VII. Appendices and References

List of Appendices

The following Appendices are included in the Rancho Santiago Community College District (RSCCD) plan to assist the reader in understanding the details of the plan. Every 5 years this plan will be updated if RSCCD wishes to remain eligible for State and Federal hazard mitigation grants. It is also necessary to document the details and track changes to understand the progress the District makes from one year to the next and one planning cycle (5 years) to the next. The Glossary and Acronyms will assist the reader in understanding terms and agencies discussed in the plan

The References provide supporting data like Insurance Reports, Hazus studies the plan is based on. They include contributory facts, specialized data and important information needed to fully understand this plan. These References may be accessed at the RSCCD Risk Manager Office.

Appendix A – Glossary

Appendix B - Acronyms

Appendix C – Economic Analysis of Mitigation Strategies

Appendix D - California Disasters

Appendix E - Resources

List of References on File with RSCCD Risk Management Office

References are kept in the RSCCD Risk Managers office an available upon request.

Reference A – RSCCD 2015 Insurance Property Evaluation Report (completed every 5 years)

Reference B – RSCCD Earthquake Hazus Study by MMI Engineering

Reference C – RSCCD Flood Hazus Study by MMI Engineering

Reference D – RSCCD Facilities Master Plan

APPENDIX A: GLOSSARY

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.
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)	Elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The Base Flood Elevation is used as the standard for the National Flood Insurance Program.
Bedrock	The solid rock that underlies loose material, such as soil, sand, clay, or gravel.
Building	A structure that is walled and roofed, principally above ground and permanently affixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.
Coastal High Hazard Area	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.
Community Rating System (CRS)	An NFIP program that provides incentives for NFIP communities to complete activities that reduce flood hazard risk. When the community completes specified activities, the insurance premiums of policyholders in these communities are reduced.
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	Facilities that are critical to the health and welfare of the population and that are especially important following hazard events. Critical facilities include, but are not limited to, shelters, police and fire stations, and hospitals.
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.
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.
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.
Duration	How long a hazard event lasts.
Earthquake	A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth's tectonic plates.
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	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.
Extent	The size of an area affected by a hazard or hazard event.
Extra tropical Cyclone	Cyclonic storm events like Nor'easters and severe winter low-pressure systems. Both West and East coasts can experience these non-tropical 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.
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.

Federal Emergency Management Agency (FEMA)	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.
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 flood water surface above the ground surface.
Flood Elevation	Elevation 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.
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 FEMA that shows both the 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 watercourse, 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, 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	Rates tornadoes with numeric values from F0 to F5 based on tornado wind speed and damage sustained. An F0 indicates minimal damage such as broken tree limbs or signs, while and F5 indicated severe damage sustained.
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.
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 a database to be used for mapping and analysis.
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
Hazard	A source of potential danger or adverse condition. Hazards in this how to series will include naturally occurring events such as floods, earthquakes, tornadoes, tsunami, 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 hazards that threaten an area.
Hazard Mitigation	Sustained actions taken to reduce or eliminate long-term risk from hazards and their effects.
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.
HAZUS (Hazards U.S.)	A GIS-based nationally standardized earthquake loss estimation tool developed by FEMA.

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.
Hydrology	The science of dealing with the waters of the earth. A flood discharge is developed by a hydrologic study.
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, dry docks, piers and regional dams.
Intensity	A measure of the effects of a hazard event at a particular place.
Landslide	Downward movement of a slope and materials under the force of gravity.
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.
Liquefaction	Results when the soil supporting structures liquefies. This can cause structures to tip and topple.
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.
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 a description of actions to minimize future vulnerability to hazards.
National Flood Insurance Program (NFIP)	Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations in 44 CFR §60.3.

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.
Outflow	Follows water inundation creating strong currents that rip at structures and pound them with debris, and erode beaches and coastal structures.
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.
Probability	A statistical measure of the likelihood that a hazard event will occur.
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.
Repetitive Loss Property	A property that is currently insured for which two or more National Flood Insurance Program losses (occurring more than ten days apart) of at least $1000 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.
Richter Scale	A numerical scale of earthquake magnitude devised by seismologist C.F. Richter in 1935.
Risk	The estimated impact that a hazard would have on people, services, facilities, and structures in a community; 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 sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.
Riverine	Of or produced by a river.
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 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.
Seismicity	Describes the likelihood of an area being subject to earthquakes.
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, PL 100-107 was signed into law 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 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.
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.
Structure	Something constructed. (See also Building)
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.
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.
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 violently rotating column of air extending from a thunderstorm to the ground.
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	Describes how exposed or susceptible to damage an asset is. 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 – if an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.
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.
Wave Run up	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).
Wildfire	An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.
Zone	A geographical area shown on a Flood Insurance Rate Map (FIRM) that reflects the severity or type of flooding in the area.

APPENDIX B: ACRONYMS

A. Federal Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ATC	Applied Technology Council
B/CA	Benefit/Cost Analysis
BFE	Base Flood Elevation
BLM	Bureau of Land Management
BSSC	Building Seismic Safety Council
CDBG	Community Development Block Grant
CFR	Code of Federal Regulations
CRS	Community Rating System
EDA	Economic Development Administration
EPA	Environmental Protection Agency
ER	Emergency Relief
EWP	Emergency Watershed Protection (NRCS Program)
FAS	Federal Aid System
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance (FEMA Program)
FTE	Full Time Equivalent
GIS	Geographic Information System
GNS	Institute of Geological and Nuclear Sciences (International)
GSA	General Services Administration
HAZUS	Hazards U.S.
HMGP	Hazard Mitigation Grant Program
HMST	Hazard Mitigation Survey Team
HUD	Housing and Urban Development (United States, Department of)
IBHS	Institute for Business and Home Safety
ICC	Increased Cost of Compliance
IHMT	Interagency Hazard Mitigation Team
NCDC	National Climate Data Center
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association

NHMP	Natural Hazard Mitigation Plan (also known as "409 Plan")
NIBS	National Institute of Building Sciences
NIFC	National Interagency Fire Center
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
SBA	Small Business Administration
SEAO	Structural Engineers Association of Oregon
SHMO	State Hazard Mitigation Officer
TOR	Transfer of Development Rights
UGB	Urban Growth Boundary
URM	Unreinforced Masonry
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USDA	United States Department of Agriculture
USFA	United States Fire Administration
USFS	United States Forest Service
USGS	United States Geological Survey
WSSPC	Western States Seismic Policy Council

B. California Acronyms

A&W	Alert and Warning
AA	Administering Areas
AAR	After Action Report
ARC	American Red Cross
ARP	Accidental Risk Prevention
ATC20	Applied Technology Council20
ATC21	Applied Technology Council21
BCP	Budget Change Proposal
BSA	California Bureau of State Audits
CAER	Community Awareness & Emergency Response
Cal ARP	California Accidental Release Prevention
Cal BO	California Building Officials
CAL FIRE	California Department of Forestry and Fire Protection
Ca lEPA	California Environmental Protection Agency
Ca lOES	California Office of Emergency Services
Cal REP	California Radiological Emergency Plan
CAL STARS	California State Accounting Reporting System

Cal TRANS	California Department of Transportation
CGS	California Geological Survey
CBO	Community Based Organization
CD	Civil Defense
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEPEC	California Earthquake Prediction Evaluation Council
CESRS	California Emergency Services Radio System
CHIP	California Hazardous Identification Program
CHMIRS	California Hazardous Materials Incident Reporting System
CHP	California Highway Patrol
CLETS	California Law Enforcement Telecommunications System
CSTI	California Specialized Training Institute
CUEA	California Utilities Emergency Association
CUPA	Certified Unified Program Agency
DAD	Disaster Assistance Division (Cal OES)
DFO	Disaster Field Office
DGS	California Department of General Services
DHSRHB	California Dept. of Health Services, Radiological Health Branch
DO	Duty Officer
DOC	Department Operations Center
DOE	Department of Energy (U.S.)
DOF	California Department of Finance
DOJ	California Department of Justice
DPA	California Department of Personnel Administration
DPIG	Disaster Preparedness Improvement Grant
DR	Disaster Response
DSA	Division of the State Architect
DSR	Damage Survey Report
DSW	Disaster Service Worker
DWR	California Department of Water Resources
EAS	Emergency Alerting System
EDIS	Emergency Digital Information System
EERI	Earthquake Engineering Research Institute
EMA	Emergency Management Assistance
EMI	Emergency Management Institute
EMMA	Emergency Managers Mutual Aid
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency (U.S.)
EPEDAT	Early Post Earthquake Damage Assessment Tool
EPI	Emergency Public Information
EPIC	Emergency Public Information Council
ESC	Emergency Services Coordinator

FAY	Federal Award Year
FDAA	Federal Disaster Assistance Administration
FEAT	Governor's Flood Emergency Action Team
FEMA	Federal Emergency Management Agency
FFY	Federal Fiscal Year
FIR	Final Inspection Reports
FIRESCOPE	Firefighting Resources of Southern California Organized for Potential Emergencies
FMA	Flood Management Assistance
FSR	Feasibility Study Report
FY	Fiscal Year
GIS	Geographical Information System
HAZMAT	Hazardous Materials
HAZMIT	Hazardous Mitigation
HAZUS	Hazards United States (a damage assessment prediction tool)
HAD	Housing and Community Development
HEICS	Hospital Emergency Incident Command System
HEPG	Hospital Emergency Planning Guidance
HIA	Hazard Identification and Analysis Unit
HMEP	Hazardous Materials Emergency Preparedness
HMGP	Hazard Mitigation Grant Program
IDE	Initial Damage Estimate
IA	Individual Assistance
IFG	Individual & Family Grant (program)
IRG	Incident Response Geographic Information System
IPA	Information and Public Affairs (of Office of Emergency Services)
LAN	Local Area Network
LEMMA	Law Enforcement Master Mutual Aid
LEPC	Local Emergency Planning Committee
MARAC	Mutual Aid Regional Advisory Council
MHID	Multi-hazard Identification
MOU	Memorandum of Understanding
NBC	Nuclear, Biological, Chemical
NEMA	National Emergency Management Agency
NEMIS	National Emergency Management Information System
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Association
NPP	Nuclear Power Plant
NSF	National Science Foundation

NWS	National Weather Service
OA	Operational Area
OASIS	Operational Area Satellite Information System
OCC	Operations Coordination Center
OCD	Office of Civil Defense
OEP	Office of Emergency Planning
OES	California Governor's Office of Emergency Services
OSHPD	Office of Statewide Health Planning and Development
OSPR	Oil Spill Prevention and Response
PA	Public Assistance
PC	Personal Computer
PDA	Preliminary Damage Assessment
PIO	Public Information Office
POST	Police Officer Standards and Training
PPA/CA	Performance Partnership Agreement/Cooperative Agreement (FEMA)
PSA	Public Service Announcement
PTAB	Planning and Technological Assistance Branch
PTR	Project Time Report
RA	Regional Administrator (OES)
RADEF	Radiological Defense (program)
RAMP	Regional Assessment of Mitigation Priorities
RAPID	Railroad Accident Prevention & Immediate Deployment
RDO	Radiological Defense Officer
RDMHC	Regional Disaster Medical Health Coordinator
REOC	Regional Emergency Operations Center
REPI	Reserve Emergency Public Information
RES	Regional Emergency Staff
RIMS	Response Information Management System
RMP	Risk Management Plan
RPU	Radiological Preparedness Unit (OES)
RRT	Regional Response Team
SAM	State Administrative Manual
SARA	Superfund Amendments & Reauthorization Act
SAVP	Safety Assessment Volunteer Program
SBA	Small Business Administration
SCO	California State Controller's Office
SEMS	Standardized Emergency Management System
SEPIC	State Emergency Public Information Committee
SLA	State and Local Assistance
SONGS	San Onofre Nuclear Generating Station
SOP	Standard Operating Procedure
SWEPC	Statewide Emergency Planning Committee

TEC	Travel Expense Claim
TRU	Transuranic
TTT	Train the Trainer
UPA	Unified Program Account
UPS	Uninterrupted Power Source
USAR	Urban Search and Rescue
USGS	United States Geological Survey
WC	California State Warning Center
WAN	Wide Area Network
WIPP	Waste Isolation Pilot Project

APPENDIX C - ECONOMIC ANALYSIS OF MITIGATION STRATEGIES

The following criteria were used by the Hazard Mitigation Committee to select and prioritize proposed mitigation measures:

STAPLE/E

Social - Does the measure treat people fairly? (different groups, different generations)

Technical - Will it work? (Does it solve the problem? Is it feasible?)

Administrative - Do you have the capacity to implement and manage project?

Political - Who are the stakeholders? Did they get to participate? Is there public support? Is political leadership willing to support?

Legal - Does your organization have the authority to implement? Is it legal? Are there liability implications?

Economic - Is it cost-beneficial? Is there funding? Does it contribute to the local economy or economic development?

Environmental - Does it comply with environmental regulations?

Rankings for STAPLE/E:

Low	1-3 points (all low priority items were not included in the plan)
Medium	4-5 points
Medium/High	6 points
High	7-9 points

ECONOMIC ANALYSIS OF MITIGATION PROJECTS

Benefit/cost analysis is a key mechanism used by the state Office of Emergency Services (OES), the Federal Emergency Management Agency (FEMA), and other state and federal agencies in evaluating hazard mitigation projects, and is required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended.

This appendix outlines several approaches for conducting economic analysis of natural hazard mitigation projects. It describes the importance of implementing mitigation activities, different approaches to economic analysis of mitigation strategies, and methods to calculate costs and benefits associated with mitigation strategies. Information in this section is derived in part from The Interagency Hazards Mitigation Team, State Hazard Mitigation Plan, and Federal Emergency Management Agency Publication 331, Report on Costs and Benefits of Natural Hazard Mitigation.

This section is not intended to provide a comprehensive description of benefit/cost analysis, nor is it intended to provide the details of economic analysis methods that can be used to evaluate local projects. It is intended to (1) raise benefit/cost analysis as an important issue, and (2) provide some background on how economic analysis can be used to evaluate mitigation projects.

A. Cost Benefit Analysis Constraints

The City of Mission Viejo does not have the local expertise or the funds to hire a contractor to conduct benefit/cost analysis or cost-effectiveness analysis for this plan. This will be done on a project-by-project basis as the City moves forward on each project.

B. Mitigation Strategy Analysis

Mitigation activities reduce the cost of disasters by minimizing property damage, injuries, and the potential for loss of life, and by reducing emergency response costs, which would otherwise be incurred.

Evaluating natural hazard mitigation provides decision-makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects. Evaluating mitigation projects is a complex and difficult undertaking, which is influenced by many variables. First, natural disasters affect all segments of the communities they strike, including individuals, businesses, and public services such as fire, police, utilities, and schools.

Second, while some of the direct and indirect costs of disaster damages are measurable, some of the costs are non-financial and difficult to quantify in dollars. Third, many of the

impacts of such events produce “ripple-effects” throughout the community, greatly increasing the disaster’s social and economic consequences.

While not easily accomplished, there is value, from a public policy perspective, in assessing the positive and negative impacts from mitigation activities, and obtaining an instructive benefit/cost comparison. Otherwise, the decision to pursue or not pursue various mitigation options would not be based on an objective understanding of the net benefit or loss associated with these actions.

C. Economic Analysis Approaches for Mitigation Strategies

The approaches used to identify the costs and benefits associated with natural hazard mitigation strategies, measures, or projects fall into two general categories: benefit/cost analysis and cost-effectiveness analysis. The distinction between the two methods is the way in which the relative costs and benefits are measured. Additionally, there are varying approaches to assessing the value of mitigation for public sector and private sector activities.

D. Benefit/Cost Analysis

Benefit/cost analysis is used in natural hazards mitigation to show if the benefits to life and property protected through mitigation efforts exceed the cost of the mitigation activity. Conducting benefit/cost analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to avoid disaster related damages later. Benefit/cost analysis is based on calculating the frequency and severity of a hazard, avoided future damages, and risk.

In benefit/cost analysis, all costs and benefits are evaluated in terms of dollars, and a net benefit/cost ratio is computed to determine whether a project should be implemented (i.e., if net benefits exceed net costs, the project is worth pursuing). A project must have a benefit/cost ratio greater than 1 in order to be funded.

E. Cost-Effectiveness Analysis

Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. This type of analysis, however, does not necessarily measure costs and benefits in terms of dollars. Determining the economic feasibility of mitigating natural hazards can also be organized according to the perspective of those with an economic interest in the outcome. Hence, economic analysis approaches are covered for both public and private sectors as follows.

Investing in public sector mitigation activities:

Evaluating mitigation strategies in the public sector is complicated because it involves estimating all of the economic benefits and costs regardless of who realizes them, and potentially to a large number of people and economic entities. Some benefits cannot be

evaluated monetarily, but still affect the public in profound ways. Economists have developed methods to evaluate the economic feasibility of public decisions that involve a diverse set of beneficiaries and nonmarket benefits.

Investing in private sector mitigation activities:

Private sector mitigation projects may occur on the basis of one of two approaches: it may be mandated by a regulation or standard, or it may be economically justified on its own merits. A building or landowner, whether a private entity or a public agency, required to conform to a mandated standard may consider the following options:

1. Request cost sharing from public agencies;
2. Dispose of the building or land either by sale or demolition;
3. Change the designated use of the building or land and change the hazard mitigation compliance requirement; or
4. Evaluate the most feasible alternatives and initiate the most cost effective hazard mitigation alternative.

The sale of a building or land triggers another set of concerns. For example, real estate disclosure laws can be developed which require sellers of real property to disclose known defects and deficiencies in the property, including earthquake weaknesses and hazards to prospective purchasers. Correcting deficiencies can be expensive and time consuming, but their existence can prevent the sale of the building. Conditions of a sale regarding the deficiencies and the price of the building can be negotiated between a buyer and seller.

F. How Economic Analysis are Conducted

Benefit/cost analysis and cost-effectiveness analysis are important tools in evaluating whether or not to implement a mitigation activity. A framework for evaluating alternative mitigation activities is outlined below:

G. Identify the Alternatives

Alternatives for reducing risk from natural hazards can include structural projects to enhance disaster resistance, education and outreach, and acquisition or demolition of exposed properties, among others. Different mitigation project can assist in minimizing risk to natural hazards, but do so at varying economic costs.

H. Calculate the Costs and Benefits

Choosing economic criteria is essential to systematically calculating costs and benefits of mitigation projects and selecting the most appropriate alternative. Potential economic criteria to evaluate alternatives include:

- **Determine the project cost.** This may include initial project development costs, and repair and operating costs of maintaining projects over time.

- **Estimate the benefits.** Projecting the benefits, or cash flow resulting from a project can be difficult. Expected future returns from the mitigation effort depend on the correct specification of the risk and the effectiveness of the project, which may not be well known.

  - Expected future costs depend on the physical durability and potential economic obsolescence of the investment. This is difficult to project.

  - These considerations will also provide guidance in selecting an appropriate salvage value. Future tax structures and rates must be projected. Financing alternatives must be researched, and they may include retained earnings, bond and stock issues, and commercial loans.

I. Consider Costs and Benefits to Society and Environment

These are not easily measured, but can be assessed through a variety of economic tools including existence value or contingent value theories. These theories provide quantitative data on the value people attribute to physical or social environments. Even without hard data, however, impacts of structural projects to the physical environment or to society should be considered when implementing mitigation projects.

- **Determine the correct discount rate.**
  Determination of the discount rate can just be the risk-free cost of capital, but it may include the decision maker's time preference and also a risk premium. Including inflation should also be considered.

J. Analyze and Rank the Alternatives

Once costs and benefits have been quantified, economic analysis tools can rank the alternatives. Two methods for determining the best alternative given varying costs and benefits include net present value and internal rate of return.

- **Net present value.** Net present value is the value of the expected future returns of an investment minus the value of expected future cost expressed in today's dollars. If the net present value is greater than the project costs, the project may be determined feasible for implementation. Selecting the discount rate, and identifying the present and future costs and benefits of the project calculates the net present value of projects.

- **Internal Rate of Return.** Using the internal rate of return method to evaluate mitigation projects provides the interest rate equivalent to the dollar returns expected from the project. Once the rate has been calculated, it can be compared to rates earned by investing in alternative projects. Projects may be feasible to implement when the internal rate of return is greater than the total costs of the project.

  Once the mitigation projects are ranked on the basis of economic criteria, decision-

makers can consider other factors, such as risk; project effectiveness; and economic, environmental, and social returns in choosing the appropriate project for implementation.

How are Benefits of Mitigation Calculated?

A. Economic Returns of Natural Hazard Mitigation

The estimation of economic returns, which accrue to building or land owner as a result of natural hazard mitigation, is difficult. Owners evaluating the economic feasibility of mitigation should consider reductions in physical damages and financial losses. A partial list follows:

- Building damages avoided
- Content damages avoided
- Inventory damages avoided
- Rental income losses avoided
- Relocation and disruption expenses avoided
- Proprietor's income losses avoided

These parameters can be estimated using observed prices, costs, and engineering data. The difficult part is to correctly determine the effectiveness of the hazard mitigation project and the resulting reduction in damages and losses. Equally as difficult is assessing the probability that an event will occur. The damages and losses should only include those that will be borne by the owner.

The salvage value of the investment can be important in determining economic feasibility. Salvage value becomes more important as the time horizon of the owner declines. This is important because most businesses depreciate assets over a period of time.

B. Additional Costs from Natural Hazards

Property owners should also assess changes in a broader set of factors that can change as a result of a large natural disaster. These are usually termed "indirect" effects, but they can have a very direct effect on the economic value of the owner's building or land. They can be positive or negative, and include changes in the following:

- Commodity and resource prices
- Availability of resource supplies
- Commodity and resource demand changes
- Building and land values
- Capital availability and interest rates
- Availability of labor
- Economic structure

- Infrastructure
- Regional exports and imports
- Local, state, and national regulations and policies
- Insurance availability and rates

Changes in the resources and industries listed above are more difficult to estimate and require models that are structured to estimate total economic impacts. Total economic impacts are the sum of direct and indirect economic impacts. Total economic impact models are usually not combined with economic feasibility models. Many models exist to estimate total economic impacts of changes in an economy.

Decision makers should understand the total economic impacts of natural disasters in order to calculate the benefits of a mitigation activity. This suggests that understanding the local economy is an important first step in being able to understand the potential impacts of a disaster, and the benefits of mitigation activities.

C. Additional Considerations

Conducting an economic analysis for potential mitigation activities can assist decision-makers in choosing the most appropriate strategy for their community to reduce risk and prevent loss from natural hazards. Economic analysis can also save time and resources from being spent on inappropriate or unfeasible projects. Several resources and models are listed on the following page that can assist in conducting an economic analysis for natural hazard mitigation activities.

Benefit/cost analysis is complicated, and the numbers may divert attention from other important issues. It is important to consider the qualitative factors of a project associated with mitigation that cannot be evaluated economically. There are alternative approaches to implementing mitigation projects. Many communities are looking towards developing multi-objective projects. With this in mind, opportunity rises to develop strategies that integrate natural hazard mitigation with projects related to watersheds, environmental planning, community economic development, and small business development, among others. Incorporating natural hazard mitigation with other community projects can increase the viability of project implementation.

D. 2016 RSCCD Plan

Due to District constraints: insufficient personnel local expertise as well as lack of funding to hire a contractor to conduct benefit-cost analysis and cost-effectiveness analysis, these processes will not take place during the development of this plan. Instead, benefit-cost analysis and/or cost-effectiveness analysis will be done prior to applying for any federal grants.

APPENDIX D: CALIFORNIA DISASTERS SINCE 1950

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Flood	Floods	OCD 50-01	1950	Statewide	11/21/50	Not declared	9		$32,183,000
Flood	Fire, Flood, and Erosion	DR-28	1954	Los Angeles, San Bernardino	2/5/54	2/5/54			Not Avail
Flood	Floods	DR-47	1955	Statewide	12/22/55	12/23/55	74		$200,000,000
Fire	Fires	DR-65	1956	Los Angeles (Malibu area), Ventura		12/29/56	1	Several hundred	$70,000,000
Severe Storm, Economic	Unseasonal and Heavy Rainfall	N/A	1957	Cherry producing areas of Northern California	5/20/57	Not declared		2	$6,000,000
Fire	Fires	CDO 58-01	1958	Los Angeles	1/3/58	Not declared	1	23	Not available
Tsunami	High Tides	CDO 58-02	1958	City of Imperial Beach, San Diego County	1/31/58	Not declared			Not available
Flood	Storm & Flood Damage	CDO 58-03	1958	Northern California (Southern boundaries of Santa Cruz, Santa Clara, Stanislaus, Tuolumne, Alpine counties to the Oregon border)	2/26/58	Not declared			Not available
Flood	Storm & Flood Damage	N/A	1958	Statewide	4/2/58	82	13		$24,000,000
Flood, Landslide	Potential Flood Damage and Landsides as a Result of Fires	CDO 59-01	1959	Los Angeles	1/8/59	Not declared			Not applicable
Severe Storm	Unseasonal and Heavy Rainfall	N/A	1959	Tokay grape producing areas of Northern California	9/17/59	Not declared	2		$100,000
Fire	Major and Widespread Fires	N/A	1960	Los Angeles, San Bernardino	7/21-22/60	Not declared		12	$10,000,000
Fire	Major and Widespread Fires	N/A	1960	Lassen Plumas, Shasta, Sierra, Tehama	8/16/60	Not declared			$3,075,000
Fire	Bel Air Fires	DR-119	1961	Los Angeles		11/16/61		103	Between $50,000,000 - $100,000,000
Fire	Widespread Fires	N/A	1961	Amador, Butte, El Dorado, Napa, Nevada, Placer, San Diego, Sonoma, Tehama	9/8/61	Not declared			$5,696,813
Flood	High Tides and Waves Caused By Storms At Sea	N/A	1961	Ventura	1/16/61	Not declared			Not available
Flood	Flood and Rainstorm	DR-122	1962	Los Angeles, Ventura	2/16/62 & 2/23/62	3/6/62			Not available
Fire	Fires and Explosions	N/A	1962	Alameda	9/14/62	Not declared	1	12	$500,000
Flood	Flood and Rainstorm		1962	Alameda, Butte, Contra Costa, Modoc, Napa San Mateo, Sierra, Sutter, Yuba, Placer, Trinity, Lassen	10/17/62, 10/25/62, 10/30,62, & 11/4/62	138 (10/24/62)			$4,000,000

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Flood	Baldwin Hills Dam Failure	DR-161	1963	Los Angeles	12/16/63	12/21/63			$5,233,203
Flood	High Tides and Heavy Surf	N/A	1963	Orange, City of Redondo Beach		Not declared	5		$500,000
Severe Storm, Flood	Abnormally Heavy and Continuous Rainfall	N/A	1963	Northern California (boundaries of San Luis Obispo, Ventura, Los Angeles, and San Bernardino counties to the Oregon State Line	2/14/64	Not declared			Not Available
Flood	Flood and Rainstorm	Unknown	1963	Alpine, Nevada, Placer, Plumas, Sierra, Amador, Colusa, El Dorado, Glenn, Lake, Lassen, Tehama, Santa Clara, Santa Cruz, Siskiyou, Yolo, Tulare, Mono, Trinity, Yuba	2/7/63, 2/26/63, 2/29/63, & 4/22/63	145 (2/25/63)			Not available
Fire	Major Widespread Fires (Weldon Fire)	N/A	1964	Los Angeles	3/16/64	Not declared			$2,000,000
Fire, Windstorm	Major and Widespread Fires and Excessively High Winds	N/A	1964	Napa, Sonoma, Santa Barbara	9/22/64, 9/23/64, & 9/25/64	Not declared			$16,500,000
Flood	Storms	N/A	1964	Los Angeles	4/3/64	Not declared			1,610,300
Severe Storm, Flood	Abnormally Heavy and Continuous Rainfall	N/A	1964	Humboldt	2/10/64	Not declared			$1,407,000
Tsunami	Tsunami Caused by 1964 Earthquake in Alaska	N/A	1964	Marin	9/15/64	Not declared			Not applicable
Flood	1964 Late Winter Storms	Unknown	1964	Del Norte, Humboldt, Shasta, Mendocino, Colusa, Glenn, Lassen, Plumas, Sierra, Siskiyou, Sonoma, Sutter, Tehama, Trinity, Amador, Butte, El Dorado, Modoc, Nevada, Placer, Yuba, Alpine, Lake, Sacramento, Yolo, Marin	12/22/64, 12/23/64, 12/28/64, 1/5/65, & 1/1/65	12/29/64			$213,149,000
Tsunami	Tsunami Caused by Alaska Earthquake	Unknown	1964	Del Norte	3/28/64	169 (4/1/64)	12		$10,000,000
Civil Unrest	Riots	N/A	1965	Los Angeles	8/14/65	Not declared	32	874	$44,991,000
Fire	Major and Widespread Fires	N/A	1965	Marin, Napa, Placer, Solano, Sonoma	9/18/65	Not declared			Not available
Flood, Landslide	Flooding and Hill Slides Caused by Heavy Rains	N/A	1965	City of Burbank, Los Angeles	1/5/65	Not declared			Not Available
Landslide	Slide Damage	N/A	1965	City of Los Angeles	6/21/65	Not declared			$6,488,600
Flood, Severe Storm	1965 Heavy Rainfall		1965	Riverside, San Bernardino, Ventura, San Diego	11/24/65, 11/26/65, 12/23/65	12/7/65			$21,843,739
Flood	Continuous Rainfall	DR-211	1966	Humboldt	1/14/66	212 (1/22/66)			$6,918,000.00
Civil Unrest	Riots	N/A	1966	San Francisco	9/27/66	Not declared		42	Not available
Landslide	Earth slides	N/A	1966	Redwood City	12/16/66	Not declared			$100,000

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Flood	1966 Winter Storms	Unknown	1966	Kern, Riverside, Tulare, San Bernardino, San Luis Obispo, Monterey, City of Escondido, Inyo	12/9/66, 12/13/66, 12/16/66, 12/16/66, & 12/23/66	1/2/67			$28,761,041.00
Fire	Major and Widespread Fires	N/A	1967	Los Angeles, Orange, San Diego, Ventura	1/7/67	Not declared			$11,345,000
Civil Unrest	Riots and Other Conditions	N/A	1968	City of Richmond	8/2/68	Not declared			Not applicable
Civil Unrest	Riots	N/A	1969	City of Berkeley	2/5/69	Not declared	0	20	Not available
Freeze	Extremely Severe Weather; Freezing	N/A	1969	San Diego	2/5/69	Not declared			$10,000,000
HazMat	Major Oil Spill	N/A	1969	Coastal Areas of Southern California		Not declared			Not available
Flood	1969 Storms	Unknown	1969	Los Angeles, San Luis Obispo, Fresno, Inyo, Riverside, San Bernardino, Santa Barbara, Tulare, Ventura, Amador, El Dorado, Kern, Kings, Madera, Modoc, Mono, Monterey, Orange, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Tuolumne, Mariposa, Merced, Calaveras, San Benito, Sierra, Contra Costa, Humboldt, Mendocino, Sonoma, Plumas, Tehama, Yuba, Butte, Marin, Yolo	1/23/69, 1/25,69, 1/28/69, 1/29/69, 2/8/69, 2/10/69, 2/16/69, 3/12/69	1/26/69	47	161	$300,000,000
Flood	Heavy Snow Runoff		1969	Kings	1/28/96	8/15/69			$2,812,500.00
Civil Unrest	Riots and Disorders	N/A	1970	Santa Barbara	2/26/70	Not declared		12+	$300,000
Fire	Large Fire	N/A	1970	City of Sonora, Tuolumne	2/26/70	Not declared			$2,300,000
Fire	Widespread Fires	N/A	1970	Riverside	12/22/70	Not declared			$3,200,000
Flood	Storms and Floods	N/A	1970	Contra Costa	4/10/70	Not declared			Not available
Freeze	Freezing Conditions	N/A	1970	Napa, Sonoma, Mendocino, San Joaquin, Lake	5/1/70, 5/19/70, 6/8/70, 6/10/70, 7/24/70	Not declared			$19,749,200
Landslide	Slide Damage Caused by Heavy Rains and Storms	N/A	1970	City of Oakland	2/10/70	Not declared			$11,500,000
Landslide	Slide Damage Caused by Heavy Rains and Storms	N/A	1970	City of Los Angeles	3/10/70	Not declared			$8,500,000
Flood	Northern California Flooding	Unknown	1970	Butte, Colusa, Glenn, Lake, Lassen, Marin, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity, Sutter, Yuba, Del Norte, Alameda, El Dorado, Mendocino	1/26/60, 2/3/60, 2/10/60, 3/2/60	2/16/70			$27,657,478

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Fire	Statewide Fires		1970	City of Oakland, Los Angeles, Ventura, San Diego, Kern, San Bernardino, Monterey, Riverside	9/24/70, 9/28/70, 10/1/70, 10/2/70, 10/20/70, 11/14/70	9/29/70	19		$223,611,000
Earthquake	San Fernando Earthquake	DR-299	1971	Los Angeles	2/9/71	2/9/71	58	2,000	$483,957,000
Fire	Widespread Fires	N/A	1971	Santa Barbara	10/13/71	Not declared	4		$9,000,000
Flood	High Ocean Tides and Wind-driven Waves	N/A	1971	Ventura	5/19/71	Not declared			$250,000
Flood	1972 Storms	DR-316	1972	Santa Barbara	1/3/72	2/11/72			$2,660,000
Flood	Andrus island Levee Break	DR-342	1972	Sacramento	6/21/72	6/27/72			$23,681,630
Agricultural	Exotic Newcastle Disease Epidemic	N/A	1972	Los Angeles, Orange, Riverside, San Bernardino, San Diego, Ventura, Santa Barbara	4/10/72, 5/22/72	Not declared			$10,000,000
Drought	Drought Conditions	N/A	1972	Glenn, San Benito, Santa Clara	7//73	Not declared			$8,000,000
Flood	Heavy Rains and Mud Slides	N/A	1972	Monterey	10/24/72	Not declared			$720,000
Severe Storm	Severe Weather Conditions	N/A	1972	Sutter	9/3/72	Not declared			$2,004,300
Severe Storm, Freeze	Freeze and Severe Weather Conditions	N/A	1972	Fresno, Kings, Tulare, Merced, Kern, Madera, San Benito, Stanislaus, El Dorado, Tehama, Placer, Nevada, San Joaquin, Colusa, Siskiyou, Modoc, Santa Clara	4/17/72, 5/22/72, 5/22/72, 5/31/72	Not declared			$111,517,260
Flood	1972 Continuing Storms		1972	Del Norte, Humboldt	2/28/72	4/5/72			$6,817,618
Flood	Coastal Flooding	DR-364	1973	Marin, San Luis Obispo, City of South San Francisco, Santa Barbara, Solano, Ventura	1/23/73, 1/30/73, 2/8/73, 2/28/73	2/3/73			$17,998,250
Fire	Southern Pacific Railroad Fires and Explosions (Roseville)	N/A	1973	Sacramento, placer	4/30/73	Not declared	0	37	$2,925,000
Fire	Boulder Fire	N/A	1973	San Diego	12/12/73	Not declared	0		$215,700
Flood	High Ocean Tides and Wind-driven Waves	N/A	1973	Ventura	2/1/73	Not declared			$1,027,000
Flood	Storms and Floods	N/A	1973	Colusa, Glenn, Napa, Placer, Sutter, Yuba	2/28/73	Not declared			$1,864,000
Flood	Storms and Floods	N/A	1973	Mendocino	3/15/73	Not declared			$1,523,200
Flood	Storms and Floods	N/A	1973	City of Pacifica	4/11/73	Not declared			$700,000
Freeze	Freeze	N/A	1973	Butte	2/28/73	Not declared			$300,000
Freeze, Economic	Eucalyptus Tree Freeze	Unknown	1973	Alameda, Contra Costa	4/4/73	5/25/73			$8,000,000 to $10,000,000

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Fire	Fires	N/A	1973	Los Angeles	7/16/73	Not declared			$1,300,000
Flood	Storms	DR-412	1974	Humboldt, Shasta, Siskiyou, Trinity, Glenn, Mendocino, Tehama	1/17/74, 1/18/74	1/25/74			$35,192,500
Flood	Storms	DR-432	1974	Mendocino	4/23/74	5/7/74			$4,475,900
Economic	Gasoline Purchasing Problems	N/A	1974	Alameda, Contra Costa, Los Angeles, Orange, Riverside, San Mateo, Solano, Santa Clara, Ventura	2/28/74, 3/4/74, 3/10/74	Not declared			
Flood	Storms	N/A	1974	Santa Cruz	2/28/74	Not declared			$763,267
Fire	Fires	N/A	1975	Los Angeles	11/24/75	Not declared			$19,486,960
Drought	Drought	N/A	1976	Alpine, Calaveras, Colusa, Fresno, Glenn, Madera, Merced, San Diego, San Joaquin, Solano, Stanislaus, Sutter, Tuolumne, Alameda, Butte, Contra Costa, Kings, Los Angeles, Riverside, San Luis Obispo, Tulare, Yolo, Amador, Monterey, Napa, Nevada, San Benito, San Bernardino, Tehama, San Mateo, Marin	2/9/76, 2/13,76, 2/24/76, 3/26/76, 7/6/76	Not declared			$2,664,000,000
Severe Storm	1976 High Winds and Flooding	DR-521	1976	Imperial, Riverside, San Bernardino, San Diego	9/13/76, 9/22/76	9/21/76			$120,132,771
Fire	Sycamore Fire	N/A	1977	Santa Barbara	7/27/77	Not declared	0		$25,540,755
Flood	Imperial County Flooding	N/A	1977	Imperial	8/23/77	Not declared			$28,498,469
Flood, Landslide	Threat of Floods/Mud Slides	N/A	1977	Monterey, Riverside	9/8/77	Not declared			$6,110,000
Severe Storm	Storms	N/A	1977	San Diego, Kern, Humboldt, City of Arvin	1/10/78, 12/23/77, 1/22/77, 12/21/77	Not declared			$38,009,035
Landslide	Laguna Landslide	DR-566	1978	City of Laguna Beach	10/5/78	10/9/78			$16,595,000
Fire	1978 Los Angeles Fire	EM-3067	1978	Los Angeles	10/24/78	10/29/78	1		$61,279,374
Earthquake	Santa Barbara Earthquake	N/A	1978	Santa Barbara	8/15/78	Not declared	0	65	$12,987,000
Miscellaneous	PSA Air Crash	N/A	1978	City of San Diego	1/15/79	Not declared	150		
Severe Storm	Storms	N/A	1978	Humboldt, Mendocino, Santa Cruz	1/27/78, 1/20/78	Not declared			$6,126,409
Severe Storm	Storms	Unknown	1978	Inyo, Mono, San Diego, San Luis Obispo, Kings, Monterey, Kern, Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Tulare, Ventura	3/9/78, 2/27,78, 2/13/78	2/15/78	14	21	$117,802,785
Severe Storm	Severe Storms	DR-594	1979	Riverside	7/26/80	7/27/79			$25,867,100

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Earthquake	Imperial Earthquake	DR-609	1979	Imperial	10/16/79	10/16/79	0	91	$21,197,250
Economic	Gasoline Shortage Emergency	N/A	1979	Alameda, Contra Costa, Los Angeles, Marin, Monterey, Orange, Riverside, San Francisco, San Diego, Santa Clara, Santa Cruz, San Mateo, Ventura, San Bernardino, Sonoma, Contra Costa, Los Angeles, Orange, Santa Clara	5/8/79 - 11/13/79	Not declared			
Fire	Fires	N/A	1979	Santa Barbara, Ventura, Los Angeles, El Dorado	9/28/79, 9/21/79, 9/20/79	Not declared			$9,970,119
Flood	1980 Winter Storms	DR-615	1980	Santa Barbara, Los Angeles, Orange, Riverside, Ventura, San Bernardino, San Diego	2/21/80, 2/7/80	2/21/80			
Flood	Jones Tract Levee Break	DR-633	1980	San Joaquin	9/30/80	9/30/80			$21,510,956
Fire	Southern California Fires	DR-635	1980	San Bernardino, Los Angeles, Orange, Riverside	11/18/80	11/18/80			$64,795,200
Flood	Delta Levee Break	EM-3078	1980	Contra Costa, Sacramento, San Joaquin	1/23/80	1/23/80			$17,388,013
Earthquake	Owens Valley Earthquake	N/A	1980	Mono	5/28/80	Not declared	0	9	$2,000,000
Flood	Storms	N/A	1980	Stanislaus, Monterey, Solano, Santa Cruz	3/5/80	Not declared			$316,640,817
Economic	Mediterranean Fruit Fly Infestation	N/A	1981	Contra Costa, Los Angeles, San Benito, Stanislaus, Santa Cruz, San Mateo	8/8/81 - 9/25/81	Not declared			$22,000,000
Fire	Atlas Peak Fire	N/A	1981	Napa	6/24/81	Not declared	0		$31,000,000
Flood	1982 Winter Storms	DR-651	1982	Alameda, Santa Clara, Solano, San Joaquin, Contra Costa, Humboldt, Marin, San Mateo, Santa Cruz, Sonoma	1/5/82 - 1/9/82	1/7/82	33	481	$273,850,000
Fire	Orange Fire	DR-657	1982	Orange, City of Redondo Beach	4/21/82	4/21/82			$50,877,040
Flood	McDonald Island Levee Break	DR-669	1982	MacDonald Island	8/24/82	8/24/82			$11,561,870
Flood, Severe Storm	1982-83 Winter Storms	DR-677	1982	Contra Costa, San Joaquin, Sacramento, Marin, San Mateo, Los Angeles, San Diego, Alameda, Orange, San Benito, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sonoma, Ventura, Trinity, Colusa, Lake, Mendocino, Monterey, San Luis Obispo, Solano, Yolo, Butte, Glenn, Kern, Kings, San Bernardino, Sutter, Tehama, Merced, Del Norte, Fresno, madera, Napa, Placer, Riverside, Stanislaus, Tulare,	1982, 1983	2/9/83	0	0	$523,617,032

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
				Humboldt, Mariposa, Nevada, Yuba					
Agricultural	Rains Causing Agricultural Losses	N/A	1982	Fresno, Madera, Merced, Monterey, kenr Tulare, Sacramento, San Joaquin, Solano, Stanislaus, Yolo	10/26/82	Not declared			$345,195,974
Fire	Dayton Hills Fire	N/A	1982	Los Angeles, Orange, Ventura	10/10/82	Not declared	0		$19,277,102
Flood, Windstorm	High Tides, Strong Winds, and Rains	N/A	1982	Contra Costa, Sacramento, San Joaquin	12/8/82	Not declared			$6,964,998
Severe Storm, Flood	Heavy Rains/ Flooding	N/A	1982	Inyo	9/27/82	Not declared			$6,161,320
Flood	Winter Storms	Unknown	1982	Contra Costa, San Joaquin, Sacramento, Marin, San Mateo, Los Angeles, San Diego, Alameda, orange, San Benito, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sonoma, Ventura, Trinity, Colusa, Lake Mendocino, Monterey, San Luis Obispo, Solano, Yolo, Butte, Glenn, Kern, Kings, San Bernardino, Sutter, Tehama, Merced, Del Norte, Fresno, Madera, Napa, Placer, Riverside, Stanislaus, Tulare, Humboldt, Mariposa, Nevada, Yuba	12/8/82-3/21/83	2/9/83			$523,617,032
Earthquake	Coalinga Earthquake	DR-682	1983	Fresno	5/2/83	5/3/83	0	47	$31,076,300
Flood	Colorado River Flooding	DR-682	1983	Riverside, San Bernardino, Imperial	6/23/83, 6/28/83	7/1/83			$4,640,315
Flood	1983 Summer Storms	DR-690	1983	Inyo, Riverside, San Bernardino	8/29/83	8/29/83	3		$34,689,155
Economic	Mexican Fruit Fly	N/A	1983	Los Angeles	11/4/83	Not declared			
Severe Storm, Flood	Levee Failure, High Winds, High Tides, Floods, Storms, Wind Driven Water	N/A	1983	Contra Costa, Alameda	12/9/83, 1/18/84	Not declared			$10,909,785
Earthquake	Morgan Hill Earthquake	EM-4043	1984	Santa Clara		4/25/84	0	27	$7,265,000
Severe Storm	Storms	N/A	1984	Kern, Riverside, Tulare, San Bernardino, San Luis Obispo, Monterey, City of Escondido, Inyo		Not declared			$1,600,000
Fire	Statewide Fires	DR-739	1985	San Diego, City of Lost Angeles, San Luis Obispo, Monterey, Santa Clara, Santa Cruz, Ventura	7/1/85 - 7/11/85	4/25/84	3	470	$64,845,864
Fire	Wheeler Fire	N/A	1985	Ventura	10/14/85	Not declared	1	2	
Miscellaneous	Hydrilla Proliferation	N/A	1985	Shasta	9/13/85	Not declared			

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Severe Storm	Storms	DR-758	1986	Humboldt, Napa, Sonoma, Glenn, Lake, Marin, Modoc, Sacramento, Santa Clara, Santa Cruz, Solano, Yuba, Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Lassen, Mendocino, Nevada, Placer, Plumas, San Joaquin, Sierra, Sutter, Tehama, Tuolumne, Yolo, Fresno, Madera, San Mateo, Alameda, Contra Costa, Del Norte, Trinity, Mono, San Benito, Shasta	2/18-86 - 3/12/86	2/18/86	13		$407,538,904
Flood	Heavy Rains	N/A	1986	Monterey, Siskyou	3/26/86	Not declared			$400,000
Miscellaneous	Plane Crash	N/A	1986	City of Cerritos	8/31/86	Not declared	67	2	
Earthquake	Whittier Earthquake	DR-799	1987	Monterey park, City of Whittier, Los Angeles, Orange	10/2/87 - 10/5/87	10/7/87	9	200	$358,052,144
Earthquake	Imperial County Earthquake	N/A	1987	Imperial	11/23/87	Not declared	0	94	$2,638,833
Economic	Mediterranean Fruit Fly	N/A	1987	Los Angeles	8/25/87	Not declared			
Fire	Forest Fire - Del Norte Fire, Pebble Beach	N/A	1987	Monterey		Not declared	0	8	$15,000,000
Fire	Acorn Fire	N/A	1987	Alpine	8/3/87	Not declared	0	3	$8,500,000
Fire	Wildland Fires	N/A	1987	Colusa, Del Norte, Butte, Fresno, Humboldt, Inyo, Kern, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Nevada, Placer, Plumas, Riverside, San Bernardino, Shasta, Sierra, Siskiyou, Trinity, Tulare, Tuolumne	9/10/87, 9/3/87	Not declared	3	76	$18,000,000
Fire	Wildfires/ Flooding/ Mud Slides	N/A	1987	San Diego	11/19/87	Not declared			$5,371,150
Severe Storm	Coastal Storms	DR-812	1988	Los Angeles, Orange, San Diego	1/21/88	2/5/88	0		
Fire	Fires - 49er, Miller, and Fern	DR-815	1988	Shasta, Solano, Yuba, Nevada	9/11/88-9/20/88	9/13/88	0		$31,247,534
Economic	Mediterranean Fruit Fly	N/A	1988	Los Angeles	7/21/88	Not declared			
Fire	Wildland Fires	N/A	1988	Calaveras	7/21/88	Not declared			
Fire, Windstorm	Fire and Wind Driven Waves	N/A	1988	City of Redondo Beach	6/15/88	Not declared	0		$25,000,000
Fire, Windstorm	Fires/ High Winds	N/A	1988	Los Angeles	12/9/88	Not declared	0	2	$12,400,000
Severe Storm	Storms	N/A	1988	Santa Barbara, City of San Buenaventura	1/26/88	Not declared			$49,416,200
Earthquake	Loma Prieta Earthquake	DR-845	1989	Alameda, Monterey, San Benito, San Mateo, Santa Clara, Santa Cruz, San Francisco, Contra Costa, Marin, City of Isleton, City of Tracy, Solano	10/18/89 - 10/30/89	10/18/89	63	3,757	$5,900,000,000
Economic	Mediterranean Fruit Fly	N/A	1989	Los Angeles	8/9/89	Not declared			

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Economic	Mediterranean Fruit Fly	N/A	1989	Santa Clara	9/6/89	Not declared			
Economic	Mediterranean Fruit Fly	N/A	1989	San Bernardino	10/3/89	Not declared			
Economic	Mediterranean Fruit Fly	N/A	1989	Orange	11/20/89	Not declared			
Fire	Santa Barbara Fires	DR-872	1990	Los Angeles, Santa Barbara, Riverside, San Bernardino	6/28/90, 6/29/90	6/30/90	3	89	$300,000,000
Freeze	Freeze	DR-894	1990	Santa Cruz, Fresno, Glenn, imperial, Kern, Mendocino, Monterey, Riverside, San Benito, San Bernardino, San Diego, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Tulare, Ventura, Alameda, Butte, Colusa, Los Angeles, Madera, Marin, Merced, Napa, San Joaquin, San Luis Obispo, Sutter, Yolo, Yuba, Stanislaus, Tehama	12/19/90-1/18/91	2/11/91			$856,329,675
Drought	Drought	N/A	1990	City of Santa Barbara	7/17/90	Not declared			
Drought	Drought	N/A	1990	Santa Barbara	11/13/90	Not declared			
Earthquake	Upland Earthquake	N/A	1990	Los Angeles, San Bernardino	3/9/90, 3/13/90	Not declared	0	38	$12,034,150
Economic	Mediterranean Fruit Fly	N/A	1990	Riverside	4/18/90	Not declared			
Economic	Mexican Fruit Fly	N/A	1990	Los Angeles, San Diego	5/14/90	Not declared			
Fire	Finley Fire/ Yosemite Fire	N/A	1990	Mariposa, Kern, Tehama	8/13/90, 8/14/90	Not declared	1	84	$548,000,000
Severe Storm	Severe Storms	N/A	1990	Butte, Nevada	2/22/90	Not declared	1	17	$11,500,000
Fire	East Bay Hills Fire	DR-919	1991	Alameda County	10/20/91	10/22/91	25	150	$1,700,000,000
Economic	Sweet potato Whitefly	N/A	1991	Imperial, Riverside		Not declared			$120,567,949
HazMat	Cantara Spill	N/A	1991	Shasta, Siskyou				300	$38,000,000
Severe Storm	1992 Winter Storms	DR-935	1992	Los Angeles, Ventura, City of Los Angeles, kern, orange, San Bernardino	2/12/92, 2/19/92	2/25/92	5		$123,240,531
Civil Unrest	Los Angeles Civil Disorder	DR-942	1992	Los Angeles	4/29/92	5/22/92	53	2,383	$800,000,000
Earthquake	Cape Mendocino Earthquakes	DR-943	1992	Humboldt	4/25/92	5/5/92	0	356	$48,271,137
Earthquake	Big Bear - Landers Earthquakes	DR-947	1992	Riverside, San Bernardino	6/28/92	6/28/92	1	$402	$91,079,376
Fire	Shasta/Calaveras Fire	DR-958	1992	Calaveras, Shasta	8/21/92	8/29/92	0	$8	$54,108,500
Flood	1992 Late Winter Storms	DR-979	1992	Alpine, Los Angeles, Humboldt, Napa, Santa Barbara, Culver City, City of Los Angeles, Contra Costa, Mendocino, Sonoma, Fresno, imperial, Madera, Monterey, San Bernardino, Sierra, Tehama, Trinity, Tulare, Modoc, Orange, Riverside,	1/7/93 - 2/19/93	1/15/93	20	10	$600,000,000

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
				Lassen, Siskiyou, Plumas, San Diego					
HazMat	Sewage Spill	N/A	1992	San Diego, City of Chula Vista, City of Coronado, San Diego	2/6/92, 2/7/92	Not declared			
Fire	Southern California Firestorms	DR-1005	1993	Los Angeles, Ventura, San Diego, Orange, Riverside, San Bernardino	10/27/93, 10/28/93	10/28/93	4	162	$1,000,000,000
Economic	Mediterranean Fruit Fly	N/A	1993	Riverside	5/21/94	Not declared			
HazMat	Tijuana River Pollution	N/A	1993	San Diego	9/10/93	Not declared			
HazMat	New River Pollution	N/A	1993	Imperial	10/6/93	Not declared			
Earthquake	Northridge Earthquake	DR-1008	1994	Los Angeles, Ventura, Orange	1/17/94, 1/24/94	1/17/94	57	11,846	$40,000,000,000
Economic	Salmon fisheries	DR-1038	1994	Del Norte, Humboldt, Mendocino, Sonoma	5/20/94	9/20/94			$28,300,000
Earthquake	Humboldt Earthquake	N/A	1994	Humboldt	12/29/94	Not declared			$1,300,000
Economic	Mediterranean Fruit Fly	N/A	1994	Ventura	10/7/94	Not declared			
Fire	San Luis Obispo Fire - Hwy 41	N/A	1994	San Luis Obispo	8/24/94	Not declared		12	$6,382,235
Severe Storm	Severe Winter Storms	DR-1044	1995	Los Angeles, Orange, Humboldt, Lake , Sonoma, Butte, Colusa, Contra Costa, Del Norte, Glenn, Kern, Lassen, Mendocino, Modoc, Monterey, Napa, placer, Plumas, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz, Tehama, Ventura, Yolo, Yuba, Alpine, Amador, Nevada, Riverside, Sacramento, San Bernardino, San Mateo, Shasta, Sutter, Trinity, San Diego, Alameda, Marin, Fresno, Kings, El Dorado, Madera, Solano, Siskiyou	1/6/95 - 3/14/95	1/13/95	11		$741,400,000
Severe Storm, Flood	Late Winter Storms	DR-1046	1995	All counties except Del Norte		1/10/95	17		$1,100,000,000
Fire	Southern California Firestorms	EM-3120	1996	Los Angeles, Orange, San Diego	10/1/96			5	$40,000,000
Flood	January 1997 Floods		1997	Alpine, Amador, Butte, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Lake, Lassen, Modoc, Napa, Nevada, Plumas, Sacrament, San Joaquin, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Yuba, Calaveras, Madera, Mono, Monterey, Placer, San Benito, San Luis Obispo, San Mateo, Santa Cruz, Shasta, Stanislaus, Tuolumne, Yolo, Contra Costa, Fresno, Marin, Tulare,	1/2/97 - 1/31/97		8		$1,800,000,000

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
				Mariposa, Merced, Santa Clara, Alameda, San Francisco, Kings,					
Flood	El Nino		1998	Alameda, Amador, Butte, Calaveras, Colusa, Contra Costa, Fresno, Glenn Humboldt, Kern, Kings, Lake, Los Angeles, Marin, Mendocino, Merced, Monterey, Napa, Orange, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Ventura, Yolo, Yuba			17		$550,000,000
Freeze	Freeze		1998	Fresno, Kern, Kings, Madera, Merced, Monterey, Tulare, Ventura	2/9/99				
Fire	Fire		1999	Various Counties	8/26/99				
	Road Damage		1999	Sonoma	3/29/99				
Earthquake	Earthquake		2000	Napa	9/6/00				
Drought	Water Shortage		2001	City of Rio Dell	3/16/01				
Fire	California Wildfires	DR-1498	2003	Ventura, LA, San Bernardino, Riverside, San Diego		DR1498			
Earthquake	Sierra Madre Earthquake	N/A	2003	Los Angeles	7/5/91	Not declared	1	30	$33,500,000
Fire	Widespread Fires	N/A	2003	Madera		Not declared	2		Not available
Severe Storm, Freeze	Freeze and Snow Conditions	N/A	2003	Lake	7/13/72	Not declared			$357,000
Drought	Drought		2003	Modoc, Siskiyou	5/4/01				
Economic	Exotic Newcastle Disease Epidemic		2003	15 Northern Counties	2/21/03				
Economic	Bark Beetle Infestation		2003	San Bernardino, San Diego, Riverside	3/7/03				
Fire	Wildfire		2003	Calaveras	9/10/01				
Fire	Southern California Wildfires	DR-1498	2003	Ventura, Los Angeles, San Bernardino, Riverside, San Diego	10/24-26/03	10/27/03			
Earthquake	San Simeon Earthquake	DR-1505	2003	San Luis Obispo, Santa Barbara	12/23/03	1/13/04			Estimated $55 million
Flood	Levee Break	DR-1529	2004	San Joaquin	6./4/04	6/30/04			$53,000,000
Landslide	La Conchita Mudslide		2005	La Conchita, Ventura County	1/12/05	Not Declared	10	22	

Hazard Type	Disaster Name	Disaster #	Year	Counties and Cities Declared	State Declaration	Federal Declaration	# of Deaths	# of Injuries	Cost of Damage
Severe Storm, Flood, Debris Flow, Mudslide	Southern CA Severe Storm	DR-1577	2005	Kern, LA, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, Ventura	1/6/05	2/4/05	22		
Severe Storm, Flood, Debris Flow, Landslide, Mudslide	Southern CA Severe Storm	DR-1585	2005	Kern, San Bernardino and San Diego	1/15/05	/22/05			

APPENDIX E: RESOURCE DIRECTORY

The Resource Directory provides contact information for local, regional, state, and federal programs that are currently involved in hazard mitigation activities. The Hazard Mitigation Advisory Committee may look to these organizations on the following pages for resources and technical assistance. The Resource Directory provides a foundation for potential partners in action item implementation.

The Hazard Mitigation Advisory Committee will continue to add contact information for organizations currently engaged in hazard mitigation activities. This section may also be used by various community members interested in hazard mitigation information and projects.

American Public Works Association	
Level: National	Hazard: Multi
2345 Grand Boulevard, Suite 500	www.apwa.net
Kansas City, MO 64108-2641	816-472-6100
Army Corps of Engineers, Los Angeles Division	
Level: Federal	Hazard:
P.O. Box 532711	www.spl.usace.army.mil/
Los Angeles CA 90053- 2325	213-452- 3921
Association of State Floodplain Managers	
Level: Federal	Hazard: Flood
2809 Fish Hatchery Road	www.floods.org
Madison, WI 53713	608-274-0123
Building Seismic Safety Council (BSSC)	
Level: National	Hazard: Earthquake
1090 Vermont Ave., NW, Suite 700	www.bssconline.org
Washington, DC 20005	202-289-7800

California Department of Conservation: Southern Regional Office	
Level: State	Hazard: Multi
655 S. Hope Street, #700	www.consrv.ca.gov
Los Angeles, CA 90017-2321	213-239-0878
California Department of Transportation (Caltrans)	
Level: State	Hazard: Multi
120 S. Spring Street	www.dot.ca.gov/
Los Angeles, CA 90012	213-897-3656
California Department of Water Resources (DWR)	
Level: State	Hazard: Flood
1416 9th Street	www.water.ca.gov/
Sacramento, CA 95814	916-653-6192
CAL FIRE	
Level: State	Hazard: Multi
PO Box 944246	www.fire.ca.gov/
Sacramento California 94244-2460	916-653-5123
California Division of Mines and Geology (DMG)	
Level: State	Hazard: Multi
801 K Street, MS 12-30	www.consrv.ca.gov/cgs/index.htm
Sacramento, CA 95814	916-445-1825
California Environmental Resources Evaluation System (CERES)	
Level: State	Hazard: Multi
900 N St., Suite 250	www.ceres.ca.gov/
Sacramento, Ca. 95814	916-653-2238
California Natural Resources Agency	
Level: State	Hazard: Multi
1416 Ninth Street, Suite 1311	www.resources.ca.gov/
Sacramento, CA 95814	916-653-5656

California Office of Emergency Services (OES)	
Level: County	Hazard: Multi
P.O. Box 419047	www.calema.ca.gov/
Rancho Cordova, CA 95741-9047	916-845-8910 and 11
City of San Dimas	
Level: Regional	Hazard: Windstorm Table
245 East Bonita Avenue	www.cityofsandimas.com/
San Dimas, CA 91773	909-394-6200
County of Orange County Sheriff Emergency Management Bureau	
Level: County	Hazard: multi
2644 Santiago Canyon Road	www.ocsd.org/
Silverado, CA 92676	714-628-7019
County of Orange Public Works	
Level: County	Hazard: Multiple
300 North Flower Street	www.ocpublicworks.com/
Santa Ana, CA 92703	714-834-2300
EPA, Region 9	
Level: Regional	Hazard: Multi
75 Hawthorne Street	www.epa.gov/region09
San Francisco, CA 94105	415-947-8000
Federal Emergency Management Agency, Region IX	
Level: Federal	Hazard: Multi
1111 Broadway, Suite 1200	www.fema.gov
Oakland, CA 94607	510-627-7100
Federal Emergency Management Agency, Mitigation Division	
Level: Federal	Hazard: Multi
500 C Street, S.W.	www.fema.gov/fima/planhowto.shtm
Washington, D.C. 20472	202-566-1600

Floodplain Management Association	
Level: Federal	Hazard: Flood
P.O. Box 50891	www.floodplain.org
Sparks, NV 89435-0891	775-626-6389
International Society of Arboriculture	
Level: International	Hazard: Severe Weather
P.O. Box 3129	www.isa-arbor.com
Champaign, IL 61826-3129	217-355-9411
Landslide Hazards Program, USGS	
Level: Federal	Hazard: Landslide
12201 Sunrise Valley Drive, MS 906	www.landslides.usgs.gov/index
Reston, VA 20192	703-648- 4000
National Fire Protection Association (NFPA)	
Level: National	Hazard: Wildfire
P.O. Box 9101	www.nfpa.org
Quincy, MA 02269-9101	617-770-3000
National Flood Insurance Program (NFIP)	
Level: Federal	Hazard: Flood
500 C Street, S.W.	www.fema.gov/nfip/
Washington, D.C. 20472	202-566-1600
National Flood Insurance Program (NFIP) Community Rating System (CRS)	
Level: Federal	Hazard: Flood
500 C Street, S.W.	www.fema.gov/nfip/crs.shtm
Washington, D.C. 20472	202-566-1600
National Interagency Fire Center (NIFC)	
Level: Federal	Hazard: Wildfire
3833 S. Development Ave.	www.nifc.gov
Boise, Idaho 83705-5354	208-387-5512
National Landslide Information Center, US Geological Survey	

Level: Federal	Hazard: Landslide
345 Middlefield Road	www.landslides.usgs.gov/nlic/
Menlo Park, CA 94025	650-853-8300

National Oceanic /Atmospheric Administration	
Level: Federal	Hazard: Multi
14th Street & Constitution Ave NW, Room 6013	www.noaa.gov
Washington, DC 20230	202-482-6090
National Resources Conservation Service	
Level: Federal	Hazard: Multi
14th and Independence Ave., SW Room, 5105-A	www.nrcs.usda.gov/
Washington, DC 20250	202-720-7246

National Weather Service, Oxnard, CA	
Level: Federal	Hazard: Multi
520 North Elevar Street	www.nws.noaa.gov/
Oxnard, CA 93030	805-988- 6615
National Weather Service, Office of Hydrologic Development	
Level: Federal	Hazard: Flood
1325 East West Highway, SSMC2	www.nws.noaa.gov/
Silver Spring, MD 20910	301-713-1658
National Wildland/Urban Interface Fire Program	
Level: Federal	Hazard: Wildfire
1 Batterymarch Park	www.firewise.org/
Quincy, MA 02169-7471	617-770-3000

Office of the State Fire Marshal (SFM)	
Level: State	Hazard: Wildfire
1131 "S" Street	www.osfm.fire.ca.gov
Sacramento, CA 95814	916-445-8200
Orange County Fire Authority Headquarters (OCFA)	
Level: County	Hazard: All
One Authority Road	www.ocfa.org
Irvine, CA	949-881-2411
Orange County Sanitation District	
Level: County	Hazard: All
10844 Ellis Avenue	www.ocsd.com/
Fountain Valley, CA 92708	714-962-2411
South Coast Air Quality Management District (AQMD)	
Level: Regional	Hazard: Multi
21865 E. Copley Drive	www.aqmd.gov
Diamond Bar, CA 91765	800-CUT-SMOG
Southern California Association of Governments (SCAG)	
Level: Regional	Hazard: Multi
818 W. Seventh Street, 12th Floor	www.scag.ca.gov
Los Angeles, CA 90017	213-236-1800
Southern California Earthquake Center (SCEC)	
Level: Regional | Hazard: Earthquake	www.scec.org
3651 Trousdale Parkway	Suite 169
Los Angeles, CA 90089-0742	213-740-5843
US Army Corps of Engineers	
Level: Federal	Hazard: Multi
P.O. Box 532711	www.usace.army.mil
Los Angeles CA 90053- 2325	213-452- 3921

USDA Forest Service	
Level: Federal	Hazard: Wildfire
1400 Independence Ave. SW	www.fs.fed.us
Washington, D.C. 20250-0002	202-205-8333

US Department of the Interior, Bureau of Reclamation	
Level: Federal	Hazard: Multi
2800 Cottage Way	www.usbr.gov/
Sacramento CA 95825-1898	916- 978-5000 or 5599
US Fire Administration (USFA) (an entity of FEMA)	
Level: Federal	Hazard: Multi
16825 South Seton Avenue	www.usfa.fema.gov/
Emmitsburg, MD 21727	301-447-1000
United States Geological Survey	
Level: Federal	Hazard: Multi
345 Middlefield Road	www.usgs.gov/
Menlo Park, CA 94025	650-853-8300
USGS Water Resources	
Level: Federal	Hazard: Multi
6000 J Street, Placer Hall	www.water.usgs.gov
Sacramento, CA 95819-6129	916-278-3000
University of Nebraska-Lincoln/U.S. Drought Monitor	
Level: National	Hazard: Drought
3310 Holdrege Street	www.droughtmonitor.uni.edu
Lincoln, Nebraska	(402) 472–6707

List of References on File with RSCCD Risk Management Office

Reference A – RSCCD 2015 Insurance Property Evaluation Report (completed every 5 years)

Reference B – RSCCD Earthquake Hazus Study by MMI Engineering

Reference C – RSCCD Flood Hazus Study by MMI Engineering

Reference D – RSCCD Facilities Master Plan