

Appendix M
City of King City

Table M-1
City of King City Estimated Population and Building Inventory

Population	Residential Buildings		Nonresidential Buildings	
2000 Census Population Count*	Total Building Count	Total Value of Buildings **- (x\$1000)	Total Building Count	Total Value of Buildings (x\$1000)
11,098	1,740	161,438	513	131,847

Source: Monterey County (residential and nonresidential buildings) and U.S. Census 2000 population data.

* Population count using census blocks within the city limits.

** Tax Assessor records.

*** Tax Assessor records.

Table M-2
City of King City Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value / Value Per Mile (x\$1000)
Government	City Hall	212 South Vanderhurst Ave.	6,659
Emergency Response	Police Department	415 Bassett St.	1,652
	Fire Department	422 Bassett St.	708
	U.S. Forest Service	406 S Mildred Ave. King City, CA 93930	708
	California Highway Patrol	2 Broadway Circle King City, CA 93930	708
	Monterey County Sheriff South County Patrol Station	250 Franciscan Way King City, CA 93930	708
Lifeline Utilities	Power Plant	750 Metz Rd.	129,800
	Wastewater Treatment Plant	Located from aerial photography	78,588
Care	George L. Mee Memorial Hospital	300 Canal St.	4,130
	Clinica de Salud del Valle de Salinas	223 Bassett St.	4,130
	Clinica de Salud del Valle de Salinas	809 Broadway	4,130

Table M-2
City of King City Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value / Value Per Mile (x\$1000)
Educational	Santa Lucia Elementary School	502 Collins St.	590
	Del Rey Elementary School	502 King St.	590
	San Lorenzo Middle School	415 Pearl St.	590
	King City High School	720 Broadway St.	590
	Candy Butler Continuation High School	760 Broadway St.	590
	Chalone Peaks Middle School	667 Meyer St King City, CA 93930	590
	King City Academy of the Arts Charter School		590
Airport	Mesa Del Rey Airport	250 Airport Rd.	6,431

Source: FEMA HAZUS-MH (estimated values) and Monterey County data

Table M-3
City of King City Potential Hazard Vulnerability Analysis – Population and Buildings

Hazard Type	Methodology	Population	SoVI	Buildings			
				Residential		Nonresidential	
		Number	Score	Number	Value (\$) ¹	Number	Value (\$) ¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	N/A	N/A	N/A	N/A	N/A	N/A
Dam Failure	Inundation area	3,067	N/A	638	92,464	9	10,251
Earthquake	Extreme	0	N/A	0	0	0	0
	High	0	N/A	0	0	0	0
	Moderate	11,098	N/A	2,128	370,213	84	153,042
Flood	100-year flood zone	721	N/A	139	20,361	4	3,462
Hazardous Materials Event	1-mile buffer transport corridor	10,264	0.85	1,740	161,438	513	131,847
	1-mile buffer fixed site	2,934	0.80	408	40,894	275	60,515
	High	N/A	N/A	N/A	N/A	N/A	N/A
Landslide	Moderate	N/A	N/A	N/A	N/A	N/A	N/A
	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A
Sea Level Rise	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A
Tsunami	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A
Wildland Fire	Very high	0	N/A	0	0	0	0
	High	8	0.44	0	0	0	0
	Moderate	9,545	0.79	1,465	135,757	282	88,088
Windstorm	Prevailing wind zone	11,098	N/A	2,128	370,213	84	153,042

¹Value = Building value based on Tax Assessor records (x1000)

Table M-4
City of King City Potential Hazard Vulnerability Analysis – Critical Facilities

Hazard	Methodology	Government		Emergency Response		Lifeline Utilities		Care		Educational		Marine, Environmental, and Community		Total	
		No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dam Failure	Inundation area	0	0	1	0	1	0	0	0	0	0	0	0	2	0
Earthquake	Extreme	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	High	0	0	5	19	2	5,241	4	0	5	0	0	0	16	5,260
	Moderate	1	6,659	0	0	0	0	0	0	0	0	0	0	1	6,659
Flood	100-year flood zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Materials Event	1-mile buffer transport corridor	1	6,659	5	19	2	5,241	4	0	5	0	0	0	17	11,919
	1-mile buffer fixed site	0	0	0	0	1	5,241	0	0	3	0	0	0	4	5,241
Landslide	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sea Level Rise	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tsunami	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wildland Fire	Very high	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Windstorm	Moderate	1	6,659	5	19	0	0	4	0	4	0	0	0	14	6,678
	Prevailing wind zone	1	6,659	2	2,360	2	208,388	1	4,130	5	2,950	0	0	11	224,487

¹Value = Value based on Tax Assessor records (x1000)

Table M-5
City of King City Potential Hazard Vulnerability Analysis – Critical Infrastructure

Hazard	Miles	Highways		Railroads		Bridges		Airports	
		Value (\$) ¹	Miles	Miles	Value (\$) ¹	Number	Value (\$) ¹	Number	Value (\$) ¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dam Failure	Inundation area	1.2	10,876	0.1	75	6	7,181	0	0
	Extreme	0.0	0	0.0	0	0	0	0	0
	High	0.0	0	0.0	0	0	0	0	0
Flood	Moderate	6.3	42,902	2.3	3,176	7	8,214	1	6,431
	100-year flood zone	0.3	2,612	0.1	126	4	4,864		
Hazardous Material Events	1-mile buffer transport corridor	3.6	TBD	2.9	TBD	5	TBD	1	TBD
	1-mile buffer fixed transport	0.0	0	1.4	TBD	0	0	1	TBD
Landslide	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sea Level Rise	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tsunami	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wildland Fire	Very high	0.0	0	0.0	0	0	0	0	0
	High	0.3	TBD	0.0	0	0	0	0	0
Windstorm	Moderate	3.1	TBD	1.7	TBD	4	TBD	1	TBD
	Prevailing wind zone	6.3	42,902	2.3	3,176	7	8,214	1	6,431

¹Value = Estimated value (x1000)

Agricultural Emergency

There are 454.4 acres (0.710 square miles) of cropland in the City of King City that intersect with the 100-year floodplain.

Dam Failure

Failure of the San Antonio, Nacimiento, and Salinas dams poses a risk to over a quarter of the city's population. Exposed within the inundation zones are 3,067 people, 638 residential buildings (worth \$92.5 million), 9 nonresidential buildings (worth \$10.6 million), and 2 critical facilities. 1.2 miles of highways and 0.2 miles of railroad tracks are located in this hazard area.

Earthquake

No residents, buildings, or facilities are at risk to extreme or high shaking. However, all of King City is exposed to moderate shaking. As such, exposed within this hazard area are 11,098 people, 2,128 residential buildings (worth \$370.2 million), 84 nonresidential buildings (worth \$153.0 million), and 17 critical facilities (worth \$11.9 million). 6.3 miles of highway, 2.3 miles of railroad tracks, 7 bridges, and 1 airport are located in this hazard area.

Flood

The San Lorenzo Creek's SFHA is located on the west and southwestern portion of the city limits. Exposed within this hazard area are 721 people, 139 residential buildings (worth \$20.4 million), 4 nonresidential buildings (worth \$3.5 million), and 0 critical facilities. Approximately 0.3 miles of highway and 0.1 miles of railroad tracks are located in the 100-year floodplain.

Hazardous Materials Event

Within the 1-mile buffer around the transportation facilities, 92 percent of King City's population is exposed to a hazardous material transport event. This includes 10,264 people, 1,740 residential buildings (worth \$161.4 million), 513 nonresidential buildings (worth \$131.8 million), and 17 critical facilities (worth \$11.9 million). These figures are for the entirety of the transportation corridors and, therefore, overstate the exposure since a single HAZMAT event at a given point along these corridors is unlikely to affect all of the area within the 1-mile buffer.

Within the 1-mile buffer around the fixed HAZMAT sites, 2,934 people are exposed to a fixed-site hazardous materials event. This includes 408 residential buildings (worth \$40.9 million), 275 nonresidential buildings (worth \$60.5 million), and 4 critical facilities (worth \$5.2 million). These figures are for all of the fixed HAZMAT sites and, therefore, overstate the exposure since a single HAZMAT event at any one location is unlikely to affect all of the area within the jurisdiction.

Wildland Fire

There are no very high or high wildland fire hazard areas located in King City. Therefore, exposed within the moderate wildland fire area are 9,545 people and 1,465 residential buildings (worth \$135.8 million), 282 nonresidential buildings (worth \$88.1 million), and 14 critical facilities (worth \$6.7 million).

Windstorm

Windstorms created by prevailing northwest sustained surface winds are common throughout the central and southern Salinas Valley from March to October. As such, exposed within this hazard area are 11,098 people, 2,128 residential buildings (worth \$370.2 million), 84 nonresidential buildings (worth \$153.0 million), and 11 critical facilities (worth \$224.5 million). 6.3 miles of highway, 2.3 miles of railroad tracks, 7 bridges, and 1 airport are also located in this hazard area.

Table M-6
City of King City Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name	Effect on Hazard Mitigation
Plans	General Plan Safety Element	Establishes policies that will minimize the potential of human injury and property damage to natural hazards.
	Hazard Mitigation Plan	Presently covered under countywide multi-jurisdictional plan. Plan is currently being updated and is anticipated to be completed and re-adopted in late 2014.
	Stormwater Management Plan	
	Capital Improvements Plan	
	Subdivision Ordinance	
Programs	Site Plan Review Requirements	Checklists are in place for development applications.
	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods.
		Requires the owner, agent or person in control of any lot, piece or parcel of land in the city, to remove there from and from the sidewalks in front thereof, all noxious weeds or vegetation or dry grass and all dead trees, tin cans, rubbish, refuse and waste matter of all kinds which may endanger or injure neighboring property or the health or welfare of the residents of the vicinity.
Policies (Municipal Code)	Title 7 Peace, Safety and Morals	Provides a continuing source of current information concerning hazardous substances and chemicals being utilized in the city to protect the general health and safety of the public and to enable emergency personnel to respond safely and speedily to emergency situations which may arise. It also establishes a continuing program for the purpose of preventing contamination from, and improper storage of, hazardous substances stored underground.
	Title 8 Health and Sanitation	
	Chapter 8.34 Hazardous Materials Storage and Registration	

Table M-6
City of King City Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name	Effect on Hazard Mitigation
Title 12 Buildings and Construction	Chapter 12.04 Construction Codes Adopted	Adopts and enforces the Uniform Building Code, 1997 Edition.
	Chapter 12.08 Fire Prevention Requirements	Prescribes regulations governing conditions hazardous to life and property from fire, hazardous materials or explosion.
	Chapter 12.16 Flood Damage Prevention	Identifies areas where terrain characteristics would present new developments and their users with potential hazards to life and property from potential inundation by a 100-year frequency flood or other known flood hazards. These standards are also intended to minimize the effects of development on drainage ways and watercourses.
	Chapter 12.20 Building Earthquake Safety	Promotes public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on buildings constructed prior to the adoption of local building codes requiring earthquake-resistant design and construction, which have unreinforced masonry bearing walls and other characteristics specified in Section 19161 of the Health and Safety Code which make them potentially hazardous to life in the event of an earthquake. It establishes a program for the identification of all such buildings in the city, for the determination of the severity and extent of such hazards in relation to their potential for causing death or injury in the event of an earthquake, and for the carrying out of measures to mitigate such hazards.
	Chapter 17 Zoning	The district is intended to be applied to properties which lie within a designated floodway, which for the purpose of this title shall be construed to be a stream, channel and such portions of the adjacent flood plain as are reasonably required to efficiently carry the flood of the stream; and on which properties special regulations are necessary for minimum protection of the public health, safety and of property and improvements from hazards and damage resulting from flood waters.

Table M-6
City of King City Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name	Effect on Hazard Mitigation
	Chapter 17.38 Secondary Floodplain District	This district is intended to be applied to properties which lie within that portion of the national floodway between the limits of the designated floodway and the limits of the flood plain, or where inundation may occur, but where depths and velocities will not cause appreciable damage and which properties require special regulations for the protection of such properties and their improvements from hazards and damage which may result from flood waters.

Table M-7
City of King City Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department/Division Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	City contracts with Earthdesign, Inc., for land development and with Hanna & Brunetti for Engineering services
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	City contracts with Earthdesign, Inc., for land development and with Hanna & Brunetti for Engineering services
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	City contracts with Earthdesign, Inc., for land development and with Hanna & Brunetti for Engineering services
Building inspector	City of King
Emergency manager	City Manager
Floodplain manager	City Manager
Land surveyors	Hanna & Brunetti
Resource development staff or grant writers	City contracts with Earthdesign, Inc., for land development and with Hanna & Brunetti for Engineering services
Staff with education or expertise to assess the community's vulnerability to hazards	Community Development
Personnel skilled in GIS and/or HAZUS-MH	City Engineer
Maintenance programs to reduce risk	Public Works
Mutual Aid Agreements	

Table M-8
City of King City Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
General funds	If funding is available, can be used for hazard mitigation activities including debt service for bonds.
Water/sewer fees	
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity, but only eligible for use with voter approval.
Incur debt through general obligation bonds	Can be used for any hazard mitigation activity but only eligible for use with voter approval.
Incur debt through special tax and revenue bonds	Revenue Bonds can be issued through the City without voter approval, to raise funds for hazard mitigation activities.
Incur debt through private activity bonds	Can be used for any hazard mitigation activity but only eligible for use with voter approval.
FEMA HMGP and PDM grants	HMGP grant funding is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects. PDM funding is available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only.
United States Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national, or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors, and firefighters.

Problem Statements are statements of particular interest with regard to primary hazards of concern, geographic areas of concern, or vulnerable community assets. These statements were primarily derived from local community site visits and discussion with local staff and officials from each community during Individual Jurisdiction Meetings, in combination with a review of the Safety Elements of local General Plans and GIS analysis using best available data in support of updates to the vulnerability analysis for each jurisdiction. They were developed to assist in the identification and analysis of potential hazard mitigation actions for the City of King.

- The City's biggest concern is major flooding, based on past experience, and this includes not only the Salinas River but also San Lorenzo Creek (large watershed that rapidly changes conditions during the winter months). Overall flood risk has only increased due to all the debris and vegetation in the Salinas River.
- Past flood damages have occurred to the mobile home park located at Villa Drive at Division Street, despite protective dikes being in place. Recovery and clean-up costs to the city's nearby golf course adjacent to San Lorenzo Creek have also been very high.
- The Highway 101 bridge connection traversing the Salinas River and providing ingress/egress to the city is considered the most vulnerable critical infrastructure element. Past flooding events have resulted in the scouring of soil around footings at the eastern-most abutment (closest to city limits). Boulders have been brought in to help mitigate this vulnerability but it is believed that a major flood event could cause bridge failure or closure, significantly impacting King City. Caltrans has been made aware of this problem.
- The city's wastewater treatment plant is considered at risk to major flood events along the Salinas River. Floodwaters during past events have reached to the top of protective berm which should be raised and strengthened to increase protection against future flood damages and service disruptions.
- San Lorenzo Park is located within the known special flood hazard area, and although maintained mostly as open space there are a number of cultural/museum structures that could be damaged during a major flood event.
- There is potential for serious wildland fire problems along the Salinas River bottom, particularly if combined with high winds as often experienced through the valley, which could send embers flying into the city and cause major fire hazards, particularly for those structures with shake roofs.
- Five URM structures remain in the city along Broadway Street, all of which are privately-owned and have been posted with warning placards.

Table M-9
City of King City Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
1	Identify hazard-prone critical facilities and carry out acquisition, relocation, and structural and nonstructural retrofitting measures as necessary.	Priority / High	Community Development	HMGP and PDM Grants	Ongoing	This action will help ensure that the community/critical facilities can operate in some capacity before, during, and after the disaster.	Ongoing / Continuous	Part of Environmental Review of discretionary permits
2	Develop a sustained public outreach program that encourages consistent hazard mitigation content. For example, consider publishing tsunami inundation maps in telephone books, wildland fire defensible space tips with summer water bills, and the safe handling and disposal of hazardous waste and chemicals with garbage bills.	Priority / High	Community Development	General Funds, HMGP, and PDM Grants	0-1 years	A mitigation outreach program will help build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	Deferred	Will be part of the General Plan update
3	Develop an unreinforced masonry grant program that helps correct earthquake-risk nonmasonry building problems, including chimney bracing and anchoring water heaters.	Priority / High	Community Development	General Funds, HMGP, and PDM Grants	0-3 years	This action will prevent future residential and nonresidential losses of unreinforced masonry buildings in the future. The retrofiting of unreinforced masonry buildings is a high priority for the State of California.	Ongoing / Continuous	This action is underway and will continue into the next five-year planning cycle

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4	Explore mitigation opportunities for repetitively flooded properties, and if necessary, carry-out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.	Priority / High	Water Resources	FMA Grants	Ongoing	The mitigation of repetitively flooded properties is a priority for FEMA grant programs.	Ongoing / Continuous	This action is underway and will continue to be evaluated into the next five-year planning cycle
5	Examine and mitigate critical infrastructure that has been identified as currently being too narrow to ensure the safe transportation of truck loads within Monterey County.	Priority / High	Community Development	General Funds	1-3 years	This effort will ensure that heavily used critical infrastructure will ensure the safe transportation of truck loads.	Ongoing / Continuous	Part of Environmental Review and Long Range Planning
6	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.	Priority / High	Fire District	General Funds and PDM Grant	Ongoing	The probability of future damage from wildland fires could be high if this mitigation action is not implemented.	Ongoing / Continuous	This action is underway and will continue to be evaluated into the next five-year planning cycle
7	Develop windstorm building requirements (e.g., fasteners for roof sheathing and singles) in high wind hazard areas.	Priority / High	Community Development	General Funds	0-1 year	This effort will ensure that future development is less vulnerable to this hazard.	Deferred	Will be part of General Plan Update
8	Include provisions for dust erosion control methods in building, grading, and land clearing permits.	Priority / High	Community Development	General Funds	0-1 year	Dust control erosion measures will reduce the effects of bad air quality and soil loss, thereby improving health and work conditions.	Ongoing / Continuous	Part of Environmental Review process

Appendix N
City of Marina

Table N-1
City of Marina Estimated Population and Building Inventory

Population	Residential Buildings		Nonresidential Buildings	
2000 Census Population Count*	Total Building Count	Total Value of Buildings ** (x\$1000)	Total Building Count	Total Value of Buildings*** (x\$1000)
25,101	3,478	547,847	472	223,864

Source: Monterey County (residential and nonresidential buildings) and U.S. Census 2000 population data.

* Population count using census blocks within the city limits.

** Tax Assessor records.

***Tax Assessor records.

Table N-2
City of Marina Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value (x\$1000)
Government	City Hall	211 Hillcrest Ave.	6,659
	City Hall Annex / Community Development Department	209 Cypress Ave.	1,180
Emergency Response	Public Safety Building (Police Station and Fire Station #1)	211 Hillcrest Ave.	1,888
	Public Safety Building (Fire Station #2)	3260 Imjin Rd.	708
Care	Batwals Home Service	416 Windsor Court	375
	Cypress Rest Home	3250 Vista Del Camino Circle	375
	Magallanes Rest Home	193 Lillian Place	375
	Reindollar Group Home	301 Reindollar	375
Lifeline Utilities	Marina Coast Water District Seawater Desalination Plant (Offline)	11 Reservation Rd.	39,294

Table N-2
City of Marina Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value (x\$1000)
Educational	Olson Elementary School	261 Beach Rd.	590
	Marina del Mar Elementary School	3066 Lake Dr.	590
	Marina Vista Elementary School	390 Carmel Ave.	590
	Crompton Elementary School	460 Carmel Ave.	590
	Los Arboles Middle School	294 Hillcrest Ave.	590
	Learning for Life Charter School	330 Reservation Rd.	590
	Marina High School	298 Patton Parkway	590
	Marina Children's Center	261 Beach Rd.	590
	Marina Christian School	160 Seaside Court	1,804
	Pegasus School (Montessori Children's Home)	305 Reindollar Ave.	590
Airport	Municipal Airport	781 Neeson Rd.	6,431

Source: FEMA HAZUS-MH (estimated values) and Monterey County data

Table N-3
City of Marina Potential Hazard Vulnerability Analysis – Population and Buildings

Hazard Type	Methodology	Population Number	SoVI Score	Buildings			
				Residential		Nonresidential	
				Number	Value (\$) ¹	Number	Value (\$) ¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	0	N/A	0	0	0	0
Dam Failure	Inundation area	9	N/A	3	629	2	613
Earthquake	Extreme	0	N/A	0	0	0	0
	High	25,090	N/A	3,478	1,465,804	110	220,906
	Moderate	0	N/A	0	0	0	0
Flood	100-year flood zone	525	N/A	293	60,222	2	5,065
Hazardous Materials Event	1-mile buffer transport corridor	21,594	0.10	2,740	454,467	382	200,476
	1-mile buffer fixed site	N/A	N/A	NA	NA	NA	NA
	High	N/A	N/A	NA	NA	NA	NA
Landslide	Moderate	N/A	N/A	NA	NA	NA	NA
Sea Level Rise	Inundation area	0	N/A	0	0	0	0
Tsunami	Inundation area	0	-1.45	0	0	0	0
Wildland Fire	Very high	0	N/A	0	0	0	0
	High	95	0.48	0	0	3	1,416
	Moderate	25,101	-0.51	3,478	1,505,953	1,725	963,737
Windstorm	Prevailing wind zone	N/A	N/A	N/A	N/A	N/A	N/A

¹Value = Building value based on Tax Assessor records (x1000)
N/A = Not Applicable

Table N-4
City of Marina Potential Hazard Vulnerability Analysis – Critical Facilities

Hazard	Methodology	Government		Emergency Response		Lifeline Utilities		Care		Educational		Marine, Environmental, and Community		Total	
		No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dam Failure	Inundation area	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Earthquake	Extreme	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	High	3	9,019	2	0	0	0	7	200	9	1,804	0	0	21	11,023
	Moderate	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flood	100-year flood zone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Materials Event	1-mile buffer transport corridor	3	9,019	2	0	0	0	6	200	8	1,804	0	0	19	11,023
	1-mile buffer fixed site	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landslide	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sea Level Rise	Inundation area	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tsunami	Inundation area	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildland Fire	Very high	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Moderate	3	9,019	2	0	0	0	7	199,941	9	1,803,918	0	0	21	2,012,878
Windstorm	Prevailing wind zone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

¹Value = Building value based on Tax Assessor records (x1000)
N/A = Not Applicable

Table N-5
City of Marina Potential Hazard Vulnerability Analysis – Critical Infrastructure

Hazard	Value (\$)¹	Highways		Railroads		Bridges		Airports	
		Miles	Value (\$)¹	Miles	Value (\$)¹	Number	Value (\$)¹	Number	Value (\$)¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	0.0	0	0.0	0	0	0	0	0
Dam Failure	Inundation area	0.0	0	0.0	0	0	0	0	0
Earthquake	Extreme	0.0	0	0.0	0	0	0	0	0
	High	7.2	37,488	0.0	0	10	25,873	1	6,431
	Moderate	0.0	0	0.0	0	0	0	0	0
Flood	100-year flood zone	0.1	698	0.0	0	0	0	0	0
Hazardous Materials Event	1-mile buffer transport corridor	7.4	TBD	3.8	TBD	10	TBD	0	0
	1-mile buffer fixed site	0.0	0	0.0	0	0	0	0	0
Landslide	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sea Level Rise	Inundation area	0.0	0	0.0	0	0	0	0	0
Tsunami	Inundation area	0.0	0	0.0	0	0	0	0	0
Wildland Fire	Very high	0.0	0	0.0	0	0	0	0	0
	High	0.0	0	0.0	0	0	0	1	0
	Moderate	6.9	TBD	3.8	TBD	10	TBD	1	TBD
Windstorm	Prevailing wind zone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

¹Value = Estimated value (x1000)

N/A = Not Applicable

Coastal Erosion

Historically, the highest dune erosion rates in the region have occurred in the City of Marina (4.5 feet annually) because of wave refraction patterns producing larger waves. Using a 100-year projection to determine areas at risk to coastal erosion, 0 population and 0 buildings have been identified as being located in this hazard area.

Dam Failure

Failure of the San Antonio and Nacimiento dams pose a risk along the eastern and northeastern boundaries of the city. Exposed within the inundation zone are 9 people, 3 residential buildings (worth \$629,000), and 2 nonresidential buildings (worth \$613,000).

Earthquake

Nearly 100 percent of the city's population is located in a high shaking hazard area. Exposed within this area are 25,090 people, 6,121 residential buildings (worth \$1.5 billion), 110 nonresidential buildings (worth \$220.9 million), and 21 critical facilities (worth \$11 million). 7.2 miles of highway, 11 bridges, and 1 airport are also located in this hazard area.

Flood

The Salinas River (located along the northeastern and eastern city limits) and wave attack from the Pacific Ocean are the two main sources of flooding within the city. Therefore, exposed within this hazard area are 525 people, 293 residential buildings (worth \$60.2 million), and 2 nonresidential buildings (worth \$5.1 million). Approximately 0.1 mile of highway is located in the 100-year floodplain.

Hazardous Materials Event

Within the 1-mile buffer around the transportation facilities, approximately 86 percent of Marina's population is exposed to a hazardous material transport event. This includes 21,594 people, 2,740 residential buildings (worth \$454.5 million), 382 nonresidential buildings (worth \$200.5 million), and 19 critical facilities (worth \$11 million). These figures are for the entirety of the transportation corridors and, therefore, overstate the exposure since a single HAZMAT event at a given point along these corridors is unlikely to affect all of the area within the 1-mile buffer.

There are no hazards associated with fixed HAZMAT sites within the city.

Sea Level Rise

The potential for sea level rise is present along the entire coast of Monterey County. However, no people, buildings, critical facilities, or critical infrastructure in the City of Marina are located in this hazard area.

Tsunami

Using the New Tsunami Inundation Map data, approximately 4 percent of Marina's population is vulnerable to this hazard. This includes 9 people, 0 residential buildings, and 0 nonresidential buildings.

Wildland Fire

Using the California FRAP model, almost the entire city resides in a moderate wildland fire hazard area. Within this area of moderate wildland fire exposure are 25,006 people, 6,322 residential buildings (worth \$1.5 billion), 1,725 nonresidential buildings (worth \$963.7 million), 21 critical facilities (worth \$2 billion), and 1 airport. This also includes 6.9 miles of highway, 3.8 miles of railroad, and 10 bridges. Only 95 people, 0 residential buildings, and 3 nonresidential buildings (worth \$1.4 million) are located in the high wildland fire hazard area.

Table N-6
City of Marina Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name	Effect on Hazard Mitigation
Plans and Ordinances	General Plan, Safety Element	Establishes policies that will minimize the potential of human injury and property damage as a result of natural and human-made hazards.
	Local Coastal Program Implementation Plan & Local Coastal Land Use Plan	The Local Coastal Program, which includes the Local Coastal Implementation Plan and Local Coastal Land Use Plan, guides development and conservation efforts along the coast. Indicates the types, location, and intensity of land use and applicable resource protection and development policies within the coastal zone.
	Capital Improvement Plan	Evaluates the need for public works improvements, including drainage projects and the new construction of critical facilities.
	Hazard Mitigation Plan	Presently covered under countywide multi-jurisdictional hazard mitigation plan. This plan is currently being updated and is anticipated to be completed and re-adopted in late 2014.
	Open Space Management Plan	Helps ensure continuity of access/egress to the city.
	Coastal Management Plan	Ensures setbacks are adequate to ensure that projects can withstand erosion without the need for shoreline protection structures.
	Emergency Operations Plan	Currently under revision.
	Continuity of Operations Plan	
	Zoning Ordinance	Includes development standards and tree removal/preservation guidelines.
	Subdivision Ordinance	
	Site Plan Review Requirements	Allows for overlay analysis to avoid steep slopes, ensure adequate onsite stormwater retention, etc.
Programs	Fire Prevention Code	
	Monterey Regional Storm Water Management Program	Reduce pollution from storm water discharge and runoff with regard to the EPA's Phase II Storm Water National Pollutant Discharge Elimination System requirements. It is a collective effort and implementation of area-wide activities designed to benefit all participating entities.

Table N-6
City of Marina Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name	Effect on Hazard Mitigation
Policies (Municipal Code)	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods.
	Capital Improvements Program	Updated annually following FY budget approval.
	Hazardous Materials Chapter 8.12 Hazardous Materials Storage and Registration	Provides a continuing source of current information concerning hazardous substances and chemicals being utilized in the city to protect the general health and safety of the public and to enable emergency personnel to respond safely and speedily to emergency situations which may arise. It also establishes a continuing program for the purpose of preventing contamination from, and improper storage of, hazardous substances stored underground.
	Chapter 15.08 Building Code	Adopts and enforces the California Building Code 2013, as amended.
	Chapter 15.20 Abatement of Dangerous Buildings Code	Adopts and enforces the Uniform Code for the Abatement of Dangerous Buildings, 1997 Edition.
	Chapter 15 Building Security Standards	Identifies areas where terrain characteristics would present new developments and their users with potential hazards to life and property from potential inundation by a 100-year frequency flood or other known flood hazards. These standards are also intended to minimize the effects of development on drainage ways and watercourses.

Table N-7
City of Marina Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department/Division Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Community Development
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Community Development
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Community Development
Building inspector	Community Development
Emergency manager	City Manager
Staff with education or expertise to assess the community's vulnerability to hazards	Community Development
Maintenance programs to reduce risk	Community Development/Public Works
Warning systems/services	Police/Fire
Mutual Aid Agreements and Automatic Aid Agreements	Fire

Table N-8
City of Marina Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
General funds	If funding is available, can be used for hazard mitigation activities including debt service for bonds.
Capital improvements project funding	
Development impact fees	
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity, but only eligible for use with voter approval.
Incur debt through general obligation bonds	Can be used for any hazard mitigation activity but only eligible for use with voter approval.
Incur debt through special tax and revenue bonds	Revenue Bonds can be issued through the City with voter approval, to raise funds for hazard mitigation activities.
Incur debt through private activity bonds	Can be used for any hazard mitigation activity but only eligible for use with voter approval.
FEMA Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grants	HMGP grant funding is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects. PDM funding is available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only.
United States Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national, or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors, and firefighters.

Table N-9
City of Marina Education and Outreach Resources for Hazard Mitigation

Education and Outreach Resources	Effect on Hazard Mitigation
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Includes community emergency response team.
Ongoing public education or information program	Includes public education for fire safety; neighborhood watch/community policing.
Public-public partnership	EOC with CSUMB and Seaside.

Problem Statements are statements of particular interest with regard to primary hazards of concern, geographic areas of concern, or vulnerable community assets. These statements were primarily derived from local community site visits and discussion with local staff and officials from each community during Individual Jurisdiction Meetings, in combination with a review of the Safety Elements of local General Plans and GIS analysis using best available data in support of updates to the vulnerability analysis for each jurisdiction. They were developed to assist in the identification and analysis of potential hazard mitigation actions for the City of Marina.

- The City continues to grow, with many new development projects underway or scheduled for the former site of Fort Ord, but continues to be very concerned with maintaining a sustainable water supply – concerns that have only been exacerbated by the anticipated effects of climate change, including salt water intrusion. It continues to coordinate and share these concerns the Monterey County Water Resources Agency.
- The city frequently experiences coastal storm events in March/April, with extreme winds that have caused significant tree damages and heavy rains that have caused isolated/localized nuisance flooding due to inadequate drainage systems.
- Imjim Parkway has been targeted for future improvements by AMBAG to serve as a regional transportation corridor between Salinas and Monterey, and as an alternative to Route 68. It is believe these improvements could make Imjim Parkway a corridor for the transport of hazardous materials in addition to Highway 1, increasing the city’s potential exposure to mobile HazMat events.
- The Sanctuary Beach Resort is one of the only developed parcels in the city located seaward of Highway 1, but is currently looking to expand. There is local concern that coastal erosion could have a negative impact on this property.
- Coastal erosion (potentially up to 5 to 7 feet a year) is a concern for areas such as Marina Coast Water District at 100 Reservation Road, the Sanctuary Beach Resort at 3295 Dunes Drive, and potentially the Cemex Sandplant on Lapis Road toward the north of central Marina where the desalination slant wells may go if issues are resolved.

Table N-10
City of Marina Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
1	Identify hazard-prone critical facilities and carry out acquisition, relocation, and structural and nonstructural retrofitting measures as necessary.	Priority / High	Planning, Public Works	HMGP and PDM Grants	0-5 years	This action will help ensure that the community/critical facilities can operate in some capacity before, during, and after the disaster.	Ongoing / Continuous	A comprehensive list of hazard prone critical facilities and infrastructure has not been prepared. In August 2012 Marina City Council approved Resolution 2012-121 approving partnership in the joint EOC, a Regional EOC was established for emergency operations. Materials identifying the requested information are being compiled as part of the EOC. Also, annual hazardous materials inspections are conducted by Monterey County Environmental Health in conjunction with the Public Works Supervisor at the City Corporation Yard (5th Avenue), the Lake Drive Corporation Yard (3040 Lake Court) and the fuel farm at the Marina Municipal Airport.
2	Develop a sustained public outreach program that encourages consistent hazard mitigation content. For example, consider publishing tsunami inundation maps in	Priority / High	Planning, Various	General Funds, HMGP and PDM Grants	0-2 years, Ongoing	A mitigation outreach program will help build and support local capacity to enable the public to prepare for,	Ongoing / Continuous	In March 2012, the City of Marina Fire Department hosted a Tsunami Awareness Workshop that was open to the public and televised by AmpMedia for additional public outreach. At the City

Table N-10
City of Marina Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
	telephone books, wildland fire defensible space tips with summer water bills, use of social media, and the safe handling and disposal of hazardous waste and chemicals with garbage bills.					respond to, and recover from disasters.		of Marina website, the Fire Department provides information related to disaster preparedness, including information about Alert Monterey County, Tsunamis, Emergency Preparedness and Earthquake Safety.
3	Develop audience-specific hazard mitigation outreach efforts. Audiences include the elderly, children, tourists, non-English speaking residents, and home and business owners.	Priority / High	Planning, Various	General Funds, HMGP and PDM Grants	0-2 years, Ongoing	A mitigation outreach program will help build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	Ongoing / Continuous	For home and business owners, please see the website entries described above. On September 28, 2013 an emergency preparedness workshop was conducted focusing on persons with disabilities. The workshop was conducted by Community Emergency Response Volunteers (CERV) at the Marina Council Chambers and televised on AMPMedia for additional public outreach. No additional audience specific outreach has been conducted.

Table N-10
City of Marina Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
4	Explore mitigation opportunities for repetitively flooded properties, and if necessary, carry-out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.	Priority / High	Planning, Public Works	HMGP and PDM Grants	0-3 years	The mitigation of repetitively flooded properties is a priority for FEMA grant programs.	Ongoing / Continuous	In April 2013, City Council received a draft "Interim Storm Response Plan" developed to assist the community in dealing with storm hazards that exist locally. This plan defines who does what, when, where and how they will do it. The plan also highlights current actions taking place to remediate areas of potential concern. CIP projects to address storm water management include: • (R 28 A) Del Monte Blvd. Drainage Project--new storm water facilities to replace old culvert system; • (R 28 B) Cosky Dr. Drainage Project--new storm water facilities to replace old culvert system; • (T1 48 & R 21) Carmel/Palm Drainage Project--new underground retention facilities to facilitate areas of excessive runoff. Also as a preventative measure, the City Planning Commission requires flood mitigation in applicable Coastal Development

Table N-10
City of Marina Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
5	Identify and carry-out minor flood and stormwater management projects that would reduce damage to infrastructure and damage due to local flooding/inadequate drainage. These include the modification of existing culverts and bridges, upgrading capacity of storm drains, stabilization of streambanks, and creation of debris or flood/stormwater retention basins in small watersheds.	Priority / High	Public Works	HMGP and PDM Grants	Ongoing	The identification and implementation of minor flood and stormwater management projects will reduce multi-asset (critical facility, critical infrastructure, and residential and nonresidential) losses due to flooding.	Ongoing / Continuous	The City of Marina has no natural streambeds or rivers within its boundaries that would require acquisition, relocation, elevation, and floodproofing of these properties. Please see response above for spot flooding issues.
6	Adopt more prescriptive rules relative to the construction and maintenance of overhead lines.	Priority / High	Planning	General Funds	0-1 year	This effort will reduce future losses due to windstorm events.	Ongoing / Continuous	Wherever feasible, the City does not allow for overhead wires in any new development, but rather requires that they be underground. At the Marina Fire Station on Palm Avenue, undergrounding of existing overhead wires should be a priority as they could impede fire apparatus movement should they fall.

Table N-10
City of Marina Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
7	During the next General Plan Update, within the Safety Element, collect background data specific to Marina and consider appropriate goals, policies and objectives to address each hazard type identified within the Multi-jurisdictional Hazard Mitigation Plan.	Priority / Medium	Community Development/Planning Services Division	General Plan Fee	5 + or - years (next General Plan update)		New Action	New Action
8	Continue to collaborate with CSUMB and the City of Seaside to provide resources for the organization, staffing, training, activation, and operation of the joint Regional Emergency Operations Center (EOC).	Priority / High	Fire Department/ City Administration	Cost share as identified in the MOA & grant opportunities	Ongoing		New Action	New Action

Appendix O
City of Monterey

Table O-1
City of Monterey Estimated Population and Building Inventory

Population	Residential Buildings		Nonresidential Buildings	
2000 Census Population Count*	Total Building Count	Total Value of Buildings **- (x\$1000)	Total Building Count	Total Value of Buildings (x\$1000)
29,751	6,408	1,535,560	1,792	1,017,918

Source: Monterey County (residential and nonresidential buildings) and U.S. Census 2000 population data.

* Population count using census blocks within the city limits.

** Tax Assessor records.

*** Tax Assessor records.

Table O-2
City of Monterey Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value (x\$1000)
Government	City Hall	City Hall	6,659
Emergency Response	Police Department	351 Madison St.	1,652
	Fire Station #1	Pacific St. & Madison St.	708
	Fire Station #2	582 Hawthorne St.	708
	Fire Station #3	401 Dela Vina Ave.	708
	U.S. Coast Guard		708
Care	Monterey Bay Urgent Care Medical Center	245 Washington St.	802
	Community Hospital of the Monterey Peninsula	23625 Holman Hwy.	213,979
	Monterey Pines Skilled Nursing Facility	1501 Skyline Dr.	1,571
	Carmel Hills Care Center	23795 Holman Hwy.	1,606
	Bay View Gardens	399 Drake Ave.	802
	Ave Maria Convalescent Hospital	1249 Josselyn Canyon Rd.	802
	The Park Lane	200 Glenwood Circle	802
	Monterey Convalescent Hospital	735 Pacific St.	802
	Monterey Care Center	1575 Skyline Dr.	802
	Carmelo Park	966 Carmelo St.	20
	Hospice House	100 Barnet Segal Ln.	802
	Park Lane Classic Residence	200 Glenwood Circle	23,000

Table O-2
City of Monterey Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value (x\$1000)
	Hospice of Central Coast	2 Upper Ragsdale Dr.	9,595
	Sunrise Senior Living	1110 Cass St.	9,457
	Centennial Gardens	399 Drake Ave.	4,550
	Windsor Monterey Care Center	1575 Skyline Dr.	1,270
	El Estero Senior Housing	151 Park Ave.	802
	Pacific Rest	1100 Pacific Str.	290
Educational	La Mesa Elementary School	1 La Mesa Wy.	590
	Foothill Elementary School	1700 Via Casoli Ext.	590
	Bay View Elementary School	222 Case Verde Way	590
	Monterey Adult / ROP	222 Case Verde Way	590
	Monterey High School	101 Herrmann Dr.	590
	Monterey Peninsula College	980 Fremont St.	590
	Walter Colton Middle School	100 Toda Vista Dr.	590
	Trinity Christian High School	601 E Franklin Sr.	1,952
	Santa Catalina School	1500 Mark Thomas Dr.	24,810
	Monterey Institute of International Studies	460 Pierce St.	15,480
	San Carlos School	450 Church St.	3,412
	Naval Post Graduate School	1 University Circle	590
	Community Middle/High School	700 Pacific Street	590
Marine, Environmental, and Community	Monterey Bay Aquarium	886 Cannery Row	181,022
	Monterey Bay National Marine Sanctuary of NOAA	299 Foam St.	1,180

Source: FEMA HAZUS-MH (estimated values), Monterey County data, and City of Monterey data

Table O-3
City of Monterey Potential Hazard Vulnerability Analysis – Population and Buildings

Hazard Type	Methodology	Population Number	SoVI Score	Buildings			
				Residential		Nonresidential	
				Number	Value (\$) ¹	Number	Value (\$) ¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	120	N/A	40	22,184	82	108,709
Dam Failure	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A
Earthquake	Extreme	0	N/A	0	0	0	0
	High	12,408	N/A	3,315	949,599	215	441,983
	Moderate	17,239	N/A	4,849	1,473,523	615	1,212,464
Flood	100-year flood zone	192	N/A	59	26,720	84	113,591
Hazardous Materials Event	1-mile buffer transport corridor	25,271	-0.06	5,364	1,336,417	1,682	925,807
	1-mile buffer fixed site	N/A	N/A	N/A	N/A	N/A	N/A
Landslide	High	87	-2.44	14	2761	0	0
	Moderate	1,899	-0.33	523	120,856	182	36,056
Sea Level Rise	Inundation area	56	0.08	0	0	31	0
Tsunami	Inundation area	694	0.15	135	34,720	143	176,385
Wildland Fire	Very high	811	-0.53	25	218,253	49	10,486
	High	351	-1.19	43	21,328	15	20,218
	Moderate	28,102	-0.51	6,322	1,505,953	1,725	963,737
Windstorm	Prevailing wind zone	N/A	N/A	N/A	N/A	N/A	N/A

¹Value = Building value based on Tax Assessor records (x1000)
N/A = Not Applicable

Table O-4
City of Monterey Potential Hazard Vulnerability Analysis – Critical Facilities

Hazard	Methodology	Government		Emergency Response		Lifeline Utilities		Care		Educational		Marine, Environmental, and Community		Total	
		No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	0	0	0	0	0	0	0	0	0	0	1	181,022	1	181,022
Dam Failure	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Earthquake	Extreme	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	High	1	0	7	0	0	0	21	265,049	29	92,205	0	0	58	357,254
	Moderate	2	7,839	0	0	0	0	0	0	0	0	2	182,202	4	190,041
Flood	100-year flood zone	0	0	0	0	0	0	0	0	1	1,952	1	181,022	2	182,974
Hazardous Materials Event	1-mile buffer transport corridor	1	1,180	7	0	0	0	18	262,208	29	92,205	0	0	55	355,593
	1-mile buffer fixed site	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landslide	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Moderate	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sea Level Rise	Inundation area	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tsunami	Inundation area	0	0	0	0	0	0	1	0	1	1,952	0	0	2	1,952
Wildland Fire	Very high	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Moderate	2	7,839	7	0	0	0	21	265,049	29	92,205	2	182,202	61	547,295
Windstorm	Prevailing wind zone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

¹Value = Building value based on Tax Assessor records (x1000)
N/A = Not Applicable

Table O-5
City of Monterey Potential Hazard Vulnerability Analysis – Critical Infrastructure

Hazard	Methodology	Highways		Railroads		Bridges		Airports	
		Miles	Value (\$) ¹	Miles	Value (\$) ¹	Number	Value (\$) ¹	Number	Value (\$) ¹
Agricultural Emergency	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coastal Erosion	100-year erosion zone	0.0	0	0.0	0	0	0	N/A	N/A
Dam Failure	Inundation area	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Earthquake	Extreme	0.0	0	0.0	0	0	0	N/A	N/A
	High	6.6	34,033	0.0	0	22	30,863	N/A	N/A
	Moderate	2.8	14,539	0.0	0	5	3,854	N/A	N/A
Flood	100-year flood zone	0.1	661	0.0	0	0	0	N/A	N/A
Hazardous Materials Event	1-mile buffer transport corridor	13.2	TBD	0.0	0	20	TBD	0	0
	1-mile buffer fixed site	0.0	0	0.0	0	0	0	0	0
Landslide	High	0.0	0	0.0	0	0	0	0	0
	Moderate	1.9	TBD	0.0	0	2	TBD	0	0
Sea Level Rise	Inundation area	0.0	0	0.0	0	0	0	0	0
Tsunami	Inundation area	0.1	TBD	0.0	0	1	TBD	0	0
Wildland Fire	Very high	0.5	TBD	0.0	0	0	0	0	0
	High	0.7	TBD	0.0	0	1	TBD	0	0
	Moderate	11.8	TBD	0.0	0	18	TBD	0	0
Windstorm	Prevailing wind zone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

¹Value = Estimated value (x1000)

N/A = Not Applicable

Coastal Erosion

On average the dunes along Monterey's coast erode at approximately 2.6 feet per year. Therefore, using a 100-year projection to determine areas at risk to coastal erosion, approximately 120 people, 40 residential buildings (worth \$22.2 million), 82 nonresidential buildings (worth \$108.7 million), and 1 critical facility (worth \$181.0 million) reside in the coastal erosion hazard area.

Earthquake

The City of Monterey is susceptible to high and moderate shaking. As such, exposed within the high shaking area are 12,408 people (42 percent of the city's population), 3,315 residential buildings (worth \$949.6 million), 215 nonresidential buildings (worth \$442.0 million), and 58 critical facilities (worth \$357.2 million). 6.6 miles of highway and 22 bridges are also located in this hazard area.

Within the moderate shaking area are 17,239 people (58 percent of the city's population), 4,849 residential buildings (worth \$1.5 billion), 615 nonresidential buildings (worth \$1.2 billion), and at 4 critical facilities (worth \$190 million). 2.8 miles of highway and 5 bridges are also located in this hazard area.

Flood

The SFHA mainly consists of wave attack from the Pacific Ocean. Additionally, a small portion of the eastern city limits is subject to flooding from the Arroyo Del Rey. Exposed within this hazard area are 192 people, 59 residential buildings (worth \$26.7 million), 84 nonresidential buildings (worth \$113.6 million), and 2 critical facility (worth \$183.0 million). Approximately 0.1 mile of highway is located in the 100-year floodplain.

Hazardous Materials Event

Within the 1-mile buffer around the transportation corridors, 85 percent of Monterey's population is exposed to a hazardous material transport event. This includes 25,271 people, 5,364 residential buildings (worth \$1.3 billion), 1,682 nonresidential buildings (worth \$925.8 million), and 55 critical facilities (worth \$355.6 million). These figures are for the entirety of the transportation corridors and, therefore, overstate the exposure since a single HAZMAT event at a given point along these corridors is unlikely to affect all of the area within the 1-mile buffer.

There are no hazards associated with fixed HAZMAT sites within the city.

Landslide

Less than 1 percent of Monterey's total population resides within high and moderate landslide hazard areas. The high landslide hazard area includes 87 people, 14 residential buildings (worth \$2.8 million), 0 nonresidential buildings, and 0 critical facilities. No critical infrastructure is located in this hazard area.

1,899 people, 523 residential buildings (worth \$120.9 million), 182 nonresidential building (worth \$36.1 million) are located in moderate landslide hazard areas. 1.9 miles of highway and 2 bridges are located in this hazard area.

Sea Level Rise

Less than 1 percent of the city's population resides in this hazard zone. This includes approximately 56 people, 0 residential buildings, 31 nonresidential buildings, and 0 critical facilities. Additionally, there are no critical infrastructure elements in this hazard zone.

Tsunami

Using the New Tsunami Inundation Map data, approximately 2 percent of Monterey's population is vulnerable to a tsunami. This includes 694 people, 135 residential buildings (worth \$34.7 million), 143 nonresidential buildings (worth \$176.4 million), and 2 critical facilities (worth \$2 million). A significant coastal visitor population may also be vulnerable to tsunamis. Approximately 0.1 mile of highway and 1 bridge are located in this hazard area. The harbor is also vulnerable to strong and unpredictable currents.

Wildland Fire

Using the California FRAP model, nearly all of the city's population resides in a moderate wildland fire hazard area. Within this area are 28,102 people and 6,322 residential buildings (worth \$1.5 billion), 1,725 nonresidential buildings (worth \$963.7 million) and 61 critical facilities (worth \$547.3 million). Approximately 1.8 miles of highway and 18 bridges are located in this hazard area. Of the remaining population, 351 people, 43 residential buildings (worth \$21.3 million), and 15 nonresidential buildings (worth \$20.2 million) are located in a high wildland hazard area. Approximately 0.7 miles of highway and 1 bridge are located in this hazard area. 811 people, 25 residential buildings (worth \$218.3 million), and 49 nonresidential buildings (worth \$10.5 million) are located in a very high wildland fire hazard area. Approximately 0.5 miles of highway are located in this hazard area.

Table O-6
City of Monterey Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name	Effect on Hazard Mitigation
Plans	City of Monterey General Plan, January 2005 Safety Element	Establishes policies that will minimize the potential of human injury and property damage to the following natural hazards: seismic and geologic hazards; fires; floods; and hazardous materials.
	Phase II Permit	Provides storm water regulations for implementation by the City and identifies best management practices that reduce storm water pollution.
	Hazard Mitigation Plan	Presently covered under countywide multi-jurisdictional hazard mitigation plan. This plan is currently being updated and is anticipated to be completed and re-adopted in late 2014.
	Open Space Management Plan	
	Emergency Operations Plan	Includes annexes covering continuity of operations, evacuation, and disaster recovery.
	High Fire Hazard Ordinance	Adopted
	Capital Improvements Plan	
	Historic Preservation Plan	
	Transportation Plan	
	Subdivision Ordinance	
	Site Plan Review Requirements	
	Draft Spill Response Plan	Describes agency roles and responsibilities for response to complaints and illicit discharge events and includes reporting of actions taken for spill cleanup and notifications made to state agencies.
Programs	Monterey Regional Storm Water Management Program	Reduce pollution from storm water discharge and runoff with regard to the EPA's Phase II Storm Water National Pollutant Discharge Elimination System requirements. It is a collective effort and implementation of area-wide activities designed to benefit all participating entities.

Table O-6
City of Monterey Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name	Effect on Hazard Mitigation
Policies (Municipal Code)	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods.
	Chapter 9 Building Regulations	Article 1 Uniform Codes
		Article 5 Earthquake Hazard Reduction for URM's
		Article 7 Flood Damage Prevention
		Chapter 13 Fire Prevention
		Chapter 31.5 Storm Water Management
		Article 1 Fire Protection
		Article 2 Urban Storm Water Quality Management and Discharge Control

Table O-6
City of Monterey Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name		Effect on Hazard Mitigation
	Chapter 38 Zoning Ordinance	Article 19 Hazardous Materials Storage	Ensures that the use, handling, storage and transport of hazardous substances comply with all applicable requirements of the California Health and Safety Code and that the City is notified of emergency response plans, unauthorized releases of hazardous substances, and any substantial changes in facilities or operations that could affect the public health, safety or welfare. It is not the intent of these regulations to impose additional restrictions on the management of hazardous wastes, which would be contrary to state law, but only to require reporting of information to the City that must be provided to other public agencies.

Table O-7
City of Monterey Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department/Division Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Planning/Public Works
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planning/Public Works
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Planning/Public Works
Building inspector	Planning/Public Works
Emergency manager	Fire
Floodplain manager	Planning/Public Works
Land surveyor(s)	Planning/Public Works
Resource development staff or grant writers	Finance
Public information officer(s)	City Manager's Office
Staff with education or expertise to assess the community's vulnerability to hazards	Planning/Public Works
Personnel skilled in GIS and/or HAZUS-MH	Information Services
Maintenance programs to reduce risk	Planning/Public Works
Warning systems/services	Monterey County Communications
Mutual Aid Agreements	Fire
Disaster Council	City Manager, Assistant City Manager, Fire Chief, Public Facilities Director, Police Chief, Public Works Director, Community Development Director, Library Director, and Recreation and Community Services Director.

Table O-8
City of Monterey Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
General funds	If funding is available, can be used for hazard mitigation activities including debt service for bonds.
Capital improvements project funding	
Stormwater utility fees	
Water/sewer fees	
Development impact fees	
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity, but only eligible for use with voter approval.
Incur debt through general obligation bonds	Can be used for any hazard mitigation activity but only eligible for use with voter approval.
Incur debt through special tax and revenue bonds	Revenue Bonds can be issued through the City with voter approval, to raise funds for hazard mitigation activities.
Incur debt through private activity bonds	Can be used for any hazard mitigation activity.
FEMA HMGP and PDM grants	HMGP grant funding is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects. PDM funding is available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only.
Community Development Block Grants (CDBG)	The Community Development Block Grant (CDBG) program is a flexible program that provides communities with resources to address a wide range of unique community development needs.
United States Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national, or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors, and firefighters.

Table O-9
City of Monterey Education and Outreach Resources for Hazard Mitigation

Education and Outreach Resources	Effect on Hazard Mitigation
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Includes Community Emergency Response Teams (CERT).
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Includes presentations to the community and articles on the City website.
Natural disaster or safety related school programs	
<i>StormReady</i> certification	
Public-private partnership initiatives addressing disaster-related issues	Includes community preparation events at local shopping centers.

Problem Statements are statements of particular interest with regard to primary hazards of concern, geographic areas of concern, or vulnerable community assets. These statements were primarily derived from local community site visits and discussion with local staff and officials from each community during Individual Jurisdiction Meetings, in combination with a review of the Safety Elements of local General Plans and GIS analysis using best available data in support of updates to the vulnerability analysis for each jurisdiction. They were developed to assist in the identification and analysis of potential hazard mitigation actions for the City of Monterey.

- The city's waterfront and harbor area is at high risk to wave attack and coastal flooding during Pacific winter storm events, in addition to significant tsunami run-up and strong currents following earthquake events. In particular the existing dock structures are highly vulnerable to future damages, as well as the area along Del Monte Avenue which the City currently attempts to protect through the practice of beach scraping to build up sand berms.
- Del Monte Avenue would be inundated by floodwaters during a 50-year event, requiring more adequate storm drainage capacity through future capital improvements/upgrades to existing systems.
- The Lighthouse Avenue tunnel has the potential to flood during heavy rainfall events despite having an extensive pumping, diversion and collection system for stormwater drainage. Project funding is required to make the necessary upgrades and alleviate the need for sandbagging, etc.
- Despite ongoing hazard mitigation projects, policies, and activities, the City remains very concerned about the high threat of wildland fire due to existing terrain, fuels, etc. in combination with large areas of urban/wildland interface and intermix. An area of special concern is behind the Del Monte Shopping Center, which continues to be addressed through fuel management practices.
- The Monterey Interceptor pipeline, which transports all of the untreated sewage from the City of Monterey and Pacific Grove to the MRWPCA Regional Treatment Plant in Marina, is a

critical facility deemed at risk to the long-term effects of coastal erosion and sea level rise, particularly between the Seaside Pump Station and Monterey Beach Resort.

- The Monterey Beach Resort is located in an area threatened by coastal erosion, flooding, and sea level rise.

Table O-10
City of Monterey Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
1	Develop community Citizen Corps programs that also include a mitigation component.	Priority / High	Fire	General	Ongoing	A community-focused mitigation/hazard preparedness program will help build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	Ongoing / Continuous	New radio system, improvement in neighborhood CERT supplies, continued training
2	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.	Priority / High	Public Works	USFA, PDM, and HGMF Grants	Ongoing	The probability of future damage from wildland fires could be high if this mitigation action is not implemented.	Ongoing / Continuous	Fuel reduction programs for green belt and park areas
3	Develop and provide funding and/or incentives for defensible space measures (e.g., free chipping day, free collection day for tree limbs).	Priority / High	Public Works	USFA, PDM, and HMGF grants	1-2 years	The potential cost of this mitigation action seems reasonable for the size of the problem and its likely benefits.	Ongoing / Continuous	Information to neighborhoods about the need for defensible space, enforcement through prevention division on identified parcels

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4	Develop community Citizen Corps programs that also include a mitigation component. (ie; New radio system, improvement in neighborhood CERT supplies, continued training)	Moderate	Fire	General Fund	Ongoing	A community-focused mitigation/hazard preparedness program will help build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	Continued	Continued
5	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques. (Fuel reduction programs for green belt and park areas)	High	Public Works	USFA, PDM and HGMP grants	Ongoing/recurring	The probability of future damage from wild land fires could be high if this mitigation action is not implemented.	Continued	Continued
6	Develop and provide funding and/or incentives for defensible space measures (e.g., free chipping day, free collection day for tree limbs). Information to neighborhoods about the need for defensible space, enforcement through prevention division on identified parcels	Moderate	Public Works	USFA, PDM and HGMP grants	Ongoing	The potential cost of this mitigation action seems reasonable for the size of the problem and its likely benefits	Continued	Continued
7	Complete Tsunami Ready program	Moderate	Fire	General Fund	0-2 years	Provide for awareness and education of the public pre-event and provide directions during and post event	New	New

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8	Study and research possible Tsunami warning/alerting system (giant voice, sirens)	Low	Fire	General Fund	2-5 years	Could provide for a alerting system to assist in notification and evacuation in a timely manner, saving lives	New	New
9	Participate in Fire Safe Council Monterey County	Moderate	Fire	General Fund	Ongoing	Provide for increased awareness and education of Wildfire risk and ways to mitigate that risk. Coordinates efforts with neighboring jurisdictions	New	New
10	Develop an inventory of public, commercial, and private buildings, as well as maritime facilities and infrastructure, that may be vulnerable or at risk to earthquake damage, tsunami inundation and currents, stormwater flooding, and sea level rise	Moderate	Public Works	General Fund	2-5 years	Identifying the buildings and maritime facilities that may be effected by different threat types will provide for a more focused look at mitigation efforts in the future	New	New
11	Collect, create, or update maps and /or data that depict historic and potential damage from serious threat types, i.e.; earthquake damage, tsunami inundation, stormwater flooding, and sea level rise	Moderate	Public Works	General Fund	2-5 years	Identifying the areas that may be affected by different threat types will provide for a more focused look at mitigation efforts in the future	New	New

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12	Prepare a climate adaption plan	Low	Public Works	General Fund	5 years	Provides a strategy on how to handle issues such as sea level rise and disaster recovery.	New	New
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