

**TABLE DOCUMENTATION
FEMA HAZUS (2011)
Critical Facilities**

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1. DATASET IDENTIFICATION

1.1 Title of Catalog document
FEMA HAZUS – Critical Facilities, 2011
<http://stics.noaa.gov>

1.2 Authors of the Catalog entry
Percy A. Pacheco

1.3 Catalog revision date
November 23, 2012

1.4 Dataset names

Data aggregated by Counties: hazus_cnty

Data aggregated by State: hazus_st

Data aggregated by CAF watersheds: hazus_caf_watersheds

Data aggregated by FEMA special flood hazard area: hazus_fema_sfha

Data aggregated by NEP study areas: hazus_nep_stdyareas

Data aggregated by NEP watersheds: hazus_nep_watersheds (no estimates for Columbia River and Mississippi River)

Data aggregated by EPA large aquatic areas: hazus_nep_lae (no estimates for Columbia River)

Data aggregated by NERRS targets: hazus_nerrs_targets

Data aggregated by NERRS watersheds: hazus_nerrs_watersheds

Data aggregated by CZMA coastal zone boundaries: hazus_cz

Data aggregated by a 50 Mile Buffer Area from the Coastline: hazus_50miles

Data aggregated by Hurricane Prone Areas: hazus_hurricane

1.5 Task Group

NOS/Special Projects – Socioeconomic Trends Project

1.6 Dataset identification code

001

1.7 Version

001

1.8 Request for Acknowledgment

NOAA requests that all individuals who download Socioeconomic data acknowledge the source of these data in any reports, papers, or presentation. If you publish these data, please include a statement similar to: "Some or all of the data described in this article were produced by the U.S. National Oceanic and Atmospheric Administration through the National Ocean Service (NOS) Special Projects (SP) Division".

2. INVESTIGATOR INFORMATION (for full addresses see Section 13)

2.1 Principal Investigators

Percy A. Pacheco, Project Leader, National Oceanic and Atmospheric Administration (NOAA), Special Projects (SP) Division

Brent Ache, National Oceanic and Atmospheric Administration (NOAA), Special Projects (SP) Division.

2.2 Sample Collection Investigators

N/A

2.3 Sample Processing Investigators

N/A

3. DATASET ABSTRACT

3.1 Abstract of the Dataset

The critical facilities data came from FEMA's HAZUS database and represent available information circa 2011. A critical facility is defined as a structure that, if flooded, would present an immediate threat to life, public health, and safety. The data may not be exhaustive, more thorough data exist both nationally and at the local level. HAZUS breaks critical facilities into two (2) groups: essential facilities and high potential loss (HPL) facilities. Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

Within HAZUS, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications.

For STICS purposes, the lifeline inventory systems are also called critical facilities. In total, STICS has selected 18 systems or critical facilities to obtain counts of them in all of the STICS jurisdictions. In alphabetical order, these systems are:

Airport facilities, bus facilities, medical facilities, communication facilities, dams, electrical power facilities, emergency operation facilities, fire stations, hazardous material sites, highway bridges, oil systems facilities, police stations, port facilities, potable water facilities, railways facilities, railway bridges, schools, wastewater facilities.

For more information about the FEMA HAZUS Critical Facility Inventory and the Transportation and Utility Lifeline Inventory, refer to the [Hazus](#) document (The ShakeOut Scenario - Supplemental Study) prepared by MMI engineering, Inc.

3.2 Keywords for the Dataset

socioeconomic, HAZUS, Critical Facilities, flooding

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

Special Projects (SP) is one of seven Divisions within the Office of Management and Budget of the National Ocean Service (NOS). This mission of Special Projects is to promote the NOS coastal stewardship mission by providing NOS and its partners with integrated approaches to planning and management, a national assessment capability complementary to other NOS programs, and an innovative program of information synthesis and dissemination.

4.2 Dataset Objective

Many of the goals of those involved in environmental management and policy include finding the balance in the coexistence of natural ecosystems and human society, therefore a complete picture of the geographic patterns of human activity and its relationship to the coastal environment is needed. Critical facilities play a central role in disaster response and recovery. Understanding which facilities are exposed, and the degree of that exposure, can help reduce or eliminate service interruptions and costly redevelopment. Incorporating this information and development planning helps communities get back on their feet.

4.3 Background Discussion

HAZUS-MH 2.0 Critical Facilities Database was provided by FEMA in DVD format. For technical support regarding the installation of Hazus-MH, call 1-877-283-8789

4.4 Summary of Dataset Parameters

The common variables that are available for the data aggregated by selected jurisdictions in STICS are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
airport	Airport Facilities	Airport Facilities (table in Hazus database: hzAirportFlty)	Number
bus	Bus Facilities	Bus Facilities (table in Hazus database: hzBusFlty)	Number
care	Medical Facilities	Medical Facilities (table in Hazus database: hzCareFlty)	Number
communication	Communication Towers	Communication Facilities (table in Hazus database: hzCommunicationFlty)	Number

dams	Dams	Dams (table in Hazus database: hzDams)	Number
electric	Electric Power Facilities	Electric Power Facilities (table in Hazus database: hzElectricPowerFty)	Number
emergency	Emergency Centers	Emergency Operation Facilities (table in Hazus database: hzEmergencyCtr)	Number
fire	Fire Stations	Fire Stations (table in Hazus database: hzFireStation)	Number
hazmat	Hazardous Material Sites	Hazardous Material Sites (table in Hazus database: hzHazmat)	Number
hwybridge	Highway Bridges	Hazardous Material Sites (table in Hazus database: hzHazmat)	Number
hwybridge	Highway Bridges	Highway Bridges (table in Hazus database: hzHighwayBridge)	Number
oil	Oil Facilities	Oil System Facilities (table in Hazus database: hzOilFty)	Number
police	Police Stations	Police Stations (table in Hazus database: hzPoliceStation)	Number
potable	Potable Water Facilities	Potable Water Facilities (table in Hazus database: hzPotableWaterFty)	Number
railfacil	Rail Facilities	Railways Facilities (table in Hazus database: hzRailFty)	Number
railbridge	Rail Bridges	Railways Bridges (table in Hazus database: hzRailwayBridge)	Number
school	Schools	Schools (table in Hazus database: hzSchool)	Number
wastewater	Wastewater Facilities	Wastewater Facilities (table in Hazus database: hzWasteWaterFty)	Number

The variables that occur only within the data aggregated by NERRS Large Estuary Watershed (hazus_nerrs_watersheds) table are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
WSHDCODE	Large Estuary Watershed Code	4-digit Large Estuary Watershed Code	
WSHDNAME	NERRS Large Estuary Watershed Name	National Estuary Research Reserve System (NERRS) Large Estuary Watershed Name	
LANDSQMI	Land Area	Land Area of the NERRS Large Estuary Watershed	sqmi

The variables that occur only within the data aggregated by NERRS Target Watershed (hazus_nerrs_targets) table are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
WSHDCODE	Target Watershed Code	4-digit Target Watershed Code	
WSHDNAME	NERRS Target Watershed Name	National Estuary Research Reserve System (NERRS) Target Watershed Name	
LANDSQMI	Land Area	Land Area of the NERRS Target Watershed	sqmi

The variables that occur only within the data aggregated by NEP Watersheds (hazus_nepwatersheds) table are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
NEP_ID	Watershed ID	6-digit Watershed ID.	

NEP_NAME	Watershed	National Estuary Program (NEP) Watershed Name	
LANDSQMI	Land Area	NEP Watershed Land Area (sqmi)	sqmi

The variables that occur only within the data aggregated by NEP Study Areas (hazus_nepstudyareas) table are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
NEP_ID	Study Area ID	6-digit Watershed ID.	
NEP_NAME	NEP Study Area Name	National Estuary Program (NEP) Watershed Name	
LANDSQMI	Land Area	NEP Watershed Land Area (sqmi)	sqmi

The variables that occur only within the data aggregated by EPA LAE (hazus_neplae) table are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
NEP_ID	Large Aquatic Ecosystems ID	1-digit Large Aquatic Ecosystems ID	
NEP_NAME	EPA Large Aquatic Ecosystems Name	Environmental Protection Agency (EPA) Large Aquatic Ecosystems Name	
LANDSQMI	Land Area	Environmental Protection Agency (EPA) Large Aquatic Ecosystems Land Area (sqmi)	sqmi

The variables that occur only within the data aggregated by County in FEMA's 100-Yr Special Flood Hazard Area (SFHA) (coastal+riverine) (hazus_fema_sfha) table are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
FIPS_FEMA	FIPS Code	Federal Information Processing Standard (FIPS) Code (2-digit state and 3-digit county)	
CTYSTATE	County Name and State Abbreviation	County Name and State Abbreviation	
LANDSQMI	Area (sqmi) of FEMA's CFHA in the county	Area (sqmi) of FEMA's 100-yr Coastal Flood Hazard Area (SFHA) in the county	sqmi

The variables that occur only within the data aggregated by NOAA's Coastal Watershed (estuarine and coastal drainage areas) (hazus_caf_watersheds) table are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
SPATLINK	Link Code to Geography	Link Code to Geography (EDASUBEDA + DR_CODE)	
EDASUBEDA	EDA and SUB-EDA Code	EDA/CDA/FDA Watershed Code	
DR_CODE	EDA/FDA Code	Drainage code indicating unique is in an Estuarine Drainage Area (EDA), Fluvial Drainage Area (FDA) or interior	
SUB_NAME	EDA and SUB-EDA Name	EDASUBEDA Sub-system Name	
EDACODE	Watershed Code	4-digit Watershed Code (no subsystems)	
EDA_NAME	Watershed Name	4-digit Watershed Name (no subsystems)	
LANDSQMI	EDASUBEDA Land Area	EDASUBEDA Land Area (sqmi)	sqmi
WATRSQMI	EDASUBEDA Water Area	EDASUBEDA Water Area (sqmi)	

REGION	Coastal Assessment Framework Region Code	NOAA Coastal Assessment Region; (N = North Atlantic Region, S= South Atlantic, G = Gulf of Mexico, P = Pacific, L = Great Lakes, U = Interior, X = International)	
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The variables that occur only within the data aggregated by USGS Hydrologic Cataloging Unit (hazus_usgs_hucs) table are shown below.

HHUC	8-Digit USGS Cataloging Unit Code	8-Digit USGS Cataloging Unit (character field)	
HUC	8-Digit USGS Cataloging Unit	8-Digit USGS Cataloging Unit (numeric field)	
HUC_NAME	8-Digit USGS Cataloging Unit Name	8-Digit USGS Cataloging Unit Name	
REGIONUSGS	Region Code	Water Resource Region Code (2 first digits of HUC)	
SUBREGION	Subregion Code	Sub-region Code (4 first digits of HUC)	
ACC_UNIT	Accounting Unit code	Accounting Unit code (6 first digits of HUC)	
LANDSQMI	Land Area	USGS Cataloging Unit Land Area in Square Miles	sqmi

The variables that occur only within the data aggregated by State-Hurricane Prone Areas (areas vulnerable to hurricane-force winds) (hazus_hurricane) table are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
ST_ABBR	State Abbreviation Code	The 2 digits USPS State Abbreviation Code	
LANDSQMI	Area of Hurricane Prone	Area vulnerable to hurricane-force winds in the State	sqmi

The variables that occur only within the data aggregated by the area within a 50 mile fixed-distance from the coastline (hazus_50miles table) are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
ST_ABBR	State Abbreviation Code	The 2 digits USPS State Abbreviation Code	
LANDSQMI	Area of 50 mile buffer	Area within a 50 mile fixed-distance from the coastline in the State	sqmi

The variables that occur only within the data aggregated by the CZMA Coastal Zone state boundaries (hazus_cz table) are shown below.

Field Name	Description/Long Name	Definitions/Contents	Units
ST_ABBR	State Abbreviation Code	The 2 digits USPS State Abbreviation Code	
LANDSQMI	Area of coastal zone	Area within a coastal zone in the state	sqmi

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition / Field Sampling N/A

5.1.1 Sampling Objective

N/A

5.1.2 Sample Collection: Methods Summary

N/A

5.1.3 Beginning Sampling Date

N/A

5.1.4 Ending Sampling Dates

N/A

5.1.5 Sampling Platform

N/A

5.1.6 Sampling Equipment

N/A

5.1.7 Manufacturer of Sampling Equipment

N/A

5.1.8 Key Variables

N/A

5.1.9 Sample Collection: Methods Calibration

N/A

5.1.10 Sample Collection: Quality Control

N/A

5.1.11 Sample Collection: References

N/A

5.1.12 Sample Collection: Alternate Methods

N/A

5.2 Data Preparation and Sample Processing

N/A

5.2.1 Sample Processing Objective

N/A

5.2.3 Sample Processing: Methods Calibration

N/A

5.2.4 Sample Processing: Quality Control

N/A

5.2.5 Sample Processing: References

N/A

5.2.6 Sample Processing: Alternate Methods

N/A

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Values

N/A

6.2 Data Manipulation: Description

The Critical Facilities data were obtained in several ESRI geo-database tables by State. A python script was developed to create a single national shapefile for each of the 18 critical facilities selected for STICS. An ESRI Model builder script was then developed to tag each of the 18 national critical facilities to each of the STICS jurisdictions. A SAS macro was then written to read the .dbf file of the shapefiles to obtain both the counts of critical facilities on each of the STICS jurisdictions and to develop the final data tables.

7. DATA DESCRIPTION

7.1 Description of Parameters

Please refer to section 4.4.

7.1.1 Components of the Dataset

Please refer to section 4.4.

7.1.2 Precision of Reported Values

Please refer to section 4.4.

7.1.3 Minimum Value in Dataset

The data varies per socio economic variable

7.1.4 Maximum Value in Dataset

The data varies per socio economic variable

7.2 Data Record Example

N/A

7.2.1 Column Names for Example Records

Please refer to section 4.4.

7.2.2 Examples of Data Records

Please refer to section 4.4

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude (Westernmost)

-178.22

8.2 Maximum Longitude (Easternmost)

-66.97

8.3 Minimum Latitude (Southernmost)

18.93

8.4 Maximum Latitude (Northernmost)

71.41

8.5 Name of Region

United States

9. QUALITY CONTROL AND QUALITY ASSURANCE

9.1 Measurement Quality Objectives

These data are reported in a separate file.

9.2 Data Quality Assurance Procedures

Counts of certain critical facilities in certain counties were compared against similar counts found in Internet sites. The differences found were in the range of 0.5% difference.

9.3 Actual Measurement Quality

All of the data reported in these data files met the QA specifications.

10. DATA ACCESS

10.1 Data Access Procedures

Data can be downloaded from the web at <http://stics.noaa.gov/download/download2.html>

10.2 Data Access Restrictions

None

10.3 Data Access Contact Persons

Percy A. Pacheco, NOAA/NOS/MB/SP
301-713-3000, Percy.Pacheco@noaa.gov

10.4 Dataset Format

ASCII (tab delimited) and SAS Export files

10.5 Information Concerning Anonymous FTP

Not available

10.6 Information Concerning WWW

See Section 10.1 for WWW access

10.7 CD-ROM Containing the Dataset

Not available

11. REFERENCES

N/A

12. TABLE OF ACRONYMS

CAF	Coastal Assessment Framework
CDA	Coastal Drainage Area
CSV	Comma Separated Value
CZMA	Coastal Zone Management Act
EDA	Estuarine Drainage Area
ESRI	Environmental Systems Research Institute
FEMA	Flood Emergency Management Agency
FIPS	Federal Information Processing Standard
FDA	Fluvial Drainage Area
GDP	Gross Domestic Product
GSP	Gross State Product
HAZUS	Geographic information system-based natural hazard loss estimation software package developed and freely distributed by FEMA
HUC	Hydrologic Unit Code
MB	Management and Budget
NEP	National Estuary Program
NERRS	National Estuary Research Reserve System
NOAA	National Oceanic and Atmospheric Administration

NOS	National Ocean Service
SAS	Statistical Analysis System (software)
SP	Special Projects
STICS	Spatial Trends in Coastal Socioeconomics
QA/QC	Quality Assurance/Quality Control
USGS	United States Geological Survey
USPS	United States Postal Service
WWW	World Wide Web

13. PERSONNEL INFORMATION

Percy Pacheco, Lead
NOAA/NOS/MB/Special Projects
1305 East West Highway, 9th Floor SSMC4, Silver Spring, MD 20910-3281
301-713-3000, 301-713-4384 (FAX), Percy.Pacheco@noaa.gov

Brent Ache
NOAA/NOS/MB/Special Projects
1305 East West Highway, 9th Floor SSMC4, Silver Spring, MD 20910-3281
301-713-3000, 301-713-4384 (FAX), Brent.Ache@noaa.gov