

Appendix P
City of Pacific Grove

Table P-1
City of Pacific Grove 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)
15,522	5,121	900,367	490	191,208

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 P-2
City of Pacific Grove Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value (x\$1000)
Government	City Hall	300 Forest Ave.	6,659
Emergency Response	Police Department	580 Pine St.	907
	Fire Department	600 Pine Ave.	96
Care	Pacific Grove Convalescent Hospital	200 Lighthouse Ave.	802
	Del Monte Assisted Residential Care	1229 David Ave.	802
	Forest Hill Manor	551 Gibson St.	802
	Canterbury Woods	651 Sinex Ave.	802
	Gateway Center	850 Congress Ave.	802
Educational	Forest Grove Elementary School	1065 Congress Ave.	590
	Robert H. Down Elementary School	485 Pine St.	590
	Pacific Grove Middle School	835 Forest Ave.	590
	Pacific Grove High School	615 Sunset Dr.	590
	Monterey Bay Charter School	1004-B David Ave.	590
	Pacific Grove Community School	1004-A David Ave.	590
	Educational Pacific Grove Adult School*	1025 Lighthouse Ave.	590
	Peninsula Christian Preschool	520 Pine Ave.	214

Table P-2
City of Pacific Grove Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value (x\$1000)
	St. Angela's Children Center	136 8 th St.	246
Marine, Environmental, and Community	Community Shelter Pacific Grove Youth Center*	302 16 th St.	590
	Community Shelter Pacific Grove Community Center*	515 Junipero Ave.	590
	Hopkins Marine Station of Stanford University	120 Ocean View Blvd.	78,269
	Pacific Fisheries Environmental Laboratory of NOAA	1352 Lighthouse Ave.	78,269
	Asilomar Conference Grounds	800 Asilomar Ave.	150,000
	Monterey Bay Aquarium	886 Cannery Row.	200,000

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

* Facilities not included in vulnerability analysis (as of March 1, 2007).

Table P-3
City of Pacific Grove 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	440		238	55,023	14	25,514
Dam Failure	Inundation area	377		174	36,598	11	12,181
Earthquake	Extreme	0		0	0	0	0
	High	2,431		953	210,327	36	57,184
	Moderate	13,044		5,243	1,151,762	198	321,130
Flood	100-year flood zone	5		3	2,282	4	9,061
Hazardous Materials Event	1-mile buffer transport corridor	N/A	N/A	N/A	N/A	N/A	N/A
	1-mile buffer fixed site	N/A	N/A	N/A	N/A	N/A	N/A
Landslide	High	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
Sea Level Rise	Inundation area	16	0.33	0	0	0	0
Tsunami	Inundation area	251	0.82	56	16,509	2	15,628
Wildland Fire	Very high	116	0.64	56	26,292	2	930
	High	22	1.22	19	6,304	1	30
	Moderate	15,030	0.48	5,034	876,721	486	190,247
Windstorm	Prevailing wind zone	N/A		N/A	N/A	N/A	N/A

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

Table P-4
City of Pacific Grove 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	1	0	2	214	0	0	3	214
Earthquake	Extreme	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	High	0	0	2	1,003	0	0	5	0	8	459	1	78,269	16	79,731
	Moderate	1	6,659	0	0	0	0	0	0	0	0	1	78,269	2	84,928
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	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
	1-mile buffer fixed site	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
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	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	1	6,659	2	1,003	0	0	5	0	8	459	2	156,538	18	164,659
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 P-5
City of Pacific Grove 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	>0.1	116	0.0	0	0	0	N/A	N/A
Dam Failure	Inundation area	0.0	0	0.0	0	0	0	N/A	N/A
Earthquake	Extreme	0.0	0	0.0	0	0	0	N/A	N/A
	High	0.2	942	0.0	0	0	0	N/A	N/A
	Moderate	3.1	16,163	0.0	0	0	0	N/A	N/A
Flood	100-year flood zone	0.0	0	0.0	0	0	0	N/A	N/A
Hazardous Materials Event	1-mile buffer transport corridor	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1-mile buffer fixed site	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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	0	0
	Moderate	0.0	0	0.0	0	0	0	0	0
Windstorm	Prevailing wind zone	N/A	N/A	N/A	N/A	N/A	N/A	0	0

¹Value = Estimated value (x1000)

N/A = Not Applicable

Coastal Erosion

Pacific Grove is susceptible to both dune and cliff erosion. While the average dune erosion rate is approximately 2.6 feet per year, the rocky cliffs only erode at 2-4 inches annually. Therefore, using a 100-year projection to determine areas at risk to coastal erosion, approximately 440 people, 238 residential buildings (worth \$55.0 million), and 14 nonresidential buildings (worth \$25.5 million) are located in this hazard area. Less than 0.1 mile of highway is located in this area.

Dam Failure

Failure of the Pacific Grove Dam poses a risk to the northeast portion of the city. Exposed within the inundation zone are 377 people, 174 residential buildings (worth \$36.6 million), and 11 nonresidential buildings (worth \$12.2 million).

Earthquake

There are no people, buildings, or facilities located in an extreme shaking hazard area. Approximately 15 percent of the population is exposed to a high shaking hazard area. Within this area are 2,431 people, 953 residential buildings (worth \$210.3 million), 36 nonresidential buildings (worth \$57.2 million), and 16 critical facilities (worth \$79.7 million). There is 0.2 miles of highway exposed to high shaking.

The remaining 85 percent of the city's population is located in a moderate shaking hazard area. As such, exposed within this hazard area are 13,044 people, 5,234 residential buildings (worth \$1.2 billion), 198 nonresidential buildings (worth \$321.1 million), and 2 critical facilities (worth \$85.0 million). There are 3.1 miles of highway exposed to moderate shaking.

Flood

Wave attack from the Pacific Ocean makes up the SFHA in Pacific Grove. Exposed within this hazard area are 5 people, 3 residential buildings (worth \$2.3 million), and 4 nonresidential buildings (worth \$9.1 million).

Sea Level Rise

The potential for sea level rise is present along the entire coast of Monterey County. However, less than 1 percent of the city's population (16 people) reside in this hazard zone. No buildings, critical facilities, or critical infrastructure are located in this hazard area.

Tsunami

Using the New Tsunami Inundation Map data, approximately 2 percent of Pacific Grove's population is vulnerable to this hazard. This includes 251 people, 56 residential buildings (worth \$16.5 million), 2 nonresidential buildings (worth \$15.6 million), and 0 critical facilities.

Wildland Fire

Using the California FRAP model, nearly 97 percent of the city's population is located in a moderate wildland fire hazard area. Within the area of moderate exposure are 15,030 people, 5,034 residential buildings (worth \$876.7 million), 486 nonresidential buildings (worth \$190.2 million), and 18 critical facilities (worth \$164.7 million).

The remaining three percent of the population, which includes 138 residents, 75 residential structures, 3 nonresidential buildings, and 0 critical facilities are located in the high and very high wildland fire hazard areas.

Table P-6
City of Pacific Grove Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Plans and Ordinances	1994 Pacific Grove General Plan Health and Safety Chapter	Establishes policies that will minimize the potential of human injury and property damage to the following natural hazards: seismic and geologic hazards, erosion, wildland and urban fires, and flooding.
	1989 Local Coastal Program Land Use Plan	A separate document, but an element of the General Plan. Describes the kinds, location, and intensity of land use and applicable resource protection and development policies within the Coastal Zone
	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.
	2010 Emergency Operations Plan	Updated in 2012. Establishes organizational and policy guidance for use during an emergency or disaster based on contemporary standards and serves as an operational reference ³ for training and indoctrination of City employees. Additionally, the plan contains germane emergency reference material.
	Historic Preservation Ordinance	Currently under development. A section of the Municipal Code to protect, enhance, and perpetuate structures and neighborhoods of historical and architectural significance throughout the City.
	Historic Context Statement	An overview of Pacific Grove's history with a specific emphasis on describing the historic themes and patterns that contributed to Pacific Grove's development.
	Community Floodplain Management Ordinance	A section of the Municipal Code (§ 11.97) to promote the public health, safety and general welfare uniformly throughout the community and to minimize public and private losses due to flood conditions in specific areas.
	Housing Element	Adopted in 2011. An element of the General Plan to address housing needs and demands and implement land use plans and regulatory systems to provide opportunities for housing development.
	Zoning Ordinance	Title 23 of the City of Pacific Grove 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.
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 P-6
City of Pacific Grove Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Policies (Municipal Code)	Seismic Hazards Identification Program	Promotes public safety by identifying those buildings in Pacific Grove which exhibit structural deficiencies and by accurately determining the severity and extent of those deficiencies in relation to their potential for causing loss of life or injury.
	Local Coastal Program	Establishes the kinds, location, and intensity of land use and applicable resource protection and development policies within the Coastal Zone.
	Title 11 Health, Safety and Environment	Specifies areas of special flood hazard as delineated by FEMA, properties within such areas shall be subject to the development permit requirements.
	Title 12 Trees and Vegetation	Permits the City to regulate weeds on private property which may attain such large growth as to become, when dry, a fire menace to adjacent improved property.
	Title 18 Buildings and Construction	Adopts the Uniform Building Code, 1997 Edition, including requirements in Seismic Zones 3 and 4.
		Adopts the Uniform Fire Code, 1997 Edition.
		Promotes public safety by identifying those buildings in Pacific Grove which exhibit structural deficiencies and by accurately determining the severity and extent of those deficiencies in relation to their potential for causing loss of life or injury.

Table P-7
City of Pacific Grove 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 and Economic Development
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Community and Economic Development/Public Works
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Community and Economic Development/Public Works
Building inspector	Community and Economic Development
Resource development staff or grant writers	Community and Economic Development/Public Works
Public information officer(s)	City Attorney
Staff with education or expertise to assess the community's vulnerability to hazards	Community and Economic Development/Public Works
Personnel skilled in GIS and/or HAZUS-MH	Community and Economic Development
Maintenance programs to reduce risk	Fire/Public Works
Warning systems/services	Police/Fire/Public Works
Mutual Aid Agreements	Police/Fire/Public Works

Table P-8
City of Pacific Grove Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
General funds	If funding is available, can be used for hazard mitigation activities.
Capital improvements project funding	Capital improvements resources can be used to upgrade, restore, and retrofit existing and new structures.
Water/sewer fees	Water and Sewer fees allow for a fund to update the underground services throughout the city.
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity with voter approval.
Incur debt through general obligation bonds	Revenue Bonds can be issued through the City with voter approval.
Incur debt through special tax and revenue bonds	Can be used for any hazard mitigation activity without 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.
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 P-9
City of Pacific Grove 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 CERT program through Monterey Fire; Sustainable Pacific Grove.
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	In partnership with other local agencies (e.g., Monterey Peninsula Water Management District, Monterey Regional Water Pollution Control Agency).

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 Pacific Grove.

- Ocean View Boulevard and Sunset Drive are considered at long-term risk to wave attack, coastal flooding, erosion and scouring (particularly on the north end of peninsula), but fortunately few structures are located on the seaward side of the roadways. Two single-family residences, two restaurants, one recreational swimming pool, and two environmental institutions (Hopkins Marine Station and the Monterey Bay Aquarium) are located on the seaward side of Ocean View Boulevard. The city's priorities are for roadway improvements and protection of vital transportation infrastructure from future coastal events.
- The city is concerned with limited ingress/egress to the community following major disaster events, and continues to review and update designated evacuation routes through its emergency operations plan (currently being updated). A related concern is the narrow design of many city streets, which will make mobility and evacuation difficult during major events.
- The city experiences minor localized flooding following major rainfall events, all caused by either inadequate or clogged drainage facilities, but no structures have been damaged. The city is currently encouraging on-site storm water retention through various different means.
- City planning staff believes that the wildland fire hazard area for their jurisdiction is more expansive than previously mapped through FRAS and shown in the current plan. There are lots of dead or dying trees in the heavily forested "Retreat" area which leads to higher risks, especially when combined with the fact that most surrounding residential construction is wood frame with Class C roofs (more combustible/ flammable).
- The public water supply is deemed a critical local issue for the city (and entire peninsula), particularly with regard to the supply available during future major fires. The city has seen hydrant pressure drops during past events.
- 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.
- Widespread power outages are a concern for the city following major winter storms, mostly which are caused by downed trees.

Appendix P

City Of Pacific Grove

Table P-10
City of Pacific Grove Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/Explanation
1	Develop a sustained public outreach program that encourages consistent hazard mitigation content and improves public awareness and knowledge regarding all types of hazards, preparedness and mitigation measures. For example, consider publishing interactive information on the city website on topics such as tsunami inundation zones, wildland fire defensible spaces, and safe handling/disposal of hazardous waste and chemicals.	Priority / High	Disaster Planning, Community Development	General Funds, HMGP, and PDM Grants	1-2 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.	In progress	The public outreach program is an ongoing program that the city will continue to pursue. The City currently keeps an updated webpage providing information to members of the public, as well as providing information through other outlets such as providing fliers in the City Hall and publishing on social media sites.
2	Develop audience-specific hazard mitigation outreach efforts. Audiences include the elderly, children, tourists, non-English speaking residents, and home and business owners.	Priority / High	Fire / CERT	HMGP and PDM Grants	1-2 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.	In progress	In conjunction with Action Item 1, the City continues to provide outreach through various different mediums. Signs throughout the city provide photos and information about the potential of specific hazards.
3	Develop an unreinforced masonry grant program that	Priority / High	Community Development	General Funds,	5 years	The identification and mitigation of	Deferred	The City has ensured proper training on

Table P-10
City of Pacific Grove Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/Explanation
	helps correct earthquake-risk nonmasonry building problems, including chimney bracing and anchoring water heaters. Additionally, ensure proper training on seismic codes for all buildings inspectors and encourage measures to reduce earthquake damage risk.			HMGP, and PDM Grants		unreinforced nonmasonry buildings, as well as the education of pertinent staff members, will reduce potential losses due to earthquakes.		seismic codes for all building inspectors and encourages measures to reduce earthquake damage risk.
4	Participate in the NOAA TsunamiReady Program. This new program, sponsored by the National Weather Service, is designed to provide communities with incentives to reduce their tsunami risks.	Priority / High	Disaster Planning	General Funds	1-2 years	This effort is both a mitigation outreach effort and an emergency preparedness effort. This action will help reduce the possibility of future damage and losses by educating the public about local tsunami inundation areas. In addition, it will also educate the public on where and how to evacuate, if necessary.	In progress	The City is currently participating in the Tsunami Ready Program. Multiple "Tsunami Warning" signs are posted throughout the city and staff is familiar with the tsunami inundation zone.
5	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.	Priority / High	Fire Prevention	General Funds	Ongoing	The probability of future damage from wildland fires could be high if this mitigation action is not	Deleted	

Table P-10
City of Pacific Grove Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/Explanation
6	Develop and provide funding and/or incentives for defensible space measures (e.g., free chipping day, free collection day for tree limbs).	Priority / High	Fire Prevention / Public Works	General Funds, HMGP, and PDM Grants	Ongoing	The potential cost of this mitigation action seems reasonable for the size of the problem and its likely benefits.	Deleted	
7	Use GIS to regularly calculate and document vulnerable areas such as: flood-prone areas, sea level rise, tsunami inundation zones, coastal erosion zones, wildland fire areas, and areas affected by dam failure. Additionally, this information shall be used to create an inventory of especially vulnerable zones, buildings, properties, and infrastructure.	Moderate	Public Works, Community and Economic Development	General Funds	2 years	The minimal costs of GIS services will allow for a large benefit and service for both emergency planning and post-emergency reconstruction. The benefit of having this information saved in the City's server will greatly affect post-hazard reconstruction.	In Progress	The City currently contracts GIS services and will continue to add to the inventory of maps saved on the City's server.
8	Adopt a Local Coastal Plan with the implementation of dune protection, stabilization, and nourishment to provide floodplain protection in the coastal areas. Additionally, wildlife safety should be linked with other environmental strategies	High	Community and Economic Development	California Coastal Commission Grants	1-2 years	A certified Local Coastal Plan will allow the City to protect, stabilize, and nourish the areas around the coast, as well as implement hazard mitigation. The areas around the coast are	In progress	The City is currently in the process of rewriting the LCP with the implementation of hazard mitigation elements throughout the Coastal Zone. The LCP is scheduled to be completed by the

Table P-10
City of Pacific Grove Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/Explanation
	throughout the Local Coastal Plan.					subject to various different hazards and require specific protection against disasters.		end of 2015.
9	Establish watershed-based planning to address flood hazards, sea level rise potentials and stormwater runoff problems and encourage techniques to reduce rainwater runoff, which can prevent flooding and erosion. Specifically, encourage major land alteration projects to include the use of pervious surfaces and rainwater collection technology.	High	Community and Economic Development	Grant Money, General Funds	1-2 years	A majority of Pacific Grove is located within an Area of Special Biological Significance Watershed zone. Incorporating watershed measures will not only protect the marine sanctuary, but it will also encourage the alleviation of flood hazards, sea level rise potentials, and stormwater runoff issues.	In progress	The City has recently received grant money to fund watershed flows throughout the city and the City is in the process of implementing this.

Appendix Q
City of Salinas

Table Q-1
City of Salinas 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)
182,759	22,410	2,845,389	6,927	2,549,811

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

** Tax Assessor records.

*** Tax Assessor records.

Table Q-2
City of Salinas Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value / Value Per Mile (x\$1000)
Government	City Hall	222 Lincoln Ave.	6,659
Emergency Response	Police Department	222 Lincoln Ave.	1,652
	Fire Department Station # 1	66 West Alisal St.	124
	Fire Department Station # 2	10 West Laurel	708
	Fire Department Station # 3	827 Abbott St.	708
	Fire Department Station # 4	308 Williams Rd.	708
	Fire Department Station # 5	1400 Rider Ave.	708
	Fire Department Station # 6	45 East Bolivar Ave.	708
	Monterey County Sheriff	1414 Natividad Rd.	708
	California Highway Patrol	960 E Blanco Rd.	708
	Monterey County OES/Dispatch	1322 Natividad Rd	2,000
	Monterey County Jail	1410 Natividad Rd	708
Lifeline Utilities	Treatment Plant	Davis Rd. at River Crossing	78,588
Care	Salinas Valley Memorial Hospital	450 East Romie Ln.	16,520
	Natividad Medical Center	1441 Constitution Blvd.	16,520
	Pacific Coast Care Center	720 East Romie Ln.	802
	Salinas Rehabilitation & Care Center	637 East Romie Ln.	802
	Madonna Manor	1335 Byron Dr.	802
	Summerville at Harden Ranch	209 Regency Cl.	802
	Almost Home	818 Riker Ave.	802
	A Home Away from Home	941 Los Palos Dr.	802

Table Q-2
City of Salinas Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value / Value Per Mile (x\$1000)
	Katherine Healthcare Center	315 Alameda Ave.	802
	Skyline Care Center	348 Iris Dr.	802
	Sunridge Care Center	350 Iris Dr.	802
	Colonial Manor	645 Williams Rd.	802
	Villa Serra	1320 Padre Dr.	802
	Alterra Wynwood	290 Regency Circle	802
	Aninzo Care Home	1571 Atherton Way	802
	Baltazar Care Home	18652 Eisenhower Street	802
	Crest RCFE Home	816 Garner Ave	802
	Harden Medical Care Center	1756 N. Main Street	802
	Leorene Care Home	145 Gardenia Drive	802
	Rozin Residential Care	254 Winham Street	802
	Salinas Urgent Care	947 Blanco Circle	1,612
	Santo Nina Residential Care	965 Hancock Street	802
	Southside RCFE	283 Reata Street	802
	St. Augustine Home Care	695 St. Augustine Drive	802
	Alisal Health Center	559 East Alisal St.	88
Educational	Sherwood Elementary School	110 South Wood St.	590
	Los Padres Elementary School	1130 John St.	590
	Roosevelt Elementary School	120 Capitol St.	590
	Cesar E. Chavez Elementary School	1225 Towt St.	590
	Fremont Elementary School	1225 East Market St.	590
	El Gabilan Elementary School	1256 Linwood Dr.	590
	Frank Paul Elementary School	1300 Rider Ave.	590
	Alisal Community School	1437 Del Monte Ave.	590
	Natividad Elementary School	1465 Modoc Ave.	590
	Dr. Oscar Loya School	1465 Modoc Ave.	590
	John E. Steinbeck School	1714 Burlington Dr.	590
	Creekside School	1770 Kittery St.	590
	Santa Rita Elementary School	2014 Santa Rita St.	590
	McKinnon Elementary School	2100 McKinnon St.	590
	Mission Park Elementary School	403 West Acacia St.	590

Table Q-2
City of Salinas Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value / Value Per Mile (x\$1000)
	Monterey Park Elementary School	410 San Miguel Ave.	590
	Bardin Elementary School	425 Bardin Rd.	590
	Henry F. Kammann Elementary School	521 Rochex St.	590
	Laurel Wood Elementary School	645 Larkin St.	590
	Virginia Rocca Barton School	680 Las Casitas Dr.	590
	Loma Vista Elementary School	757 Sausal Dr.	590
	Boronda Meadows Elementary School	915 Larkin St.	590
	New Republic Elementary School	636 Arcadia Wy.	590
	University Park Elementary School	833 West Acacia St.	590
	Jesse G. Sanchez School	901 North Sanborn Rd.	590
	Dr. Martin Luther Kind, Jr. Academy	925 North Sanborn Rd.	590
	El Sausal Middle School	1155 East Alisal St.	590
	Harden Middle School	1561 McKinnon St.	590
	La Paz Middle School	1300 North Sanborn Rd.	590
	Washington Middle School	560 Iverson St.	590
	Alisa High School	777 Williams Rd.	590
	Everett Alvarez High School	1900 Independence Blvd.	590
	North Salinas High School	55 Kip Dr.	590
	Salinas High School	726 South Main St.	590
	Monterey County Home Charter School	901 Blanco Cl.	590
	Oasis Charter School	404 Lincoln Ave.	590
	Hartnell College	156 Homestead Ave.	590
	Salinas Community School / Wellington M. Smith Jr.	1420 Natividad Rd.	590
	Mount Toro Continuation High School	10 Sherwood Place	590
	Temple Philadelphia Christian Academy	160 Pajero St.	335
	Soaring Eagles Christian Academy	298 E Market St.	314

Table Q-2
City of Salinas Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value / Value Per Mile (x\$1000)
	Salinas Christian School & Nursery	345 E Alvin Dr.	2,040
	Sacred Heart School	123 W Market St.	5,414
	Our Savior Early Childhood Center	1230 Luther Way	446
	Notre Dame High School	455 Palma Dr.	2,317
	Montessori Learning Center Upper School	30 Hitchcock Rd.	1,481
	Madonna del Sasso School	20 Santa Teresa Way	3,330
	Lincoln Elementary School	705 California St.	
	Palma High School	919 Iverson St.	9,125
Airport	Municipal Airport	30 Mortensen Ave.	6,432

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

Table Q-5
City of Salinas Potential Hazard Vulnerability Analysis – Critical Infrastructure

Hazard	Miles	Highways		Railroads		Bridges		Airports	
		Value (\$) ¹	Miles	Miles	Value (\$) ¹	Number ¹	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	6.9	51,612	5.6	7,755	19	32,606	0	0
Earthquake	Extreme	0.0	0	0.0	0	0	0	0	0
	High	9.5	77,806	5.6	7,755	24	38,812	1	6,431
	Moderate	0.0	0	0.0	0	0	0	0	0
Flood	100-year flood zone	1.3	13,803	0.0	0	4	4,321	0	0
Hazardous Materials Event	1-mile buffer transport corridor	11.9	TBD	6.9	TBD	16	TBD	1	TBD
	1-mile buffer fixed site	3.4	TBD	4.3	TBD	6	TBD	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	0.0	0	0.1	TBD	0	0	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

Agricultural Emergency

There are 619.4 acres (0.968 square miles) of cropland in the City of Salinas that intersect with the 100-year floodplain. The city boundaries of Salinas have changed since the last plan update. Everything from north of Boronda Road to Old Stage Road is agricultural land but now lies within the city limits. The area will begin to be developed in the next 3 years. This area lies within what is mapped as Fire Station Response Areas 5 and 6 (which total 2,403 acres [3.75 square miles]). 138.6 acres (0.22 square miles) of Response Area 5 intersect with the 100-year floodplain. None of Response Area 6 intersects with the 100-year floodplain.

Dam Failure

Failure of the San Antonio and Nacimiento dams poses a risk to over a quarter of the Salinas planning area's population. Exposed within the inundation zones along the central, western, and southwestern portions of the city are 48,487 people, 9,093 residential buildings (worth \$2.2 billion), 722 nonresidential buildings (worth \$1.5 billion), and 27 critical facilities (worth \$118.9 million). 6.9 miles of highway, 5.6 miles of railroad tracks, and 19 bridges are located in this hazard area.

Earthquake

Over 99 percent of the Salinas planning area's population is located in a high shaking hazard. As such, exposed within the high shaking hazard area are 182,647 people, 36,887 residential buildings (worth \$7.7 billion), 1,357 nonresidential buildings (worth \$2.7 million), and 100 critical facilities (worth \$36.5 million). 9.5 miles of highway, 5.6 miles of railroad tracks, 24 bridges, and 1 airport are also located in this hazard area. The remaining population (112 persons) is located in a moderate shaking hazard area.

Flood

The SFHA within the Salinas planning area includes the Gabilan Creek and tributaries, the Santa Rita Creek, Carr Lake, and the Salinas River. Exposed within this hazard area are 5,937 people, 908 residential buildings (worth \$183.7 million), 70 nonresidential buildings (worth \$114.3 million), and 2 critical facilities (worth \$79.2 million). Approximately 1.3 miles of highway are located in the 100-year floodplain.

Hazardous Materials Event

Approximately 48 percent of the Salinas planning area population is exposed to a hazardous material transport event. This includes 87,952 people, 13,046 residential buildings (worth \$1.6 billion), 3,736 nonresidential buildings (worth \$1.9 billion), and 63 critical facilities (worth \$34.4 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, 37,154 people are exposed to a fixed-site hazardous materials event. This includes 4,909 residential buildings (worth \$662.2 million), 1,124 nonresidential buildings (worth \$668.3 million), and 21 critical facilities (worth \$4 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

The moderate wildland fire risk zone is not an accurate reflection of risk for the city. Less than 1 percent of the Salinas planning area population, including 400 people, 58 residential buildings (worth \$4.1 million), and 14 nonresidential buildings (worth \$27.5 million) are located in a high wildland fire hazard area. However, there has been no recorded property losses in the city in the past 13 years and it is important to note that the values presented above are worst-case exposure values and not indicative of actual anticipated losses.

Windstorm

Windstorms created by prevailing northwest sustained surface winds are common throughout the central southern Salinas Valley, south of the Salinas planning area.

Table Q-6
City of Salinas Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Plans and Ordinances	2002 City of Salinas General Plan Safety Element	Establishes policies that will minimize the potential of human injury and property damage to the following hazards: seismically induced conditions including ground shaking, surface rupture, ground failure, tsunami, and seiche; slope instability leading to mudslides and landslides; subsidence and other geologic hazards; flooding; wildland and urban fires; and evacuation routes.
	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.
	Floodplain Management Plan	
	Open Space Management Plan	Currently under development.
	Emergency Operations Plan	Updated 2014.
	Continuity of Operations Plan	Currently under development.
	Economic Development Plan	Creates a strategy for prosperity in the region which will include recommendations on future growth that would be conducted in accordance with the General Plan. Completed and under review by city council.
	Historic Preservation Plan	Sets up a Historic Preservation Board and provides for the Rehabilitation of historic buildings to meet the current code.
	Transportation Plan	
	Floodplain Ordinance	Updated 2012. Reviewed by the building department.
	Zoning Ordinance	City Ordinance, Chapter 37.
	Subdivision Ordinance	Requires subdivisions to occur in accordance with the General Plan and requires lot access and CEQA review.
	Site Plan Review Requirements	Subject to Fire Department and Building Department review for comment to ensure future development minimizes potential hazard losses.

Table Q-6
City of Salinas Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Programs	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.
Policies (Municipal Code)	Chapter 9 Buildings	Adopts current applicable California Codes, for regulating the construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.
	Chapter 13 Fire Prevention	The City of Salinas adopts the 2013 edition of the California Fire Code, regulating and governing the safeguarding of life and property from fire and explosion hazards arising from the storage, handling and use of hazardous substances, materials and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises in the City of Salinas.
	Chapter 14 Garbage, Refuse, and Weeds	Does not permit or allow any weeds or grass which bear seeds of a windborne or downy nature, or which attain such a large growth as to become a fire menace when dry, or which are otherwise noxious or dangerous, to grow, stand or remain upon such real property or upon any street or sidewalk in front of such real property.
	Chapter 29A Stormwater Management Utility	The purpose of this utility includes, but is not limited to, permitting, maintenance, planning, design, construction, regulation, surveying, water quality testing and inspection relating to storm and surface water management facilities.

Table Q-7
City of Salinas Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department/Division Position	City Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Community and Economic Development	Planning Manager
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Community/Economic Development	Inspector/Building Official
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Community/Economic Development	Inspector
Building inspector	Planning	Inspector
Emergency manager	Fire/Police	Staff
Floodplain manager	Public Works/Engineering	City Engineer
Resource development staff or grant writer(s)	Public Works/Engineering	Staff
Public information officer(s)	Library	Manager
Staff with education or expertise to assess the community's vulnerability to hazards	City Staff	Staff
Personnel skilled in GIS and/or HAZUS-MH	Information Systems	GIS Coordinator
Maintenance programs to reduce risk	Public Works	Manager
Warning systems/services	Fire	Chief
Mutual Aid Agreements	City Manager/Fire/Law	Chief Officers/Command Staff

Table Q-8
City of Salinas Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
General funds	If funding is available, can be used for hazard mitigation activity.
Capital improvements project funding	
Stormwater utility fees	None
Water/sewer fees	
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity with 2/3 rd voter approval for specific purpose or ½ voter approval for general tax.
Incur debt through general obligation bonds	Revenue Bonds can be issued through the City with 2/3 rd voter approval.
Incur debt through special tax and revenue bonds	Can be used for any hazard mitigation activity with 2/3 rd voter approval.
Incur debt through private activity bonds	Can be used for any hazard mitigation activity and it does not need voter approval (City Council can approve).
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 Q-9
City of Salinas Education and Outreach Resources for Hazard Mitigation

Education and Outreach Resources	Effect on Hazard Mitigation
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Includes CERT program with classes held twice a year, an annual fire safety program in October with grammar schools, and fire station tours with grammar schools throughout the school year.

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 Salinas.

- The city is vulnerable to major flooding events that can cause widespread damages similar to the 1995 event. New stormwater regulations per the State Water Resources Control Board require more on-site retention, creating impacts to the drainage system which could further increase the severity of flooding following prolonged rainfall events.
- While a major concern, the Salinas River is not the only source of potential flooding. Past events have resulted in destructive floodwaters coming from the Santa Lucia and Gabilan Mountain ranges that are not adequately conveyed through the city to the Salinas River due to backflow issues and inadequate drainage systems.
- One area of particular concern for future flood damages is the Sherwood Park Mobile Home Park and surrounding areas downstream of Carr Lake (and reclamation ditch maintained by Monterey County) in the center of the city.
- The city faces unique vulnerabilities to major hazard events due to its relatively high population and development density (the highest in Monterey County), particularly with regard to earthquake ground-shaking events that could have community-wide impacts.

Table Q-9
City of Salinas 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	Development and Engineering	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.	Completed	No risk to flooding. All buildings meet current earthquake building standards. The City has adopted the new FEMA standards.
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	Administration and Community Services, Various	HMGP and PDM Grants, General Funds	0-1 year, 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	Annual Fire Prevention program with outreach to the grammar schools. This program covers information on home fire hazards, chemical use and spills, and earthquake/disaster preparedness.
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	Administration and Community Services	HMGP and PDM Grants, General Funds	0-1 year, 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	Community Emergency Response Team (CERT) training is being provided twice a year to community volunteers. We have interacted with the local junior college and the faith communities in Salinas and neighboring jurisdictions.

Appendix Q City Of Salinas

**Table Q-9
City of Salinas Mitigation Action Plan Matrix**

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
4	Develop an unreinforced masonry grant program that helps correct earthquake-risk nonmasonry building problems, including chimney bracing and anchoring water heaters.	Priority / High	Development and Engineering	HMGP and PDM Grants	2-5 years	The identification and mitigation of unreinforced nonmasonry buildings will reduce potential losses due to earthquakes.	Deleted	Did not occur due to the 2008 recession and funding is not expected in the foreseeable future. It is also difficult at this point to quantify the value and priority of this action moving forward.
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	Maintenance	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	Market Street drainage improvements, 2012. Water detention basins at the Montabella subdivision, 2010. Drainage improvements at the end of Holly Street and Elm Street. Drainage improvements on Elton Place. Gabilan Creek silt removal, 2013.
6	The police department is looking to enlarge their office space. The city is planning to build a new headquarters building on city owned property.	Priority / High	Police	HMGP and PDM Grants	2015	A new headquarters building will ensure the Police department can respond to and recover from disasters, thereby aiding residents of	Ongoing/ Continuous	The City is currently recruiting architects to design a new police building for a property at East Alisal Street and Work Street. This is a

Appendix Q
City Of Salinas

Table Q-9
City of Salinas Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
						Salinas.		Capital Improvement Project (CIP) that is not fully funded. The scope of this project has changed since the last plan update.
7	Work with USACE to make the wastewater treatment plant in Salinas more flood resistant.	Priority / Moderate	Public Works	Pursuing potential grant opportunities	1-5 years	Maintain system functionality during a flood event; minimize damage and potential repair costs to the facility.	New action for 2014 plan update	The City approached USACE in 2013 to form a partnership to identify ways to prevent future flood damage at the facility.
8	Complete a written All Hazard Evacuation Plan especially for the risk of flood, dam failure, and earthquake.	Moderate	Law Enforcement/ Deputy Police Chief	General Fund	3 years	Having a plan for evacuation of the flood prone areas will increase the efficiency with which this area of town can be evacuated. This decreases the impact of a flood event on life loss. This will also increase the ease of access for emergency responders to the area to effectively save property and the environment.	New	New
9	Complete a written Continuity of Government Plan.	Low	Law/Fire	General Fund	5 years	Planning for catastrophic loss of City of Salinas infrastructure is the best way to ensure a continuation of	New	New

Table Q-9
City of Salinas Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
						government activities during a disaster. Secure buildings and infrastructure must be identified ahead of the event to ensure a timely transition to these facilities for a continuation of city operations.		
10	Reinforce the Waste Water Treatment Plant against the threat of flood in the 100-year floodplain.	High	Public Works	Federal Grant Assistance	5 years	Physical improvements to the waste water processing plant reduces the risk of contamination to the environment during a flood event caused by winter storm or dam failure. The exposed area includes farm land and beach front down stream on the Salinas River.	New	New

Appendix R
City of Sand City

Table R-1
City of Sand 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)
261	51	6,781	156	87,711

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 R-2
City of Sand City Critical Facilities and Infrastructure

Category	Facility	Address	Estimated Insured Structural Value (x\$1000)
Government	City Hall	1 Sylvan Wy.	6,659
Emergency Response	Police Department	1 Sylvan Wy.	1,652
Public Utility (Government Owned)	Sand City Desalination Plant	321 Shasta Ave.	6,277
Government	Public Works Yard and Office Trailer	320 Elder Ave.	234

Source: FEMA HAZUS-MH (estimated values), City of Sand City data

Table R-3
City of Sand City 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	2	89
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	261	N/A	57	16,530	41	89,464
	Moderate	0	N/A	0	0	0	0
Flood	100-year flood zone	0	N/A	0	0	2	76
Hazardous Materials Event	1-mile buffer transport corridor	261	-1.90	42	6,781	156	87,711
	1-mile buffer fixed site	N/A	N/A	N/A	N/A	N/A	N/A
Landslide	High	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
Sea Level Rise	Inundation area	0	N/A	0	0	0	0
Tsunami	Inundation area	0	-1.96	0	0	1	0
	Very high	0	N/A	0	0	0	0
	High	0	N/A	0	0	0	0
Wildland Fire	Moderate	261	-2.28	42	6,781	154	86,458
	Prevailing wind zone	N/A	N/A	N/A	N/A	N/A	N/A
Windstorm							

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

Table R-4
City of Sand 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	6,659	1	0	0	0	0	0	0	0	0	0	2	6,659
	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	1	6,659	1	0	0	0	0	0	0	0	0	0	2	6,659
	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	1	6,659	1	0	0	0	0	0	0	0	0	0	2	6,659
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 R-5
City of Sand City 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		
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		
	High	1.2	6,195	0.0	0	3	2,514		
	Moderate	0.0	0	0.0	0	0	0		
Flood	100-year flood zone	0.0	0	0.0	0	0	0		
Hazardous Materials Event	1-mile buffer transport corridor	2.3	TBD	1.5	TBD	5	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	0	0
	Moderate	1.9	TBD	1.4	TBD	5	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

The sandy dunes along the city's coastline erode at an average 2.6 feet a year. Therefore, using a 100-year projection to determine areas at risk to coastal erosion, only 2 nonresidential buildings (worth \$89,000), are located in this hazard area.

Earthquake

Nearly all of Sand City is susceptible to high earthquake shaking. This includes 261 people (100 percent of the total population), 57 residential buildings (worth \$16.5 million), 41 nonresidential buildings (worth \$89.5 million), and 2 critical facilities (worth \$6.7 million). 1.2 miles of highway and 3 bridges are located in this hazard area.

Flood

The SFHA in Sand City consists of wave attack from the Pacific Ocean. As such, only 1 nonresidential building (worth \$76,000), is located in the 100-year floodplain. Future hotel projects may be impacted.

Hazardous Materials Event

Within the 1-mile buffer around the transportation corridors, 100 percent of Sand City's population is exposed to a hazardous material transport event. This includes 261 people, 51 residential buildings (worth \$6.8 million), 156 nonresidential buildings (worth \$87.7 million), and 2 critical facilities (worth \$6.7 million). 2.3 miles of highway, 1.5 miles of railroad, and 5 bridges are located in this hazard area. These figures are for the entirety of the transportation corridors and, therefore, overstate the exposure since single a 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 Sand City are located in this hazard zone.

Tsunami

Using the New Tsunami Inundation Map data, only 1 nonresidential building is exposed to the tsunami hazard.

Wildland Fire

Using the California FRAP model, nearly the entire City of Sand City is located within a moderate wildland fire hazard area. Within this area are 261 people, 51 residential buildings (worth \$6.8 million), 154 nonresidential buildings (worth \$86.5 million), and 2 critical facilities (worth \$6.7 million). 1.9 miles of highway, 1.4 miles of railroad, and 5 bridges are located in this hazard area.

Table R-6
City of Sand City Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Plans and Ordinances	General Plan Safety Element	Establishes policies that will minimize the potential of human injury and property damage to the natural hazards.
	Hazard Mitigation Plan	Presently covered under the countywide multi-jurisdictional hazard mitigation plan. This plan is currently being updated and is anticipated to be completed and re-adopted in late 2014.
	Zoning Ordinance	Includes flood damage prevention ordinance and floodplain management plan.
	Coastal Management Plan	Sand City has a Local Coastal Plan certified by the California Coastal Commission.
	Emergency Operations Plan	This is a post-event document.
	Evacuation Plan	Current evacuation planning covers tsunami response only.
	Capital Improvements Plan	
	Floodplain Ordinance	
	Zoning Ordinance	
	Subdivision Ordinance	
	Site Plan Review Requirements	
	Building Code	Establishes structural requirements to mitigate potential damage.
Programs	Fire Prevention 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.
	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 R-6
City of Sand City Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Policies (Municipal Code)	Not Available	Not Available
Municipal Code Chapter 8.12	Hazardous Materials	Program to prevent potential contamination.

Table R-7
City of Sand 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	Community Development
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Community Development
Building inspector	Community Development
Emergency manager	Administration
Floodplain manager	Community Development
Public information officer(s)	Mayor/City Administrator
Maintenance programs to reduce risk	Public Works
Mutual Aid Agreements	Police Department/Administration

Table R-8
City of Sand City Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
General funds	If funding is available, can be used for hazard mitigation activity.
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity.
Incur debt through general obligation bonds	Revenue Bonds can be issued through the City without voter approval.
Incur debt through special tax and revenue bonds	Can be used for any hazard mitigation activity, but only with voter approval.
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.
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 Sand City.

- The city's existing drainage system is deemed inadequate for conveying stormwater during heavy rainfall events with several known problem areas. Of primary concern is the vicinity of Redwood Avenue at John Street, one of the lowest points in the city (approximately 4 feet below sea level) which has experienced past flood events that have inundated streets and nearby commercial properties. Other areas of concern include John Street at Ortiz Avenue and near the intersection of Ortiz Avenue at Contra Costa Street.
- The City of Seaside's 90" outfall at the end of Bay Avenue continues to get plugged by shifting sands, preventing drainage of stormwater runoff from Seaside and Sand City, and contributing regularly (multiple times per year) to stormwater flooding at John Street and Ortiz Avenue. Recent improvement projects have proven to be ineffective. The outfall is also considered as a potential source of seawater inflow to Sand City from major coastal flood or tsunami events. Removal and replacement/relocation of the outfall with backflow prevention device is deemed by the city to be the most appropriate long-term solution, coupled with diversion capabilities to a secondary outfall if needed.

- The city's new desalination plant and facilities are critical to be protected from future hazard events. Of primary concern is the pipeline under Highway 1/Sand Dunes Drive between Canyon Del Rey Boulevard and Tioga Avenue, which may be exposed to damages caused by future earthquake, tsunami or coastal erosion events. Along this same location is the Monterey Interceptor pipeline that carries raw sewage to the MRWPCA Regional Treatment Plant in Marina.
- Also of primary concern to the city are damages or disruptions to critical transportation facilities, including but not limited to the five bridges/overpasses that provide the only ingress and egress to the city, and the main arterial streets that provide for internal mobility.
- Several elevated storage tanks used for acid baths at Granite Rock (Dias Street) currently store an estimated 2,000+ gallons that may potentially be damaged or cause overflow/flood issues following an earthquake and local ground-shaking event.
- While the city's population is low, it becomes one of the most densely populated areas in Monterey County during the daytime due to its two regional commercial shopping centers (Sand Dollar and Edgewater), creating a major warning and evacuation concern for the City.
- Two proposed developments, Monterey Bay Shores Resort and The Collections Resort, will increase the city's population density in areas that may be at risk to future coastal hazard events.
- The Monterey Regional Water Pollution Control Agency (MRWPCA) operates a sewer pump station at West Bay Street in Sand City. This facility is located close to the shoreline, and is potentially susceptible to tsunami. Furthermore, there is a 36-inch force main that extends from this pump station north along the west side of Highway 1 to the treatment plant in the City of Marina. Both the pump station and this 36-inch force main are susceptible to earthquakes. Damage to one or both of these facilities would have far reaching impacts to the sewer service of the Monterey Peninsula community, in addition to potential spills and contamination. The pump station and pipelines are the property and jurisdiction of the MRWPCA, and thus maintenance and repair are that Agency's responsibility. However, during an emergency whereby the plant and/or infrastructure is damaged, the City of Sand City would be the immediate emergency responder for that infrastructure within Sand City's boundaries.

Table R-9
City of Sand 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	Building and Engineering	General Funds, 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.	Partially Completed / In Progress	Problem areas are identified; however, no solutions have yet been implemented. Lack of adequate staff and funding is a problem.
2	Develop a sustained public outreach program that encourages consistent hazard mitigation content.	Priority / High	Police, Fire, and Public Works	General Funds, HMGP, and PDM Grants	0-2 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	Insufficient staff and resources to implement at this time. This will be addressed whenever staff levels sufficiently increase.
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	Police, Fire, and Public Works	General Funds, HMGP, and PDM Grants	0-2 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	Insufficient staff and resources to implement at this time. This will be addressed whenever staff levels sufficiently increase.
4	Update hazard maps in a GIS mapping database to include all nine hazards and asset information identified in the MJHMP. Integrate information with existing City data.	Priority / High	Engineering	General Funds	Ongoing	This action will not need additional funding and will help ensure current hazard areas are identified and corresponding mitigation activities are carried out.	Deferred	The City currently does not have access to GIS or staff adequately trained to use GIS. Insufficient staff and financial resources to set up GIS and get appropriate training

Appendix R City Of Sand City

**Table R-9
City of Sand City Mitigation Action Plan Matrix**

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
5	Maintain records and data to accurately reflect existing utilities and critical facilities.	Priority / High	City Engineer	General Funds	0-2 Years	This action will not need additional funding and will help ensure that up-to-date critical assets are identified and corresponding mitigation activities are carried out.	Ongoing/continuous	Due to a lack of sufficient staff, some maps are not as updated as they should be regarding underground utilities. Insufficient funding in City budget available to outsource this task.
6	Explore opportunities to provide training to City personnel to use HAZUS and/or other applicable programs.	Priority / High	All	General Funds	0-2 Years	Training in HAZUS will help City staff better understand current and future risks due to hazards and therefore help City staff develop and implement appropriate mitigation measures.	Deferred	Assistance in this area is needed. City staff is currently looking into the FEMA website to learn more of available applications.
7	Continue to implement the most recent versions of the California State-adopted construction and building codes.	Priority / High	Building	General Funds	Ongoing	This action does not cost anything outside of current funding.	Completed	California Building Code 2013 edition was adopted and incorporated into municipal code in November of 2013.
8	Improve and expand the City's website to include the disbursement of hazard related information to the general	Priority / High	Administration	General Funds, HMGP, and PDM Grants	0-1 Year	A mitigation outreach program will help build and support local capacity to enable the public to prepare for,	Deferred	Insufficient staff and resources to implement at this time. This will be addressed

Table R-9
City of Sand City Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
	public, inclusive of mitigation measures.					respond to, and recover from disasters.		whenever staff levels sufficiently increase.
9	Promote information sharing among neighboring cities, utilities, Monterey County, and State and Federal agencies.	Priority / High	All	General Funds	Ongoing	Information-sharing will help build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	Ongoing/continuous	The City is a participating member of the Monterey County OES, and participates on regular meetings and tabletop exercises. Tabletop exercises include earthquake and tsunami drills. Police Department has also attended FEMA "sandbox" training courses.
10	Develop an unreinforced masonry grant program that helps correct earthquake-risk nonmasonry building problems, including chimney bracing and anchoring water heaters.	Priority / High	Building and Engineering	HMGP and PDM Grants	0-5 Years	The identification and mitigation of unreinforced nonmasonry buildings will reduce potential losses due to earthquakes.	Deferred	Sand City does not have sufficient funding to organize or promote any types of grant programs. Neither does the City involve itself in possible State CDBG programs.

Table R-9
City of Sand City Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
11	Explore mitigation opportunities for repetitively flooded properties and, if necessary, encourage property owners to carry-out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.	Priority / High	Building and Engineering	HMGP and PDM Grants	0-5 Years	The mitigation of repetitively flooded properties is a priority for FEMA grant programs.	Deferred	There has been discussion regarding some potential problem areas; however lack of funding and staff are a hindrance to promoting solutions.
12	Ensure that new developments are designed to reduce or eliminate flood by requiring properties and right-of-ways to be designed for the approved sewer and drainage facilities, providing onsite detention facilities whenever possible.	Priority / High	Planning, Building, and Engineering	General Funds	Ongoing	This effort will reduce the risk of future flooding to new development and existing development downstream.	Ongoing/continuous	New construction must comply with applicable codes. The City implements the 2013 edition of the California Building Code, which is incorporated into the City's Municipal Code.
13	Continue to conduct current fuel management programs (weed abatement programs) and investigate and apply new and emerging fuel management techniques.	Priority / High	Fire and Public Works	HMGP and PDM Grants	Ongoing	The probability of future damage from wildland fires could be high if this mitigation action is not implemented.	Ongoing/continuous	Property owners are first notified of violations, and if necessary, City Public Works rectifies situations.
14	Explore and implement programs that will provide low-interest loans for business and homeowners	Priority / High	Redevelopment Agency	Unknown	0-3 Years	The potential cost of this mitigation action seems reasonable for the size of the problem and its likely	Deferred	The City does not have adequate funding to implement such programs at this

Table R-9
City of Sand City Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
	to retrofit properties with fire resistant materials.					benefits.		time.
15	Replace above-ground utility lines with underground utility lines. Ensure that utility lines are installed underground for new construction.	Priority / High	Building and Engineering	General Funds	0-5 Years	This effort will reduce future losses due to windstorm events.	Ongoing/continuous	As new development projects come forth, they are required to install underground laterals from meters to street. Some projects have voluntarily undergrounded fronting overhead utility lines.
16	MRWPCA sewer pump station and force main are vulnerable to tsunami and earthquake damage. This infrastructure, though located within Sand City, is the jurisdiction of another government agency. The City can contact the MRWPCA to see if they have emergency plans in place for such disasters.	Moderate	Engineering/Planning Depts.	Neglegable	0-1 years	Costs are negligible to the City for discussion with MRWPCA. Costs to MRWPCA are unknown.	New Action	New Action
17	Heavy drought conditions increase salinity factor of water extracted from aquifer for the City's desalination plant; resulting in a shutdown of the desalination plant due	Moderate	Engineering/Planning Depts.	Outside grants or other funding unknown. City contracts	Anticipated completion within 2-5 years	Costs for drilling new extraction wells further inland where saline factors are less, will provide operational redundancy and mitigate drought imposed saline	New Action	New Action

Table R-9
City of Sand City Mitigation Action Plan Matrix

Action Number	Description	Ranking / Prioritization	Administering Department	Potential Funding	Timeframe	Benefit-Costs	Status	Narrative Update/ Explanation
	to the resulting higher salinity brine that cannot be put back into the aquifer. Drilling new wells further inland are anticipated to resolve this issue during times of severe drought.			operation of plant, and maintenance is cost expense of lessee.		intrusion of the aquifer.		
18	Determine the feasibility of a beach nourishment project as a means of widening the backshore and moving the high-water line offshore	Low	Engineering/Planning Depts.	Outside grants or other funding unknown.	5-10 years	Costs to implement beach replenishment may be returned through extended life of existing infrastructure and revenues from potential coastal recreation.	New Action	New Action