Appendix H

Acronyms/Abbreviations/Glossary

ACRONYMS AND ABBREVIATIONS

ASCE	American Society of Civil Engineers
AST	Aboveground storage tank
BFE	Base flood elevation
CAGS	California Geological Survey
CBC	California Building Code
CCR	California Code of Regulations
CDC	Center for Disease Control
CDF	California Department of Forestry
CERT	Community Emergency Response Team
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFS	Cubic feet per second
CIP	Capital improvement plan
COOP	Continuity of operations plan
CPTED	Crime prevention through environmental design
CRCV	Coast Range Central Valley
CRS	Community Rating System
CUPA	Certified Unified Program Agency
CVPIA	Central Valley Project Improvement Act
D	Drought hazard
DC	Disaster Council
DHS	U.S. Department of Homeland Security
DMA	Disaster Mitigation Act (Public Law 106-390)
DOF	Depth of flooding
DRP	Design review permit
EIR	Environmental impact report
EMTD	Emergency medical technician (with defibrillator)
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency

EQ	Earthquake hazard
EUD	Environmental Utilities District
FH	Flood hazard
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FIS	Flood Insurance Study
Ft	Feet
G	Gravitational acceleration
G	Goals
GIS	Geographical information system
G&O	Greenhorn and O'Mara
HAZUS-MH	Hazards U.S. Multi-Hazard
HC	Human-caused hazard
HH	Human health hazard
HMGP	Hazard Mitigation Grant Program
IBC	International Building Code
ICS	Incident command system
ISO	Insurance Service Office
Km	Kilometer
LS	Landslide hazard
M	Magnitude
MCE	Maximum credible earthquake
MCI	Mass casualty incident
MH	Multi-hazard
MHMP	Merced Hazard Mitigation Plan
ML	Local magnitude
MMC	Merced Municipal Code
Mph	Miles per hour
NA	Not applicable
NCDC	National Climatic Data Center
NFIP	National Flood Insurance Program
NFIRS	National Fire Incident Reporting System
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
O	Objectives
OCAP	On-line citizen's advisory panel
OCS	Oregon Climate Service

OES	California Governor's Office of Emergency Services
PCFCD	Placer County Flood Control District
PCWA	Placer County Water Agency
PDM	Pre-Disaster Mitigation Grant Program
PGA	Peak ground acceleration
PHMSA	Pipeline and Hazardous Materials Safety Administration
PLT	Planning Leadership Team
PRISM	Parameter-elevation Regression on Independent Slopes Model
PUD	Planned unit developments
RCRA	Resource Conservation and Recovery Act
RFE	Regulatory flood elevation
SARS	Severe acute respiratory syndrome
SCAS	Spatial Climate Analysis Service
Sec	Second
SEMS	Standardized Emergency Management System
SFHA	Special flood hazard area
SHELDUS	Spatial Hazard Events and Losses Database for the U.S.
SJWD	San Juan Water District
SOI	Sphere of Influence
SPCC	Spill Prevention, Control, and Countermeasure Plan
SUDP	Specific Urban Development Plan
SW	Severe weather hazard
SWOO	Strengths, weaknesses, opportunities, and obstacles
UASI	Urban Area Security Initiative
UBC	Uniform Building Code
USC	University of South Carolina
USGS	United States Geological Survey
UST	Underground storage tank
WF	Wildfire hazard
WMD	Weapons of mass destruction
WNV	West Nile virus

Glossary of Terms

100-Year Flood: The term "100-year flood" can be misleading. The 100-year flood does not necessarily occur once every 100 years. Rather, it is the flood that has a 1 percent chance of being equaled or exceeded in any given year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The Federal Emergency Management Agency (FEMA) defines it as the 1 percent annual chance flood, which is now the standard definition used by most federal and state agencies and by the National Flood Insurance Program (NFIP).

Acceleration: The rate of change of velocity with respect to time. Acceleration due to gravity at the earth's surface is 9.8 meters per second squared. That means that every second that something falls toward the surface of earth its velocity increases by 9.8 meters per second.

Act of Terrorism: According to the Federal Bureau of Investigation (FBI), an act of terrorism is "a violent act or an act dangerous to human life, in violation of the criminal laws of the United States or of any state, to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social goals." Acts of terrorism are intentional, criminal, and malicious and can be foreign or domestic, depending on the origin, base, and objectives of the terrorist or organization. Acts of terrorism can involve the use of weapons of mass destruction, arson, and incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; agro-terrorism; and cyberterrorism.

Acre-Foot: An acre-foot is the amount of water it takes to cover 1 acre to a depth of 1 foot. This measure is used to describe the quantity of storage in a water reservoir. An acre-foot is a unit of volume. One acre foot equals 7,758 barrels; 325,829 gallons; or 43,560 cubic feet. An average household of four will use approximately 1 acre-foot of water per year.

Active Fault: As defined by the California Division of Mines and Geology, a fault that has shown displace within Holocene time (last 11,000 years). For planning purposes, such faults can be expected to move within the next hundred years.

Alluvial: Pertaining to or composed of alluvium, or deposited by a stream or running water.

Alluvium: A general term for clay, silt, sand, gravel, or similar unconsolidated detrital material deposited during comparatively recent geological time by a stream or other body of running water as a sort of semi-sorted sediment in the bed of the stream or on its flood plain or delta, or as a cone or fan at the base of the mountain.

Aquifer: A water-bearing bed of stratum of permeable rock, sand, or gravel capable of yielding considerable amount of water to wells of springs.

Asset: Any manmade or natural feature that has value, including, but not limited to people; buildings; infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.

Base Flood: Flood that has a 1 percent probability of being equaled or exceeded in any given year. Also known as the 100- year flood.

Base Flood Elevation (BFE): The BFE is the water surface elevation of a 100-year flood event (a flood that has a 1 percent chance of occurring in any given year as defined by the NFIP). The base flood is a statistical concept used to ensure that all properties subject to NFIP are protected to the same degree against flooding.

Basin: A basin is the area within which all surface water – whether from rainfall, snowmelt, springs, or other sources – flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains, and ridges. Basins are also referred to as "watersheds" and "drainage basins."

Bedrock: The solid rock that underlies loose material, such as soil, sand, clay, or gravel.

Benefit: A benefit is a net project outcome and is usually defined in monetary terms. Benefits may include direct and indirect effects. For the purposes of benefit-cost analysis of proposed mitigation measures, benefits are limited to specific, measurable, risk reduction factors, including reduction in expected property losses (buildings, contents, and functions) and protection of human life.

Benefit/Cost Analysis: A benefit/cost analysis is a systematic, quantitative method of comparing projected benefits to projected costs of a project or policy. It is used as a measure of cost effectiveness.

Building: A building is defined as a structure that is walled and roofed, principally aboveground, and permanently fixed to a site. The term includes manufactured homes on permanent foundations on which the wheels and axles carry no weight.

Capability Assessment: A capability assessment provides a description and analysis of a community's current capacity to address threats associated with hazards. The assessment includes two components: an inventory of an agency's mission, programs, and policies, and an analysis of its capacity to carry them out. A capability assessment is an integral part of the planning process in which a community's actions to reduce losses are identified, reviewed, and analyzed, and the framework for implementation is identified. The following capabilities were reviewed under this assessment:

- Legal and regulatory capability
- Administrative and technical capability
- Fiscal capability

Civil Disorder: Civil disorder results from incidents intended to disrupt a community to the degree that law enforcement intervention is required to maintain public safety. Civil disorder is generally associated with controversial political, judicial, or economic issues and events and may occur at any time, although statistics indicate that civil disorder is more frequent during the summer months. Although the City of Merced does not have a history of civil disorder or rioting, large public gatherings, often associated with concerts or sports events, have overburdened local law enforcement and fire protection resources in the past. The effects of civil disorder and riots vary and depend on the type of event and its severity, scope, and duration. Essential services (such as electricity, water, public transportation, and communications) may be disrupted, and property damage, injuries, and loss of life may occur.

Coastal High Hazard Area: Usually along an open coast, bay, or inlet, that is subject to inundation by storm surge and, in some instances, wave action caused by storms or seismic sources.

Coastal Zones: The area along the shore where the ocean meets the land as the surface of the land rises above the ocean. This land/water interface includes barrier islands, estuaries, beaches, coastal wetlands, and land areas having direct drainage to the ocean.

Communicable Disease: For the purposes of this plan, communicable diseases include severe acute respiratory syndrome (SARS), flu, small pox, and diseases carried by insects. Diseases carried by insects include plague (fleas), encephalitis, malaria, West Nile virus (WNV) (mosquitoes), and Lyme disease (ticks).

Community Rating System (CRS): The CRS is a voluntary program under the NFIP that rewards participating communities (provides incentives) for exceeding the minimum requirements of the NFIP and completing activities that reduce flood hazard risk by providing flood insurance premium discounts.

Compaction: Reduction in bulk volume or thickness of, or the pore space within, a body of fine-grained sediments in response to the increasing weight of overlying material that is continually being deposited, or to the pressure resulting from the earth movements within the crust. It is expressed as a decrease in porosity brought about by a thicker packing of the sediment particles.

Computer- Aided Design And Drafting (CADD): A computerized system enabling quick and accurate electronic 2-D and 3-D drawings, topographic mapping, site plans, and profile/ cross-section drawings.

Contour: A line of equal ground elevation on a topographic (contour) map.

Critical Facility: A critical facility is vital to the City's ability to provide essential services and protect life and property. Loss of a critical facility would result in a severe economic or catastrophic impact. Under the Merced's Hazard Mitigation Plan (MHMP) definition, critical facilities include the following:

- Police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers needed for disaster response before, during, and after hazard events
- Public and private utilities and infrastructure vital to maintaining or restoring normal services to areas damaged by hazard events
- Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a hazard event
- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic, and/or water-reactive materials

Cubic Feet per Second (cfs): A cubic foot can be visualized as a box measuring 1 by 1 by 1 foot. The U.S. Geological Services (USGS) defines a cfs as "the flow rate or discharge equal to one cubic foot of water per second or about 7.5 gallons per second." The rate of flow of a creek, river, or flood is measured by quantity over time and is often referred to as "discharge," or the rate at which a volume of water passes a given point in a given amount of time. Discharge and river flow are often measured in terms of cfs.

Dam: A dam is any artificial barrier or controlling mechanism that can or does impound 10 acre-feet or more of water.

Dam Failure: Dam failure refers to a partial or complete breach in a dam (or levee) that impacts its integrity. Dam failures occur for a number of reasons, such as flash flooding, inadequate spillway size, mechanical failure of valves or other equipment, 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 cause additional damage to other assets.

Debris Flow: Debris flow occurs when dense mixtures of water-saturated debris move down-valley. Debris flows look and behave much like flowing concrete and form when loose masses of unconsolidated materials are saturated, become unstable, and move down slope. The source of water varies and can include rainfall, melting snow or ice, and glacial outburst floods.

Depth of Flooding (DOF): The DOF is difference between regulatory flood elevation (RFE) and the elevation of the lowest grade adjacent to a structure.

Detachment Fault: Where the dip of a normal fault's surface is very gentle or almost flat, it is referred to as a **detachment fault** or low-angle normal fault. Detachment faults are common in the desert areas of California.

Digitize: To convert electronically points, lines, and area boundaries shown on maps into x, y coordinates [e.g., latitude and longitude, universal transverse mercator (UTM), or table coordinates] for use in computer applications.

Dip-Slip Fault: Faults on which the movement is parallel to the dip of the fault surface. Normal faults are dip-slip faults on which the hanging wall (the rocks above the fault surface) move down relative to the footwall (the rocks below the fault surface). Normal faults are the result of extension (forces that pull rocks apart). Where the dip of a normal fault's surface is steep, it is called a high-angle normal fault, or simply a normal fault. The Owens

Valley and the Sierra Nevada fault zones are examples of high-angle normal faults. Together they produce a down-dropped block which forms the Owens Valley. This type of fault-bounded valley is called a **graben**. A fault-bounded ridge is called a **horst**.

Disaster Council: The Disaster Council is the Merced City Manager-approved group that oversaw all phases of the LHMP's development. The members of this committee included key city personnel, citizens, knowledgeable individuals representative of the community, and stakeholders from within the planning area.

Disaster Mitigation Act of 2000 (DMA): The DMA is Public Law 106-390 and is the latest federal legislation enacted to encourage and promote proactive, pre-disaster planning as a condition of receiving financial assistance under the Robert T. Stafford Act. The DMA emphasizes planning for disasters before they occur. Under the DMA, a pre-disaster hazard mitigation program and new requirements for the national post-disaster hazard mitigation grant program (HMGP) were established.

Displacement Time: The average time (in days) which the building's occupants typically must operate from a temporary location while repairs are made to the original building due to damages resulting from a hazard event.

Drainage Basin: A basin is the area within which all surface water (whether from rainfall, snowmelt, springs, or other sources) flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains, and ridges. Drainage basins are also referred to as "watersheds" and "basins."

Drought: Drought is a period of time without substantial rainfall or snowfall from one year to the next. Drought can also be defined as the cumulative impacts of several dry years or a deficiency of precipitation over an extended period of time, which in turn results in water shortages for some activity, group, or environmental function. A hydrological drought is caused by deficiencies in surface and subsurface water supplies. A socioeconomic drought impacts the health, well being, and quality of life or starts to have an adverse impact on a region. Drought is a normal, recurrent feature of climate and occurs almost everywhere.

Duration: For the purposes of this plan, duration is defined as the length of time that a hazard occurs. For example, the duration of a tornado can be minutes, but release of a chemical warfare agent such as mustard gas can persist for hours or weeks if unremediated.

Earthquake: An earthquake is defined as a sudden slip on a fault, volcanic or magmatic activity, and sudden stress changes in the earth that result in ground shaking and radiated seismic energy. Earthquakes can last from a few seconds to over 5 minutes, and have been known to occur as a series of tremors over a period of several days. The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Casualties may result from falling objects and debris as shocks shake, damage, or demolish buildings and other structures.

Epicenter: An area of the surface of the earth directly above the focus (true center of an earthquake), within which the strain energy is first converted to elastic wave energy of an earthquake.

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

Erosion Hazard Area: anticipated to be lost to shoreline retreat 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 the number of years desired.

Essential Facility: Elements that are important to ensure a full recovery of a community or state following a hazard event. These would include: government functions, major employers, banks, schools, and certain commercial establishments, such as grocery stores, hardware stores, and gas stations.

Expansion (Shrink-Swell) Potential: The relative volume change in a soil with a gain in moisture. Expansive soils are those that greatly increase in volume when they absorb water and shrink when they dry out.

Exposure: Exposure is defined as the number and dollar value of assets considered to be at risk during the occurrence of a specific hazard.

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

Extratropical Cyclone: Cyclonic storm events like Nor'easters and severe winter low-pressure systems. Both West and East coasts can experience these nontropical storms that produce gale-force winds and precipitation in the form of heavy rain or snow. These cyclonic storms, commonly called Nor'easters on the East Coast because of the direction of the storm winds, can last for several days and can be very large – 1,000-mile wide storms are not uncommon.

Extent: The extent is the size of an area affected by a hazard.

Fault: A fracture in the continuity of a rock formation caused by a shifting or dislodging of the earth's crust, in which adjacent surfaces are differentially displaced parallel to the plane of fracture.

Fault Trace: The intersection of a fault with the earth's surface. CUSD-PDMP Page 135 11/1/2008

Fault Zone: A zone in which surface disruption or rock fracture has occurred due to movement along a fault. A fault zone may be expressed as an area with numerous small fractures, **breccia** (essentially, fractured rock) as a **fault gouge**. A fault zone may be anywhere from a few meters (or yards) to two or more kilometers (1mile or more) wide.

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

Fire Behavior: Fire behavior refers to the physical characteristics of a fire and is a function of the interaction between the fuel characteristics (such as type of vegetation and structures that could burn), topography, and weather. Variables that affect fire behavior include the rate of spread, intensity, fuel consumption, and fire type (such as underbrush versus crown fire).

Fire Frequency: Fire frequency is the broad measure of the rate of fire occurrence in a particular area. An estimate of the areas most likely to burn is based on past fire history or fire rotation in the area, fuel conditions, weather, ignition sources (such as human or lightning), fire suppression response, and other factors.

Fire Hazard Zone: An area where, due to slope, fuel, weather, or other fire-related conditions, the potential loss of life and property from a fire necessitates special fire protection measures and planning before development occurs.

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

Flash Flood: A flood event occurring with little or no warning where water levels rise at an extremely fast rate.

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

Flood Depth: Height of the floodwater surface above the ground surface.

Flood Elevation: Flood elevation is the height of the water surface above an established datum, e.g. National Geodetic Vertical Datum of 1929, North American Vertical Datum of 1988, or Mean Sea Level.

Floodway Fringe: Floodway fringe areas are located in the floodplain but outside of the floodway. Some development is generally allowed in these areas, with a variety of restrictions. On maps that have identified and delineated a floodway, this would be the area beyond the floodway boundary that can be subject to different regulations.

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

Flood Insurance Rate Map (FIRM): Map of a community, prepared by the Federal Emergency Management Agency that shows both the special flood hazard areas and the risk premium zones applicable to the community.

Flood Insurance Study: A flood insurance study is published for a community by the Federal Insurance and Mitigation Administration in conjunction with the community's FIRM. The study contains background data such as base flood discharges and water surface elevations that were used to prepare the FIRM. In most cases, a community with a detailed FIRM will have a corresponding flood insurance study.

Flooding: Flooding is a general and temporary condition of rising and overflowing water resulting in partial or complete inundation of normally dry land areas. Floods result from (1) the overflow of inland or tidal waters, (2) the unusual and rapid accumulation of runoff of surface water from any source, and (3) mudflows or the sudden collapse of shoreline land.

Floodplain: Any land area, including watercourse, susceptible to partial or complete inundation by water from any source. As defined by the Federal Emergency Management Agency, any land area susceptible to being inundated by water from any source. The 100-year flood (base flood) has a one percent chance of being equaled or exceeded in any given year.

Floodway: A floodway is an area within a floodplain reserved for the purpose of conveying flood discharge without increasing the BFE by more than 1 foot. Generally speaking, no development is allowed in floodways because any structures there would block the flow of floodwater.

Fog: Fog refers to a cloud (or condensed water droplets) near the ground. Fog forms when air close to the ground can no longer hold all the moisture it contains. Fog occurs either when air is cooled to its dew point or the amount of moisture in the air increases. Heavy fog is particularly hazardous because it can restrict surface visibility. Severe fog incidents can close roads, cause vehicle accidents, cause airport delays, and impair the effectiveness of emergency response. Financial losses associated with transportation delays caused by fog have not been calculated in the United States but are known to be substantial.

Freeboard: Freeboard is the margin of safety added to the BFE.

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, and/or extent typically occurs, on average. Statistically, a hazard with a 100- year recurrence interval is expected to occur once every 100 years on average, and would have a 1 percent chance – its probability – of happening in any given year. The reliability of this information varies depending on the kind of hazard being considered.

Fujita Scale of Tornado Intensity: Prior to 2007, tornado intensity was measured by the Fujita (F) Scale. This scale was revised and is now the **Enhanced Fujita scale**. Both scales are sets of wind estimated (not measurements) based on damage. The scales rate the intensity or severity of tornado events using numeric values from F0 to F5 (or greater) based on tornado wind speed and damage. An F0 tornado (wind speed less than 73 miles per hour [mph]) indicates minimal damage (such as broken tree limbs), and an F6 tornado (wind speeds of 261 to 318 mph) indicates severe damage.

Functional Downtime: The average time (in days) during which a function (business or service) is unable to provide its services due to a hazard event.

General Plan: California state law requires that every county and city prepare and adopt a comprehensive long-range plan to serve as a guide for community development. The plan must consist of an integrated and internally consistent set of goals, policies, and implementation measures. In addition, the plan must focus on issues of the greatest concern to the community and be written in a clear and concise manner. City actions, such as those relating to land-use allocation, annexations, zoning, subdivision and design review, and capital improvements, must be consistent with such a plan. The City of Merced's General Plan serves these purposes. As the principle planning document that directs the City's growth and land use, the general plan is as an integral part of the MHMP. A comprehensive update to Merced's General Plan was approved on January 3, 2012.

Geographic Area Impacted: The physical area in which the effects of the hazard are experienced.

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

Goal: A goal is a general guideline that explains what is to be achieved. Goals are usually broad-based, long-term, policy-type statements and represent global visions. Goals help define the benefits that a plan is trying to achieve. The success of the RHMP, once implemented, should be measured by the degree to which its goals have been met (that is, by the actual benefits in terms of actual hazard mitigation).

Ground Failure: Mudslide, landslide, liquefaction, of the seismic compaction of soils.

Ground Motion: The vibration or shaking of the ground during an earthquake. When a fault ruptures, seismic waves radiate, causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter, but soft soils can further amplify ground motions

Groundshaking: When movement occurs along a fault, the energy generated is released as waves, which cause groundshaking. Groundshaking intensity varies with the magnitude of the earthquake, the distance from the epicenter, and the type of rock or sediment through which the seismic waves move. The strongest ground motion, or groundshaking, typically occurs near the epicenter of the earthquake and attenuates (diminishes) as the seismic waves move away from the epicenter. In general, loose or soft saturated sediments amplify groundshaking more than dense or stiff soils or bedrock materials.

Hazard: A source of potential danger or adverse condition. Hazards in this how to series will include naturally occurring events such as flooding, fire, drought, hazardous materials, earthquakes, dam failure, extreme temperature, tornadoes, fog, and storm-related hazards 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 hazards that threaten an area.

Hazard Mitigation: Hazard mitigation refers to reduction or alleviation of the loss of life, personal injury, and property damage that could result from a disaster through long- and short-term strategies. Hazard mitigation involves strategies such as planning, policy changes, programs, projects, and other activities that could mitigate the impacts of hazards.

Hazard Mitigation Grant Program (HMGP): Authorized under Section 202 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.

Hazard Mitigation Plan: A hazard mitigation plan is a collaborative document that identifies hazards that could affect a community, assesses vulnerability to hazards, and represents consensus decisions reached on how to minimize or eliminate the effects of hazards.

Hazard Mitigation Survey Questionnaire: This questionnaire was developed by the Merced planning team to gauge household preparedness for hazards that could impact the City of Merced and the level of knowledge about tools and techniques to assist in reducing risks and losses from hazards. The questionnaire asked 30 quantifiable questions about perception of risk, knowledge of mitigation, and support of City programs. The questionnaire also asked several demographic questions in order to help analyze trends. Survey results were used by the Planning Leadership Team and the Disaster Council as a guide for establishing the MHMP's goals, objectives, and mitigation strategies.

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

Hazards U.S. Multi-Hazard (HAZUS-MH) Loss Estimation Program: HAZUS-MH is a GIS-based program used to support the development of risk assessments as required under the DMA. The HAZUSMH software program assesses risk in a quantitative manner to estimate damages and losses associated with natural hazards. HAZUS-MH is FEMA's nationally applicable, standardized methodology and software program and contains modules for estimating potential losses from earthquakes, floods, and wind hazards. HAZUS-MH has also been used to assess vulnerability (exposure) for other hazards facing Merced.

Hazardous Material: A hazardous material is a substance or combination of substances that (1) can cause or contribute to an increase in mortality or serious irreversible or incapacitating reversible illnesses, or (2) pose a present or potential hazard to human life, property, or the environment. Hazardous materials could cause these effects because of their quantity, concentration, or physical, chemical, or infectious characteristics. Hazardous waste is included in the City's working definition of hazardous material.

Hazardous Material Incident: This type of incident involves the accidental or intentional release of hazardous materials to the environment. Such incidents typically occur as fixed facility incidents or transportation incidents. It is possible to identify and prepare for a fixed facility incident because federal and state laws require facilities to notify state and local authorities about hazardous materials used or produced at the facility. Transportation incidents are more difficult to prepare for because there is little (if any) notice about the materials involved.

Hurricane: An intense tropical cyclone, formed in the atmosphere over warm ocean areas, in which wind speeds 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, northeast Pacific Ocean, or the South Pacific Ocean east of 160°E longitude. Hurricane circulation is counter-clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

Hydraulics: Hydraulics is the branch of science or engineering that addresses fluids (especially water) in motion in rivers or canals, works and machinery for conducting or raising water, the use of water as a prime mover, and other fluid-related areas.

Hydrology: Hydrology is the analysis of waters of the earth. For example, a flood discharge estimate is developed by conducting a hydrologic study.

Inactive Fault: A fault which shows no evidence of movement in recent geologic time and no potential for movement in the relatively near future.

Inferred Fault: A fault whose location is based largely on qualitative knowledge of the geologic characteristics of the location and for which no known surface displacement has been observed or quantified.

Infrastructure: Refers to the public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, and includes an area's

transportation system such as airports, heliports; highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways, canals, locks, seaports, ferries, harbors, drydocks, piers and regional dams.

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

Intensity (of an earthquake): A measure of the effects of earthquake waves on people, structures, and earth's surface at a particular place. The intensity at a specific point depends not only upon the strength of the earthquake, or the earthquake magnitude, but also upon the distance from the point to the epicenter and the local geology. Intensity may be contrasted with magnitude, which is a measure of the total energy released by an earthquake.

Inventory: The assets identified in a study region comprise an inventory. Inventories include assets that could be lost when a disaster occurs and community resources are at risk. Assets include people, buildings, transportation, and other valued community resources.

Landslide: Downward movement of a slope and materials under the force of gravity. A general term for relatively rapid mass movement, such as slump, rock slide, debris slide, mudflow, and earthflow.

Large Gathering Places: For the purposes of this plan, such places are defined as follows:

- Any facility listed as a Type A in the California Building Code (UBC) because it has an assembly room with an occupant load of 300 or more or, any facility likely to have an occupancy of greater than 300, such as cultural centers, and places of worship
- Any buildings listed as E used for educational purposes through the 12th grade by 50 or more persons

Lateral Spreads: Develop on gentle slopes and entail the sidelong movement of large masses of soil as an underlying layer liquefies in a seismic event. The phenomenon that occurs when ground shaking causes loose soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength.

Lightning: Lightning is an electrical discharge resulting from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a "bolt," usually within or between clouds and the ground. A bolt of lightning instantaneously reaches temperatures approaching 50,000 degrees Fahrenheit. The rapid heating and cooling of air near lightning causes thunder. Lightning is a major threat during thunderstorms. In the United States, 75 to 100 Americans are struck and killed by lightning each year (see http://www.fema.gov/hazard/thunderstorms/thunder.shtm).

Liquefaction: Liquefaction is the complete failure of soils when soils lose shear strength and flow horizontally during earthquakes. Liquefaction is most likely to occur in fine-grained sands and silts with high water content. These materials behave like viscous fluids when liquefaction occurs. Liquefaction undermines the ground's ability to solidly support building structures. Foundations on liquefiable soils can lose their ability to support load and can experience settlement on the order of several inches or more. This situation is extremely hazardous and generally results in extreme property damage and threats to life and safety. Differential settlement can cause significant damage to buildings, lifelines, and transportation structures with partial or total collapse.

Local Government: Local government includes any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of government (regardless of incorporation as a nonprofit corporation under state law), regional or interstate government entity, agency or instrumentality of a local government, Indian tribe or authorized tribal organization, Alaska Native village or organization, rural community, unincorporated town or village, and other public entities.

Lowest Floor: Under the NFIP, the lowest floor of the lowest enclosed area (including basement) of a structure.

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

Magnitude (earthquake): Magnitude is the measure of the strength of an earthquake, typically measured by the Richter scale. Magnitude is most commonly measured by local magnitude (ML) used by the Richter Scale or by Mercalli Intensity. In the Richter Scale, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

Mitigation Actions: Mitigation actions are specific actions to achieve goals and objectives that minimize the effects from a disaster and reduce the loss of life and property.

Mitigation Plan: A systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards typically present in the state and includes description of actions to minimize future vulnerability to hazards.

National Flood Insurance Program (NFIP): In 1968, Congress created the NFIP in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The Mitigation Division is the FEMA section that manages the NFIP and oversees the floodplain management and mapping components of the program. Nearly 20,000 communities across the United States and its territories participate in NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. FEMA contracted the U.S. Army Corps of Engineers to map the floodplains, floodways, and floodway fringes.

National Geodetic Vertical Datum of 1929 (NGVD): Datum established in 1929 and used in the NFIP as a basis for measuring flood, ground, and structural elevations, previously referred to as Sea Level Datum or Mean Sea Level. The Base Flood Elevations shown on most of the Flood Insurance Rate Maps issued by the Federal Emergency Management Agency are referenced to NGVD.

National Weather Service (NWS): Prepares and issues flood, severe weather, and coastal storm warnings and can provide technical assistance to Federal and state entities in preparing weather and flood warning plans.

Nor'easter: An extra-tropical cyclone producing gale-force winds and precipitation in the form of heavy snow or rain.

Objective: For the purposes of this plan, an objective is defined as a short-term aim that, when combined with other objectives, forms a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

Outflow: Follows water inundation creating strong currents that rip at structures and pound them with debris, and erode beaches and coastal structures.

Peak Ground Acceleration: Peak ground acceleration is a measure of the highest amplitude of ground shaking that accompanies an earthquake based on a percentage of the force of gravity.

Planimetric: Describes maps that indicate only man-made features like buildings.

Planning: The act or process of making or carrying out plans; the establishment of goals, policies and procedures for a social or economic unit.

Planning Leadership Team (Technical Subcommittee): The City of Merced Technical Leadership Team (Staff) convened to provide guidance, support, and feedback to the Disaster Council during all phases of MHMP development. The technical subcommittee consisted of key staff from City departments integral to implementing City programs pertinent to hazard mitigation. The PLT engaged other City Staff members having specialized skills and or knowledge to craft specific components of the plan.

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

Potentially Active Fault: As defined by the California Division of Mines and Geology, a fault that has shown displacement during Quaternary time (last 1.6 million years).

Pre- and Post-FIRM Rates: These categories of rates are published in the NFIP manual and apply to buildings in a community qualifying for the regular flood program. Post-FIRM rates are used for buildings whose construction started after December 31, 1974, or after the community's initial FIRM was published, whichever is later. Post-FIRM rates are lower than pre-FIRM rates.

Preparedness: Preparedness refers to actions that strengthen the capability of government, citizens, and communities to respond to disasters.

Presidential Disaster Declaration: These declarations are typically made for events that cause more damage than state and local governments and resources can handle without federal government assistance. Generally, no specific dollar loss threshold has been established for such declarations. A Presidential Disaster Declaration puts into motion long-term federal recovery programs, some of which are matched by state programs, designed to help disaster victims, businesses, and public entities.

Probability of Occurrence: The probability of occurrence is a statistical measure or estimate of the likelihood that a hazard will occur. This probability is generally based on past hazard events in the area and a forecast of events that could occur in the future. A probability factor based on yearly values of occurrence is used to estimate probability of occurrence.

Recovery: Recovery refers to actions taken by an individual or community after a catastrophic event to restore order and community lifelines.

Recurrence Interval: The time between hazard events of similar size in a given location. It is based on the probability that the given event will be equaled or exceeded in any given year.

Regulatory Floodplain: This term refers to an area regulated by the City of Merced as floodplain through its land-use regulations and improvement standards. It includes areas identified by FEMA and published on FIRMs and additional areas identified by Merced as being susceptible to flooding. These areas are delineated based on detailed hydrologic and hydraulic floodplain modeling that meets or exceeds FEMA criteria for mapping and modeling floodplains. The flood event used to delineate these boundaries is referred to as "the regulatory flood" in this plan to differentiate it from the "base flood" used by FEMA.

Repetitive Loss Property: A repetitive loss property is any NFIP-insured property that, since 1978 and regardless of any change(s) of ownership during that period, has experienced any of the following:

- Four or more paid flood losses exceeding $1,000 each
- Two paid flood losses exceeding $1,000 each within any 10-year period since 1978
- Three or more paid losses that equal or exceed the current value of the insured property

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.

Return Period (or Mean Return Period): This term refers to the average period of time in years between occurrences of a particular hazard (equal to the inverse of the annual frequency of occurrence).

Reverse faults: are dip-slip faults in which the hanging wall moves up relative to the footwall. Reverse faults are the result of compression (forces that push rocks together). The Sierra Madre fault zone of southern California is an example of reverse-fault movement. There the rocks of the San Gabriel

Mountains are being pushed up and over the rocks of the San Fernando and San Gabriel valleys. Movement on the Sierra Madre fault zone is part of the process that created the San Gabriel Mountains.

Richter Scale: A numerical scale of earthquake magnitude devised by seismologist C.F. Richter in 1935.

Risk: Risk is the estimated impact that a hazard would have on people, services, facilities, and structures in a community. Risk measures the likelihood of a hazard occurring and 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 sustaining damage above a particular threshold due to occurrence of a specific type of hazard. Risk also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Risk Assessment: Risk assessment is the process of measuring potential loss of life, personal injury, economic injury, and property damage resulting from hazards. This process assesses the vulnerability of people, buildings, and infrastructure to hazards and focuses on (1) hazard identification; (2) impacts of hazards on physical, social, and economic assets; (3) vulnerability identification; and (4) estimates of the cost of damage or costs that could be avoided through mitigation.

Risk Ranking: This ranking serves two purposes, first to describe the probability that a hazard will occur, and second to describe the impact a hazard will have on the people, property, and economy of Merced.

Riverine: Riverine refers to anything of or produced by a river. Riverine floodplains have readily identifiable channels. Floodway maps can only be prepared for riverine floodplains.

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

Scarp: A steep slope.

Scour: Removal of soil or fill material by the flow of floodwaters. 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.

Seismic: Pertaining to earthquake or earth vibration, including those that are artificially induced.

Seismicity: Describes the likelihood of an area being subject to earthquakes.

Seiche: A standing wave (periodic oscillation) produced in a body of water such as a reservoir, lake, or harbor, by wind, atmospheric changes, or earthquakes.

Settlement: Physical rearrangement of soil materials caused by a reduction in void space between the particles, resulting in a less stable alignment of individual minerals.

Sinkhole: A sinkhole is a collapse depression in the ground with no visible outlet. Its drainage is subterranean; its size is typically measured in meters or tens of meters, and it is commonly vertical-sided or funnel-shaped.

Special Flood Hazard Area (SFHA): An area within a floodplain having a 1 percent or greater chance of flood occurrence in any given year (100-year floodplain); represented on Flood Insurance Rate Maps 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 100- 107, was signed into law on November 23, 1988. This law amended the Disaster Relief Act of 1974, Public Law 93-288. The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs.

Stakeholder: Stakeholders are individuals or groups that could be affected by the MHMP and/or who can provide specialized knowledge or be individuals working with populations or areas at risk from natural hazards such as business leaders, civic groups, academia, non-profit organizations, major employers, managers of critical facilities, farmers, developers, special purpose districts, and others.

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

State Responsibility Area (SRA): Areas in which the California State Board of Forestry has determined that the State has financial responsibility for fire prevention and suppression.

Storm Surge: Rise in the water surface above normal water level on the open coast due to the action of wind stress and atmospheric pressure on the water surface.

Strike-Slip Fault:-The movement along a **strike-slip fault** is approximately parallel to the strike of the fault, meaning the rocks move past each other horizontally. The San Andreas is a strike-slip fault that has displaced rocks hundreds of miles. As a result of horizontal movement along the fault, rocks of vastly different age and composition have been placed side by side. The San Andreas Fault is a fault zone rather than a single fault, and movement may occur along any of the many fault surfaces in the zone. The surface effects of the San Andreas Fault zone can be observed for over 600 miles (1,000 km).

Structure: Something constructed. (See also Building)

Subsidence: Gradual settling or sinking of the earth's surface with little or no horizontal motion, usually as the result of the withdrawal of oil, natural gas, or groundwater, or hydrocompaction.

Substantial Damage: Damage of any origin sustained by a structure in a Special Flood Hazard Area whereby the cost of restoring the structure to its before- damaged condition would equal or exceed 50 percent of the market value of the structure before the damage.

Super Typhoon: A typhoon with maximum sustained winds of 150 mph or more.

Surface Faulting: The differential movement of two sides of a fracture – in other words, the location where the ground breaks apart. The length, width, and displacement of the ground characterize surface faults.

Surface Rupture: An observable break in the ground surface and associated deformation resulting from movement along a fault.

Technological Hazard: A technological hazard arises from human activities such as the manufacture, transportation, storage, and use of hazardous materials. Technological hazards are assumed to be accidental in nature, with unintended consequences.

Tectonic Plate: Torsionally rigid, thin segments of the earth's lithosphere that may be assumed to move horizontally and adjoin other plates. It is the friction between plate boundaries that cause seismic activity.

Thunderstorm: A thunderstorm is a storm with lightning and thunder produced by cumulonimbus clouds. Thunderstorms usually produce gusty winds, heavy rains, and sometimes hail. Thunderstorms are usually short in duration (seldom more than 2 hours). Heavy rains associated with thunderstorms can lead to flash flooding during the wet or dry seasons.

Thrust Fault: a reverse fault with a gently-dipping fault surface. Thrust faults are very common in the Klamath Mountains of northern California.

Topographic: Characterizes maps that show natural features and indicate the physical shape of the land using contour lines. These maps may also include manmade features.

Tornado: A tornado is a violently rotating column of air extending between and in contact with a cloud and the surface of the earth. Tornadoes are often (but not always) visible as funnel clouds. On a local scale, tornadoes are the most intense of all atmospheric circulations, and winds can reach destructive speeds of more than 300 mph. A tornado's vortex is typically a few hundred meters in diameter, and damage paths can be up to 1 mile wide and 50 miles long.

Tropical Cyclone: A generic term for a cyclonic, low-pressure system over tropical or subtropical waters.

Tropical Depression: A tropical cyclone with maximum sustained winds of less than 39 mph.

Tropical Storm: A tropical cyclone with maximum sustained winds greater than 39 mph and less than 74 mph.

Tsunami: Great sea wave produced by submarine earth movement or volcanic eruption.

Typhoon: A special category of tropical cyclone peculiar to the western North Pacific Basin, frequently affecting areas in the vicinity of Guam and the North Mariana Islands. Typhoons whose maximum sustained winds attain or exceed 150 mph are called super typhoons.

Vulnerability: Vulnerability describes how exposed or susceptible an asset is to damage. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power. Flooding of an electric substation would affect not only the substation itself but businesses as well. Often, indirect effects can be much more widespread and damaging than direct effects.

Vulnerability Assessment: 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 impacts of hazard events on the existing and future built environment.

Water Displacement: When a large mass of earth on the ocean bottom sinks or uplifts, the column of water directly above it is displaced, forming the tsunami wave. The rate of displacement, motion of the ocean floor at the epicenter, the amount of displacement of the rupture zone, and the depth of water above the rupture zone all contribute to the intensity of the tsunami.

Water Table: The upper surface of saturated earth material below which all materials are saturated.

Watershed: A watershed is an area that drains downgradient from areas of higher land to areas of lower land to the lowest point, a common drainage basin.

Wave Runup: The height that the wave extends up to on steep shorelines, measured above a reference level (the normal height of the sea, corrected to the state of the tide at the time of wave arrival).

Weapon of Mass Destruction (WMD): WMDs include chemical, biological, radiological, nuclear, and explosive weapons associated with terrorism.

West Nile Virus (WNV): WNV is a recent natural hazard affecting California. Mosquitoes transmit this potentially deadly disease to livestock and humans alike.

Wildland: A non-urban, natural area that contains uncultivated land, timber, range, watershed, brush, or grasslands.

Wildfire or Wildland Fire: These terms refer to any uncontrolled fire occurring on undeveloped land that requires fire suppression. The potential for wildfire is influenced by three factors: the presence of fuel, topography, and air mass. Fuel can include living and dead vegetation on the ground, along the surface as brush and small trees, and in the air such as tree canopies. Topography includes both slope and elevation. Air mass includes temperature, relative humidity, wind speed and direction, cloud cover, precipitation amount, duration, and the stability of the atmosphere at the time of the fire. Wildfires can be ignited by lightning and, most frequently, by human activity including smoking, campfires, equipment use, and arson.

Windstorm: Windstorms are generally short-duration events involving straight-line winds or gusts exceeding 50 mph. These gusts can produce winds of sufficient strength to cause property damage. Windstorms are especially dangerous in areas with significant tree stands, exposed property, poorly constructed buildings, mobile homes (manufactured housing units), major infrastructure, and aboveground utility lines. A windstorm can topple trees and power lines; cause damage to residential, commercial, critical facilities; and leave tons of debris in its wake.

Zone: A geographical area shown on a Flood Insurance Rate Map (FIRM) that reflects the severity or type of flooding in the area.

Zoning Ordinance: The zoning ordinance designates allowable land use and intensities for a local jurisdiction. Zoning ordinances consist of two components: a zoning text and a zoning map.