridge length is less than 20 meters
RLB8	Same definition as HWB4 except that the bridge length is less than 20 meters and Non-CA
RLB9	Same definition as HWB5 except that the bridge length is less than 20 meters and in CA
RLB10	All other bridges that are not classified
RST	Railway Urban Station
RST	Rail Urban Station (with all building type options enabled)
	Railway Tunnels
RTU1	Rail Bored/Drilled Tunnel
RTU2	Rail Cut and Cover Tunnel
	Railway Fuel Facility
RFF	Rail Fuel Facility (different combinations for with or without anchored components and/or with or without backup power)
	Railway Dispatch Facility
RDF	Rail Dispatch Facility (different combinations for with or without anchored components and/or with or without backup power)
	Railway Maintenance Facility
RMF	Rail Maintenance Facility (with all building type options enabled)

Table B.8 Light Rail System Classification

Label	Description
	Light Rail Tracks
LTR1	Light Rail Track
	Light Rail Bridges
LRB1	Steel, Multi-Column Bent, Simple Support (Conventional Design), Non-California (Non-CA)
LRB2	Steel, Multi-Column Bent, Simple Support (Conventional Design), California (CA)
LRB3	Steel, Multi-Column Bent, Simple Support (Seismic Design)
LRB4	Continuous Steel (Conventional Design)
LRB5	Continuous Steel (Seismic Design)
LRB6	Same definition as HWB1 except that the bridge length is less than 20 meters
LRB7	Same definition as HWB2 except that the bridge length is less than 20 meters
LRB8	Same definition as HWB4 except that the bridge length is less than 20 meters and Non-CA
LRB9	Same definition as HWB5 except that the bridge length is less than 20 meters and in CA
LRB10	All other bridges that are not classified
	Light Rail Tunnels
LTU1	Light Rail Bored/Drilled Tunnel
LTU2	Light Rail Cut and Cover Tunnel
	DC Substation
LDC1	Light Rail DC Substation w/ Anchored Sub-Components
LDC2	Light Rail DC Substation w/ Unanchored Sub-Components
	Dispatch Facility
LDF	Light Rail Dispatch Facility (different combinations for with or without anchored components and/or with or without backup power)
	Maintenance Facility
LMF	Maintenance Facility (with all building type options enabled)

Table B.9 Bus System Classification

Label	Description
	Bus Urban Station
BPT	Bus Urban Station (with all building type options enabled)
	Bus Fuel Facility
BFF	Bus Fuel Facility (different combinations for with or without anchored components and/or with or without backup power)
	Bus Dispatch Facility
BDF	Bus Dispatch Facility (different combinations for with or without anchored components and/or with or without backup power)
	Bus Maintenance Facility
BMF	Bus Maintenance Facilities (with all building type options enabled)

Table B.10 Port and Harbor System Classification

Label	Description
	Waterfront Structures
PWS	Waterfront Structures
	Cranes/Cargo Handling Equipment
PEQ1	Stationary Port Handling Equipment
PEQ2	Rail Mounted Port Handling Equipment
	Warehouses
PWH	Port Warehouses (with all building type options enabled)
	Fuel Facility
PFF	Port Fuel Facility (different combinations for with or without anchored components and/or with or without backup power)

Table B.11 Ferry System Classification

Label	Description
	Water Front Structures
FWS	Ferry Waterfront Structures
	Ferry Passenger Terminals
FPT	Passenger Terminals (with all building type options enabled)
	Ferry Fuel Facility
FFF	Ferry Fuel Facility (different combinations for with or without anchored components and/or with or without backup power)
	Ferry Dispatch Facility
FDF	Ferry Dispatch Facility (different combinations for with or without anchored components and/or with or without backup power)
	Ferry Maintenance Facility
FMF	Piers and Dock Facilities (with all building type options enabled)

Table B.12 Airport System Classification

Label	Description
	Airport Control Towers
ACT	Airport Control Tower (with all building type options enabled)
	Airport Terminal Buildings
ATB	Airport Terminal Building (with all building type options enabled)
	Airport Parking Structures
APS	Airport Parking Structure (with all building type options enabled)
	Fuel Facilities
AFF	Airport Fuel Facility (different combinations for with or without anchored components and/or with or without backup power)
	Airport Maintenance & Hangar Facility
AMF	Airport Maintenance & Hangar Facility (with all building type options enabled)
ARW	Airport Runway
	Airport Facilities - Others
AFO	Gliderport, Seaport, Stolport, Ultralight or Balloonport Facilities
AFH	Heliport Facilities

Table B.13 Potable Water System Classification

Label	Description
	Pipelines
PWP1	Brittle Pipe
PWP2	Ductile Pipe
	Pumping Plants
PPPL	Large Pumping Plant (> 50 MGD) [different combinations for with or without anchored components]
PPPM	Medium Pumping Plant (10 to 50 MGD) [different combinations for with or without anchored components]
PPPS	Small Pumping Plant (< 10 MGD) [different combinations for with or without anchored components]
	Wells
PWE	Wells
	Water Storage Tanks (Typically, 0.5 MGD to 2 MGD)
PSTAS	Above Ground Steel Tank
PSTBC	Buried Concrete Tank
PSTGC	On Ground Concrete Tank
PSTGS	On Ground Steel Tank
PSTGW	On Ground Wood Tank
	Water Treatment Plants
PWTL	Large WTP (> 200 MGD) [different combinations for with or without anchored components]
PWTM	Medium WTP (50-200 MGD) [different combinations for with or without anchored components]
PWTS	Small WTP (< 50 MGD) [different combinations for with or without anchored components]

Table B.14 Waste Water System Classification

Label	Description
	Buried Pipelines
WWP1	Brittle Pipe
WWP2	Ductile Pipe
	Waste Water Treatment Plants
WWTL	Large WWTP (> 200 MGD) [different combinations for with or without anchored components]
WWTM	Medium WWTP (50-200 MGD) [different combinations for with or without anchored components]
WWTS	Small WWTP (< 50 MGD) [different combinations for with or without anchored components]
	Lift Stations
WLSL	Large Lift Stations (> 50 MGD) [different combinations for with or without anchored components]
WLSM	Medium Lift Stations (10 MGD - 50 MGD) [different combinations for with or without anchored components]
WLSS	Small Lift Stations (< 10 MGD) [different combinations for with or without anchored components]

Table B.15 Oil System Classification

Label	Description
	Pipelines
OIP1	Welded Steel Pipe with Gas Welded Joints
OIP2	Welded Steel Pipe with Arc Welded Joints
	Refineries
ORFL	Large Refinery (> 500,000 lb./day) [different combinations for with or without anchored components]
ORFM	Medium Refinery (100,000 - 500,000 lb./ day) [different combinations for with or without anchored components]
ORFS	Small Refinery (< 100,000 lb./day) [different combinations for with or without anchored components]
	Pumping Plants
OPP	Pumping Plant [different combinations for with or without anchored components]
	Tank Farms
OTF	Tank Farms with Anchored Tanks [different combinations for with or without anchored components]

Table B.16 Natural Gas System Classification

Label	Description
	Buried Pipelines
NGP1	Welded Steel Pipe with Gas Welded Joints
NGP2	Welded Steel Pipe with Arc Welded Joints
	Compressor Stations
NGC	Compressor Stations [different combinations for with or without anchored components]

Table B.17 Electric Power System Classification

Label	Description
	Transmission Substations
ESSL	Low Voltage (115 KV) Substation [different combinations for with or without anchored components]
ESSM	Medium Voltage (230 KV) Substation [different combinations for with or without anchored components]
ESSH	High Voltage (500 KV) Substation [different combinations for with or without anchored components]
	Distribution Circuits
EDC	Distribution Circuits (either Seismically Designed Components or Standard Components)
	Generation Plants
EPPL	Large Power Plants (> 500 MW) [different combinations for with or without anchored components]
EPPM	Medium Power Plants (100 - 500 MW) [different combinations for with or without anchored components]
EPPS	Small Power Plants (< 100 MW) [different combinations for with or without anchored components]

Table B.18 Communication Classification

Label	Description
	Central Offices
CCO	Central Offices (different combinations for with or without anchored components and/or with or without backup power)
	Stations or Transmitters
CBR	AM or FM radio stations or transmitters
CBT	TV stations or transmitters
CBW	Weather stations or transmitters
CBO	Other stations or transmitters

Appendix C
New Design Level

Appendix C

New Design Level

Design level is a combination of Seismic Design Level and Building Quality and is explicitly considered in the earthquake model. The table below shows how Seismic Design Level and Building Quality are combined to obtain the seven design levels used by the methodology.

New Code	Description	Old Code Combination	
		BldgQuality	DesignLevel
HC	High – Code	Code	High
MC	Moderate - Code	Code	Moderate
LC	Low – Code	Code	Low
PC	Pre – Code	Inferior	Low
HS	Special High – Code	Superior	High
MS	Special Moderate – Code	Superior	Moderate
MS	Special Moderate – Code	Inferior	High
LS	Special Low – Code	Superior	Low
LS	Special Low – Code	Inferior	Moderate