

APPENDIX B: GLOSSARY OF TERMS

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100-year flood. A flood that has a 1 percent chance of occurring in any given year. A 100-year flood is also referred to as a base flood.

500-year flood. A flood that has a 0.2 percent chance of occurring in any given year.

Aggregate data. Data gathered together in an area such as a Census tract.

Areal Locations of Hazardous Atmospheres (ALOHA). A computer program that uses information that you provide along with physical property data from its extensive chemical library to predict how a hazardous gas cloud might disperse in the atmosphere after an accidental chemical release. ALOHA can predict rates of chemical release from broken gas pipes, leaking tanks, and evaporating puddles, and it can model the dispersion of both neutrally buoyant and heavier-than-air gases.

Asset. Any manmade or natural feature that has value, including people; buildings; infrastructure such as bridges, roads, and sewer and water systems; lifelines such as electricity and communication resources; and environmental, cultural, or recreational features such as parks, dunes, wetlands, and landmarks.

Base flood. A flood that has a 1 percent probability of being equaled or exceeded in any given year. It is also known as the 100-year flood.

Base Flood Elevation (BFE). The elevation of the base flood in relation to a specified datum such as the National Geodetic Vertical Datum of 1929. The BFE is used as the standard for the National Flood Insurance Program (NFIP).

Building. A structure that is walled, roofed, principally above ground, and permanently affixed to a site. The term also applies to a manufactured home on a permanent foundation on which the wheels and axles carry no weight.

Critical facility. Facilities that are critical to the health and welfare of the population and that are especially important following hazard events. Critical facilities include essential facilities, transportation systems, lifeline utility systems, high potential loss facilities, and hazardous material facilities.

Dam failure. A breach of a dam that can occur for a number of reasons, such as flash flooding, inadequate spillways, mechanical failure of valves or other equipment, rodent activities (in earthen dams), freezing and thawing cycles, earthquakes, and intentional destruction.

Debris. The scattered remains of assets broken or destroyed in a hazard event. Debris caused by a wind or water hazard event can result in additional damage to other assets.

Digital elevation model (DEM). A data file that contains digital representations of cartographic information in a raster form. DEMs consist of a sampled array of elevations for a number of ground positions at regularly spaced intervals. These digital data files are produced by the U.S. Geological Survey (USGS) as part of the National Mapping Program.

Digital quality level 3 flood data (Q3). Digital representations of certain features of Flood Insurance Rate Maps (FIRMs). Digital Q3s are intended for use with desktop mapping and geographic information system (GIS) technology.

The Disaster Mitigation Act of 2000 (DMA 2000). A law that encourages and rewards local and state pre-disaster planning, promotes sustainability as a strategy for disaster resistance, and is intended to integrate state and local planning with the aim of strengthening statewide mitigation planning.

Displacement time. The average time (in days) that a building's occupants typically must operate from a temporary location while repairs are being made to the building because of damages resulting from a hazard event.

Drought. A period of time without substantial rainfall that persists from one year to the next. Droughts can affect large areas and can range in scope from a few counties to several states. Along with decreasing water supplies for human consumption and use, droughts can damage or destroy crops, grazing land, edible plants, and trees.

Duration. How long a hazard event lasts.

Earthquake. A sudden motion or trembling of the earth's crust that is caused by a release of strain accumulated within or along the edge of the earth's tectonic plates.

Erosion. Wearing away of the land surface by means of detachment and movement of soil and rock fragments. Erosion occurs during a flood or storm or over a period of years through the action of wind, water, or geologic processes.

Erosion hazard area. An area of land anticipated to be lost to shoreline recession over a given period of time. The projected inland extent of the area is measured by multiplying the average annual long-term recession rate by a given number of years.

Essential facility. A facility that is important to a full recovery of a community or state following a hazard event. Essential facilities include government functions; major employers; banks; schools; and certain commercial establishments such as grocery stores, hardware stores, and gasoline stations.

Extent. The size of an area affected by a hazard or hazard event.

Federal Emergency Management Agency (FEMA). An independent agency created in 1978 to provide a single point of accountability for all Federal activities related to disaster mitigation and emergency preparedness, response, and recovery. FEMA is now a part of the Department of Homeland Security.

Fire Potential Index (FPI). Developed by USGS and the U.S. Forest Service (USFS) to assess and map the fire hazard potential over broad areas. Based on geographic information, makers of national policy and fire managers have established priorities for prevention activities in a defined area to reduce the risk of manmade fire and wildfire ignition and spread. Prediction of a fire hazard shortens the time between fire ignition and initial emergency response by enabling fire managers to pre-allocate and stage suppression forces for high fire risk areas.

Flash flood. A flood event occurring with little or no warning where water levels rise extremely quickly.

Flood. A general and temporary condition of partial or complete inundation of normally dry land areas resulting from (1) overflow of inland or tidal waters, (2) unusual and rapid accumulation or runoff of surface waters from any source, or (3) mudflows or the sudden collapse of shoreline land.

Flood depth. The height of the flood water surface above the ground surface.

Flood elevation. The elevation of the flood water surface above an established datum such as the National Geodetic Vertical Datum of 1929, the North American Vertical Datum of 1988, or mean sea level.

Flood hazard area. The area shown to be inundated by a flood of a given magnitude on a map.

Flood Information Tool (FIT). A tool designed to process and convert locally available flood information into data that can be used by the Hazards U.S. (HAZUS) flood module. The FIT is a system of instructions, tutorials, and GIS scripts. When provided with user-supplied inputs (e.g., ground elevations, flood elevations, and floodplain boundary information), the FIT calculates flood depths and elevations for riverine and coastal flood hazards.

Flood Insurance Rate Map (FIRM). A map of a community prepared by FEMA that shows both special flood hazard areas and the risk premium zones applicable to the community.

Flood Insurance Study (FIS). A study that provides an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations in a community or communities.

Floodplain. Any land area, including any watercourse, that is susceptible to partial or complete inundation by water from any source.

Frequency. A measure of how often events of a particular magnitude are expected to occur. Frequency describes how often a hazard of a specific magnitude, duration, or extent typically occurs. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average and has a 1 percent chance (its probability) of happening in any given year. The reliability of frequency information varies depending on the kind of hazard being considered.

Fujita scale of tornado intensity. A scale that rates tornadoes with numeric values ranging from F0 to F5 based on wind speed and damage sustained. An F0 rating indicates minimal damage such as broken tree limbs or signs, while an F5 indicates severe damage.

Geographic Information System (GIS). A computer software application that relates physical features on the earth to a database to be used for mapping and analysis.

Hailstorm. A storm of spherical balls of ice. Hail is a product of thunderstorms or intense showers. It is generally white and translucent, consisting of liquid or snow particles encased with layers of ice. Hail is formed within the high portion of a well-organized thunderstorm. When hailstones become too heavy to be caught in an updraft and carried back into the clouds of a thunderstorm (hailstones can be caught in numerous updrafts, adding a coating of ice to the original frozen droplets each time), they then fall as hail, and a hailstorm occurs.

Hazard. A source of potential danger or adverse conditions. Hazards in this How-To Guide include natural events such as floods, earthquakes, tornadoes, tsunamis, coastal storms, landslides, and wildfires that strike populated areas. A natural event is a hazard when it has the potential to harm people or property.

Hazard event. A specific occurrence of a particular type of hazard.

Hazard identification. The process of identifying the hazards that threaten an area.

Hazard mitigation. Sustained actions taken to reduce or eliminate the long-term risks associated with hazards and their effects.

Hazardous material facilities. Facilities housing hazardous materials such as corrosives, explosives, flammable materials, radioactive materials, and toxins.

Hazard profile. A description of the physical characteristics of hazards and a presentation of various hazard descriptors, including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are displayed on maps.

Hazards U.S. (HAZUS). A GIS-based, nationally standardized earthquake loss estimation tool developed by FEMA.

Hazards U.S. – Multi-Hazard (HAZUS-MH). A GIS-based, nationally standardized earthquake, flood, and wind loss estimation tool developed by FEMA.

HAZUS-MH analysis. An analysis involving use of default data or local data integrated in HAZUS-MH and performed using a computer. This analysis is used for earthquake, flood, and wind hazards if they are priority concerns in a study region.

HAZUS-MH-driven analysis. An analysis involving use of inventory data in HAZUS-MH combined with knowledge about potentially exposed areas or expected impact areas and knowledge of the likelihood of hazard event occurrence.

High potential loss facilities. Facilities that would present a high loss if they were damaged by a hazard event. These facilities include nuclear power plants, dams, and military installations.

Hurricane. An intense tropical cyclone formed over warm ocean areas. Hurricane winds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or “eye.” Hurricanes develop over the north Atlantic Ocean, the northeast Pacific Ocean, or the south Pacific Ocean east of 160° east longitude. Hurricane circulation is counter-clockwise in the northern hemisphere and clockwise in the southern hemisphere.

Hydraulics. A branch of science or engineering that addresses fluids (specially water) in motion, water’s action in rivers and channels, the works of machinery for raising water, water’s use as a prime mover, and the like.

Hydrology. A branch of science of dealing with the waters of the earth. A flood discharge is examined in a hydrologic study.

Infrastructure. The public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technologies (e.g., telephone lines and Internet access); vital services (e.g., public water supplies and sewer treatment facilities); transportation system components (e.g., airways, airports, and heliports); highways, (e.g., bridges, tunnels, roadbeds, overpasses, railways, rail yards, and depots); and waterways (e.g., canals, locks, seaports, ferries, harbors, drydocks, piers, and regional dams).

Intensity. A measure of the effects of a hazard event at a particular place.

Inventory. The assets identified in a study region.

Loss estimation. Estimation of potential losses by assigning hazard-related costs and losses to inventory data such as data for populations, building stocks, transportation and utility lines, regulated facilities, and more). HAZUS-MH can estimate economic and social losses based on a specific hazard event. Loss estimation is essential to decision-making at all levels of government and provides a basis for developing mitigation plans and policies. Loss estimation also supports planning for emergency preparedness, response, and recovery.

Lowest floor. Under the National Flood Insurance Program (NFIP), the lowest floor of the lowest enclosed area (including the basement) of a structure.

Magnitude. A measure of the strength of a hazard event. The magnitude (also referred to as the severity) of a given hazard event is usually determined using technical measures specific to the hazard.

Mitigation plan. A document presenting a systematic evaluation of the nature and extent of an area’s vulnerability to the effects of natural hazards and a description of actions to minimize future vulnerability to hazards.

National Flood Insurance Program (NFIP). A Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations presented in 44 Code of Federal Regulations (CFR) §60.3.

National Weather Service (NWS). An agency that prepares and issues flood, severe weather, and coastal storm warnings and that can provide technical assistance to Federal and State entities for preparing weather and flood warning plans.

Outflow. The flow of water resulting from the inundation of an area. An outflow’s strong currents rip at structures, pound them with debris, and erode beaches and coastal structures.

Parametric model. A model related to or designed in terms of a parameter.

Pilot projects. HAZUS-MH projects being conducted in several FEMA regions to demonstrate the value and benefits of using HAZUS-MH for the risk assessment portion of the all-hazards mitigation plans required by DMA 2000. The pilot projects demonstrate the value of using HAZUS-MH to evaluate and analyze natural hazards that states or communities might address in their DMA planning process. The pilot projects also demonstrate that HAZUS-MH can provide defensible cost and loss estimates by virtue of the automated engineering and scientific risk calculations included in the software.

Planimetric map. A map that shows only manmade features such as buildings.

Planning. The act or process of making plans and establishing goals, policies, and procedures for a social or economic unit.

Probability. A statistical measure of the likelihood that a hazard event will occur.

Recurrence interval. The time between hazard events of similar size at a given location. The recurrence interval is based on the probability of a given event being equaled or exceeded in any given year.

Repetitive loss property. An insured property for which two or more NFIP losses (occurring more than 10 days apart) of at least \$1,000 each have been paid within any 10-year period since 1978.

Replacement value. The cost of rebuilding a structure. This is usually expressed in terms of cost per square foot and reflects the present-day cost of labor and materials to construct a building of a particular size, type, and quality.

Risk. The estimated impact that a hazard event would have on people, services, facilities, and structures in a community, or the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of damage being sustained above a particular threshold as a result of a specific type of hazard event. Risk also can be expressed in terms of potential monetary losses associated with the intensity of the hazard event.

Risk assessment. A methodology used to assess potential exposures and estimated losses associated with likely hazard events. The HAZUS-MH risk assessment process includes four steps: identifying hazards, profiling hazard events, inventorying assets, and estimating losses.

Riverine. Related to or produced by a river.

Scale. A proportion used in determining a dimensional relationship. A scale is the ratio of the distance between two points on a map and the actual distance between the two points on the earth's surface.

Scour. Erosion of soil or fill material by the flow of flood waters. The term is frequently used to describe storm-induced, localized, conical erosion around pilings and other foundation supports where the obstruction of flow increases turbulence.

Special Flood Hazard Area (SFHA). An area within a floodplain having a 1 percent or greater chance of flood occurrence in any given year (a 100-year floodplain). An SFHA is represented on a FIRM by darkly shaded areas with zone designations that include the letter A or V.

Stafford Act. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law [PL] 100-107). The act was signed into law on November 23, 1988, and amended the Disaster Relief Act of 1974 (PL 93-288). The Stafford Act is the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and its programs.

State Hazard Mitigation Officer (SHMO). The representative of a state government who is the primary point of contact with FEMA, other Federal and State agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.

Structure. Something constructed (see Building).

Substantial damage. Damage sustained by a structure in an SFHA for which the cost of restoring the structure to its before-damage condition would equal or exceed 50 percent of the market value of the structure before the damage.

Topographic. A map that shows natural features and indicates the physical shape of the land using contour lines. A topographic map may also include manmade features.

Tornado. A violently rotating column of air extending from a thunderstorm to the ground.

Transportation systems. The lifeline systems that include airways (airports and heliports), highways (bridges, tunnels, roadbeds, overpasses, and transfer centers); railways (tracks, tunnels, bridges, rail yards, and depots), and waterways (canals, locks, seaports, ferries, harbors, drydocks, and piers).

Triangular Irregular Network (TIN). A terrain model constructed using adjacent non-overlapping triangles and created based on irregularly spaced points with x, y, and z values.

Utility systems. The lifeline systems that include potable water, wastewater, oil, natural gas, electric power, and communication systems.

Vulnerability. How exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, its contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of a community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power; if an electrical substation is flooded, not only will the substation itself be affected, but a number of businesses as well. Indirect effects can often be much more widespread and damaging than direct ones.

Vulnerability assessment. An assessment of the extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address the impacts of hazard events on both existing and future conditions.

Water displacement. The displacement of a column of water above a large mass of earth on the ocean bottom that sinks or uplifts. Such displacement can form tsunamis. The rate of displacement, the motion of the ocean floor at the epicenter, the amount of displacement in the rupture zone, and the depth of water above the rupture zone all contribute to the intensity of the tsunamis.

Watershed. An area of land that drains downslope to the lowest point. The water moves through a network of drainage pathways, both underground and on the surface. Generally these pathways converge into streams and rivers that become progressively larger as the water moves downstream, eventually reaching an estuary and an ocean.

Zone. A geographic area shown on a FIRM that reflects the severity or type of flooding in the area.