

1.1 City of Carlsbad

The City of Carlsbad (Carlsbad) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Carlsbad summarized in Table 5.3-1. See Section 4.0 for additional details.

**Table 5.3-1
Summary of Potential Hazard-Related Exposure/Loss in Carlsbad**

Hazard Type	Exposed Population	Residential		Commercial		Critical Facilities	
		Number of Residential Buildings	Potential Exposure/Loss for Residential Buildings (x\$1,000)	Number of Commercial Buildings	Potential Exposure/Loss for Commercial Buildings (x\$1,000)	Number of Critical Facilities	Potential Exposure for Critical Facilities (x\$1,000)
Coastal Storm / Erosion	25	0	0	0	0	1	964
Sea Level Rise	876	66	18,579	47	16,588	32	32,889
Dam Failure	4531	1,951	549,207	49	219,603	12	1,775
Earthquake (Annualized Loss - Includes shaking, liquefaction and landslide components)	10,495*	4,456*	1,254,364*	5,344*	1,870,237*	41*	61,257*
Flood (Loss)							
100 Year	2,346	650	182,975	101	35,416	43	33,960
500 Year	2407	650	182,975	101	35,416	44	36,311
Rain-Induced Landslide							
High Risk	464	24	6,756	4	1,231	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	520	106	29,839	10	3,584	29	26,531
Wildfire / Structure Fire							
Fire Regime II & IV	99,892	43,157	12,148,696	29,541	10,339,342	525	1,889,061

* Represents 500-year earthquake value under three earthquake scenarios (shake only, shake and liquefaction, and shake and landslide).

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Carlsbad LPG as their top five. A brief rationale for including each of these is included.

- **Structural Fire/Wildfire:** The potential of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities can be significant. The continuing drought and likely implications of climate change exacerbate the fire threat.
- **Earthquake:** The potential for loss of life, injuries, and damage to property, as well as disruption of services, is significant.
- **Hazardous Materials:** One major freeway and one major railway pass through the community. The community also hosts an airport and several fixed facilities that utilize hazardous materials.
- **Flooding:** There are several areas of the community, which are near natural creek crossings and channels, coastal areas as well as lagoons.
- **Severe Weather:** Heavy rains can cause erosion and trigger slope instability in habitat areas of Carlsbad damaged during the May 2014 Poinsettia wildfire. Erosion and slope instability can cause damage to infrastructure, systems and facilities. High winds can also cause damage to infrastructure, systems and facilities.

1.1.1 Capabilities Assessment

The City of Carlsbad local planning group (LPG) for emergency planning is the Carlsbad Emergency Management Administrative Team (CEMAT). The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Carlsbad's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

1.1.2 Existing Institutions, Plans, Policies and Ordinances

The following is a summary of existing departments in Carlsbad and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Carlsbad, as shown in Table 5.3-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

The 2010 Multi-Jurisdictional Hazard Mitigation Plan was incorporated into the General Plan (approved September 22, 2015).

**Table 5.3-2
City of Carlsbad: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Community and Economic Development, Public Works, Housing and Neighborhood Services, Parks and Recreation Department
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Public Works and Community and Economic Development
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Community and Economic Development, Public Works, Fire Prevention, Environmental Programs
D. Floodplain manager	Y	Public Works, Community and Economic Development
E. Surveyors	Y	Community and Economic Development
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	CEMAT, Fire Prevention, Community and Economic Development, Environmental Programs, Parks and Recreation Department
G. Personnel skilled in GIS and/or HAZUS	Y	GIS Staff in IT
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	City Manager, Public Safety Chiefs, Emergency Preparedness Manager
J. Grant writers	Y	Various Departments throughout City of Carlsbad

The legal and regulatory capabilities of Carlsbad are shown in Table 5.3-3, which presents the existing ordinances and codes that affect the physical or built environment of Carlsbad. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

**Table 5.3-3
City of Carlsbad: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit? (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	N	
M. Real estate disclosure requirements	Y	N
N. Habitat Management Plan	Y	N
O. Master Drainage, Sewer, Water, & Reclaimed Water	Y	N
P. Redevelopment Master Plan	Y	N

1.1.3 Fiscal Resources

Table 5.3-4 shows specific financial and budgetary tools available to Carlsbad such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.3-4
City of Carlsbad: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use Yes/No
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Authority to levy taxes for specific purposes	Limited (Voter Approval)
D. Fees for water, sewer, gas, or electric service	Yes
E. Impact fees for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Limited (Voter Approval)
G. Incur debt through special tax and revenue bonds	Limited (Voter Approval)
H. Incur debt through private activity bonds	Yes

I. Withhold spending in hazard-prone areas	Yes
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1.1.4 Goals, Objectives and Actions

Listed below are Carlsbad’s specific hazard mitigation goals, objectives and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works provided input to the Carlsbad LPG. The original Carlsbad LPG members were Carlsbad Emergency Management Administrative Team (CEMAT) members: Mike Davis, David Harrison, Neil Gallucci, Marc Reno, Joan Mabrouk, Maria Callander, Don Wasko, Joe Garuba, Val Brown, Lori Swenck, Glynn Birdwell, Michele Masterson and Kurt Musser. Once developed, City staff presented them to the City of Carlsbad City Council for their approval.

Public input was solicited through Carlsbad’s Community Emergency Response Team (CERT), National University Emergency Management and Homeland Security students at the Carlsbad campus, and through the City of Carlsbad’s web page.

The following sections present the hazard-related goals, objectives and actions as prepared by Carlsbad’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

1.1.4.1 Goals

The City of Carlsbad has developed the following 8 Goals for their Hazard Mitigation Plan (See Attachment A for Goal 8).

Goal 1. Increase public understanding and support for effective hazard mitigation.

Goal 2. Build and maintain local capacity and commitment to hazard mitigation goals.

Goal 3. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to flooding/dam failure.

Goal 4. Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to earthquakes.

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to structural fire/wildfire.

Goal 6. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to hazardous materials-related hazards

Goal 7. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to severe weather and/or climate change where appropriate.

Goal 8. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to information technology-related vulnerabilities and cyber insecurities.

1.1.4.2 Objectives and Actions

The City of Carlsbad developed the following broad list of objectives and actions to assist in the implementation of each of their eight identified goals. The City of Carlsbad developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.3.5

Goal 1: Increase public understanding and support for effective hazard mitigation.		Applies to New Existing or Both
<i>Objective 1.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.</i>		Both
Action 1.A.1	Carlsbad Emergency Management Administrative Team (CEMAT) develop hazard mitigation public awareness strategies.	Both
Action 1.A.2	Publicize and encourage the adoption of appropriate hazard mitigation actions.	
<i>Objective 1B: Promote partnerships between the state, counties, and local jurisdictions and agencies to identify, prioritize, and implement mitigation actions.</i>		Both
Action 1.B.1	Continue to participate in regional hazard mitigation activities as a member of the San Diego County Unified Disaster Council (UDC).	Both
Action 1.B.2	Support public sector symposiums and public education opportunities.	
<i>Objective 1C: Work with Chamber of Commerce, businesses and other local agencies to promote hazard mitigation in the local community.</i>		Both
Action 1.C.1	Increase awareness and knowledge of hazard mitigation principles and practices.	Both
Action 1.C.2	Encourage businesses to develop and implement hazard mitigation actions.	
Action 1.C.3	Support private sector symposiums and public education opportunities.	

Goal 2: Build and maintain local capacity and commitment to hazard mitigation goals.		Applies to New Existing or Both
<i>Objective 2.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials.</i>		Both
Action 2.A.1	CEMAT liaison with city departments to increase awareness and knowledge of hazard mitigation plan, principles and goals,	Both
<i>Objective 2.B: Implement actions associated with hazard mitigation plan.</i>		Both

Goal 2: Build and maintain local capacity and commitment to hazard mitigation goals.		Applies to New Existing or Both
Action 2.B.1	CEMAT coordinate and monitor action plan milestones.	Both
2.B.2	CEMAT seek training opportunities, through Regional Training Manager, https://sduasi.org , and other resources, to expand staff emergency management training	Both
2.B.3	CEMAT review and update EOC position staffing rosters and oversee staff member cross-training for multiple EOC positions.	Both
<i>Objective 2.C: Continue GIS mapping of potential hazard areas.</i>		Both
Action 2.C.1	Update GIS mapping as appropriate.	Both

Goal 3: Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to <u>flooding/dam failure</u>.		Applies to New Existing or Both
<i>Objective 3.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding/dam failure.</i>		Both
Action 3.A.1	Update inundation maps every 10 years.	Both
Action 3.A.2	Review and compare existing flood control standards, zoning and building requirements.	
Action 3.A.3	Review and update policies that discourage growth in flood-prone areas.	
Action 3.A.4	Review and update city-wide Evacuation Plan.	
Action 3.A.5	Periodically exercise flooding/dam failure response actions.	
<i>Objective 3.B: Protect existing assets with the highest relative vulnerability to the effects of a flooding (100 year floodplain)/dam failure.</i>		Both
Action 3.B.1	Identify hazard-prone structures and areas.	Both
Action 3.B.2	Maintain Storm Water System.	
Action 3.B.3	Maintain materials for building water barriers.	
<i>Objective 3.C: Coordinate with and support existing efforts to mitigate dam failure (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).</i>		Both
Action 3.C.1	Incorporate and maintain valuable wetlands in open space preservation programs.	Both
<i>Objective 3.D: Protect floodplains from inappropriate development.</i>		Both
Action 3.D.1	Plan and zone for open space, recreational, agricultural, or other low-intensity uses within floodway fringes.	Both

Goal 4: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to earthquakes.	Applies to New Existing or Both
<i>Objective 4.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to earthquakes.</i>	Both
Action 4.A.1 Update earthquake response actions in Emergency Operations Plan (EOP).	Both
Action 4.A.2 Continue periodic updates of local building codes, public works construction codes, zoning and grading ordinances to reflect legislative changes.	
Action 4.A.3 Review and update city-wide Evacuation Plan.	Both
Action 4.A.4 Periodically exercise earthquake response actions.	
<i>Objective 4.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes.</i>	Both
Action 4.B.1 CEMAT review local vulnerability to ground motion, landslides and liquefaction impacts on facilities and infrastructure.	Both
<i>Objective 4.C: Coordinate with and support existing efforts to mitigate earthquake hazard</i>	Both
Action 4.C.1 Identify projects for pre-disaster mitigation funding.	Both
<i>Objective 4.D: Community Outreach</i>	Both
Action 4.D.1 Encourage participation in state-wide earthquake preparedness exercises.	Both

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to structural fire/wildfire.	Applies to New, Existing or Both
<i>Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to structural fire/wildfire.</i>	Both
Action 5.A.1 Update structural fire/wildfire response actions in Emergency Operations Plan (EOP) and/or Wildland fire plans.	Both
Action 5.A.2 Review and update city-wide Evacuation Plan.	
Action 5.A.3 Periodically exercise structural fire/wildfire response actions.	
Action 5.A.4 Participate in amendments to Fire Protection programs, policies, and requirements; ref. Section IV.F. City Landscape Manual.	
Action 5.A.5 Continue with Hosp Grove trimming and replanting efforts.	
Action 5.A.6 Continue to provide for annual vegetation management/maintenance, as necessary, in Hosp Grove defensible space.	
<i>Objective 5.B: Coordinate with and support existing efforts to mitigate structural fire/wildfire.</i>	Both

Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>structural fire/wildfire</u>.	Applies to New, Existing or Both
Action 5.B.1 Continue to maintain the City's weed abatement ordinance to facilitate the removal of annual weeds/vegetation or habitat.	Both
Action 5.B.2 Provide increased vegetation management oversight to developments or HOA's bordering on open space or in Very High Fire Hazard Severity Zones.	
<i>Objective 5.C: Maintain GIS mapping to best reflect potential vulnerability of assets from structural fire/wildfire.</i>	Both
Action 5.C.1 GIS maintain mapped fire risk areas.	Both
<i>Objective 5.D: Maintain adequate emergency response capability.</i>	Both
Action 5.D.1 Continue to evaluate service level impacts and needs as part of City Council goals, Standards of Cover reviews, and Annual Operating Budget and Capital Improvement Program.	Both

Goal 6. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to <u>hazardous materials</u>-related hazards	Applies to New, Existing or Both
<i>Objective 6.A.1 Develop a comprehensive approach to reducing the possibility of damage and losses due to hazardous materials-related hazards</i>	Both
Action 6.A.1 GIS develop and maintain mapped hazardous materials facilities and risks for the City of Carlsbad.	Both
Action 6.A.2 Fire Prevention maintain library of hazardous materials plans for Carlsbad hazardous materials facilities.	
Action 6.A.3 Fire Prevention coordinate with GIS the development of mobile data computer based hazardous materials preplans associated with mapped facilities.	
<i>Objective 6.B.1 Increase awareness and knowledge of hazardous materials mitigation principles and practice among local officials.</i>	Both
Action 6.B.1 Periodically exercise coordinated hazardous materials response actions.	Both
Action 6.B.2 Support private sector symposiums and public education opportunities.	

Goal 7. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to severe weather and/or climate change where appropriate.	Applies to New, Existing or Both
<i>Objective 7.A.1 Develop a comprehensive approach to reducing the possibility of damage and losses due to severe weather and/or climate change.</i>	Both
Action 7.A.1 Update and adopt Local Coastal Program (LCP) to include assessment of impacts and vulnerabilities associated with sea level rise, such as inundation, flooding, wave impacts, erosion, and saltwater intrusion. LCP will identify strategies and adaptation measures to minimize risks.	Both
<i>Objective 7.B.1 Increase awareness and knowledge of severe weather and/or climate change among senior city leadership and/or local officials.</i>	Both

Goal 7. Reduce the possibility of damage and losses to existing assets, including people, facilities and infrastructure due to severe weather and/or climate change where appropriate.	Applies to New, Existing or Both
Action 7.B.1 Adopt a Climate Action Plan, which contains information about the impacts of climate change and a comprehensive strategy to reduce the community’s greenhouse gas emissions that are contributing to climate change.	Both
<i>Objective 7.C.1 Increase public awareness and knowledge of damages and losses due to severe weather and/or climate change through community awareness</i>	Both
Action 7.C.1 Increase public awareness and knowledge of damages and losses due to severe weather and/or climate change through public outreach and education, including social media.	Both

Goal 8. Reduce the possibility of damage and losses to existing assets, including services, funds, facilities, infrastructure and possibly people due to <u>information technology-related vulnerabilities and cyber insecurities.</u>	Applies to New, Existing or Both
<i>Objective 8.A Develop a comprehensive approach to reducing the possibility of damage and losses due to severe weather and/or climate change.</i>	Both
Action 8.A.1 Coordinate city information technology and cyber security planning with County Cyber Security Planning Group.	Both
Action 8.A.2 Attend regional cybersecurity planning meetings.	
<i>Objective 8.B Increase awareness and knowledge of information technology-related vulnerabilities and cyber insecurities among city staff, including senior city leadership and/or local officials.</i>	Both
Action 8.B.1 Participate in regional cyber security training and exercises.	Both
<i>Objective 8.C Prepare cyber security plans and policy</i>	Both
Action 8.C.1 Conduct security audit.	
Action 8.C.2 Using San Diego County Office of Emergency Services cyber security plan as a reference, develop Carlsbad cybersecurity plan.	Both

1.1.5 Prioritization and Implementation of Action Items

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

The prioritized actions below reflect progress in local mitigation efforts as well as changes in development.

The top 10 prioritized mitigation actions as well as an implementation strategy for each are:

Action Item #1: Carlsbad Emergency Management Administrative Team (CEMAT) develop hazard mitigation public awareness strategies.

Coordinating Individual/Organization: CEMAT

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #2: Continue with Hosp Grove trimming and replanting efforts.

Coordinating Individual/Organization: Parks and Recreation Planning

Potential Funding Source: Grant Funding and General Fund

Implementation Timeline: On-going

Action Item #3: Continue to maintain the City's weed abatement ordinance to facilitate the removal of annual weeds/vegetation or habitat.

Coordinating Individual/Organization: Fire Prevention

Potential Funding Source: General Fund

Implementation Timeline: On-going

Action Item #4: Investigate feasibility of maintaining hazardous materials business plans in Mobile Data Computer.

Coordinating Individual/Organization: Fire Department

Potential Funding Source: General Fund

Implementation Timeline: FY 2015-2020

Action Item #5: Continue periodic updates of local building codes, public works construction codes, zoning and grading ordinances to reflect legislative changes.

Coordinating Individual/Organization: Fire Department Community and Economic Development

Potential Funding Source: General Fund

Implementation Timeline: FY 2015-2020

Action Item #6: Update hazardous material business plan library.

Coordinating Individual/Organization: Fire Prevention

Potential Funding Source: General Fund

Implementation Timeline: FY 2015-2020

Action Item #7: Provide information to the public on the City website and through public education opportunities.

Coordinating Individual/Organization: CEMAT

Potential Funding Source: General Fund

Implementation Timeline: FY 2015-2020

Action Item #8: Update and adopt Local Coastal Program (LCP) to include assessment of impacts and vulnerabilities associated with sea level rise, such as inundation, flooding, wave impacts and erosion. LCP will identify strategies and adaptation measures to minimize risks.

Coordinating Individual/Organization: Community and Economic Development Department

Potential Funding Source: General Fund, state grants

Implementation Timeline: 2017

Action #9: Adopt Climate Action Plan, which contains information about the impacts of climate change and a comprehensive strategy to reduce the community's greenhouse gas emissions that are contributing to climate change.

Coordinating Individual/Organization: Community and Economic Development, Public Works

Potential Funding Source: General Fund, federal, state grants, private sources

Implementation Timeline: 2015

Action Item #10: Coordinate city information technology and cyber security planning with County Cyber Security Planning Group.

Coordinating Individual/Organization: Information Technology Department

Potential Funding Source: General Fund

Implementation Timeline: 2015

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